Draft Environmental Impact Report

Volume I

PacifiCenter @ Long Beach

Lead Agency: City of Long Beach

State Clearinghouse No. 2001051048

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I. Introduction

I. INTRODUCTION

Boeing Realty Corporation (Boeing), the project Applicant, proposes PacifiCenter @ Long Beach (hereafter referred to as the PacifiCenter project or proposed project), which will result in the development of approximately 261 acres of former and existing Boeing C-1 aircraft production facilities located within the Cities of Long Beach and Lakewood.[1] Project implementation will provide for the replacement of over five million square feet of research and development (R&D), office, warehousing, manufacturing, and other aviation-related floor area previously occupied on the project site with new R&D, light industrial, office, retail, hotel, residential, aviation-related, and ancillary uses. In addition, warehouse uses will be permitted as accessory uses to permitted uses within the commercial area site. The project will be designed as a master planned community integrating a variety of land uses. The project is anticipated to be fully developed by the year 2020.

As the majority of the site (approximately 238 acres) is located within the City of Long Beach, the City of Long Beach has the primary responsibility for carrying out or approving the project. The City of Long Beach is therefore the Lead Agency with principal responsibility for preparing environmental documentation for the project as required by the California Environmental Quality Act (CEQA). As 23 acres of the project site are located within the City of Lakewood, the City of Lakewood will serve as a Responsible Agency in accordance with CEQA.

To date, several steps of the public environmental review process have been completed. A Notice of Preparation (NOP) for a Draft Environmental Impact Report (EIR) regarding the PacifiCenter project was originally circulated by the City of Long Beach in May 2001, based on an Initial Study which determined that implementation of the project could result in potentially significant impacts to the environment. Since that time, the project has been revised to reflect input from agencies and the public and to respond to changing economic conditions. Some of the changes that have been incorporated into the project in response to agency and public comment serve to lessen and avoid significant environmental effects that would have occurred under the project identified in the May

[1] *The project site is owned by McDonnell Douglas Corporation. McDonnell Douglas Corporation and Boeing Realty Corporation are each wholly owned subsidiaries of The Boeing Company. Boeing Realty Corporation has the responsibility for the management (including development) of the real estate assets of The Boeing Company and all its affiliates and subsidiaries, including McDonnell Douglas Corporation.*

2001 NOP. When compared with the May 2001 NOP, the primary changes that have been made to the project as currently proposed include a reduction of approximately 5.1 million square feet of commercial uses and 200 hotel rooms. Other changes to the project identified in the May 2001 NOP that have occurred include changes to the proposed location of on-site uses, increased street setbacks, changes to the internal circulation pattern, and a reduction in maximum building heights, including building heights along Carson Street. The project as currently proposed also represents a reduction of 1,300 residential units, a reduction in residential density, and a reduction of 1.4 million square feet of commercial floor area when compared with a revised project that was proposed after distribution of the May 2001 NOP and presented to the City and community members, including individuals at community task force meetings.[2] Based on the changes that have been made to the project, an NOP for the current project was circulated in November 2002 to give the public and agencies an opportunity to provide comments regarding the revised project. Copies of the May 2001 NOP and November 2002 NOP and public comments received during the 30-day public comment period for both of these NOPs are provided in Appendix C. In addition, in accordance with Public Resources Code Section 21083.9, a public scoping meeting was held for the project on December 2, 2002, to obtain input as to the scope and content of the environmental information about the proposed project that should be explored in the EIR. The transcript of the scoping meeting is also provided in Appendix A of this EIR.

In accordance with Public Resource Code Section 21002.1, the intended use of this EIR is to identify the potentially significant environmental impacts resulting from implementation of the project, alternatives to the project, and mitigation measures which may reduce or avoid any significant effects. This EIR shall also be used as an informative document by other public agencies in connection with any approvals or permits necessary for the construction and operation of the PacifiCenter project. The contents of this EIR are consistent with those required by Public Resources Code Section 21100.

[2] *While this project was presented to City staff and various members of the community, it was not included within an NOP.*

II. Summary

II. SUMMARY

A. INTRODUCTION

In accordance with CEQA Guidelines § 15123, this Chapter of the EIR provides a brief description of the project; identification of significant effects associated with the project and proposed mitigation measures or alternatives that will reduce or avoid those effects; areas of controversy known to the lead agency; and issues to be resolved including the choice among alternatives and whether and how to mitigate the significant effects.

B. PROJECT LOCATION

The project site is located approximately 5 miles northeast of downtown Long Beach and immediately north of the Long Beach Municipal Airport (Airport). The majority of the site (approximately 238 acres) is located within the City of Long Beach, while the remaining portion of the site (approximately 23 acres) is located within the City of Lakewood. In general, the project site is bounded by Carson Street on the north, the Airport on the south and southwest, Lakewood Boulevard on the east, and the Lakewood Country Club and the Airport on the west.

C. PROPOSED PROJECT

Boeing Realty Corporation (Boeing), the project Applicant, proposes PacifiCenter @ Long Beach (hereafter referred to as the PacifiCenter project or proposed project), which will result in the development of approximately 261 acres of former and existing Boeing C-1 aircraft production facilities located within the Cities of Long Beach and Lakewood. Project implementation will provide for the replacement of over five million square feet of research and development (R&D), office, warehousing, manufacturing, and other aviation-related floor area previously occupied on the project site with new R&D, light industrial, office, retail, hotel, residential, aviation-related, and ancillary uses. In addition, warehouse uses may be developed as accessory uses to permitted uses within the commercial area of the site. The project will be designed as a master planned community integrating a variety of land uses. The project is anticipated to be fully developed by the year 2020.

Two primary land use categories have been proposed as part of the PacifiCenter project: Commercial (office, R&D, light industrial, retail, hotel, and aviation-related uses) and Housing (single-family and multi-family uses). Additionally, a retail overlay zone will be established along a portion of the interface between the Commercial and Housing areas within the eastern portion of the site.

The uses within the Commercial land use category will be developed within approximately 160 acres located within the southern portion of the project site. This area will include up to 3.3 million square feet of office, R&D, light industrial, retail, and aviation-related development. The average floor area ratio in this area will be approximately 0.47, which allows for the development of predominantly low-rise and mid-rise buildings. A maximum of 150,000 square feet of this floor area could consist of retail uses. The Commercial area could also include up to 400 hotel rooms within the portion of the project site within the City of Long Beach.[3] Specific aviation-related uses will be permitted within the more southerly portions of the commercial area adjacent to the Airport. These uses will primarily serve as an amenity to businesses at the project site and will include hanger space for corporate jets and line maintenance "A" checks.[4] In addition, warehouse uses will be permitted as accessory uses. While a maximum of 3.3 million square feet of Commercial floor area can be developed throughout the Commercial area of the site within the Cities of Long Beach and Lakewood, the analyses within this EIR assume that approximately 360,000 square feet may be located in the City of Lakewood in accordance with the M-2 zone.

Residential uses within the Housing land use category will be located on approximately 101 acres within the northern half of the site, including along segments of Carson Street and Lakewood Boulevard, as well as adjacent to the Lakewood Country Club Golf Course. The Housing land use category will provide up to 2,500 single-family and multi-family residential units. Low- to medium-density housing with an approximate average of 16 units per gross acre and a range of approximately 5 to 25 units per gross acre will be provided in the 62-acre western portion of the Housing area. Within this low- to medium-density Housing area of the site, single-family detached units, townhomes, condominiums and townhome/flat combinations may be developed. Medium- to high-density housing with an approximate average of 45 units per gross acre and up to approximately 70 units per gross acre will be provided in the 39-acre eastern portion of the

[3] *A total of 400 hotel rooms are proposed for the project site. Hotel rooms will be in addition to the maximum commercial floor area specified.*

[4] *Line Maintenance "A" checks are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts, servicing of fluids, inspection of components, hoses, electrical items and aircraft structure. Lighting and a ground power unit are used during these checks.*

Housing area, west of Lakewood Boulevard. Within the medium- to high-density Housing area of the site, condominiums, apartments, townhomes, and townhome/flat combinations may be developed.

As described in Section III, Project Description, of this EIR, since the project is not anticipated to be fully developed until the year 2020, the precise type and amount of development within the land use categories will remain flexible in order to respond to market demands over the course of the development period. Therefore, a development implementation program is proposed as part of the project that will be based on specific development standards set forth in the new Planned Development-32 (PD-32) District for the site. These development standards include such aspects as maximum heights and setbacks from property lines. The development program for the site also specifies a maximum floor area within the Commercial category of 3.3 million square feet, excluding hotel rooms, that can be developed within the project site. Of the commercial floor area, up to 150,000 square feet can be developed with retail uses. In addition, within the Commercial land use category, a maximum of 400 hotel rooms could be developed in the portion of the project site within the City of Long Beach. Up to 2,500 residential units can be developed under the development program for the site. These maximums will also be included in the new PD-32 District for the site.

In addition, a 66-kV substation with a maximum footprint of approximately 305 feet by 230 feet is proposed within either the Commercial or Housing areas of the site. The precise location of this substation, which is expected to be constructed in approximately 2009, will be determined based on further input from Southern California Edison. The substation will serve the project site as well as other off-site areas. If located in the residential portion of the project site or fronting A Street in the commercial area, the substation will be a low profile structure (equipment will be approximately 12 feet in height). If the substation is located in the commercial area not fronting on A Street, the equipment will be approximately 20 feet in height. In either scenario, the substation will have underground feed lines and will include an 8-foot masonry wall located at the building setback line with landscaping between the right-of-way and the wall. Such landscaping will include trees, shrubs, and ground cover.

The project will include recreational and open space amenities. Approximately 10.5 acres of park space are proposed as part of the PacifiCenter project, with 9 acres dedicated, zoned and improved for public park space. Park resources will range in size from less than one acre to approximately 4.5 acres and will include several neighborhood greens, a residential park referred to as The Commons, and a larger, centrally located Civic Green. Landscaping will also be provided throughout the site along the primary

pedestrian walkways, within certain roadway medians, within building setbacks, and at the entrances to the project site.

The PacifiCenter project will be developed in accordance with a Development Agreement with the City of Long Beach. In addition, Design Guidelines, which will address building and roof design, landscape amenities, streetscaping and pedestrian improvements (e.g., sidewalks and bike lanes), signage, exterior lighting, and other physical aspects of the site will guide development of the proposed project.

PacifiCenter will be developed in phased increments (sequenced according to geography and land use type) and is anticipated to be completed by or before the year 2020. Development of the PacifiCenter project will respond to market demands. However, the project will be developed in accordance with a commercial infrastructure phasing plan that will provide commercial infrastructure in advance of market demand. Such infrastructure will include wet utilities (water, sewer, storm drainage), dry utilities (telephone, electricity, gas, cable), streets, traffic signals and signage, street lighting, sidewalks, and parkway landscaping. The initial construction phases of PacifiCenter will focus on the development of housing, site infrastructure for the housing and commercial uses, and the development of commercial uses based on market demands. Later phases will involve further commercial development.

D. PROJECT BACKGROUND

The City of Long Beach has the primary responsibility for carrying out or approving the project and is therefore, the Lead Agency with principle responsibility for preparing documents required by the California Environmental Quality Act (CEQA). To date, several steps of the public environmental review process have been completed. A Notice of Preparation (NOP) for a Draft Environmental Impact Report (EIR) regarding the PacifiCenter project was originally circulated by the City of Long Beach in May 2001, based on an Initial Study which determined that implementation of the project could result in potentially significant impacts to the environment. Since that time, the project has been revised to reflect input from agencies and the public and to respond to changing economic conditions. Some of the changes that have been incorporated into the project in response to agency and public comment serve to lessen and avoid significant environmental effects that would have occurred under the project identified in the May 2001 NOP. When compared with the May 2001 NOP, the primary changes that have been made to the project as currently proposed include a reduction of approximately 5.1 million square feet of commercial uses and 200 hotel rooms. Other changes to the project identified in the May 2001 that have occurred include changes to the location of on-site uses, increased

street setbacks, changes to the internal circulation pattern, and a reduction in maximum building heights, including building heights along Carson Street. The project as currently proposed also represents a reduction of 1,300 residential units, a reduction in residential density, and a reduction of 1.4 million square feet of commercial floor area when compared with a revised project that was proposed after distribution of the May 2001 NOP and presented to the City and community members, including individuals at community task force meetings.[5] Based on the changes that have been made to the project, an NOP for the current project was circulated in November 2002 to give the public and agencies an opportunity to provide comments regarding the revised project. Copies of the May 2001 NOP and December 2002 NOP and public comments received during the 30-day public comment period for both of these NOPs are provided in Appendix C. In addition, in accordance with Public Resources Code Section 21083.9, a public scoping meeting was held for the project on December 2, 2002 to obtain input as to the scope and content of the environmental information about the proposed project that should be explored in the EIR. The transcript of the scoping meeting is also provided in Appendix C of this EIR.

E. SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

Unavoidable significant impacts can occur as a result of project impacts, cumulative impacts, and as a secondary effect from the implementation of a mitigation measure. Based on the analysis contained in Section V, Environmental Impact Analysis, the project will result in the following significant and unavoidable environmental impacts:

- Regional construction and operational air emissions;
- Off-site localized PM_{10} emissions during some phases of construction:
- Off-site noise associated with project traffic at Conant Street east of Lakewood Boulevard during operation. In addition, if A Street is reconfigured in the western portion of the project site to be adjacent to the Lakewood Country Golf Course, traffic noise on this segment will exceed the 5 dBA significance threshold. This noise increase is due to the fact that the current roadway does not support a large amount of traffic;
- Short-term and intermittent construction noise;

[5] *While this project was presented to City staff and various members of the community, it was not included within an NOP.*

- Short-term construction traffic;
- Traffic associated with project operation at the following three intersections:
  - Carson Street and Lakewood Boulevard during the P.M. peak hour;
  - Conant Street/B Street and Lakewood Boulevard during the A.M. peak hour; and
  - Spring Street and Lakewood Boulevard during the A.M. and P.M. peak hours
- While project impacts to residential street segments can be reduced through the implementation of a mitigation measure requiring the funding for the implementation of neighborhood traffic management measures, should the jurisdiction(s) with authority to implement these measures fail or be unable to implement acceptable and adequate measures, project impacts on possibly up to three significantly impacted residential street segments would be significant and unavoidable.
- Although the credit/debit analysis indicates that the project will result in an overall benefit to the regional transportation system, and the proposed mitigation measures will further improve conditions, since the future with project condition, including mitigation measures, will result in a D/C ratio increase of 0.020 or more with a final LOS of F on eight of the I-405 mainline segments analyzed, the project's impacts on these freeway segments are considered significant and unavoidable.
- In the event that project-generated General Fund revenue is allocated to municipal purposes other than the provision of police, fire and library services, potentially significant impacts associated with the provision of these services could also occur.

With regard to cumulative analyses contained in Section V, Environmental Impact Analysis, the project will contribute to significant cumulative impacts associated with regional air quality, historic resources, construction and operational traffic, construction noise, operational traffic noise, and solid waste. In addition, the project could potentially contribute to cumulative police, fire protection and library services in the event that General Fund revenue is not allocated to these municipal services.

Finally, as discussed in Section VII, Other Environmental Impacts, of this EIR, implementation of several of the proposed traffic mitigation measures will result in

significant and unavoidable impacts associated with the removal of parking spaces since sufficient parking may not remain to meet parking requirements.

F. AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

Potential areas of controversy and issues to be resolved by the decision-makers include those areas where an unavoidable significant impact has been projected as well as issue areas where concerns have been raised, primarily through the Notice of Preparation process, indicating a level of controversy. For the PacifiCenter project, the areas of unavoidable significant impact are presented above. Issues raised during the NOP comment periods included hazards and noise associated with the existing Airport and additional traffic. Further issue areas that have been identified as potentially controversial include the relationship of proposed residential uses to existing aviation-related uses, including aircraft overflights.

G. ALTERNATIVES

The CEQA Guidelines require an EIR to "describe the range of reasonable alternatives to the project, or to the location of the project, which will feasibly attain most of the basic objectives of the project but will avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." The CEQA Guidelines direct that selection of alternatives be guided by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.

As described in detail in Section VI, Alternatives, of this EIR, five alternatives to the project were identified, which include a No Project/No Build Alternative, a No Project/Development in Accordance with Existing Plans Alternative, a Reduced Intensity Alternative, and a Non-Residential Alternative. Based on an analysis of these alternatives, an environmentally superior alternative is identified. The five identified alternatives, as well as the identified environmentally superior alternative, are summarized below.

No Project/No Build Alternative: The No Project/No Build Alternative assumes that the PacifiCenter project will not be developed and development of the PacifiCenter site with new uses and structures will not otherwise occur. Implementation of the separately approved and permitted soil and groundwater remediation program currently in progress at the site together with permitted demolition activities necessary to implement the remediation program will continue in accordance with Cleanup and Abatement Order 95-048 issued by the Los Angeles Regional Water Quality Control Board. Use of the approximately 380,000 square feet of floor area that is currently occupied within the Boeing Enclave will continue under this Alternative.

Although many of the improvements and project elements proposed as part of the PacifiCenter project that will have beneficial effects will not occur under the No Project/No Build Alternative, this Alternative will not result in new environmental impacts, with the exception of aesthetics, water quality and land use and planning (which will be less than significant). In addition, although new employment and housing impacts will not occur under the No Project/No Build Alternative, such impacts will be greater than under the project as a result of inconsistency with relevant policies set forth in local and regional plans, though such impacts will be less than significant. Impacts to historic resources will be similar to those associated with the project and will also be less than significant. Further, similar to the proposed project, a significant hydrology impact may potentially be maintained due to an existing downstream storm drain deficiency. Nonetheless, the No Project/No Build Alternative will result in an overall reduced level of environmental impact as compared to the PacifiCenter project. With the exception of the existing hydrology impact, all of the potentially significant impacts associated with the project will be avoided under this Alternative. As this Alternative will not involve any new development, it will not meet any of the General, Design, Development Implementation, or Economic project Objectives established for the PacifiCenter project.

No Project/Development in Accordance with Existing Plans Alternative: Under the No Project/Development in Accordance with Existing Plans Alternative, the PacifiCenter project will not be developed, but other redevelopment activities will occur on-site on a building-by-building basis. Redevelopment within the portion of the project site within the City of Long Beach will be completed in accordance with PD-19 (the zoning for the site) and LUD Nos. 7 and 12 (the General Plan Land Use Designations for the site). Redevelopment of the portion of the site in the City of Lakewood will proceed in accordance with the regulations set forth for the M-2 zoning, the City of Lakewood General Plan, and the City's Redevelopment Plan for Redevelopment Plan Area III. The amount of floor area development under the No Project/Development in Accordance with Existing Plans Alternative will be consistent with the floor area permitted on-site by the PD-19 Ordinance. When accounting for the over five million square feet of floor area that recently

existed on-site, together with the new floor area allowed by the PD-19 Ordinance (based on the additional trips allowed under PD-19), this Alternative assumes that a total of approximately 6,231,000 square feet of floor area will be replaced and developed. Of this floor area, approximately 4,619,000 square feet of R&D uses, approximately 872,000 square feet of office uses will be developed within the City of Long Beach and use of approximately 380,000 square feet for aviation-related uses (in the Boeing Enclave) will continue. The floor area within the City of Lakewood will include approximately 360,000 square feet or more of industrial/manufacturing development.

The No Project/Development in Accordance with Existing Plans Alternative will result in less impacts to regional and local operational air emissions (although regional emissions will remain significant), traffic noise (although impacts will remain significant), population, housing (relative to projections), employment (relative to policies), police protection (potentially significant), fire protection (potentially significant), schools, recreation, libraries, traffic (all significant intersection impacts will be mitigated and some residential street segment impacts will remain significant), transit, solid waste, and energy as compared to the PacifiCenter project. Impacts to regional and local construction air emissions, historic resources, archaeological resources, grading and site design, seismicity, hazards and hazardous materials, land use and planning, parking, water, and sewer will be similar to those impacts associated with the proposed project. Impacts associated with aesthetics, hydrology, water quality, construction and operational noise, employment (relative to projections), housing (relative to policies), fire flows, and bicycle and pedestrian circulation will be greater under this Alternative than under the project. In addition, some of the improvements and many of the project elements proposed as part of the PacifiCenter project that will have beneficial effects will not occur under the No Project/Development in Accordance with Existing Plans Alternative.

Since the No Project/Development in Accordance with Existing Plans Alternative will likely result in the construction of a total of 5,871,000 square feet of floor area within the City of Long Beach and 360,000 square feet of industrial floor area within the City of Lakewood, implementation of the Alternative will support some of the General Objectives established for the PacifiCenter project. New development will enhance a major employment center in Long Beach by increasing jobs at the project site. In addition, this Alternative includes the development of underutilized land on approximately 23 acres of the site within Lakewood. However, development will occur on a piecemeal basis without the benefit of infrastructure provided in advance of market demand. Additionally, because the No Project/Development in Accordance with Existing Plans Alternative will not increase the housing stock within the City of Long Beach, other General Objectives will not be met with this Alternative, including those regarding the location of housing within close

proximity to growing employment centers to decrease commute time, thereby reducing energy consumption and improving air quality.

Implementation of the No Project/Development in Accordance with Existing Plans Alternative will preclude accomplishment of many of the proposed project's Design Objectives. While this Alternative will encourage industrial and commercial projects in underutilized areas, it will not provide as cohesive and orderly development of the project site as compared with the proposed project. In addition, it will not: provide a mix of land uses with a live, work, and play environment that includes new infrastructure and amenities to attract and support quality tenants; provide a variety of residential opportunities; or provide a mix of secondary land uses, including restaurants, retail space, and hotels, to support tenant needs and reduce employee, resident, and visitor trips and trip distances. Furthermore, as development will occur on a periodic basis, elements proposed as part of the PacifiCenter project, such as extensive open spaces and landscaping will not occur under this Alternative to the degree that they will under the project.

The No Project/Development in Accordance with Existing Plans Alternative will not support the project's Development Implementation Objectives to respond to market conditions, as this Alternative will not facilitate a rapid delivery of various types of space. This Alternative also will not support the basic Economic Objective established for the project, which is to balance reuse opportunities with community needs and environmental constraints in such a manner as to optimize the value of its investment while creating significant employment and housing. Therefore, the majority of the basic objectives of the project will not be attained with implementation of this Alternative.

Reduced Intensity Alternative: Similar to the project, he Reduced Intensity Alternative will include approximately 3.3 million square feet of office, R&D, light industrial, retail, aviation-related development, and 400 hotel rooms. Up to 1,400 single- and multi-family residential units will be developed representing a decrease of 1,100 residential units when compared with the project. Eleven acres of park space will be developed, representing an increase of 0.5 acres of parks and open space when compared with the project. Commercial uses will be developed on approximately 160 acres located within the southern portion of the site at an average FAR of 0.47. Four zoning areas will generally guide these commercial uses (three in Long Beach and one in Lakewood). Residential development will be located on approximately 101 acres in the northern portion of the site and will occur at an average intensity of approximately 16 dwelling units per gross acre, net of park space.

This Alternative will result in a reduced level of environmental impact as compared to the PacifiCenter project and no impacts under this Alternative will be greater than the

impacts generated by the project. This Alternative will avoid one of the three significant traffic intersection impacts associated with the project. Furthermore, most of the improvements and project elements proposed as part of the PacifiCenter project that will have beneficial effects will also occur under the Reduced Intensity Alternative.

The Reduced Intensity Alternative will accomplish the General, Design, Development Implementation, and Economic project Objectives established for the PacifiCenter project, although to a lesser degree in certain instances than the proposed project. The Reduced Intensity Alternative will involve new commercial and industrial development that is equivalent to the project and will thereby create an employment/activity center and increasing job opportunities. In addition, the Reduced Intensity Alternative will maximize development potential in the area and will generate revenue for the Cities. However, as this Alternative will not include as many residential units as the proposed project, the general objectives pertaining to the provision of housing will not be met to the same degree as the project. Similar to the proposed project, the Reduced Intensity Alternative will create a mixed-use community and will increase the housing stock within the City of Long Beach. Therefore, the project's General objectives to provide housing along major arterial corridors by recycling old commercial and industrial properties and developing carefully designed, quality residential uses that promote better living conditions and access to employment centers will be attained with this Alternative. In addition, the Reduced Intensity Alternative will support the Development Implementation Objective as it will include a development program that will allow the Alternative to respond to market conditions through the exchange of land uses without exceeding identified environmental impacts.

Non-Residential Alternative: The Non-Residential Alternative assumes that the site will be redeveloped with retail and warehouse/distribution uses. Under this Alternative approximately 1.1 million square feet of retail uses will be developed in the northern portion of the project site and approximately 4.0 million square feet of warehouse/ distribution uses will be developed toward the more southern portions of the project site. The retail floor area will provide for a new major regional shopping area in the City of Long Beach and the warehouse/distribution floor area will provide for uses that respond to markets associated with the Port of Long Beach, the surrounding freeway system, and the adjacent Long Beach Airport. Similar to the project, operations within the Boeing Enclave may be replaced by new uses if operations in the Boeing Enclave cease.

The Non-Residential Alternative will result in less impacts associated with regional and local operation air emissions (although regional operation air quality impacts will remain significant), population, housing projections, schools, recreation, libraries, traffic (although significant impacts will remain), transit, water, sewer, and natural gas as

compared to the PacifiCenter project. Impacts associated with regional and construction air quality (impacts will remain significant), historic resources, archaeological resources, geology and soils, hazards and hazardous materials, traffic noise (although impacts will remain significant), land use consistency, construction and operation noise from on-site sources, employment, police, fire, and parking will be similar to those impacts associated with the proposed project. Impacts associated with aesthetics, hydrology, water quality, land use compatibility, housing policies, bicycle and pedestrian circulation, solid waste, and electricity will be greater under this Alternative. Furthermore, some of the improvements and many of the project elements proposed as part of the PacifiCenter project which will have beneficial effects will not occur under the Non-Residential Alternative.

Implementation of the Non-Residential Alternative will support some of the General Objectives established for the PacifiCenter project. The new development will maintain and enhance a major employment/activity center. In addition, this Alternative will provide the opportunity to capitalize on the development and economic potential of underutilized properties zoned for commercial and manufacturing uses and will encourage industrial and commercial projects in underutilized areas, thereby making a positive contribution toward the jobs-housing balance and creating job opportunities for the local labor force. This Alternative will also help to reverse the trend of local and regional job losses. As compared with the proposed project, the Non-Residential Alternative will meet these General Objectives regarding economic development, though to a much lesser extent. Furthermore, because the Non-Residential Alternative will not increase the housing stock within the City of Long Beach, the objectives regarding the provision of housing will not be met.

This Alternative will not attain the majority of the General Objectives associated with the Long Beach 2010 Strategic Plan, as the Non-Residential Alternative will not assist in improving the quality and availability of neighborhood housing and will not provide housing along major arterial corridors. However, this Alternative will meet the Strategic Plan objective to retain, expand, and attract new business, although to a lesser extent than achieved by the project since commercial infrastructure will not be provided in advance of market demand. Implementation of the Non-Residential Alternative will preclude accommodation of many of the proposed project's Design Objectives, as the Non-Residential Alternative will not create a master-planned community that blends mutually supportive uses such as employment, housing, and life style amenities. Furthermore, the Non-Residential Alternative will not provide a live, work, and play environment that includes substantial new infrastructure and amenities to attract and support quality tenants, nor will it create a stable residential area, since this Alternative does not include a housing component. Therefore, this Alternative will not provide a variety of residential

opportunities or provide a mix of secondary land uses to support tenant needs and to reduce employee, resident, and visitor trips and trip distances. Finally, as this Alternative will not require that every development within the site comply with design standards, the design objective pertaining to the adherence of such standards will not be met. The Non-Residential Alternative will not support the Development Implementation Objective to develop the project in response to market conditions. This Alternative also will not support the basic Economic Objective established for the project, which is to balance reuse opportunities for the project site with community needs and environmental constraints in such a manner as to optimize the value of the property while creating significant employment and housing. Overall, while some of the basic objectives of the project will be attained with implementation of this Alternative, a majority of them will not be met, largely due to the absence of housing under this Alternative.

Environmentally Superior Alternative:

Of the Alternatives analyzed in the EIR, the No Project/No Build Alternative is considered the overall environmentally superior alternative, as it will reduce nearly all of the significant impacts occurring under the PacifiCenter project to less than significant levels. However, this Alternative will not meet any of the General, Design, Development Implementation, or Economic project Objectives established for the PacifiCenter project. In accordance with the CEQA Guidelines requirement to identify an environmentally superior alternative other than the No Project Alternative, a comparative evaluation of the remaining alternatives indicates that the Reduced Intensity Alternative will be environmentally superior. Relative to the project, the Reduced Intensity Alternative will avoid one of the significant traffic intersection impacts. While it will not avoid any of the remaining significant impacts, it will reduce a number of the impacts that will occur with the project and none of the impacts that will occur under the Reduced Intensity Alternative will be greater than project impacts. In addition, the Reduced Intensity Alternative will generally meet all of the project objectives.

H. SUMMARY OF PROJECT FEATURES

Project Features, which lessen environmental impacts that might otherwise be expected of the proposed project, have been incorporated into the proposed project. These Project Features are specified in the impact analysis for each environmental issue area discussed within Section V of this Draft EIR as well as within Appendix B to this EIR. All of the Project Features are intended to be incorporated as conditions of approval or zoning regulations (development standards) for the proposed project. In addition, several of these project features have also been included as mitigation measures.

I. SUMMARY OF ENVIRONMENTAL IMPACTS

This section provides a summary of impacts, mitigation measures, and impacts after implementation of the mitigation measures associated with development of the PacifiCenter project. The summary is provided by environmental issue area.

A. AESTHETICS

Impacts: Aesthetics – The project vicinity is an urbanized area that includes a variety of land uses, including industrial, aviation related, residential and commercial uses. The project site has an overall industrial appearance. Implementation of the proposed project will transform the project site into a mixed-use, master-planned community. As part of the project, maximum building height zones that conform to FAA height regulations, minimum setbacks, 10.5 acres of park space and other features are proposed. Although the height and bulk of the PacifiCenter project may present a contrast relative to recent and existing development on the site and in the surrounding vicinity, implementation of the project will result in overall aesthetic benefits. While the maximum building heights in some areas will increase with implementation of the proposed project pursuant to the proposed rezoning of the site, reduced heights will be established in proximity to surrounding sensitive uses, particularly residences to the north. The site-wide variation in building heights will introduce new architectural and design elements, thereby providing visual interest. The project will incorporate landscaping within the public rights-of-way and on private property in accordance with ordinance requirements. In addition, the landscaped setbacks will create visual buffers between the project and the adjacent uses on all peripheral edges of the site. The project will not introduce elements that substantially degrade the existing visual character or qualities of the site and its surroundings, nor will the project remove or demolish features or elements that contribute positively to the visual character of the vicinity. Project development will also represent a substantial aesthetic improvement relative to the appearance of the site as it undergoes building removal as part of the mandated remediation program. Furthermore, the project will be consistent with the goals of the City of Long Beach General Plan through implementation of design guidelines that will allow a variety of building types incorporating quality design and landscaping. The City of Lakewood General Plan goals will also be met, as the project will maintain a human scale and create organization and functional cohesiveness. The project will also comply with the zoning ordinances of each of these Cities and the applicable FAA regulations. Accordingly, project impacts associated with aesthetics will be less than significant.

Views – Due to the relatively flat topography in the project vicinity, there are currently only limited views within and of the project site from surrounding areas. While

development of the project site may alter such views, the project will not substantially obstruct or eliminate existing views of valued on- or off-site aesthetic features. In addition, implementation of the project will not conflict with applicable regulations relating to view resources, since, pursuant to such regulations, the project will enhance the overall aesthetic environment while shielding the less aesthetically pleasing elements of development, thereby improving views in the vicinity. As such, impacts associated with views will be less than significant.

Light – Night lighting in the vicinity generally consists of streetlights, aviation-related lighting associated with the Airport, business façade lighting, and illumination from vehicle headlights. Implementation of the proposed project will increase ambient light levels on the project site and in the immediate vicinity. However, nighttime exterior light sources will be focused onto the surfaces to be lit (e.g., building details, landscape elements, signs, and pedestrian areas) and shielded as appropriate. Lighting for parking facilities will be directed onto the site and shielded so as to prevent light spillover effects. Aircraft warning lighting will comply with ALUP Safety Policies, as described in Section V.E, Hazards and Hazardous Materials. In addition to the specific design considerations that address exterior lighting, the landscaped setback zones will act as further buffer with regard to light spillover. As such, the project will not result in substantial illumination of any light-sensitive uses in the surrounding vicinity, nor will the project conflict with applicable light regulations. In addition, potent impacts to on-site residences from the flight ramp lighting (within the Enclave) will be shielded by remaining buildings within the Enclave (e.g., Buildings 41A and 15) and to some extent by the proposed screen fencing. Furthermore, as discussed in Section V.I., Noise, a mitigation measure is proposed that prohibits development of residential uses in close proximity to the Boeing Enclave until such time that run-up activities permanently cease, which further reduces the potential for new residential units to be affected by lighting from the Enclave. Thus, overall impacts associated with lighting will be less than significant.

Glare – There are no buildings, structures, or facilities that currently generate substantial levels of glare. The intensity of glare associated with the project will depend on the building materials used and the ultimate design of the new development. Highly reflective glass materials or glazing will not be permitted. Furthermore, landscaping will help screen any potential glare from impacting glare-sensitive uses. As such, the project will not conflict with applicable glare regulations set forth by the Cities of Long Beach and Lakewood and by the FAA. Accordingly, glare impacts will be less than significant.

Mitigation

The following mitigation measures are provided to ensure that potential impacts associated with aesthetics, views, and light and glare will be less than significant.

V.A-1 Minimum setbacks measured from the property line to the building face shall be provided in accordance with the requirements of PD-32 (refer to Figure 19 of Section III Project Description, of this EIR for an illustration of these setbacks). The setbacks along the periphery include:

- A 28-foot setback from the property line along Carson Street (excluding the 12-foot right-of-way).
- A 26-foot setback from the property line along Lakewood Boulevard (excluding the 14-foot right-of-way).
- A 20-foot setback from the property line adjacent to the Lakewood Country Club.[6]
- A minimum 20-foot setback along the limited portions of the Airport edge on the southern and southwestern boundaries of the project site that are not part of the Long Beach Airport Layout Plan Building Restriction Zone. The no-build zone, which is greater than 20 feet in width, extends along most of the southern portion of the project site.

Setbacks for several of the internal streets are as follows:

- A 2-foot setback from the property line (excluding the 10-foot right-of-way) along A Street between Lakewood Boulevard and 1st Street for street-oriented retail uses.
- A 10-foot setback from the property line (excluding the 11-foot right-of-way) along 1st Street.

[6] *If A Street in the western portion of the site is located adjacent to the Golf Course, the minimum building setback will be 5 feet from the property line (excluding the 11 foot right of way).*

- An 18-foot setback from the property line (excluding the 11-foot right-of-way) along other internal collector roadways, including 2nd and 3rd Streets, except for those street segments that abut Building Restriction Zones, where adjacent development is not permitted.[7]

V.A-2 Maximum building heights shall be defined in the PD-32 ordinance in conformance with Figure 14 in Section III, Project Description, of this EIR. The proposed maximum building heights shall be measured from curb elevation to the top of a parapet or midpoint of a pitched roof within the City of Long Beach. Project buildings located within the City of Lakewood shall be limited to four stories and 55 feet, measured from finished grade to the ceiling of the uppermost story.

V.A-3 Design Guidelines shall be developed for the PacifiCenter project and shall establish standards regarding building and roof design, landscape amenities, streetscaping and pedestrian improvements, including sidewalks and bike lanes, and signage and exterior lighting.

V.A-4 New utility lines for water, gas, sewer, electricity, and communications associated with the project shall be installed underground, to the extent feasible. Underground utility installation shall not interfere with the ongoing remediation program and shall comply with the Risk Management Plan (RMP) designed to assure the long-term protection of health and safety of future residents and employees at the project site. Service areas, including loading docks, refuse collection areas and storage areas shall be visually screened from the street and adjacent parcels to the extent feasible.

V.A-5 All night lighting installed on private property within the project site shall be shielded, directed away from residential uses, and confined to the project site. Rooftop lighting shall be limited to security lighting or aviation warning lights in accordance with Airport/FAA requirements.

V.A-6 All lighting shall comply with all applicable ALUP Safety Policies and FAA regulations.

[7] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than 30 feet, in accordance with the Design Guidelines to be implemented as part of the project.*

V.A-7 The use of glass with over 25 percent reflectivity shall be prohibited in the exterior of all buildings on the project site.

V.A-8 If located in the residential portion of the project site or fronting A Street in the commercial area, the electrical substation shall be a low profile structure (equipment will be approximately 12 feet in height) whereas if the substation is located in the commercial area not fronting on A Street the equipment may be approximately 20 feet in height.

V.A-9 The electrical substation to be constructed on-site shall include an 8-foot masonry wall located at the building setback line. The area between the right-of-way and the setback shall be landscaped with groundcover, shrubs and trees.

V.A-10 Landscaping shall be installed on the eastern side of the Enclave fence from the north end of Building 15 to the southern property line upon installation of Phase I commercial infrastructure. Landscaping shall be installed on the northern side of the fence surrounding the Enclave or along the proposed street to the north of the Enclave upon development of the residential units in the northwestern portion of the site as shown in Figure 25 of this EIR.

V.A-11 All parking structure lighting shall be shielded and directed away from residential uses. Such lighting shall be primarily located and directed so as to provide adequate security. Rooftop lighting shall be limited to security lighting and aircraft warning lights as may be required by FAA.

V.A-12 The south side of existing Building 1C shall be screened from views along A Street by an architectural facade. The remaining east, west and north sides of 1C shall also be screened to minimize views of the structure. This shall be accomplished with either an architectural facade similar to the south side of the building, with landscape screening using evergreen trees and shrubs in front of a masonry wall or with landscape screening using evergreen trees and shrubs. Should the north, east or west side of 1C be located fronting A street, then the street shall be located so that the building is set back from the right-of-way in a similar manner as if it were a new building in this area.

Level of Significance After Mitigation: Incorporation of Project Features and mitigation measures will ensure that the project will not result in significant and unavoidable impacts relative to aesthetics, views, or light and glare.

Cumulative Impacts: Several projects are proposed in the general vicinity of the project site, including the ongoing on-site soil and groundwater remediation activities associated with Cleanup and Abatement Order 95-048 (Related Project No. 44). Due to the relatively flat topography and the urbanized nature of the area, the related projects will not be prominent in views from the site or the immediately surrounding area. None of the related projects is expected to appreciably alter the urban character of the area. Furthermore, each of the cumulative projects will be subject to the project and permit approval process. As such, no significant cumulative impact to aesthetics, views, and light and glare will occur.

B. AIR QUALITY

The project site is located in the South Coast Air Basin (Basin). The Basin is an area of high air pollution potential, particularly from June through September. The Basin is in attainment for NO_2, lead, SO_2, and CO. PM_{10} and ozone levels, while reduced substantially from their peak levels, are still far from attainment.

Construction

Construction of the proposed PacifiCenter project will generate emissions from activities such as site preparation operations (grading/excavation) and delivery and hauling of construction materials and supplies to and from the project site. Regional construction emissions calculated for this project will exceed South Coast Air Quality Management District (SCAQMD) daily thresholds established for CO, PM_{10}, ROC and NO_X. Thus, construction emissions will result in significant short-term regional air quality impacts for these pollutants. Daily emissions of SOx will be considered adverse, but less than significant, since the levels of these emissions will fall below the SCAQMD significance thresholds.

Fugitive dust is also produced from soil disturbance during the grading/site preparation phase of construction. Dispersion modeling was performed to determine the extent of fugitive dust concentrations at nearby sensitive receptors. Results of the PM_{10} dispersion modeling indicate that development of the proposed project could cause an exceedance of the 10.4 $\mu g/m^3$ (micrograms per cubic meter) PM_{10} measurable increase significance threshold. Therefore, construction-related fugitive dust concentrations could

result in a significant impact to local air quality. No significant impacts related to local air toxics, CO, and NO_2 concentrations from construction are forecast to occur as a result of the project.

Operation

Air pollutant emissions associated with project occupancy and operation will be generated by both the consumption of energy and by miscellaneous sources (e.g., landscape equipment, emergency generators, etc.). Project-related operational emissions for on-road mobile sources and stationary sources will exceed all SCAQMD thresholds for operational emissions, with the exception of SO_x, and will represent a significant impact to regional air quality.

During the operational phase of the project, project traffic will have the potential to generate local area CO impacts. An analysis at ten selected intersections was performed to determine the potential for the creation of CO hotspots attributable to the proposed project. This analysis of ten intersections indicated that project-related traffic will not result in any exceedances of the State one-hour CO standards at any of the study intersections. Similarly, eight-hour concentrations at the analyzed intersections will remain below the State standards.

The air quality analysis examined the consistency of the proposed project with AQMD's Air Quality Management Plan (AQMP). No significant impacts will occur as a result of the project with respect to consistency with applicable air quality management policies.

Health Risk

Using data provided by the AQMD and the Airport, an assessment of the potential for nearby uses to generate hazardous and acutely hazardous air emissions to impact proposed on-site residential uses was performed. For carcinogenic exposures, the summation of risk totaled 8.3×10^{-6} (8.3 in a million) for the maximum exposed individual (MEI) within the proposed residential land use. In comparison to the established threshold of ten in one million (1.0×10^{-5}), carcinogenic risks fall within acceptable limits. For noncarcinogenic chronic exposures, the maximum summation of risks was 0.02 for the MEI within the proposed residential land use. In comparison to the established threshold of 1.0, chronic risks are below the threshold. For noncarcinogenic acute exposures, the maximum summation of risks was 0.03 for the MEI within the proposed residential land

use. In comparison to the established threshold of 1.0, acute risks are below the threshold.

Mitigation

The following air quality mitigation measures set forth a program of air pollution control strategies designed to reduce the project's air quality impacts. In addition, Section V.L, Transportation/Circulation and Parking, of this Draft EIR, includes traffic mitigation measures, such as the Adaptive Traffic Control System (ATCS) that will serve to synchronize traffic signals and a Transportation Demand Management (TDM) program that will include preferred carpool/vanpool parking and matching, thereby reducing mobile source air emissions. In addition to the mitigation measures, the project features specified in Section V.B, Air Quality, and in Appendix B will further reduce the project's air quality impacts.

Construction

Mitigation Measures provided below implement recommended mitigation measures provided in SCAQMD's *CEQA Air Quality Handbook*, Chapter 11, and are in addition to the requirements of SCAQMD Rule 403 (Fugitive Dust).

V.B-1 All land clearing/earth-moving activity areas shall be watered to control dust as necessary to remain visibly moist during active operations.

V.B-2 All construction roads internal to the construction site that have a traffic volume of more than 50 daily trips by construction equipment, or 150 total daily trips for all vehicles, shall be surfaced with base material or decomposed granite.

V.B-3 Streets shall be swept as needed during construction, but not more frequently than hourly, if visible soil material has been carried onto adjacent public paved roads.

V.B-4 Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.

V.B-5 Water three times daily or non-toxic soil stabilizers shall be applied, according to manufacturers' specifications, as needed to reduce off-

site transport of fugitive dust from all unpaved staging areas and unpaved road surfaces.

V.B-6 Traffic speeds on all unpaved roads shall not exceed 15 mph.

V.B-7 All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

V.B-8 General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues will have their engines turned off when not in use, to reduce vehicle emissions. Construction activities should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

V.B-9 On-site construction equipment staging areas and construction worker parking lots shall be located on either paved surfaces or unpaved surfaces subject to soil stabilization.

V.B-10 To the extent possible, petroleum powered construction activity shall utilize electricity from power poles rather than temporary diesel power generators and/or gasoline power generators.

V.B-11 On-site mobile equipment shall be powered by alternative fuel sources (i.e., methanol, natural gas, propane or butane) as feasible.

V.B-12 All construction equipment used in the project construction shall be stored within the project site (away from adjacent residential areas) to reduce the impact on the street system.

V.B-13 Deliveries related to construction activities that affect traffic flow shall be scheduled during off-peak hours (e.g., 10:00 A.M. and 3:00 P.M.) and coordinated to achieve consolidated truck trips. When traffic flow is impacted by the movement of construction materials and/or equipment, temporary traffic controls shall be provided to improve traffic flow (e.g., flag person).

V.B-14 All on-site heavy-duty construction equipment shall be equipped with diesel particulate traps as feasible.

V.B-15 In compliance with Long Beach Municipal Code and Lakewood Municipal Code requirements, construction activities shall be limited to the following operation schedule: weekdays and federal holidays, 7 A.M. to 7 P.M.; Saturday, 9 A.M. to 6 P.M.; no activities on Sundays within the City of Long Beach; and Sunday, 9 A.M. to 7 P.M. within the City of Lakewood.

Operation

Emission control measures are specified for three sources of operational emissions: (1) service and support facilities; (2) natural gas consumption and electricity production; (3) building materials, architectural coatings, and cleaning solvents; and (4) warehouse/distribution centers.

(a) Service and Support Facilities (point sources)

MM-V.B-16 All point source facilities shall obtain all required permits from the SCAQMD. The issuance of these permits by the SCAQMD will require the operators of these facilities to implement Best Available Control Technology and other required measures that reduce emissions of criteria air pollutants.

MM-V.B-17 Land uses on the project site shall be limited to those that do not emit high levels of potentially toxic contaminants or odors.

(b) Natural Gas Consumption and Electricity Production

MM-V.B-18 All residential and non-residential buildings shall meet the California Title 24 Energy Efficiency standards for water heating, space heating and cooling, to the extent feasible.

MM-V.B-19 All fixtures used for lighting of exterior common areas shall be regulated by automatic devices to turn off lights when they are not needed.

(c) Building Materials and Architectural Coatings

MM-V.B-20 Building materials, architectural coatings and cleaning solvents shall comply with all applicable SCAQMD rules and regulations.

(d) Warehouse Uses

The following mitigation measures shall be considered during operation of any accessory warehouse/distribution uses at the project site to ensure that health risk impacts are less than significant.

MM-V.B-21 Re-route truck traffic by restricting truck traffic on certain sensitive routes;

MM-V.B-22 Enforce truck parking restrictions;

MM-V.B-23 Restrict truck idling;

MM-V.B-24 Electrify service equipment at the warehouse;

MM-V.B-25 Provide electrical hook-ups for trucks that need to cool their load;

MM-V.B-26 Electrify auxiliary power units; and

MM-V.B-27 Use low-sulfur diesel fuel with particulate traps, where feasible.

Level of Significance After Mitigation

Construction

Activities related to construction of the project will still exceed the SCAQMD daily emission thresholds for regional NO_X, CO, PM_{10}, and ROC after implementation of all feasible mitigation measures and incorporation of project features as described above. Therefore, construction of the project will have a significant and unavoidable impact on regional air quality. Construction emissions will not exceed the SCAQMD significance threshold for SO_x, and, thus, impacts are concluded to be less than significant for SO_x.

No significant impacts related to local air toxics, CO, and NO_2 concentrations from construction are forecast to occur for the project. However, based on conservative assumptions, with mitigation, local PM_{10} construction concentrations will result in a significant net increase in emissions to areas north of the project site. These offsite impacts will decrease as site preparation activities move from the northern portion of the project site towards the more central and southern portions of the project site.

Operation

During the operational phase, the project will result in a significant net increase in regional emissions of CO, ROC, NO_X, and PM_{10} from the operation of both stationary and mobile sources. Mitigation measures and project features will reduce the potential air quality impacts of the project to the degree technically feasible, but emissions will remain above SCAQMD significance thresholds. Therefore, operation of the proposed project will have a significant and unavoidable impact on regional air quality. Operational emissions will not exceed the SCAQMD significance threshold for SO_2, and, thus, impacts are concluded to be less than significant for SO_2.

Local CO concentrations as a result of project-related traffic and emissions of air toxics are not forecast to be significant for the project.

Cumulative Impacts

Based on the SCAQMD's significance threshold, a project will have a significant cumulative air quality impact if the daily project vehicle miles traveled to daily countywide vehicle miles traveled ratio exceeds the ratio of daily project vehicles to daily countywide employees. The daily project to countywide vehicle miles traveled ratio is less than the daily project to countywide employee ratio. Therefore, based on this analysis the project will have a less than significant cumulative impact on air quality. Nevertheless, implementation of the project will result in an increase in emissions which will contribute to region-wide emissions on a cumulative basis. As such, the project's cumulative air quality impact is concluded to be significant.

C. CULTURAL RESOURCES

Archaeological Resources

Impacts: The archaeological assessment conducted for the proposed project did not determine the existence of any previously identified archaeological resources within the project site. However, due to existing development on the site, survey and testing procedures could not be completed. As such, it must be determined that there is a potential of encountering unknown, buried archaeological resources during construction activities within the project site. Therefore, potential impacts related to the disturbance of previously unknown archaeological resources will be considered significant.

Mitigation: With the following mitigation measures in place, the discovery of any and all prehistoric and historic archaeological resources is anticipated.

If at any time an archaeological resource is located, the preferred treatment measure will be to avoid the resource. Avoidance of any such discovered resources will be considered feasible and will be implemented as preferred mitigation if the resource is located within a part of the project site designated for open space and will not require mass grading in conjunction with surrounding areas. If it is determined that only a portion of the resource will be affected by the project, then mitigation shall be restricted to those parts of the archaeological resource that would be damaged or destroyed.

Pedestrian Survey and Refinement to the ARS Map

V.C-1 The permitted demolition activities associated with the remediation program cover approximately 80 percent of the Boeing C-1 Facility. Once this area has been cleared of buildings and asphalt, an opportunity exists to refine the ARS map. Many of the assumptions regarding modern impacts will either be validated or dismissed. The geology of the facility will also become more clear. Recording this new data is paramount to discovery efforts.

A pedestrian survey shall be conducted across surfaces exposed during the remediation program. The survey team would include a geoarchaeologist and several archaeologists. Documentation of disturbances and geology would be made when relevant. If remediation of soil occurred, there is the potential to evaluate stratigraphic data. All data gathered during the survey would be incorporated into the refined ARS map. If areas within the remediation program can be determined to have less potential to contain archaeological resources, then testing efforts can be focused elsewhere.

Testing Program

V.C-2 The recommended testing program involves the systematic placement of mechanical probes across the project site prior to any new construction. Backhoe trenches will be used as the primary method of probing. Trenches will be placed in areas that are clear of utility lines and where the probability of relatively shallow (less than 5 feet) archaeological deposits is indicated by the Archaeological Resources Sensitivity (ARS) Map. Alternate means of mechanical probing will be initiated only if backhoe trenching is deemed

ineffective for a particular area. In these instances, continuous cores and/or auger cores will be used.

Table 20 contains the percentage of area covered by each Sensitivity Class on the ARS map and the maximum number of probes proposed in the testing program. Only a handful of mechanical probes shall be placed in Sensitivity Class I areas, where the probability of encountering an intact archaeological deposit is quite low. These areas are highly disturbed and the presence of utility lines and other infrastructure dictate a cautious approach. This class accounts for roughly 11 percent of the entire project site. The majority of the project site, 74 percent, is classified as either Sensitivity Class II or III. Subsurface probes placed in these areas will assess the actual impacts from past construction activities and could result in their reclassification into a lower sensitivity class. Placement of the trenches will depend on particular stratigraphic data encountered, but it is expected that no less than one trench for every five acres will be required. This results in a total of roughly 40 trenches. The highest density of subsurface test probes will be placed in Sensitivity Class IV or V areas, where ten trenches will be placed in each class respectively.

Data Recovery Program

V.C-3 If an archaeological resource is found during the mechanical probing program, a determination will be made regarding whether the resource can be avoided by the proposed development. If not, data recovery measures will commence. In this section, data recovery measures are specified for various types of archaeological resources to account for variability in site size, density and character.

Should an archaeological resource be discovered, it will go through a three-phase data recovery program of fieldwork followed by laboratory analysis and reporting. The first phase of fieldwork will involve the definition of the archaeological site boundary and an evaluation of site integrity.

The objective of this phase is the characterization of the archaeological deposit, which will be accomplished through the hand excavation of a small number of test units. The second phase involves the mechanical excavation of the entire deposit area that will be impacted by construction activities. The careful removal of the site will allow archaeologists to recover important scientific information on

formation processes and site function and to detect cultural features. The third phase of fieldwork will ensue if features are identified. All features will be hand excavated in their entirety. Fieldwork will be followed by analysis of the recovered materials, the preparation of a technical report, and curation of all project-related materials.

Phase 1: Site Characterization

Should an archaeological resource be encountered, it will be subjected to site boundary definition. This measure entails an assessment of the resource at the time of discovery. Site boundary definition may require the excavation of backhoe trenches to trace out the subsurface extent of the discovered resource. A backhoe will be used to remove fill and to excavate a series of trenches through the site area. The purpose of the trenches is to define the horizontal and vertical extent of the site and to identify any potential subsurface features. A geoarchaeologist will also inspect the resource and the surrounding sediments to determine whether or not it is in situ. If the discovery is determined to be an archaeological resource, then data recovery measures will be enacted.

Archaeological resources can be divided into two broad categories; prehistoric and historic. Examples of archaeological resources are presented along with the projected Phase 1 level of mitigation effort. All examples assume that project-related activities would not allow the resource to be preserved in place and that damage to the entire resource may be expected.

Prehistoric Sites

Prehistoric archaeological resources common to the Los Angeles Basin include habitations, special activity sites, artifact scatters, and isolated features.

Habitations. In the Long Beach area, habitation sites consist of accretional midden deposits. These deposits are often composed of organic remains including vertebrate and invertebrate fauna as well as stone and shell artifacts. Features found in these middens may include hearths, storage pits, piles of fire-affected rock, and burials.

During Phase 1 data recovery of habitation sites, hand excavation of a sample of test units shall occur. In all cases, at least four test units

will be excavated, with the maximum number of units not to exceed 10 percent of the area within the archaeological site boundaries. Excavation units will be placed according to trench profiles created during site boundary definition. Test units will be 1-by-1-m in size and excavated stratigraphically where possible. If natural or cultural strata are not evident, units will be excavated in arbitrary 10-cm levels. All materials will be screened through ? -inch mesh hardware cloth and collected separately. Photographs will be taken of selected units, and profiles will be drawn of each unit. Appropriate paperwork will be filled out during the excavation to accurately track all artifacts, samples, and soil removed from the site. Geoarchaeological documentation will include description of soils and stratigraphy.

Special Activity Sites. Special-activity middens are typically food-processing locales that are rich with marine shell and lithic materials. These sites are less likely to contain features and rarely contain burials. Because of the homogenous nature of these sites, less excavation effort will be necessary to characterize the deposit.

At least two test units at each special-activity site shall be excavated, with the maximum number of test units not to exceed 5 percent of the site's defined area. These units will provide sufficient data to address regional research issues. Excavation will proceed as outlined above.

Artifact Scatters and Isolated Features. Artifact scatters is a category of site that includes numerous functions and manifestations. A flaked stone chipping station or a closely associated set of manos and metates would qualify as an artifact scatter. Artifact scatters are often difficult to identify during trenching or grading activities because their archaeological signature does not necessarily contain a discoloration of the soil. Isolated features are also difficult to identify during trenching and grading. Small hearths and roasting pits, for example, often go undetected because of their small size.

For artifact scatters, a sample of two test units at each site shall be hand excavated, with the maximum number of test units not to exceed 5 percent of the total site area. All isolated features encountered will be excavated in their entirety. Excavation will proceed as outlined above.

Historical-Period Sites

Types of historical-period archaeological resources include trash scatters, wells, privies, foundations, and water control features. Based on early 20th century photos, the project vicinity was used as pasture or grazing land. As such, the remnants of wells, fence lines, watering troughs, and the like that may have been associated with such agrarian activities may be encountered.

In the event that a historical-period feature is encountered, intact portions shall be defined and a sample of associated artifacts from undisturbed contexts shall be excavated. In the event that features such as privies or wells are encountered, at least half of the undisturbed deposit will be hand excavated according to the methods outlined below (see Phase 3: Feature Excavation). For features that have no associated artifacts, such as fence posts, wall remnants, and water troughs, the feature shall be documented through photographs, notes, and drawings.

Historical-period trash scatters may also occur on the project site. After the area of any encountered trash scatter has been defined, at least two test pits will be manually excavated, with the hand-excavated sample not to exceed 5 percent of the site area.

Phase 2: Mechanical Excavation

Once an archaeological site has been adequately characterized through the hand excavation of test pits, that portion of the site that will be destroyed by construction activities will be mechanically excavated. Using a tracked backhoe or similar equipment fitted with a flat blade, the archaeological deposit will be removed in 10-cm levels. The operation will be monitored by a professional archaeologist. Selected portions of the removed fill will be screened through ?-inch mesh hardware cloth; provenience of the screen material will be set to the site grid and elevation. Features, occupational surfaces, and activity areas will be flagged. Mechanical operations will cease at this point, and hand excavation will ensue (see below). Upon completion of feature excavation, mechanical excavation will resume in an attempt to discover additional features. Mechanical excavations will cease at the base of the archaeological deposit.

Phase 3: Feature Excavation

In the event that archaeological features, such as hearths, roasting pits, or house floors, are discovered, archaeologists will excavate them in their entirety. Smaller features may be bisected and excavated in two halves; larger features may be quartered. Additionally, areas surrounding features will be excavated to ensure that data from related activity areas are collected. In the event that occupational surfaces are identified, the surface will be gridded and excavated in its entirety.

Excavated fill will be screened through ? -inch mesh hardware cloth. Paleobotanical and chronometric samples will be collected from appropriate contexts. All excavated features will be documented thoroughly with photographs, profiles, plan maps, and field notes. Provisions for the treatment of human remains in the event that they are discovered are detailed below.

Lab Sorting and Analysis

After completion of excavations of an archaeological resource, materials collected will be transported to a qualified archaeological laboratory. Maintaining data integrity and information retrieval are primary goals of laboratory analysis. Toward this end, computerized inventories of artifacts and samples, provenience information, and storage boxes are maintained. Artifacts are generally cleaned and processed to the extent that attributes can be observed and recorded, without damaging the artifacts. Archival-quality storage materials are used for artifacts, photographs, and slides. Following processing and cataloging, materials are rebagged and checked out to the analysts for study.

Analysts will carry out intensive analysis of artifacts and samples recovered during the excavation. This includes lithic, faunal, pollen, phytolith, macrofossil, historical-period artifact, and chronometric analyses.

Report Preparation

A professional report will be issued detailing the findings of archaeological data recovery. The report will consist of a project background, description of field methods, results of archaeological

investigations, a geomorphological evaluation, and management recommendations. All artifacts recovered from testing will be identified and analyzed, and appropriate chapters containing this information will also appear in the report. All project-related materials will be curated at a repository meeting the state standards.

Discovery of Native American Remains and Funerary Items

V.C-4 In the event that human bone and associated funerary items are uncovered during the course of the field investigations, the following protocol will be followed per State CEQA Guidelines §15064.5(e):

1. All work in the area will be halted.

2. The Los Angeles County Coroner will be contacted in accordance with Section 7050.5(b) of the California Health and Safety Code.

3. A representative from the coroner's office will come to the site and determine whether the remains are subject to the provisions of Section 27491 of the California Government Code or other related provisions of law concerning investigation of the circumstances, manner, and cause of death, as required by Section 7050.5(b) of the California Health and Safety Code. The coroner will make this determination within two working days of notification.

4. If the coroner determines that the remains are those of a Native American, Section 7050.5(b) of the California Health and Safety Code requires that the coroner contact the Native American Heritage Commission by telephone, at (916) 653-4082, within 24 hours.

5. The Native American Heritage Commission will proceed to contact the most likely descendant (MLD) and will coordinate the final disposition of the remains with the most appropriate local Native American representative, according to the provisions of Section 5097.98 of the California Public Resources Code.

6. Copies of all correspondence regarding the discovery of human remains will be included as a confidential appendix of the data recovery excavation report, to be provided to all parties but not circulated for public review.

Accidental Discovery

V.C-5 If archeological resources of any nature should be accidentally encountered during construction activity on the project site, work shall be temporarily suspended in the immediate area of the discovery. In such case, a qualified archaeologist shall be called in to evaluate the find and to determine if it is unique as defined in Public Resources Code Section 21083.2(g). Should the find be determined to be unique, a mitigation plan specifying data recovery shall be defined and implemented. Construction may be reconvened in any area determined by the archaeologist not to adversely affect the unique archeological resources accidentally discovered.

Level of Significance After Mitigation: With implementation of the proposed mitigation measures, impacts on archaeological resources will be less than significant.

Paleontological Resources

Impacts: The Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County records search identified surficial deposits composed of terrestrial Quaternary Alluvium in the uppermost layers of soils within a one-mile radius of the project site. Since the project site and much of the surrounding vicinity has been previously graded and developed, these deposits do not likely contain significant fossils in the uppermost layers. However, at greater depths, older terrestrial Quaternary deposits that contain significant vertebrate fossils and Plio-Pleistocene marine sediments and fossil vertebrate remains have been identified within a one-mile radius of the project site. Therefore, shallow excavations on the project site will not likely encounter significant vertebrate fossils. Deeper excavations, however, could encounter terrestrial vertebrate fossils Late Pleistocene age.

Mitigation: The following mitigation measures are recommended to reduce potential impacts to paleontological resources resulting from the proposed project:

V.C-6 If unknown paleontological resources are discovered during any grading or construction activity, work will stop in the immediate area. Upon such discoveries a qualified paleontologist shall be consulted to determine the discovery's significance and, if necessary, formulate a mitigation plan, including avoidance alternatives, if feasible, to mitigate impacts. Work can only resume in that area with the approval of the project paleontologist. The paleontologist shall be selected from a list of qualified paleontologists maintained by the

Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County.

Level of Significance After Mitigation: With implementation of the proposed mitigation measures, impacts on paleontological resources will be less than significant.

Historic Resources

Impacts: A survey of the site identified a grouping of 18 buildings and two other features as a potential historic district eligible for the National Register of Historic Places, the California Register of Historical Resources, and as a City of Long Beach local landmark. Activities associated with the potential district significantly contributed to the history of the aviation industry in southern California, the war (World War II) effort and the movement to use women workers on the Home Front, and to the development and growth of Long Beach and Lakewood. The ongoing demolition activities necessitated by compliance with the mandated remediation program will remove all contributing and non-contributing resources with the potential exception of Building 15 within the Boeing Enclave, which may ultimately be demolished as part of the project. Demolition of Building 15 will not be a significant project impact because this structure does not appear individually eligible for the National Resister, California Register or local landmark designation and because upon its demolition, all other resources contributing to the potential district will already have been removed to provide for the remediation program.

Mitigation: The following mitigation measures are recommended to reduce impacts to historic resources resulting from the proposed project.

Recordation

V.C-7 Prior to the demolition of structures and features contributing to the potential historic district in compliance with the mandated remediation program, a Historic American Building Survey (HABS) Level II recordation document shall be prepared. This report shall document the history of each building within the historic district and their physical conditions, both historic and current, through site plans, historic maps and photographs, current photographs, written data, and text. The document shall include:

a. Written text documenting the history and architectural and engineering features of the property. This text should include a

contextual history of Douglas Aircraft and its significant role in American aviation and World War II, as well as its history in Long Beach and southern California. Biographical information regarding Donald Douglas and the Taylor Brothers (Edward Cray and Ellis Wing), the principal architects of the facility, should also be included. Published references related to the construction of the facility, the activities of the Douglas Aircraft Company, Long Beach Plant during the district's period of significance, and other bibliographic sources should be included as well.

b. Photographic documentation noting all exterior elevations and primary interior features. Photographs should be large format, black and white, archivally processed, taken by a professional photographer familiar with the recordation of historic buildings, and prepared in a format consistent with HABS guidelines and standards. Views shall include several contextual views, all exterior elevations, detailed views of significant exterior architectural/historical features, and interior views of significant historical/architectural features or spaces (if any).

c. Photographic copies or original prints (per HABS guidelines) of historical photographs should also be included in the HABS document.

d. A sketch floor plan on 8½" x 11" paper shall accompany each building documented.

e. Archival originals of the recordation document shall be submitted to the National Park Service for submission to the Library of Congress.

f. Archival copies of the recordation document shall be submitted to the California Office of Historic Preservation, the City of Long Beach Planning Division (the City's Neighborhood Preservation Officer), City of Long Beach Main Public Library, the Long Beach Heritage, the Historical Society of Long Beach, and the Boeing Company Historical Archives-Cerritos location.

Educational and Interpretative Programs

V.C-8 To assist the public in understanding the history of the Long Beach facility, an on site interpretive program display or other photographic

and textual representation shall be created and shall be available to the general public. This educational program should include information specific to the facility's contribution to the history of the aviation industry in southern California, the war (World War II) effort and the movement to use women workers on the Home Front (Rosie the Riveter), and in the development and substantial growth of the Long Beach and Lakewood areas. Such interpretive programs may be in the form of commemorative signage and/or plaques; historical photographs; models; and/or published information such as brochures, videos, electronic media, etc. Materials such as those in the interpretive exhibit currently displayed at the Boeing Long Beach facility in the Boeing Realty Company Visitor's Center (Building 1) could be used to satisfy this mitigation measure, incorporated on site into the overall design of the proposed project, and maintained regularly.

Cumulative Impacts: Implementation of the proposed project, together with related projects in the region, could contribute to the progressive loss of, and irretrievable loss of access to, potential archaeological resources. The project's contribution to that loss is difficult to evaluate since the existence and significance of as yet undiscovered artifacts are not known. However, implementation of relevant preservation laws regarding the protection of archaeological resources will reduce the cumulative impact to a less then significant level.

Similar to archaeological resources, cumulative development could result in the progressive and irretrievable loss of access to potential paleontological resources, the project's contribution to which cannot be assessed since the existence and significance of as yet undiscovered fossils cannot be predicted. However, implementation of regulations regarding the protection of paleontological resources will reduce cumulative impacts associated with such resources to a less than significant level.

The potential historic district appears eligible for the National Register, California Register, and local designation. The demolition of the buildings and features contributing to the identified potential historic district on-site as part of the mandated and ongoing soil and groundwater remediation program (Related Project No. 44) will result in a substantial adverse change in the significance of this historical resource. The site will no longer retain its historic integrity due to the loss of materials, workmanship, feeling, association, design, setting, and location. This change will result in a significant and unavoidable effect on the environment. To the extent that Building 15 is removed as part of the project, the project will contribute to a significant cumulative impact on historic resources. Even with the

recommended mitigation measures, cumulative impacts on historic resources will be considered significant and unavoidable.

D. GEOLOGY AND SOILS

Impacts: As the site is relatively flat and grading and construction will occur entirely in areas previously graded and/or developed, project implementation will not result in landslides or unstable soil conditions that will expose people, property, or structures to an increased risk of hazard or damage. With implementation of appropriate construction techniques, project implementation will result in less than significant impacts associated with erosion. The proposed project will also be constructed in accordance with State and local regulations governing grading and site design. Furthermore, detailed geotechnical studies will be prepared for each building to be constructed to minimize potential geological impacts. Thus, project impacts relative to grading and site design implications will be less than significant.

No known active or potentially active faults pass directly beneath the project site, and the site is not located in a known fault hazard zone. However, known regional active faults (i.e., the Newport-Inglewood, Compton Thrust, Palos Verdes, Elysian Park Thrust, and Whittier Faults) could produce significant ground-shaking at the project site. Therefore, similar to development throughout southern California, implementation of the proposed project will result in exposure of the on-site residents and employees to a degree of seismic hazard risk. Other potential impacts associated with seismic activities that could occur on the site include liquefaction. However, the project will be constructed in accordance with California Building Code and Municipal Code requirements, and will be required to prepare geotechnical studies for each building on the project site in accordance with the CGS *Special Bulletin 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California*. With implementation of these regulatory requirements, project impacts associated with the exposure of on-site populations, property, or structures to seismic hazards will be less than significant.

Mitigation: The following mitigation measures are recommended to ensure that potential seismic-related impacts will be less than significant:

V.D-1 In accordance with the City of Long Beach Municipal Code and the Lakewood Municipal Code, the Applicant shall prepare a geotechnical study specific to each building to be constructed as part of the project as well as to the specific site within the project site proposed to be developed. The geotechnical study shall evaluate seismic hazards, including the potential for liquefaction, to a level of

detail sufficient to satisfy the California Department of Conservation, California Geological Survey, the California Building Code, and the UBC.

V.D-2 Grading plans shall be designed such that the final grades on-site are compatible with the grades of the adjacent streetscape to prevent soil erosion from flowing off-site.

Level of Significance After Mitigation: With implementation of the mitigation measures, impacts associated with grading, site design, and seismicity will be less than significant.

Cumulative Impacts: The simultaneous development of the PacifiCenter project and related projects will not result in cumulatively significant impacts associated with grading and site design, or seismic hazards since each project will comply with the California Building Code, UBC, and Municipal Code requirements for grading and local building regulations; project-specific geotechnical recommendations by certified geologists and geotechnical engineers; and the measures set forth in Section V.E., Hazards and Hazardous Materials, of the EIR and in the Risk Management Plan.

E. HAZARDS AND HAZARDOUS MATERIALS

Impacts: Due to the types of historic and current uses at the site, and the age of the existing buildings, certain potential hazards have been identified that may affect the phased redevelopment of the project site, including asbestos, lead-based paint, underground storage tanks, seismic hazards, remediation of contaminated groundwater and soils, and hazardous material storage, use and transport. Gas and oil wells are also located in the project area. In addition, potential aviation related hazards are present in the area due to the proximity of the Airport.

In accordance with SCAQMD Rule 1403 and federal regulations applicable to demolition activities, pre-demolition building surveys must be performed to identify regulated asbestos-containing building materials (ACBM) and such materials must generally be removed prior to building demolition by certified asbestos containment contractors. Compliance with legal requirements for this ongoing ACBM abatement and related demolition work will continue to assure that Boeing employees elsewhere in the facility, and members of the public living or visiting nearby, will not be exposed to any airborne asbestos hazard.

Lead-based paint will be treated in accordance with CCR Title 8, Section 1532.1, which provides for exposure limits, exposure monitoring, and respiratory protection and mandates good working practices by workers exposed to lead. Lead-contaminated debris and other wastes must also be managed and disposed of in accordance with applicable provisions of the California Health and Safety Code. Compliance with these legal requirements will continue to assure that Boeing employees elsewhere in the facility, workers and occupants of the PacifiCenter project, and members of the public living or visiting nearby, will not be exposed to any hazards associated with lead-based paint debris and materials.

Both of the USTs that remain on site will be removed either prior to or in conjunction with the demolition work for the former industrial areas of the project site. These USTs as well as any previously unidentified USTs that may be encountered during the ACER program will be removed in accordance with applicable Federal, State, and the Long Beach Fire Department regulatory requirements. Therefore, no significant impacts associated with USTs will occur as a result of the project.

During construction and operation of the PacifiCenter project, hazardous materials will be used, handled, stored, and disposed of in accordance with applicable government regulations and standards. In addition, a Risk Management Plan (RMP) will be developed by the Applicant to assure that such measures are fully protective of the health and safety of new residents and employees at PacifiCenter.

The closest oil field to the project is the Long Beach Airport Oil Field located approximately 0.2 mile southwest of the site and the nearest oil well is located over 0.3 mile southwest of the site. Due to this distance, the Long Beach Airport Oil Field and oil wells in the vicinity of the project will not pose a hazard to the project site. Also due to this distance, the potential for migration of methane from the Long Beach Airport Oil Field to the project site in quantities sufficient to present a potential hazard at the site is considered minimal.

In coordination with LARWQCB, Boeing is implementing an ongoing comprehensive environmental assessment and remediation program to clean up historic chemical releases to soil and groundwater from former industrial activities on the project site. This remediation program is mandated by LARWQCB Order and must be completed independent of the ultimate redevelopment of the project site. Former industrial buildings and ancillary structures are being demolished and shallow soils are being remediated, where necessary in accordance with the LARWQCB requirements. This component of site remediation program is being completed in phases that have been identified in the ACER program approved as part of the ongoing remediation work required under the

LARWQCB Order. As discussed in Section V.E, Hazards, regulatory approval for "No Further Action" (NFA) and closure for soils in areas representing approximately 80 percent of the site has been received from the LARWQCB and regulatory approval of NFA for soils in the remaining areas of the site is expected shortly. LARWQCB verification of the completion of the required components of remediation work is required before the Applicant obtains permits to construct new buildings as part of the project. It is anticipated that potential groundwater remediation efforts will occur over a longer period of time due to the geologic and technical constraints associated with groundwater remediation programs. This ongoing activity will necessitate the installation of subsurface and limited surface cleanup equipment and structures. This cleanup related equipment will not affect or be accessible to new residents or employees at PacifiCenter.

With regard to Airport safety, the PacifiCenter project has been specifically designed in conformance with the Federal Aviation Administration (FAA) safety requirements set forth in Federal Aviation Regulations (FAR) Part 77, and with the Los Angeles County Comprehensive Airport Land Use Plan (ALUP) safety policies. As discussed in the Report on Potential Hazards Related to the Long Beach Airport Operations presented in Appendix J, to evaluate potential safety impacts to persons on the ground, the Caltrans Handbook was used as the primary reference as it provides the most up-to-date, comprehensive source for compatibility assessment. Most of the uses proposed as part of the PacifiCenter project will be compatible with the safety zone guidelines identified within the Caltrans Handbook. In addition, when accounting for several factors including the current and future operations of the Airport, and with implementation of the mitigation measures provided herein, the project will not result in a significant impact associated with the risk exposure to aircraft operations that will cause a safety hazard for people residing or working in the PacifiCenter project area.

Mitigation

In addition to the proposed project features, the following mitigation measures are recommended to ensure that project impacts relative to hazards and hazardous materials are less than significant:

V.E-1 Prior to constructing new buildings in an Environmental Investigation Area (EIA), obtain LARWQCB confirmation that the required demolition and soil remediation work has been completed as required by the ACER program, and that the EIA is suitable for redevelopment (LARWQCB Completion Notice).

V.E.-2 Complete a Risk Management Plan (RMP), to remain in place and effective during the construction of new buildings and after project development, until the site has been remediated as required by the CAO, that includes the following:

- Develop and record all required environmental disclosures, covenants and restrictions relating to historical impacts to soil and groundwater, including residual conditions or restrictions that may remain in place in some areas during or after full implementation of the LARWQCB Order.

- Develop and implement a consolidated Health and Safety Plan (HSP) for redevelopment construction workers that includes all required elements to assure worker protection in relation to soil and groundwater conditions on the project site. Provide the RMP, including this HSP, to construction contractors and sub-contractors and require compliance with the HSP in all construction contracts that include work scopes likely to require contact with subsurface soils or groundwater.

- On EIAs for which there has been no LARWQCB Completion Notice as of the commencement of redevelopment construction activities, limit access with adequate fencing or other barriers to protect new residents and employees at PacifiCenter. Identify and implement risk management measures within EIAs that are adjacent to or may otherwise affect completed redevelopment areas, including a routine inspection program to assure that such measures are being implemented.

- On EIAs for which groundwater or deeper-soil remediation work is planned or ongoing as of the commencement of constructing new buildings, identify and implement risk management measures for the management of impacted soils and groundwater, and for the installation and operation of remediation equipment and processes, that are fully protective of the health and safety of the public and PacifiCenter residents and employees, including a routine inspection program to assure that such measures are being implemented. At minimum, such measures shall include compliance with all applicable federal, state and local laws and regulations.

- Identify and implement risk management measures for managing demolition debris, including debris containing asbestos materials or lead-based paints, to assure are fully protective of the health and safety of the public and PacifiCenter residents and employees, including a routine inspection program to assure that such measures are being implemented. At minimum, such measures shall include compliance with all applicable federal, state and local laws and regulations.

- Identify and implement accident prevention and control measures for demolition and remediation activities, and for ongoing operations within the Boeing Enclave, that are protective of the health and safety of the public and PacifiCenter residents and employees, including a routine inspection program to assure that such measures are being implemented. At minimum, such measures shall include compliance with all applicable federal, state and local laws and regulations.

- Identify and implement standards for imported soils and compaction materials to assure that such fill materials are fully protective of human health and the environment, and require contractors responsible for imported fill to meet these standards.

- Identify and implement project design features that may be used to minimize impacts to ongoing or planned remediation work in project area groundwater or soils, including, for example: (a) landscaping features that will not require excessive quantities of water thereby avoiding interference with groundwater areas requiring remediation; (b) building features that may minimize the potential for migration of soil vapors into occupied indoor areas; and (c) land plan elements that are consistent with planned longer-term remediation efforts.

The following mitigation measures are recommended to reduced project impacts relative to hazards to less-than-significant levels:

V.E-3 In accordance with FAA requirements, prior to commencement of construction of any building, the construction sponsor shall file Form 7460-1, Notice of Proposed Construction or Alteration, with the appropriate regional FAA office for airspace review.

V.E-4 Prior to execution of a "through-the-fence" agreement for a proposed aviation-related use, the proposal shall be submitted to the Airport for review and approval and the Airport will consult with the FAA.

V.E-5 No building(s) shall be constructed in the Runway Protection Zones (RPZs) designated by the Airport Layout Plan.

V.E-6 The following measures shall be implemented to reduce the risk of exposure to airport-related hazards associated with aircraft operations on Runway 16L/34R:

- Provide street alignment and landscaping along the extended runway centerline;
- Locate automobile parking, in the commercial areas, adjacent to the extended runway centerline so as to reduce the building coverage in that area;
- Utilize construction that would limit small aircraft penetration in the Inner Safety Zone and Inner Turning Zones;
- Avoid concentrations of people near extended runway centerline and runway end by locating elements such as streets, setbacks, parking, and landscaping, near extended runway centerline and runway end;
- Avoid concentrations of people that are not shielded by structure from aircraft penetration in the Inner Safety and Inner Turning zones by locating primarily buildings within the Inner Safety and Inner Turning zones rather than developing areas where people would congregate (i.e., amphitheaters, band stands); and
- Comply with the Federal Aviation Regulations, Part 77 height limits.

V.E-7 The following measures shall be implemented to reduce the risk of exposure to airport-related hazards associated with aircraft operations on Runway 25R/7L:

- Provide street alignment and automobile parking to reduce land coverage in areas nearest the runway operating areas;

- Utilize construction that would limit small aircraft penetration in the Inner Safety Zone and Inner Turning Zone;
- Avoid concentrations of people that are not shielded by structure from aircraft penetration in the Inner Safety Zone and Inner Turning Zones, by locating primarily buildings within the Inner Safety and Inner Turning zones rather than developing areas where people would congregate (i.e., amphitheaters, band stands); and
- Comply with the Federal Aviation Regulations, Part 77 height limits.

Level of Significance After Mitigation: With implementation of the project features and the recommended mitigation measures, impacts relative to hazards and hazardous materials will be less than significant.

Cumulative Impacts: Most of the facilities within the vicinity of the site that pose a potential threat are listed in the applicable databases as leaking UST sites. Two service stations have posed a potential impact on the site. One is being remediated by the previous property owner, who remains responsible for such remediation. Disposition of this property to Boeing Realty Corporation or other development entity may be completed as part of the project. As with other remediation efforts, any contamination will be remediated to levels that present no significant human health risk for future uses, in accordance with the appropriate regulatory agency. Records relating to the second site show that eight USTs have been removed from the site, with no indication of soil or groundwater contamination, and the Long Beach Fire Department granted closure of the site. There are also several other sites in the area that have had chemical releases that have impacted the groundwater and could have impacted the PacifiCenter site. To the extent that these off-site properties could have impacted the PacifiCenter site, the separate and ongoing on-site remediation program is designed to address and remedy these off-site sources of potential hazards or hazardous materials.

Boeing has implemented a comprehensive environmental assessment and remediation program for the project site. These efforts are being coordinated with LARWQCB and will occur regardless of whether the PacifiCenter project occurs. The remediation program is the only ongoing or future planned significant remediation project in the immediate vicinity of the project site that will involve the handling of significant quantities of hazardous wastes and materials. Regardless, any future development in the vicinity, including nearby related projects (Related Project Nos. 6, 12, 77, 82, 85, 86, etc.) will also be subject to a wide range of Federal, State, and local regulations pertaining to

hazards and hazardous materials, which will assure that there will be no adverse impacts from such projects to the PacifiCenter site. Moreover, development of the PacifiCenter project, including implementation of the project features and mitigation measures proposed as part of the project, will not add incrementally to a cumulative impact relative to hazards and hazardous materials. The ongoing remediation program required by the Cleanup and Abatement Order will result in a substantial net benefit to soil and groundwater quality, and the RMP (discussed below) will further ensure the health and safety of the site's future residents and employees during the phased redevelopment and remediation of the site. As such, cumulatively significant impacts associated with hazards and hazardous materials will not result from implementation of the project.

As it relates to airport safety issues, the proposed Airport improvements (Related Project No. 77), which involve 43,000 square feet of building improvements, and a 4,000 space parking garage, can be reasonably expected to provide the same level of safety as exists currently in accordance with FAA safety regulations, the Los Angeles County ALUP, and Caltrans Handbook guidance. As discussed above, PacifiCenter has been designed in conformance with relevant FAA and ALUP regulations. Additionally, as discussed in Appendix J, when accounting for current and future operations at the Airport (which is projected to accommodate projected growth to 3.8 million annual passengers), and with implementation of the project mitigation measures provided below, a significant impact associated with the risk of exposure to aircraft operations causing a safety hazard for people residing or working in the PacifiCenter project area will not occur. Cumulative safety impacts will be less than significant.

F. HYDROLOGY

Impacts: The project will include the introduction of landscaped areas that will increase the amount of pervious surface area within the project site. As such, when compared with recent conditions on the site prior to the initiation of demolition activities associated with the remediation program in January 2003 within a portion of the site, the project will result in a decrease in the amount of stormwater runoff generated on-site, resulting in a beneficial impact. In addition, improvements to the existing storm drain system proposed as part of the project will result in a beneficial impact as such improvements will replace the aging system that currently serves the project site. In addition, the project will not substantially increase the rate or amount of surface runoff in a manner that will result in substantial erosion or siltation on- or off-site or in flooding on- or off-site. However, since the existing downstream double RCB culverts are not adequate for existing or project storm flows, the project will contribute runoff water that will exceed the capacity of existing and planned stormwater drainage systems. Despite the reduction in stormwater flows under the project, similar to existing conditions, the excess site-

generated runoff that cannot be accommodated by the double culverts will flow over land to the Airport property to the south, then easterly to Lakewood Boulevard. Thus, a significant hydrology impact will occur.

The Flood Insurance Rate Map prepared by FEMA currently indicates that a portion of the project site is located within the 100-year floodplain. However it has been determined that this mapping is incorrect and, as a result a Conditional Letter of Map Revision (CLOMR) is currently being considered to remove this portion of the project site from the map. Therefore, no significant impacts associated with the placement of housing or structures within a 100-year floodplain will occur.

Mitigation

Development of the proposed project will result in significant hydrology impacts. Thus, the following mitigation measures will be required:

V.F-1 On-site drainage system improvements shall be completed in accordance with the requirements of the City of Long Beach Department of Public Works and the City of Lakewood Department of Public Works and shall be coordinated with PacifiCenter development and on-site street improvements.

V.F-2 All new on-site storm drains, with the exception of the RCB drain along the southern site boundary, shall be sized to convey a 25-year storm event with the street right-of-ways accommodating a 50-year storm event.[8]

Level of Significance After Mitigation: Although the project will result in a net reduction in flows in the area, the existing double RCB culverts under Lakewood Boulevard are not adequate for the storm flows generated from the project site, as is the case with existing flows to these RCBs. Given the size and length of these facilities, measures to mitigate the capacity shortage are infeasible. Therefore, a significant and unavoidable impact relative to hydrology will occur.

Cumulative Impacts: The geographic area for the cumulative analysis of hydrologic impacts is defined as the 1,521-acre watershed in which the project site is located. The area that encompasses this watershed is built out. Approximately seven

[8] *Except in a sump condition, in which drain(s) will be designed to convey a 50-year storm event.*

related projects (Related Project Nos. 6, 12, 44, 50, 57, 61, and 75) are located within the watershed. No land use changes that will substantially increase the amount of impervious surface are expected, as any changes in land uses associated with the related projects will consist of redevelopment of previously developed sites. Although the project will decrease the amount of runoff originating from the PacifiCenter site when compared with recent conditions, site-generated runoff will continue to exceed the capacity of the double RCB culverts under Lakewood Boulevard, and a significant project impact will occur. Any of the related projects located within the 1,521-acre watershed could also generate stormwater flows that contribute to the capacity shortage of the double RCB culverts. As such, implementation of the proposed project in combination with the related projects will result in a significant cumulative impact.

G. WATER QUALITY

Impacts: There are no surface water bodies or wetlands located on the project site. The project site is located within the Los Angeles River Watershed. In addition, underlying the project site and vicinity are sediments within the Central Groundwater Basin that extend to depths of over 1,250 feet below land surfaces forming a sequence of aquitards and aquifers.

Construction

Surface Water

Grading activities associated with project construction will temporarily increase the amount of suspended solids from surface flows derived from the project site during a storm event due to erosion of exposed soil. In addition, due to on-site watering activities utilized to reduce airborne dust, construction could contribute marginally to increased sediment loading of surface runoff during dry weather conditions. National Pollution Discharge Elimination System (NPDES) permits will be obtained during construction as part of the mass grading and backbone infrastructure, and as part of the specific development site construction activities. These permits will require that Stormwater Pollution Prevention Plans (SWPPPs) be developed and implemented. The SWPPPs, will include Best Management Practices (BMPs) and erosion control measures. With implementation of NPDES and local regulations, proposed construction activities will not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQB or other regulatory agencies or impair the beneficial uses of the receiving waters. In addition, construction of the project will not result in a violation of any water quality standards or waste discharge requirements and will not otherwise

substantially degrade water quality. Therefore, construction-related impacts to surface water quality will be less than significant.

Groundwater

Construction activities could require excavation of up to 20 feet below ground surface during removal of existing foundations and during pile driving activities. Implementation of these construction activities could involve dewatering. Short-term NPDES permits for discharge of groundwater to the storm drain will be obtained for construction dewatering, if necessary. The project will comply with all permit requirements during these activities. As such, implementation of construction activities as a result of the proposed project will not degrade groundwater quality, and impacts will be less than significant.

Operation

Surface Water

The Boeing Enclave facility will continue to operate for a number of years as the PacifiCenter site is developed and will continue to generate fuel, solvents, coatings, hydraulic fluids and oils. This facility will continue to operate under the storm water monitoring program developed for its current NPDES wastewater discharge permit number 6116. The operation of the PacifiCenter project will not interfere with those requirements. Operation of the proposed project will produce pollutants typically associated with urban uses, such as oil and grease, metals, fertilizers, pesticides, dirt from landscaped areas, and litter. Constituents in the project's post-development runoff will be significantly less than existing conditions due to the reduction in industrial use of the PacifiCenter site and the proposed stormwater treatment system. In addition, the Applicant and subsequent property owners will be required to comply with the Standard Urban Stormwater Mitigation Plan (SUSMP) requirements during the operational life of the project. Such requirements will include source control BMPs, treatment control BMPs, requirements regarding erosion control, and BMP maintenance. As part of these requirements, post-construction structural or treatment control BMPs designed to infiltrate or treat the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system will also be implemented. Therefore, runoff contaminants generated by the operation of the PacifiCenter project will not violate any water quality standards or waste discharge requirements, impair the quality of receiving surface waters, impair the beneficial uses of the receiving waters, or otherwise substantially degrade water quality. Thus, impacts to surface water quality associated with operation of the project will be less than significant.

Groundwater

Implementation of the PacifiCenter project will generate a demand for water that will include the use of municipal groundwater supplies, potentially including groundwater form the active groundwater wells located within a one-mile radius of the project site. However, the City of Long Beach Water Department has indicated that adequate water supplies exist. In addition, project components will not involve the installation of groundwater production wells. Moreover, the reduction in impervious area, when compared with historic and recent site conditions, will increase the groundwater recharge potential from storm water infiltration. As such, the operation of the PacifiCenter project will not substantially deplete groundwater resources or interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level and impacts will be less than significant.

Mitigation

Although the project will not result in significant impacts associated with the degradation of surface water quality and groundwater quality, the following mitigation measures are provided to ensure that construction and operation of the PacifiCenter project will comply with applicable water quality regulations.

V.G-1 In accordance with the federal NPDES program, construction of the PacifiCenter project shall comply with NPDES permit requirements for water discharged during mass grading and backbone infrastructure construction activities. As part of these requirements, a SWPPP and monitoring plan shall be developed and implemented that shall identify appropriate BMPs to reduce and/or to eliminate pollutant loadings to storm water runoff.

V.G-2 The various separate development sites within the PacifiCenter property shall be required to secure a separate NPDES construction permit and prepare a site-specific SWPPP as they are developed. Each individual development shall provide storm water controls prior to issuance of a building permit by the appropriate department of the Cities of Long Beach and Lakewood. Development on sites that are greater than one acre shall file an approved SWPPP plan with the respective City and the LARWQCB.

V.G-3 In accordance with RWQCB requirements and local regulations, a Standard Urban Storm Water Mitigation Plan (SUSMP) (or separate SUSMPs) shall be developed and implemented during the

operational life of the project. The SUSMP requirements shall include post construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system. Part of the SUSMP requirements to be implemented shall include provisions for storm drain stenciling and signage[9], the proper designation of outdoor material storage areas, and provisions for proof of ongoing BMP maintenance. For facilities located within the public right-of-way, a maintenance agreement between the applicant and the appropriate City shall be developed, and Covenants, Conditions, and Restrictions (CC&Rs) shall be developed for private water quality controls.

Level of Significance After Mitigation: With incorporation of mitigation measures to ensure compliance with water quality regulations and implementation of the project features regarding water quality, the project will not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies, impair the beneficial uses of the receiving waters, violate any water quality standards or waste discharge requirements, degrade the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or substantially deplete groundwater supplies, or interfere substantially with groundwater recharge.

Cumulative Impacts: The geographic area for the cumulative analysis for surface water quality is defined as the 1,521-acre watershed area, and for groundwater quality is defined as the Central Groundwater Basin. The 1,521-acre watershed area and the area overlying the Central Groundwater Basin are primarily developed and the new development will generally consist of the redevelopment of previously developed sites. New development that may occur within these areas will not substantially alter the runoff and pollutant loading characteristics of existing development. In addition, groundwater remediation efforts, such as the ongoing soil and groundwater remediation program (Related Project No. 44) at the PacifiCenter site, that are planned or underway throughout the Basin will ultimately have a beneficial impact on groundwater quality. Similar to the proposed project, any related projects will be subject to NPDES permit requirements and RWQCB regulations. Thus, such related projects will not contribute to cumulative impacts. With incorporation of project features and compliance with all applicable federal, State, and local regulations associated with surface water quality and groundwater quality, the proposed project will not contribute to cumulatively significant impacts.

[9] *With regard to stenciling, the City of Long Beach requires that the contractor/developer use the City's Standard Plan Non 636, "Catch Basin Stencil."*

H. LAND USE AND PLANNING

Impacts: The project site is located within the jurisdiction of the Cities of Long Beach and Lakewood. The site is within an urban area and is surrounded by a variety of land uses, including aviation, office, industrial, recreation, residential, and educational uses. In recent years the occupancy of the site's five million square feet of permitted useable floor has dropped dramatically as a result of the decline in the aerospace industry. In addition, demolition activities are currently underway in conjunction with a mandated soil and groundwater remediation program and will result in the removal of much of the on-site development. Most of the remaining occupied area of the site is located within the western 48-acre portion of the site immediately adjacent to the Airport, which is referred to as the Boeing Enclave.

All of the proposed uses will not be fully consistent with the existing land use designations of the site. Text amendments are proposed to LUD No. 7 to clarify that residential uses may be appropriate with industrial development under certain circumstances. Amendments are also proposed to the Land Use map to change the LUD 12 designation in the southern portion of the site to LUD 7. Graphics and text amendments regarding the Long Beach Airport Activity Center are also proposed to more accurately reflect existing conditions and to allow a greater mix of uses. A Development Agreement is also proposed for the project.

The PacifiCenter project, including the mix and intensity of uses, will be consistent with the applicable goals and objectives set forth in the amended Land Use Element of the City of Long Beach General Plan as well as the goals and action steps in the City's Strategic Plan 2010. The project will create an activity center on the site through the proposed mix and intensity of uses and will create a place where a concentration of urban activity will exist in support of the City's goals. The proposed R&D, light industrial, residential, retail, hotel, office, and aviation-related and ancillary uses will result in a unique character and interest on the project site consistent with the objectives for creating a major activity center.

The proposed Planned Development (PD) -32 ordinance will establish development standards for the use and development of the project site as proposed. With the adoption of the proposed PD-32 ordinance and the rezoning of the site from PD-19 to PD-32 Zone the project will be consistent with the City of Long Beach Zoning Ordinance.

With regard to the portion of the site within the City of Lakewood, the project will comply with the City's General Plan and Redevelopment Project Area III Plan since the project will result in the redevelopment of the 23 acres within the City of Lakewood. Such

redevelopment will eliminate conditions of blight and deterioration, encourage new private sector investment, create new job opportunities, and facilitate the installation and expansion of required public infrastructure, utilities, streets, and landscaping, in accordance with the goals of the Redevelopment Plan. The project will comply with the City's Zoning Ordinance with regard to uses and development standards. A Conditional Use Permit may be required if a park is located within the City of Lakewood. As such, the project will comply with the City of Lakewood policies and ordinances.

The proposed project will be consistent with the Airport layout plan and the County Comprehensive Land Use Plan. Specifically, the proposed project will comply with the County's Land Use Compatibility Table, the RPZ zones and the FAA regulations regarding height limits.

The proposed project will be consistent with the Metropolitan Transportation Authority Congestion Management Plan for Los Angeles County through the implementation of the proposed TDM program that will serve to reduce project trips affecting the regional circulation system. In addition, the PacifiCenter project is supportive of the concepts and policies contained within the Southern California Association of Governments Regional Comprehensive Plan and Guide by transforming the project site into an activity center and sustainable community. As discussed in Section V.B, Air Quality, the project will also be consistent with the South Coast Air Quality Management District Air Quality Management Plan. Therefore, the proposed project will be consistent with regional land use policies.

The PacifiCenter project will be compatible with the surrounding land uses due to the proposed placement and orientation of the uses on the site. The location of housing along Carson Street will be compatible with the residential and recreational uses to the north and northwest. The location of Commercial uses adjacent to Lakewood Boulevard will be compatible with the existing commercial and industrial uses to the east across Lakewood Boulevard. The Commercial land use area which abuts the Lakewood Country Club Golf Course to the west will be compatible with this open space use in light of the proposed setbacks, maximum building heights, and the building restriction zone which encompasses much of this area. Similarly, the Commercial land uses along the southern portion of the site will be compatible with the adjacent Airport land use based on the uses, building height limitations, and densities proposed within this area of the site, as well as compliance with building restriction zones. Therefore, the project will not create an incompatible interface between the surrounding area and the physical and/or operational characteristics of the proposed uses.

The uses are also distributed on the site to provide internal on-site compatibility through the orientation and placement of buildings, the distances between structures, and the buffers created by streets and landscaping. Residential uses will be buffered from non-residential uses on-site both physically and with setbacks. The project, therefore, will not result in land uses that are internally incompatible.

Mitigation

To ensure that land use impacts are reduced to a level of less than significant, the following mitigation measures are recommended relative to land use:

V.H-1 Uses within the project site shall be limited to those set forth by the Planned Development-32 District for the City of Long Beach portion of the site and by the M-2 Zone for the City of Lakewood portion of the site.

V.H –2 Warehouse uses shall not abut residential uses and shall be limited to the PCC-1 and PCC-2 Commercial Use area as an accessory use within the City of Long Beach. Such uses shall be dependent upon the principal use for the majority of its use or activity.

V.H-3 Amendments to the City of Long Beach Land Use Element and map as well as the zoning for the site shall be approved prior to project approval.

Mitigation measures in Section V.A, Aesthetics are also proposed to mitigate potential land use impacts. These measures include V.A-1 through V.A-5, and V.A-8 through V.A-11. In addition, mitigation measures V.I-14 and V.I-17, listed in Section V.I, Noise, are also proposed to mitigate potential land use impacts.

Level of Significance After Mitigation: Significant and unavoidable impacts relative to project consistency with applicable land use regulations and land use compatibility will not occur with the incorporation of the Project Features and mitigation measures.

Cumulative Impacts: The geographic area for the cumulative analysis of land use includes the Cities of Long Beach, Lakewood, and Signal Hill. In general, the local and regional land use plans discussed above recognize the need for redevelopment of many of the older industrial and commercial areas within the Cities of Long Beach and Lakewood. Like the proposed project, the related projects are expected to be developed

in accordance with relevant land use plans and regulations. In addition, each of these projects that involve some form of discretionary action by the applicable local agency will be subject to the project and permit approval process and will incorporate any mitigation measures necessary to reduce potential land use impacts. Consequently, significant cumulative land use impacts will not occur.

I. NOISE

Noise

Impacts: The project site and nearby vicinity are primarily exposed to noise generated by traffic on the surrounding roadways and freeways, noise generated by operations at the Airport including aircraft takeoffs and landings, noise generated by engine testing at Boeing's engine run-up area and noise generated by the separate and ongoing remediation efforts pursuant to the LARWQCB Cleanup and Abatement Order 95-048.

Existing L_{eq} levels at the receptor locations adjacent to roadways in the vicinity of the project site range from 68.0 to 75.1 dBA during the peak traffic hours, and from 64.0 to 73.5 dBA during the off-peak hours.

The project site and surrounding vicinity will be exposed to noise generated by intermittent construction activities associated with the proposed project and vehicular traffic from the project. On-site uses may also be exposed to noise impacts from the proposed 66 kV substation.

The residences located to the north of the project site along Carson will occasionally experience construction noise levels of 70 dBA (hourly Leq) during the heaviest periods of construction. If pile driving is required in the northern section of the project site along Carson Street, nearby residences could experience maximum noise levels of 84 dBA. As the worst-case hourly Leq exceeds ambient noise levels by more than the 5 dBA incremental significance threshold, construction of the proposed project will result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity and a significant impact to off-site sensitive receptors without incorporation of mitigation measures.

Since proposed residential areas may be constructed prior to project buildout, on-site sensitive receptors could be located as close as 75 feet from a construction zone and will therefore occasionally experience construction noise levels as high as 83 dBA. If

pile driving is required on-site, sensitive receptors could experience maximum noise levels of 98 dBA. These noise levels will be considerably higher than ambient noise levels. As the worst-case hourly L_{eq} will be more than the 5 dBA incremental significance threshold, the proposed project will result in a significant impact to proposed on-site sensitive receptors without incorporation of mitigation measures. However, such noise levels will be experienced for short-durations as only portions of the project site will be under construction at any one time.

Compared with the future without project conditions, the increase in future predicted CNEL with ambient growth plus project development and all traffic mitigation will be a maximum of 4.3 dBA for all off-site roadway segments and will be less than the 5 dBA significance threshold, with the exception of Conant Street east of Lakewood Boulevard (Roadway Segment No. 8), which will increase by 7.0 dBA. This roadway segment is bordered by parking facilities and the Boeing 717 Assembly Facility. While noise levels associated with project traffic at this roadway segment will result in a significant and unavoidable impact, no sensitive receptors will be impacted. In addition, increased heavy duty truck trips associated with potential warehouse uses as accessory uses will not create significant impacts or significantly exacerbate the impact at Conant Street east of Lakewood Boulevard. An additional analysis was completed for A Street located within the western portion of the site as this street may be located farther to the north and adjacent to the Lakewood Country Club Golf Course (in the vicinity of where Cover Street is currently located). Given the low level of traffic that currently travels on this segment, mobile noise levels were predicted to increase by 18.7 dBA. However, this roadway segment is bound by the Airport to the south and a golf course to the north, and, therefore no sensitive residential receptors will be impacted. Nonetheless, noise levels associated with project traffic at this roadway segment will result in a significant and unavoidable impact.

Residential uses and associated outdoor recreational areas proposed within the PacifiCenter site will be outside of the 65 CNEL contour produced by landing and takeoff activity at the Airport, which is based on the future maximum-expected operating scenario allowed by LBMC Chapter 16.43. Therefore, with incorporation of project features to reduce noise levels at residential uses, noise impacts from airport operations upon "incompatible" land uses such as residential development and associated outdoor recreational areas will be less than significant since these uses will be exposed to appreciably lower noise levels cited by California Code of Regulations Title 21, FAA Guidelines and LBMC policy.

While the MD-80 and A-320 commercial jet departures are the most common air carrier departure operations, other aircraft will generally produce less noise, while some

may on occasion be louder. The SENEL exposure for the proposed residential uses within PacifiCenter located closest to the Airport from the louder typical MD-80 departure could be as high as 90 SENEL, which with typical residential outside-to-inside modern construction noise insulation will yield an internal 65 SENEL. Although there is no established significance threshold for SENEL, the low probability of awakening from a typical MD-80 departure coupled with the fact that the Airport has a curfew, indicates a low possibility of such sleep disruption.

Noise levels associated with operation of the on-site aviation-related uses will comply with LBMC requirements and will be less than significant.

Boeing will continue to conduct engine run-up tests for newly manufactured C-17 and 717 aircraft in the Boeing Enclave. Based on the maximum noise levels measured during C-17 and 717 engine run-up tests, and the distance of the proposed residential uses, maximum noise levels from the C-17 and 717 will be 83 dBA (L_{max}) and 88 dBA (L_{max}), respectively. Based upon the specified noise insulation that will be required for the proposed residential buildings, the maximum internal noise level in a residential unit attributable to the C-17 and 717 will be approximately 58 dBA (L_{max}) and 63 dBA, respectively. This is a relatively low noise level that will not be expected to significantly interfere with typical speech communication or activities taking place indoors Given the relative infrequency of these engine run-up tests, together with the fact that the associated single event noise levels measured for the C-17 and 717 are less than that generated by a typical MD-80 departure, it is reasonable to rely upon the published CNEL contours for the Airport in order to assess the potential noise impact upon the residential components of the PacifiCenter project. Therefore, as residential development and associated outdoor recreational areas will not be located within the 65 CNEL contour, no significant impact will occur from the Boeing engine run-up tests.

Operation of the proposed 66-kV substation will not have significant noise impacts. Noise levels from other on-site activities, including the operation of mechanical equipment and use of parking facilities, will also be less than significant.

Vibration

During construction, the highest vibration within the project site will be generated during pile driving operations, while more consistent, but lower ground, vibration will be generated during the clearing, excavation, and grading processes when heavy materials are moved. Both off-site and on-site sensitive land uses will be located at a sufficient distance (greater than 75 feet) from any potential pile driving activity so that vibration from such activities will be below the peak particle velocity threshold of 0.2 inch/sec. Therefore,

the project will not generate excessive groundbourne vibration or groundbourne noise levels and vibration impacts associated with construction will be less than significant.

Additional measurements of a Boeing 717 engine run-up test were conducted to determine if low frequency noise levels may cause structure borne vibration and secondary interior noise impacts from possible rattling of doors and windows. These measurements were conducted using the C-weighted scale, which is a better indicator of low-frequency noise as compared to the A-weighted scale. The results indicate that noise levels within the proposed residential uses north of the Boeing Enclave could reach levels of 81 dBC L_{eq} and 89 dBC $L_{max.}$ A project feature has been incorporated to limit proposed residential uses within the area identified on Figure 54 of Section V.I, Noise of this EIR until the 717 engine run-ups cease. This feature will reduce the maximum C-weighted noise levels to less than 87 dBC. Areas outside this area will experience a noise level of less than 87 dBC. This feature, together with the requirement that all residential buildings on the project site have interior noise levels below 45 dBA CNEL will ensure that impacts associated with groundborne vibration or groundborne noise will be less than significant.

Operation of the project will not result in additional sources of vibration, which will exceed the City's vibration violation threshold of 0.01 inch/sec at adjacent properties. As such, operational impacts associated with vibration will be less than significant.

Mitigation

The following mitigation measures are recommended to reduce noise and vibration impacts resulting from the proposed project. In addition to these mitigation measures, the project features will further reduce impacts associated with noise.

Construction

V.I-1 In compliance with Section 8.80.202 of the LBMC, site preparation, grading, and construction within the City of Long Beach shall be limited to the hours of 7 A.M. and 7 P.M., Monday through Friday, 9 A.M. and 6 P.M. on Saturdays, and prohibited on Sundays.

V.I-2 In compliance with Section 8020 of the LMC, site preparation, grading, and construction within the City of Lakewood shall be limited to the hours of 7 A.M. and 7 P.M., Monday through Saturday and 9 A.M. and 7 P.M. on Sundays within 500 feet of a residential zone.

V.I-3 All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained muffler exhaust systems.

V.I-4 The project applicant shall provide a construction relations officer to serve as a liaison with surrounding communities and future on-site residents.

V.I-5 Construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.

V.I-6 Engine idling from construction equipment such as dozers and haul trucks shall be limited, to the extent feasible.

V.I-7 Equipment and materials staging shall be located as far from noise-sensitive uses as practical.

V.I-8 Semi-stationary heavy equipment shall be located as far from noise-sensitive uses as practical.

V.I-9 Electrically powered equipment shall be used instead of equipment driven by internal combustion engines where feasible.

V.I-10 Active construction sites within 400 feet of on-site occupied residential uses shall be acoustically screened with a temporary ten-foot, ½ inch thick plywood fence around the construction zone, to the extent feasible. The plywood fence will have an approximate sound transmission classification level of 18.

V.I-11 An on-site area shall be designated for delivery of materials and equipment. No construction deliveries shall be permitted outside the hours of 7 A.M. and 10 P.M. on weekdays.

V.I-12 Pile shields (i.e., sound blankets) shall be used where pile driving activities occur within 200 feet from the northern property boundary along Carson Street or within 400 feet of on-site residential uses on the project site.

V.I-13 Construction routes will be established to avoid residential streets in order to prevent noise and vibration impacts in residential areas. Generally, construction delivery and haul trucks will access the

project site from I-405 along Lakewood Boulevard and Cherry Boulevard.

Operation

V.I-14 The residential developer shall provide insulation for all residential buildings on the project site to reduce interior noise levels below 45 dBA CNEL with doors and windows closed and shall provide confirmation of this noise level through an acoustical consultant. In addition, any residential development within the delineated residential area (i.e., hatched area) provided in Figure 54 of this EIR shall require a minimum outside-to-inside noise insulation of 30 dBA and shall appoint an acoustical consultant to confirm that the proposed residential buildings will achieve this design standard before submitting an application for a building permit.[10]

V.I-15 All persons purchasing, leasing, or renting residential land or property within the PacifiCenter development shall be required to sign an "acknowledgement covenant" which acknowledges the fact that residential properties are near an airport, that there may be low level aircraft overflights, and that there may be noise impacts because of proximity to the Airport and overflights. In addition, the acknowledgment covenant shall acknowledge the avigation easements, which waive the right to take legal action in connection with aircraft noise.

V.I-16 Aircraft related to new aviation-related uses proposed within the project site shall comply with requirements in LBMC Chapter 16.43.030(B) which limits engine run-ups to designated areas at the Airport and between the hours of 7 A.M. and 9 P.M. on weekdays and 9 A.M. and 9 P.M. on weekends and holidays.

V.I-17 Development of residential uses in close proximity to the Boeing Enclave shall be prohibited until such time that 717 run-up activities permanently cease. The delineation of this area is provided in Figure 54 of this EIR.

[10] *As discussed previously, the California Airport Land Use Handbook documents that this level of sound insulation may include the following: 1) air-conditioning/mechanical ventilation such that the units would not have to rely on open windows for ventilation; 2) ½-inch thick glazing, or a dual insulating glazed system comprised of $^{3}/_{8}$-inch thick laminated glass/½-inch air space/¼-inch glass (or acoustical equivalent); 3) doors and windows opening to the exterior with acoustical seals; 4) adding insulation to attics; and/or 5) fitting chimneys and vents with dampers and/or acoustic louvers.*

V.I-18 Boeing shall preferentially use the testing positions along the southern side of the Boeing Enclave (Numbers 1-6), as shown in Figure 54 of this EIR

V.I-19 The substation shall include an eight-foot high wall surrounding the substation area if it is to be located within a residential area.

V.I-20 All mechanical equipment shall incorporate noise control measures to ensure that City of LBMC and LMC requirements are satisfied.

Level of Significance After Mitigation

Noise

With implementation of the proposed mitigation measures, future construction operations are expected to generate noise levels at proposed residential areas in close proximity to the construction zone as high as 77 dBA Leq and will substantially reduce the pile driving short-term, impulsive noise level of 98 dBA by 10 to 15 dBA. These noise levels will be considerably higher than ambient noise levels. As the worst-case hourly Leq exceeds ambient noise levels by more than the 5 dBA incremental significance threshold, construction of the proposed project will result in a significant and unavoidable impact to proposed on-site sensitive receptors and off-site sensitive receptors (i.e., residential uses located along and north of Carson Street). However, such noise levels will be experienced for short-durations as only portions of the project site will be under construction at any one time. The majority of the time construction noise levels at on-site and off-site sensitive locations will be much lower due to reduced construction activity and the phasing of construction.

The increase in future traffic off-site noise associated with the project and all traffic mitigation will be less than significant for all roadway segments, with the exception of Conant Street east of Lakewood Boulevard, which will exceed the 5 dBA significance threshold. This roadway segment is bordered by parking facilities and the Boeing 717 Assembly Facility. While noise levels associated with project traffic at this roadway segment will result in a significant and unavoidable impact, no sensitive receptors will be impacted. If A Street is reconfigured in the western portion of the project site to be adjacent to the golf course, this segment will exceed the 5 dBA significance threshold. This noise increase is due to the fact that the roadway in this area does not currently support a large amount of traffic. Nonetheless, this noise increase will result in a significant and unavoidable impact.

Residential uses and associated outdoor recreational areas proposed within the PacifiCenter site will be outside of the 65 CNEL contour produced by landing and takeoff activities at the Airport, which are based upon the future worst-case operating scenario allowed by LBMC Chapter 16.43. Therefore, with incorporation of project features to reduce noise levels at residential uses, noise impacts from Airport operations upon such land uses will be less than significant since these uses will be exposed to lower noise levels than allowed by ALUP, California Code of Regulations Title 21, and FAA Guidelines.

With incorporation of MM V.I-14, the SENEL exposure for the proposed residential uses within PacifiCenter located closest to the Airport from the buder typical MD-80 departure of 90 SENEL, will be reduced to 60 SENEL with an outside-to-inside noise insulation of 30 dBA. A "satisfactory conversation" can be obtained with a steady sound level of up to 64 dBA. Therefore, an internal 60 SENEL during a typical MD-80 departure will not be problematic from a speech interference level. During outdoor activities aircraft operations may still briefly interfere with speech communication. In addition, helicopter and general aviation overflights may also be a source of annoyance to proposed sensitive receptors on the project site.

With incorporation of the project features associated with parking structures and surface parking areas, noise increases associated with operation of future parking facilities will be less than significant.

Vibration

Future ground-borne vibration in the project vicinity will continue to be generated by heavy trucks traveling on the local roadways. Operation of the project with incorporation of project features and mitigation measures will not result in additional sources of vibration which will exceed the City's vibration violation threshold of 0.01 inch/sec at adjacent properties. In addition, the project feature limiting proposed residential uses within the area identified in Figure 54 will reduce potential structural-borne vibration from the engine run-up testing in the Boeing Enclave to a less than significant impact. As such, operational impacts associated with vibration will be less than significant.

Cumulative Impacts: It is not anticipated that future construction and related demolition will occur on lots adjacent to the site simultaneously with construction of the proposed project. However, in the event that such simultaneous construction does occur, construction noise levels could be cumulatively significant at sensitive receptors, including single-family residences located along and north of Carson Street. In addition, project construction in certain areas of the site could potentially coincide with later phases of site demolition occurring as part of the ongoing soil and remediation program (Related Project

No. 44). Since receptors located immediately adjacent to the project site will occasionally experience project-related noise levels well above existing ambient noise levels and in the absence of City construction noise thresholds, this scenario will be considered to result in significant cumulative construction noise levels.

Compared with the existing conditions, cumulative increases in future predicted CNEL with ambient growth plus project development and all traffic mitigation will be a maximum of 4.6 dBA and will be less than significant for all off-site roadway segments, with the exception of Conant Street east of Lakewood Boulevard, which will increase by 8.3 dBA. While a significant cumulative impact at this roadway segment will occur, no sensitive receptors will be impacted. In addition, the noise levels generated by project operation together with future related projects and the ongoing separate remediation activities on the project site will result in less than significant cumulative noise impacts from facility operations.

J.1. EMPLOYMENT

Impacts

Consistency with Policies

Consistent with the definition of a Major Activity Center set forth by the City of Long Beach Land Use Element, the proposed project will concentrate a mix of uses on-site and transform the site into a vital economic activity center. The project will provide both jobs to restore an employment center and new residential units. As such, in accordance with City policies, the project's mixed-use nature will afford the regional benefits of reduced commute times and associated quality of life and environmental benefits that occur with the development of residential units within close proximity to jobs. In addition, the mix of uses developed on-site will provide substantial employment opportunities requiring varied skill sets, which will complement the residential element of the project site. The project's increase in employment opportunities and residential units in Long Beach will contribute toward the City's goal of providing at least 1.35 jobs for every household in the City.

The PacifiCenter project will include the development of office, R&D, and/or light industrial uses on property within the City of Lakewood, thereby implementing the intent of the Redevelopment Area III Plan. In addition, proposed development is consistent with the City of Lakewood's policy of creating industrial activity in a currently undeveloped area. Economic Development Goals are also satisfied by the addition of new employment on currently underutilized property.

Implementation of the PacifiCenter project will be also be consistent with the employment policies of the SCAG RCPG.

Consistency with Projections

Development of the proposed project will create approximately 3,832 construction jobs. Assuming that the project is fully occupied by 2020 and that development occurs evenly over the construction period, construction employment associated with the project will constitute less than one percent of the annual countywide construction employment. As a result, anticipated construction employment at the PacifiCenter project site will not substantially alter the location, distribution, density or growth rate of construction employment in Los Angeles County. Therefore, significant impacts associated with construction employment will not occur.

Based on the most employee intensive scenario, implementation of the PacifiCenter project will be anticipated to result in a net increase of up to approximately 13,442 full time equivalent on-site employees by project buildout in 2020 when compared with existing conditions. The net increase in employees resulting from the project will be well within the projected employment growth for Long Beach, Lakewood, the Gateway Cities subregion, and the County of Los Angeles. Project implementation will serve to restore much of the employment lost at the PacifiCenter site and throughout the City of Long Beach since 1990. Therefore, workforce growth associated with the PacifiCenter project will not substantially alter the location, distribution, density, or growth rate of employment planned for the area by local and regional plans. As such, impacts associated with employment growth will be less than significant.

Mitigation

No significant impacts associated with employment have been found, therefore no mitigation is required.

Level of Significance After Mitigation: No significant impacts related to employment will occur and no mitigation measures will be required.

Cumulative Impacts: The impact analysis provided above includes an assessment of project employment in comparison with local and regional growth forecasts which account for planned or reasonably foreseeable development within each jurisdiction in the local area and the region. Therefore, the analysis is both a project-level and cumulative analysis. As stated above, the net increase in employment associated with the

PacifiCenter project will be within the employment forecasts for the Cities of Long Beach and Lakewood, the Gateway Cities subregion, and Los Angeles County. Consequently, implementation of the project will not result in significant cumulative impacts associated with employment.

J.2. HOUSING

Impacts: The addition of 2,500 new housing units is well within the SCAG housing growth projections for the City of Long Beach, accounting for approximately 9 percent of forecasted growth. As the project-related addition to the housing supply is well within official forecasted estimates for 2020, the addition of such housing will not substantially alter the location, distribution, density or growth rate of housing contemplated for the area by regional or local plans.

The "worst-case" estimate of average annual demand for housing by potential project employees wishing to move to the Long Beach/Lakewood area was also compared with the expected availability of housing. Using conservative assumptions (e.g., maximum employment assuming that nearly all commercial uses will be office uses), the potential indirect housing demand attributable to new project employees wishing to move locally is well within the housing supply expected to be available to such "movers" at that time. Therefore, indirect housing growth from the PacifiCenter project will not substantially alter the location, distribution, density or growth rate of housing contemplated for the area by regional or local plans.

The project will also be consistent with local and regional plans regarding housing. By creating new housing stock the PacifiCenter project will support applicable housing polices of SCAG's RCPG. The project will also help to relieve some of the existing and expected imbalance of housing units to population described in SCAG's "The State of the Region 2002" report. The new housing created by the project also supports the relevant Citywide goals and policies set forth by the 2000-2005 Housing Element of the Long Beach General Plan. Specifically, the provision of new housing within the City will facilitate the housing production goals set forth by City policy. In addition, the Applicant will contribute funds to the City for City-wide affordable housing programs and, in doing so, will assist with the City with regard to the City's affordability goals. Specifically, while the project itself will not directly provide affordable housing, in accordance with a development agreement, it will provide fees to the City that will be used to contribute to affordable housing of varying levels on a Citywide basis. The project will also provide a mix of rental and homeownership opportunities and a mix of housing products in response to a variety of market needs, in support of City policies. Refer to Section V.J.2 for a discussion of other City Housing policies that will be supported by the project.

Mitigation

Based on the above analysis, no significant project-related impacts associated with alteration of the location, distribution, density, or growth rate of housing contemplated for the area by regional or local plans will occur. In addition, with implementation of the project feature regarding payment of a fee for affordable housing, no inconsistencies with relevant local or regional policies regarding housing will occur. Therefore, no mitigation measures will be required.

Level of Significance After Mitigation: No significant impacts associated with alteration of the location, distribution, density, or growth rate of housing will occur. Therefore, no mitigation measures will be required.

Cumulative Impacts: The impact analysis provided above includes assessments of the direct increase in new housing and the indirect increase in housing demand resulting from implementation of the PacifiCenter project in comparison with local and regional growth forecasts. Such forecasts account for planned or reasonably foreseeable development within each jurisdiction in the local area and the region. Therefore, the analysis is both a project-level and cumulative analysis. The net increase in housing associated with the project will be well within the household growth forecast for Long Beach and Los Angeles County. Similarly, the indirect increase in housing demand associated with PacifiCenter employment could be accommodated by projected housing supplies in Long Beach and Lakewood. Furthermore, the project will help to relieve a regional housing shortage that exists within southern California. Therefore, implementation of the project will not result in any significant cumulative impacts associated with housing.

J.3. POPULATION

When including both direct population growth associated with new housing proposed by the project as well as indirect population growth associated with project employees who may move to the area, the project will generate up to 11,667 new residents within the Cities of Long Beach and Lakewood. (Up to 4,784 residents will be directly generated by the maximum of 2,500 housing units proposed on-site). This growth will be well within the SCAG forecasted growth for the Cities of Long Beach and Lakewood and Los Angeles County. As the additional population attributable to the project will not substantially alter the location, distribution, density, or growth rate of population planned and forecast in Long Beach, Lakewood or Los Angeles County, the proposed project will not result in a significant population impact.

Mitigation

No significant impacts associated with population growth have been found, therefore no mitigation is required. However, as indicated in various sections of this EIR, the increase in population will result in impacts in other issue areas that require mitigation.

Level of Significance After Mitigation: No significant impacts will result from project implementation and no mitigation measures will be required. However, as indicated in various sections of this EIR, the increase in population will result in impacts in other issue areas.

Cumulative Impacts: The impact analysis provided in Section V.J.3., Population, includes an assessment of the population resulting from a direct increase in housing associated with the PacifiCenter project and induced population growth resulting from project development. As these estimated population increases were compared with local and regional growth forecasts, which account for planned or reasonably foreseeable development within each jurisdiction in the local area and the region, the analysis is both a project-level and cumulative analysis. The net population increase associated with the project will be well within the growth forecasts for Long Beach, Lakewood, and Los Angeles County. Therefore, implementation of the PacifiCenter project will not result in any significant cumulative impacts associated with population.

K.1. POLICE PROTECTION

Police protection services for the City of Long Beach are provided by the City of Long Beach Police Department (LBPD), and for the City of Lakewood are provided by contractual agreement with the Los Angeles County Sheriff's Department (Sheriff's Department).

The PacifiCenter project will include security features, which are also included as mitigation measures, that will minimize the potential for crime on-site and the associated demand for additional police protection services.

Implementation of the project will result in an increase in residents and employees in the City of Long Beach portion of the project site, and daytime employees in the City of Lakewood portion of the project site. The estimated number of new residents in the City of Long Beach will require approximately nine new polices officers, including two motorcycle officers and one sergeant, to maintain the current officer to population service ratio. Additional outlays will also be need for equipment to support these officers. Revenue

generated by the project could be used to provide these additional officers. However, such a revenue allocation cannot be guaranteed. As such, if the project-generated revenue were allocated to other needed municipal purposes other than to the provision of additional police officers, a potentially significant impact associated with the decrease in the LBPD's protective capacity could occur.

While the increase in the demand for police protection services in the City of Long Beach will require additional outlays for officers and equipment, the demand generated will not require new or physically altered police facilities. Therefore, no significant impacts associated with the construction of such facilities will occur.

Although the portion of the project site located within the City of Lakewood will not generate residents, an increase in demand for services could result from the additional employees and vehicles in the area surrounding the project site. Project-generated municipal revenue could be used to provide additional capacity as determined appropriate by the City of Lakewood and the Sheriff's Department. However, the allocation of such revenue to a specific service cannot be guaranteed. Therefore, although implementation of the proposed project will not affect the existing officer to residential population ratio within the City of Lakewood, implementation of the project could result in potentially significant impacts associated with the demand for additional police protection services.

While the project will result in an increase in the demand for police protection services within the City of Lakewood, the demand generated will not require new or physically altered police facilities, the construction of which will cause significant environmental impacts. Therefore, no significant impacts associated with the provision of new facilities will occur.

The street improvements planned as part of the proposed project could temporarily affect traffic flows along the primary access routes from the LBPD or the Sheriff's Department Stations serving the project site, and disrupt emergency access within the area surrounding the project site. However, temporary traffic controls will be incorporated in accordance with City of Long Beach Public Works Department and City of Lakewood Public Works Department requirements. Also, with implementation of the proposed traffic mitigation measures, traffic conditions at many of the intersections in the project area will be improved. Therefore, implementation of the project will not affect the circulation pattern or result in a substantial increase in emergency response times within the project area, and impacts will be less than significant.

Mitigation

The project could result in potentially significant impacts on police protection services. Project-generated municipal General Fund revenues are forecast to support the project-related demand for additional officers or related resources. However, it cannot be guaranteed that project-generated tax increment revenue will be allocated to this specific resource. Therefore, the following mitigation measures, which are also included as Project Features, will be implemented to reduce impacts associated with an increased demand for police protection services:

V.K.1-1: The Applicant shall provide the Long Beach Police Department or Los Angeles County Sheriff's Department with a diagram that will include access routes, home addresses, building unit numbers, and other information to facilitate police response.

V.K.1-2: The Applicant shall incorporate Crime Prevention Through Environmental Design (CPTED) principles and other crime prevention features into the project that will include the following:

- Lighting of parking structures, elevators and lobbies to reduce areas of concealment;
- Lighting of building entries and pedestrian walkways to provide for pedestrian orientation and to clearly identify a secure route between parking areas and points of entry into buildings;
- Building addresses that are visible from the street and roof to facilitate emergency response;
- Provision that ATMs (cash machines) and public phones are located in visible areas and away from bus stops;
- Provision that lighting, fencing and landscaping within commercial areas are placed in a manner that maximizes visibility and minimizes opportunities for hiding;
- Public spaces that are designed to be easily patrolled and accessed by public safety personnel; and

- Design entrances to, and exits from buildings, open spaces around buildings, and pedestrian walkways to be open and in view of surrounding sites

Level of Significance After Mitigation: It cannot be guaranteed that project-generated General Fund revenue is allocated to a specific service sector. Therefore, the project could result in a potentially significant and unavoidable impact to police protection services in the Cities of Long Beach and Lakewood. In addition, the project could contribute to a cumulatively significant and unavoidable impact to police protection services in the area surrounding the project site.

Cumulative Impacts: Anticipated growth in the Cities of Long Beach and Lakewood will result in a demand for additional police protection services. Similar to the proposed project, future projects will likely include specific features designed to reduce impacts on police protection services. In addition, related projects will be evaluated on an individual basis to determine appropriate measures that address additional demand. Also, the need for additional police protection associated with cumulative growth may be addressed through each City's annual budgeting process and capital improvement programs, should the City of Long Beach and City of Lakewood determine that service improvements are necessary. However, such revenue allocation to a specific service cannot be guaranteed. As such, the cumulative impacts associated with the project's incremental effect and the effects of other related projects in the area could be significant.

K.2. FIRE PROTECTION

Fire and emergency medical services for the Cities of Long Beach and Lakewood are provided by the Long Beach Fire Department (LBFD) and the Los Angeles County Fire Department (LACFD), respectively, with each Fire Department providing first response to its respective portion of the project site. Implementation of the project will result in an increase in the daytime (employment) and residential populations of the LBFD and LACFD service area, which could result in additional calls for fire and emergency medical services. The project will comply with applicable LBFD and LACFD requirements, as well as requirements set forth in the Building and Safety Codes of each of the Cities and the Uniform Fire Code. In addition, compliance with guidelines set forth by the Insurance Services Office (ISO) will ensure that the current ISO rankings of the Cities of Long Beach and Lakewood will not be affected.

With regard to development in the City of Long Beach, additional fire protection equipment may be necessary to provide for the proposed project, and the project will result in an increase in fire prevention inspection. Specifically, the LBFD has indicated that

the proposed project will necessitate the addition of a truck company (i.e., a truck ladder engine, personnel and associated equipment) to safely and effectively meet the adequate levels of service and response times. In addition, the project will result in a demand for an additional one-half full time equivalent (FTE) fire inspection staff person, and one full time equivalent (FTE) plan checker until completion of the project. As indicated by the fiscal impact report regarding this project, annually recurring project generated General Fund revenue will be sufficient under any proposed development scenario to fund the LBFD expenditures associated with additional fire protection equipment, a one-half FTE fire inspector, and one FTE plan checker. However, General Fund revenue may not be pre-allocated to a specific purpose. As such, if the project-generated revenue were not allocated to the provision for fire protection equipment and personnel in the City of Long Beach, a potentially significant impact could occur. While the increase in the demand for fire protection services in the City of Long Beach will require additional outlays for equipment, one-half FTE staff person, and one FTE plan checker, the demand generated will not require new or physically altered facilities. Therefore, no significant impacts associated with the construction of such facilities will occur.

With regard to development in the City of Lakewood, there is expected to be adequate fire protection and emergency medical services within the LACFD service area. The project will comply with the goals set forth in the General Plans of the Cities of Long Beach and Lakewood.

Analyses of existing fire flows on the project site indicate that development intensity on the Long Beach portion of the site is not constrained by fire flows. In addition, fire flows in the City of Lakewood near the project site will meet the project requirements with the installation of a new 16-inch diameter water line, which is proposed as part of the project. Specifically, with the 16-inch diameter water line, the fire flow requirement of 5,000 gpm will be met on the Lakewood portion of the project site, thereby reducing potential impacts to less than significant levels.

The street improvements planned as part of the proposed project could temporarily affect traffic flows in the area, thereby temporarily disrupting emergency access to and within the project site. However, temporary traffic controls will be incorporated thereby reducing the potential short-term impact to emergency access within the project area to a less than significant level. Furthermore, the circulation improvements within and around the project site will increase emergency access to and circulation within the project site. Therefore, implementation of the project will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan or result in a substantial increase in response times or emergency access within the project area.

Mitigation

The project will result in a potential demand for new fire protection equipment and a demand for one truck company and associated equipment and staffing, one-half FTE fire inspector, and one FTE plan checker until completion of the project in the City of Long Beach and additional calls for service in Long Beach. Project-generated municipal General Fund revenues forecast to yield an annual fiscal surplus will be sufficient to support any project-related demand for fire personnel or equipment. However, it cannot be guaranteed that project-generated tax increment will be allocated to this specific resource. Therefore, the following mitigation measure will be implemented to substantially lessen impacts associated with an increased demand for fire protection services:

V.K.2-1 The proposed project shall incorporate all emergency access provisions required by the respective City of Long Beach and County of Los Angeles Fire Departments, including fire lanes, vertical clearance requirements, and Fire Department review, as appropriate. Specifically, review and approval by the respective Fire Departments' Fire Prevention Office shall be required prior to building permit issuance. In addition, fire flow requirements shall be determined by the Fire Department based on building type and building use and fire inspection fees shall be paid as each building within the project site is developed.

Level of Significance After Mitigation: Project-generated municipal General Fund revenue cannot be guaranteed to be allocated to a specific service sector. Therefore, even with the implementation of the mitigation measure, the project could result in a potentially significant impact associated with the potential demand for fire protection equipment and a demand for fire inspection personnel in the City of Long Beach. With the incorporation of project features and the mitigation measure, impacts associated with development of the portion of the project site in the City of Lakewood will be less than significant.

Cumulative Impacts: Anticipated growth in the Cities of Long Beach and Lakewood will result in a demand for additional fire protection and emergency medical services. Similar to the proposed project, future projects will likely include specific features designed to reduce impacts on fire protection and emergency medical services. Future projects will likely include specific features designed to reduce impacts on fire protection and emergency medical services. In addition, future projects will be evaluated on an individual basis to determine appropriate mitigation measures that will address new demand. The need for additional fire protection and emergency medical services associated with cumulative growth may also be addressed through each City's annual

budgeting process and capital improvement programs, as deemed necessary by each of the Cities' annual budgeting process and capital improvement programs, should the City of Long Beach or City of Lakewood determine that service improvements are necessary. However, the allocation of project-generated revenue to a specific service cannot be guaranteed. Therefore, the combined cumulative impact associated with the project's incremental effect and the effects of future related projects could be significant. Existing fire flow capacities and the presence of mainline piping networks within the project vicinity will permit future development in the surrounding area with generally no constraints related to available fire flow. As required by the LBFD and LACFD, pipe sizes will be upgraded as necessary, depending on the proposed building types and sizes associated with future projects. As such, the cumulative fire flow impacts associated with the project's incremental effect and the effects of other projects will be less than significant.

K.3. SCHOOLS

The project site is located within the Long Beach Unified School District (LBUSD). Using the State of California's definition of available classrooms (i.e., excluding certain portable classrooms), and factoring in special day class students class sizes as well as using state accepted loading factors, LBUSD schools have a capacity of 74,192 students. The 2002-2003 enrollment of 97,212 students presents a capacity shortfall of 23,020 seats within the LBUSD. To provide for the overall shortfall on an interim basis, the LBUSD has installed numerous portable classrooms and has modified its available programs and schedules. In addition, in response to the capacity shortfall and in anticipation of future growth, new capacity of approximately 14,705 seats is being added to the District with both State and local funds. However, even with the increase in capacity funding from state and local funds, the District will continue to have a shortage of space to serve new development using the State's definition of district school facility capacity. LBUSD will continue to utilize portable classrooms to meet this short fall.

To determine the student generation rates for the PacifiCenter project, LBUSD recently matched addresses with apartment projects and single family attached units within the district that are comparable in size and price to the proposed PacifiCenter attached units and apartments. (Since a reasonably sized sample of new single-family detached units could not be obtained within the District, the LBUSD's district-wide rates were used for the detached unit product type to complete the student generation analysis). When applying the student generation rates identified by LBUSD to the proposed product mix and factoring in attendance at private schools, the residential component of the proposed project will generate a total of approximately 272 students within LBUSD.

State law permits the LBUSD to impose a fee on new development to mitigate impacts on school facilities. The fees are collected at the time of the issuance of the building permit. The current fee is $2.14 per square foot for residential development and $0.34 per square foot for commercial/industrial development. Pursuant to State Law (SB 50), this fee will serve to fully mitigate the impacts on school facilities associated with the project, and no significant impacts will occur.

Mitigation

The LBUSD and PacifiCenter representatives have ongoing discussions regarding the impacts of the proposed project. A funding and mitigation agreement is anticipated, which will provide funding that will be no less than the fees currently required by Government Code Section 65995 to increase the capacity of District schools, thus reducing overcrowding conditions. If no agreement is approved by both parties, the PacifiCenter project will be subject to payment of school impact fees, current at the time building permits are issued, as provided for by State law and adopted District policies at the time of issuance of building permits for the project. With the developer fees required by State law, no significant project-related impacts to school facilities will occur. Therefore, no mitigation measures will be required.

Level of Significance After Mitigation: Under the provisions of SB 50, the California legislature has concluded that a project's impacts on school facilities are fully mitigated via the payment of the requisite new school construction fees current at the time of building permits are issued and established by Government Code Section 65995.

Cumulative Impacts: The geographic area for the cumulative analysis for schools is the area within the LBUSD boundary. By 2010, 169,812 households and 255,000 jobs are projected within the LBUSD boundary. Under the provisions of SB 50 all future projects within the LBUSD boundary will be required to pay the construction fees established by Government Code Section 65995. In accordance with Government Code Section 65995, payment of these fees will serve to mitigate impacts of these projects. In addition, as indicated above, with mitigation, implementation of the PacifiCenter project will not result in significant impacts on school facilities. Therefore, the project will not contribute to significant cumulative school impacts.

K.4. RECREATION

The Cities of Long Beach and Lakewood operate parks and recreational facilities within the vicinity of the project site. The proposed project will generate a net increase of

up to approximately 4,784 residents. The project will generate up to approximately 13,442 net new daytime employees by project buildout in the Cities of Long Beach and Lakewood (assuming nearly all commercial uses will be office uses). These residents and on-site employees will have access to the 10.5 acres of parkland and other open space areas provided on-site. Of the 10.5 acres of parkland, 9 acres will be zoned, dedicated and improved as public open space and 1.5 acres will be private open space. In addition to the provision of on-site facilities, the proposed project will be required to comply with the City of Long Beach Municipal Code, which requires residential development to contribute fees for parks and recreational facilities. Compliance with this code requirement, together with the park space improvements proposed as part of the project, will ensure that the demands generated by the project residents will be accommodated. In addition, it is anticipated that the majority of the project employees will utilize on-site recreational facilities and park space areas rather than off-site facilities during weekday lunch times. Therefore, the proposed project will not cause existing ratios of developed parklands per resident to substantially decrease, nor will the project substantially increase the demand for local parks and recreational facilities within the City of Long Beach or Lakewood. No significant impacts will occur.

The PacifiCenter project will be consistent with the goals and standards set forth by the City of Long Beach through the provision of a wide variety of recreation and open space areas on-site and the payment of required Park and Recreation Facilities Fee for residential uses. The project will be consistent with goals set forth by the City of Lakewood since the project will not significantly impact City parks and open space resources. As such, the proposed project will not conflict with applicable City of Long Beach or Lakewood goals or standards, and less than significant impacts will occur.

The proposed project will not preclude the use of any existing recreational facilities, and will provide 10.5 acres of recreation and park space areas. In addition, the payment of park fees for residential uses will occur consistent with the City of Long Beach Municipal Code. Therefore, the proposed project will not result in the increased use of existing recreational facilities such that substantial physical deterioration of the facilities will occur or be accelerated, and replacement parks and recreational facilities will not be required. Therefore, no significant impacts will result.

Physical impacts associated with the development of the park and recreational facilities included as part of the project are analyzed throughout Section V, Environmental Impact Analysis, of this EIR.

Mitigation

The following mitigation measures are proposed to ensure that project impacts on parks and recreational facilities will be less than significant:

V.K.4-1 The Applicant shall be required to ensure that 10.5 acres of active or passive park space is provided on-site, including 9 acres of zoned dedicated and improved public park space and 1.5 acres of private park space.

V.K.4-2 The Applicant shall contribute fees for parks and recreational facilities pursuant to Chapter 18.18, Park and Recreation Facilities Fee, of the City of Long Beach Municipal Code.

Mitigation Measure V.L-20, in Section V.L, Transportation, is also proposed to mitigate potential recreation impacts.

Level of Significance After Mitigation: The project features together with the mitigation measures described above will ensure that no significant impacts on the Cities of Long Beach or Lakewood parks and recreation facilities will occur.

Cumulative Impacts: The residential population growth projected by SCAG will result in a demand for additional parks and recreation facilities in the area. Section 18.18 of the Long Beach Municipal Code will be implemented to ensure that adequate amounts of parks and recreation facilities will be provided for new residential development in the City of Long Beach through the payment of fees or dedication of land in accordance with the Municipal Code. In addition, residential projects within Residential Districts will be required to meet specific requirements regarding usable open space for project residents. As described above, the proposed project will not result in a direct demand for parks and recreation facilities within the City of Lakewood. In addition, all residential projects within the City of Lakewood will be required to pay fees in compliance with Sections 9226.1 or 6527.2 D of the Municipal Code. These fees will be used to upgrade and maintain existing parks and recreational areas and/or to purchase and develop additional land for park or recreational uses. Finally, future projects will likely include specific features designed to reduce or alleviate demand for public parks and recreational facilities. For the above-mentioned reasons, and with incorporation of the previously described project features related to park space and recreational facilities, the project will not contribute to significant cumulative impacts on parks and recreational facilities in the area.

K.5. LIBRARY FACILITIES

Public library services in the City of Long Beach are provided by the Long Beach Public Library and services in the City of Lakewood are provided by the Los Angeles County Public Library. Implementation of the project will result in an increase of approximately 4,784 residents in the City of Long Beach and approximately 13,442 net new daytime employees in the Cities of Long Beach and Lakewood under the maximum employment scenario. The proposed project does not include any residential units in the City of Lakewood. The Ruth Bach Library that serves the portion of the project site within the City of Long Beach does not currently meet the standard goal of 2.1 library items per capita. Furthermore, with the addition of the project, the amount of floor area per person at the Ruth Bach library will be reduced to approximately 0.19 square feet per resident, which does not meet the City's goal of 0.25 square feet per resident. As a result of the project, the City of Long Beach Public Library has indicated that an approximately 13 percent workload increase at the Ruth Bach Library will be necessary and that the book collection at this Library will have to be expanded proportionally to meet the 2.1 items per capita goal. Annually recurring project-generated General Fund revenue will be sufficient to fund the necessary library expenditures associated with additional demand from the project. However, that revenue stream may not be pre-allocated to a specific purpose. As such, if the project-generated revenue were allocated to other needed municipal purposes other than to the provision of additional resources at the Ruth Bach Library, a potentially significant impact associated with demand for library facilities by the project-generated residential population will occur.

Incremental use of library resources by new project employees in the City of Lakewood in the form of walk-in visits to the library or telephone calls to the library reference desk could occur. However, the actual demand on library resources for professional daytime use by employees will be minimal, particularly since employee research needs are commonly met by in-house or on-line reference resources. Therefore, impacts associated with demand for library facilities by project-generated daytime employees in the City of Lakewood will be less than significant.

Mitigation

Project implementation could potentially result in a significant impact to the provision of library services or to library facilities in the City of Long Beach. Project-generated municipal General Fund revenues are forecast to yield a considerable annual fiscal surplus, which will mitigate potential impacts to library services. Thus, no mitigation measures are proposed.

Level of Significance After Mitigation: It cannot be guaranteed that project-generated General Fund revenue is allocated to a specific service sector. Therefore, the project could result in potentially significant and unavoidable impacts on City of Long Beach library services and facilities. In addition, the project could contribute to a cumulatively significant unavoidable impact to library services in the City of Long Beach. No significant project impact or cumulative impacts on City of Lakewood library services and facilities will occur.

Cumulative Impacts: Since library services in the City of Long Beach are organized around service areas, the geographic distribution of the population growth projected by SCAG is important. The majority of this growth is projected to occur in the southern portion of the City. However, as residential growth generated by the proposed project will significantly impact library services both within its service area and in the City as a whole due to the transfer of materials among libraries, and as there is currently a system-wide shortage of library resources in the City, the project will contribute to cumulative impacts in the service area in which it is located as well as in the City as a whole. The need for additional library resources associated with cumulative growth may be addressed through the City's annual budgeting process. However, as described above, the allocation of project-generated revenue to a specific service cannot be guaranteed. Therefore, the combined cumulative impacts to libraries within the City of Long Beach associated with the project's incremental effect and the effects of other projects in the area could be significant.

Since no residential units are proposed for the portion of the project within the City of Lakewood, the project will not contribute to cumulative library impacts in the City of Lakewood. Furthermore, any future projects may include specific features designed to reduce impacts on library services and facilities. Future projects will be evaluated individually to determine appropriate measures to address new demand. Cumulative impacts on library facilities in the City of Lakewood will be less than significant.

L. TRANSPORTATION/CIRCULATION AND PARKING

The San Diego Freeway (I-405) and the Artesia Freeway (SR-91) provide primary regional access to the project site. Locally, the primary roadways that serve the project site include Carson Street, Lakewood Boulevard, Spring Street, Paramount Boulevard, and Cherry Avenue. Under existing conditions, 39 of the 107 existing study intersections are operating at LOS E or F in one or both of the peak hours. Prior to implementation of proposed mitigation measures, implementation of the PacifiCenter project will significantly impact 55 study intersections. When combined with the intersections that are currently operating at unacceptable levels, a total of 79 study intersections will be operating at LOS

E or F in one or both peak hours after project completion. With implementation of project TDM and the proposed mitigation measures, a total of 60 intersections will operate at unacceptable levels. However, the project will significantly impact three of the study intersections after mitigation.

Under existing conditions, all of the nine analyzed mainline segments on I-405 are currently operating at LOS E or F during one or both peak hours. All six of the mainline segments on SR-91 within the study area are operating at LOS E or F during one or both peak hours under existing conditions. In addition, all of the analyzed on-ramps serving I-405 and SR-91 are operating at LOS D or better. The project will have significant impacts on eight of nine I-405 mainline segments analyzed prior to mitigation. Two of six analyzed mainline segments on SR-91 will experience a significant project impact during one or both peak hours prior to mitigation. In addition, one of the 18 on-ramps analyzed for I-405 will be significantly impacted by the project prior to mitigation. None of the analyzed on-ramps of SR-91 will be significantly impacted by the project. After implementation of the proposed mitigation measures, significant impacts will remain at eight of the I-405 mainline segments analyzed. However, the CMP credit/debit analysis indicates that the project will result in a greater benefit than impact on the regional transportation system, and the proposed mitigation measures will further improve conditions. Nonetheless, since the future with project (including TDM and mitigation measures) condition will result in a D/C ratio increase of 0.020 or more with a final LOS of F on eight of the I-405 mainline segments analyzed, the project's impacts on these freeway segments are considered significant.

A traffic volume analysis was conducted for five residential street segments. Of the analyzed segments, three will experience significant traffic increases (more than 500 trips per day or 50 trips per hour) as a result of the project. Mitigation measures will reduce these impacts to less than significant levels. However, while such measures can reduce the impacts on the residential street segments to less than significant levels, should the jurisdictions fail or be unable to implement acceptable and adequate measures, some or all of these project impacts will remain significant.

Long Beach Transit (LBT) is the primary transit service provider in the City of Long Beach and the project vicinity. The project is expected to increase usage of LBT bus routes operating near the project site and to add new riders to the Metro Blue Line Light Rail Transit. LBT reports that it currently has the rolling stock and facilities to absorb a moderate increase in demand such as may be anticipated from the PacifiCenter project. As such, a less than significant impact to transit will be expected.

The City of Long Beach has a system of bikeways that provide reasonable access to the project site from the east, southeast, and northeast, with more limited access from the west and north. The pedestrian environment on the project site consists primarily of disconnected sidewalks with no major pedestrian linkages. The project will not disrupt existing bicycle or pedestrian routes. Rather, it will include improvements to these systems in the project vicinity. As such, no significant impacts will occur.

The existing parking supply on the project site is comprised of several off-street surface parking lots distributed throughout the site. Off-street parking will be provided for the project based on the adjusted gross floor area of each of the buildings. On-street parking will also be provided for specified uses. By appropriately taking into account the potential for shared parking to occur at mixed-use projects such as PacifiCenter, as allowed pursuant to Section 21.41.223 of the Long Beach Municipal Code, the project will provide adequate parking to serve the proposed uses. As such, a less than significant impact to parking will occur.

The project will be consistent with Congestion Management Plan Guidelines as well as applicable policies, goals, and objectives contained within the SCAG Regional Transportation Plan, the Transportation Element of the Long Beach General Plan, the Long Beach Bicycle Master Plan, and the Circulation Element of the Lakewood General Plan.

Construction activities associated with the PacifiCenter project could result in temporary traffic impacts on the surrounding roadways associated with an increase in truck traffic associated with removal or import of fill material and delivery of construction materials, and an increase in vehicle traffic associated with construction workers traveling to and from the site. Such activities may cause an intermittent reduction in street and intersection operating capacity on surrounding roadways. Mitigation measures outlined in Section V.B, Air Quality related to construction deliveries and temporary traffic controls will reduce impacts associated with construction traffic (refer to Mitigation Measure V.B-13). However, while construction traffic impacts will be temporary and short-term, they will be nonetheless, be considered significant.

Mitigation

The project proposes to implement a subregional transportation mitigation program that addresses both project impacts and area-wide needs. All of these measures are described below.

Area-Wide Adaptive Traffic Control System and Intelligent Transportation System Measures (ITS):

V.L-1 Fund or cause the funding for the design and construction of a state-of-the-art traffic signal system such as Adaptive Traffic Control System (ATCS) for the following eight arterial routes: (1) Del Amo Boulevard, approximately from the Long Beach Freeway (I-710) to the San Gabriel River Freeway (I-605); (2) Carson Street, approximately from Long Beach Boulevard – San Antonio Drive to I-605; (3) Spring Street, approximately from Atlantic Avenue to I-605; (4) Willow Street, approximately from Atlantic Avenue to I-605; (5) Atlantic Avenue, approximately from the Artesia Freeway (SR-91) to Willow Street; (6) Cherry Avenue, approximately from SR-91 to Pacific Coast Highway; (7) Lakewood Boulevard, approximately from SR-91 to Stearn Street; and (8) Bellflower Boulevard, approximately from SR-91 to the San Diego Freeway (I-405).[11]

V.L-2 Fund or cause the funding for the design and construction of interconnect, traffic detectors, surveillance cameras, message signs, and other means that connect the arterial traffic signal system with adjacent freeway on- and off-ramps meters and signals. Such connectivity with the regional transportation system will allow motorists exiting and entering the freeway to be better and more quickly informed as to which surface streets and on-ramps provide the best alternatives for accessing their destinations. This will result in better distribution of traffic loadings and more efficient use of available street and ramp capacity.

V.L-3 Fund or cause the funding for the design and construction of a centralized ATCS/ITS command center to operate and manage the area-wide ATCS and affiliated ITS measures.

[11] *The capacity of the signalized intersections along the eight arterials being implemented with the ATCS and supportive ITS measures were assumed to improve by ten percent, which is consistent with that experienced in other jurisdictions with ATCS/ITS programs, such as the Cities of Los Angeles, Pasadena, and Glendale. Signalized intersections in the study area not directly along the ATCS/ITS routes would also benefit and experience improved traffic flow overall due to ITS technology informing motorists of traffic conditions in the area. Motorists can use this information to seek better routes and thereby better balance traffic demand with capacity. It was assumed that this betterment is commensurate with an approximately three percent improvement in capacity at these other intersections.*

Intersection Improvements

V.L-4 Del Amo Boulevard and Lakewood Boulevard (Intersection 32, Cities of Lakewood and Long Beach): Widen on the east side of the north leg and the west side of the south leg of Lakewood Boulevard; remove the nose islands and modify the remaining raised islands on the north and south legs; and restripe the north and south legs to provide a second southbound left-turn and three through lanes in each direction on Lakewood Boulevard. No on-street parking removal is anticipated.

V.L-5 Carson Street and Paramount Boulevard (Intersection 44, City of Lakewood): Widen on the east side of the south leg of Paramount Boulevard; modify and shift the raised island on the north leg; remove the raised island on the south leg; and restripe the north and south legs to provide a northbound right-turn-only lane on Paramount Boulevard. No on-street parking removal is anticipated.

V.L-6 Carson Street and Lakewood Boulevard (Intersection 45, Cities of Long Beach and Lakewood): Widen on the west side of Lakewood Boulevard between Carson Street and the project access roadway opposite Douglas Center Drive; modify and shift the raised islands on the north and south legs; restripe the north leg to provide an additional southbound through lane; and restripe the departure lanes on the south leg to receive the added through lane traffic. No on-street parking removal is anticipated.

(Note: This improvement will not fully mitigate the project impact to a less than significant level.)

V.L-7 Carson Street and Bellflower Boulevard (Intersection 48, Cities of Long Beach and Lakewood): Prohibit parking during the A.M. peak period on the north side of Carson Street for a length of approximately three blocks east and west of Bellflower Boulevard; modify and lengthen the left-turn channelization along the raised islands on the east and west legs of Carson Street; and restripe this length of Carson Street to provide a third westbound through lane, including conversion of the right-turn lane at Bellflower Boulevard, for the A.M. peak periods, and extended left-turn lanes approaching Bellflower Boulevard.

On-street parking removal of up to approximately 75 spaces during the A.M. period on the north side of Carson Street will be necessary.

The affected parking spaces are adjacent to residential and commercial uses that appear to have off-street parking facilities capable of satisfying parking requirements. Therefore, removal of the on-street parking is not expected to have a significant impact.

V.L-8 Cover Street and Paramount Boulevard (Intersection 56, City of Lakewood); Cover Street from Paramount Boulevard to West of Industry Avenue (Cities of Long Beach and Lakewood): Construct the project roadway approximately in a northwesterly alignment approaching Cover Street and Paramount Boulevard, and stripe to provide two through lanes and a right-turn-only lane westbound, and a bike lane in each direction. Reconstruct Cover Street approximately in a southeasterly alignment approaching the project roadway and Paramount Boulevard, and restripe to provide a left-turn lane and two through lanes eastbound, and a bike lane in each direction. Restripe Paramount Boulevard to provide a left-turn lane and a right-turn-only lane southbound. No on-street parking removal is anticipated.

Widen on the north side of Cover Street from approximately 100 feet west of to 340 feet east of Industry Avenue; modify and lengthen the left-turn channelization along the raised island on the east leg at Industry Avenue; and restripe to provide two through lanes, left-turn channelization and a bike lane in each direction, including an extended westbound left-turn lane at Industry Avenue, from Industry Avenue to the improvement at Paramount Boulevard. Restripe the west leg of Cover Street at Industry Avenue to provide two eastbound through lanes, including conversion of the right-turn-only lane, and two westbound right-turn-only lanes departing the intersection and approaching Cherry Avenue. On-street parking removal of up to approximately three spaces on Cover Street will be necessary.

Restripe Industry Avenue between Cover Street and Bixby Road to provide a left-turn lane and two right-turn-only lanes northbound, a southbound through lane, and a bike lane in each direction.

The affected parking spaces are adjacent to commercial and industrial uses. There appears to be sufficient off-street capability to satisfy parking requirements. Therefore, removal of the on-street parking is not expected to have a significant impact.

The reorientation and reconfiguration of the legs of this intersection could potentially necessitate some right-of-way acquisition.

(Note: These improvements are designed to enhance project access via the Cover Street – Cherry Avenue route and should be implemented with Mitigation Measures V.L-9 and V.L-14)

V.L-9 Bixby Road and Cherry Avenue (Intersection 59, Cities of Long Beach and Lakewood): Restripe the east leg of Bixby Road to provide one left-turn lane, one left-turn/through shared lane and one right-turn-only lane.

On-street parking removal of up to approximately 37 spaces, including nine commercial (yellow zone) spaces, on Bixby Road will be necessary. The affected parking spaces are adjacent to commercial uses. There appears to be sufficient off-street capability to satisfy parking requirements, with the possible exception of delivery/service needs. Therefore, removal of some of the on-street parking may result in a shortage of parking in the area during times of peak demand.

(Note: This improvement is designed to enhance project access via the Cover Street – Cherry Avenue route and should be implemented with Mitigation Measures V.L-8 and V.L-14.)

V.L-10 Conant/B Street and Lakewood Boulevard (Intersection 60, City of Long Beach): Construct and stripe B Street approaching Lakewood Boulevard to provide one left-turn lane, one through lane and two right-turn-only lanes eastbound. Restripe and convert the right-turn-only lane on the east leg of Conant Street to a westbound through/right-turn shared lane. No on-street parking removal is anticipated.

(Note: This improvement will not fully mitigate the project impact to a less than significant level.)

V.L-11 Wardlow Road and Cherry Avenue (Intersection 65, City of Long Beach): Widen on both sides of the south leg of Cherry Avenue; shorten the raised island on the north leg; and restripe the north and south legs to provide a third southbound through lane.

Extensive on-street parking removal on Cherry Avenue, especially on the north leg, will be necessary. The affected parking spaces are adjacent to commercial and residential uses. There appears to be sufficient off-street capability to satisfy parking requirements.

Therefore, removal of the on-street parking is not expected to have a significant impact.

(Note: This improvement is designed to enhance project access via Cherry Avenue.)

V.L-12 Douglas Center Drive/Project Access Roadway (new) and Lakewood Boulevard (Intersection 105, City of Long Beach): Widen on the west side of Lakewood Boulevard between Carson Street and the project access roadway; modify the raised island on Lakewood Boulevard for left-turn channelization; and restripe to provide a fourth southbound through lane that becomes a right-turn-only lane at the project access roadway, and a northbound left-turn lane. No on-street parking removal is anticipated.

(Note: This improvement is designed to enhance project access capacity on Lakewood Boulevard.)

V.L-13 A Street (new) and Lakewood Boulevard (Intersection 106, City of Long Beach): Widen on the west side of the north leg of Lakewood Boulevard; open and modify the raised island on Lakewood Boulevard to provide left-turn channelization; and restripe to provide a southbound right-turn-only lane and northbound left-turn lane. Install a traffic signal with the ATCS upgrade to control this intersection.

(Note: This improvement is designed to enhance project access capacity on Lakewood Boulevard.)

V.L-14 Cover Street and Cherry Avenue (Intersection 108, Cities of Long Beach and Lakewood): Open and modify the raised island on Cherry Avenue between Roosevelt Road and Bixby Road, and restripe to provide a southbound left-turn lane accessing Cherry Avenue and a third northbound through lane. Restripe Cover Street to provide a second westbound right-turn-only lane and no westbound left-turn lane. Remove the stop sign control on Cover Street and install a "half signal" that controls all movements except for the southbound through movement on Cherry Avenue.

On-street parking removal of up to approximately 12 spaces on Cherry Avenue and 24 spaces on Cover Street would be necessary. The affected parking spaces are adjacent to commercial and industrial uses. Some of these uses may not have sufficient off-street

capability to satisfy parking requirements. Therefore, removal of the on-street parking may result in a shortage of parking in the area during times of peak demand.

(Note: This improvement is designed to enhance project access via the Cover Street – Cherry Avenue route and should be implemented with Mitigation Measures V.L-8 and V.L-9.)

V.L-15 Carson Street and First Street (new) (Intersection 109, City of Long Beach): Restripe Carson Street to provide a westbound left-turn lane. Install a traffic signal with the ATCS upgrade to control this intersection. No on-street parking removal is anticipated.

Project Transportation Demand Management (TDM) Program

V.L-16 A project TDM program shall be implemented to reduce inbound A.M. peak hour and outbound P.M. peak-hour employee vehicle trips by 20 percent for the Commercial (Office Park) use. Although the project is claiming trip-reduction credit for only this use, many of the TDM program measures will be available to a broader cross section of the site, and will likely attract participants outside of the targeted uses. Should it become evident that the project TDM program is not on schedule to achieve and sustain the 20 percent trip reduction goal, the project, as mutually agreed to with the City of Long Beach, will accelerate the implementation of the physical mitigation measures and/or expand its TDM program to include other employers in the area surrounding the project site. The project TDM program is more fully described in Appendix Q. The TDM program may include but not be limited to the following measures:

- On-Site Employee Transportation Coordinator (ETC) – The ETC would be a full-time position. The ETC would be responsible for maintaining the transportation displays and providing services such as on-site monthly transit pass sales, assistance with carpool/vanpool matching, oversight of the carpool/vanpool program and other ridesharing related services. The ETC would also coordinate resources and ideas with other transportation management organizations.
- On-Site Transportation Management Office – This facility would be a dedicated office for the ETC and any support personnel. It would serve as a tangible focal point for the TDM program. The location

and contact number of this office would be well publicized so that employees could conveniently call or come in for assistance.

- Preferential Parking Management – The ETC would oversee a preferred employee carpool/vanpool parking program. This program would assign preferential parking spaces (i.e., the more desirable and convenient spaces) to eligible employee carpools and vanpools, and monitor the use of the identified spaces to ensure that they are being properly used.

- Carpool/Vanpool Matching – A ridematching service would be made available to help employees seek carpool and vanpool partners. The ETC would facilitate employee ridematching, with the primary emphasis on matching project employees with one another. The availability of this service would be advertised on on-site transportation displays.

- Vanpool Start-Up Assistance – The ETC would assist employers or employees attempting to initiate vanpool service at the project. This assistance could include research of van leasing arrangements, research of applicable tax credits, increased marketing activity and developing vanpool routes.

- Vanpool Staging Areas – Special vanpool passenger loading/unloading areas would be established at one or more locations on-site. This incentive would make it more convenient and safer for commuters to load and unload their vanpools outside the normal flow of traffic.

- On-Site Transit Pass Sales – Monthly LBT, joint LBT/MTA, and MTA passes would be available for purchase through the on-site transportation management office (TMO).

- Centralized Information Board – A centralized bulletin board or kiosk with information on alternative transportation modes, including transit, would be provided on-site. A centralized transportation information board with similar information for residents would also be provided on-site.

- New Business/Employee Commuter Benefits/Flier Packet – The ETC would prepare fliers and/or packets outlining key TDM amenities and services that are made available by the project in support of alternative transportation modes. The fliers/packets would be distributed to employers for their dissemination to employees.

- Guaranteed Ride Home Program – This program would provide the means to those employees who carpool, vanpool, bus or bicycle to work to have a guaranteed ride home in the event of an emergency or unexpected overtime.

- Other Marketing – The annual state- and regional-level events of California Rideshare Week and Southern California Bike-to-Work Day would be advertised and potentially used as the setting for a site-specific marketing event or transportation fair.

- Shuttle System – This shuttle system would be implemented through a joint arrangement with the City of Long Beach and/or Long Beach Transit, whereby the project would supply the shuttle vehicles and other capital needed to operate the service, and the City agencies would operate the service. It is anticipated that the shuttle system would provide limited stop service to the Metro Blue Line and intersecting bus lines that are en route during the morning and afternoon commute periods, and would operate as a free project circulator during non-commute periods to provide an alternative to walking or short driving trips within the PacifiCenter site.

Regional Transportation Improvements

V.L-17 I-405 (San Diego Freeway) Northbound On-Ramp from Southbound Cherry Avenue: Widen the two northbound on-ramps in the area where these ramps merge to provide an elongation of the merge section for a smoother and safer merge. Additionally, the ramp metering location for southbound traffic from Cherry Avenue could be relocated to provide added queuing length between the meter and Cherry Avenue.

Residential Street Measures

V.L-18: The Applicant shall provide appropriate funding to the City of Long Beach to administer and allocate for the design and implementation of neighborhood traffic management measures to deter non-residential traffic intrusion into the residential areas surrounding the project site. Such measures may include speed bumps, additional stop signs, peak period turning prohibitions, “right turn on red” prohibitions, retiming of traffic signals, architectural neighborhood identification monuments or gates, or round-a-bout traffic circles. The City of Long Beach will include and coordinate with adjacent

jurisdictions and neighborhood groups that may be affected by project-related traffic intrusion on these residential streets.

Public Transit Measures/Improvements

V.L-19 The Applicant shall consult with Long Beach Transit (LBT) and the Metropolitan Transportation Authority (MTA) to address the project's anticipated transit demand needs.

Bicycle Facility Improvements

V.L-20 In keeping with the intent of the Long Beach Bicycle Master Plan, the project will continue to provide a Class I bike lane within the Carson Street parkway adjacent to the site between First Street and Lakewood Boulevard, and will provide a Class II bike lane that extends through the project site south from Carson Street and west to the Paramount Boulevard/Cover Street intersection. These bicycle facility improvements will occur simultaneously with the phasing of the on-site streets.

Parking Measure

V.L-21 A shared parking analysis will be prepared and submitted to the City of Long Beach for review and approval to justify a reduction in the Code-required on-site parking for the uses that will implement joint-use parking.

Level of Significance After Mitigation: The proposed mitigation measures outlined herein will reduce nearly all of the significant project impacts at the 55 intersections to less than significant levels. However, significant impacts will remain at three intersections. The project will also contribute to significant and unavoidable cumulative impacts at these intersections as well as four other intersections that will not be significantly impacted by the project but will not have improved conditions under the proposed project with mitigation measures as compared to the future no project conditions.

In terms of impacts to the regional transportation system, the project will fund or cause to be funded extensive area-wide mitigation measures on the surface street system, which will have much greater benefit than impact on the regional system. In addition, voluntary improvements to the Cherry Avenue on-ramp to the I-405, which are included as part of the project, will further reduce cumulative impacts to the regional system. Although

the CMP credit/debit analysis indicates that the project will have a greater benefit than impact on the regional transportation system, as the project will result in a D/C ratio increase of 0.020 or more with a final LOS of F on eight of the nine I-405 mainline segments analyzed, the project's impacts on these freeway segments are considered significant and unavoidable.

Project impacts to residential street segments can be reduced through the implementation of a mitigation measure requiring the funding for the implementation of neighborhood traffic management measures. However, should the jurisdiction(s) with authority to implement these measures fail or be unable to implement acceptable and adequate measures, project impacts on possibly up to three significantly impacted residential street segments will be significant and unavoidable.

While impacts associated with construction traffic will be short-term and temporary, they are considered to be a significant and unavoidable impact. Should several projects in the vicinity of the project be constructed at the same time, the project will also contribute to a short-term significant cumulative impact.

The project will provide adequate parking to serve the proposed uses as well as to satisfy parking requirement included in the Code. As such, no significant parking impacts will occur. In addition, significant unavoidable impacts associated with transit, bicycle and pedestrian circulation, and construction traffic will not occur. Finally, the project will not result in a change in air traffic patterns that will cause substantial safety risks or substantially increase hazards due to design features or incompatible uses.

Cumulative Impacts: By the year 2020, poor operating conditions (LOS E or F) are projected during one or both of the peak hours at 70 of the study intersections. The future with project plus mitigation condition will result in an overall improvement to most of the study intersections when compared with future without project conditions due to roadway improvements that will be completed as mitigation for the project. However, at a small number of the intersections (i.e., seven), the future without project condition will have better conditions during one or both of the peak hours as compared with conditions under the proposed project with mitigation measures. This is the case at the seven intersections including the three that will experience significant and unavoidable project impacts. As such, while the project with mitigation will result in improved conditions at a majority of the study intersections, because conditions will not improve at seven of the intersections, the project is considered to contribute to cumulatively considerable intersection impacts.

Cumulative traffic on I-405 and SR-91 within the project vicinity will contribute to the existing congestion on these freeways. All of the analyzed mainline segments will be

operating at LOS E or F in 2020 in one or both peak hours either with or without development of the PacifiCenter project. The project includes voluntary improvements to the Cherry Avenue on-ramp at I-405. The project will implement mitigation measures to alleviate these impacts. However, although the project will result in an overall benefit to the regional transportation system, since the project will result in a D/C ratio increase of 0.020 or more with a final LOS of F on eight of the nine I-405 freeway segments analyzed, the project is considered to contribute to a cumulatively considerable impact to regional freeways.

Cumulative growth will result in traffic increases on residential street segments in the project area. Related projects will be required to mitigate any significant impacts to these roadways, as necessary. However, as the project will possibly result in a significant and unavoidable impact on up to three residential street segments, the project will also contribute to a cumulatively considerable impact on these residential street segments. No other significant cumulative impacts associated with transportation, circulation, or parking will occur.

M.1. WATER

The Long Beach Water Department (LBWD) provides water services for the City of Long Beach, while the City of Lakewood Department of Water Resources provides water services for the City of Lakewood. The majority of LBWD's water supply is imported from the Metropolitan Water District (MWD). The LBWD currently serves the majority of the project site.

A short-term, intermittent demand for water will occur as a result of demolition, excavation, grading, and construction activities on the project site, and will total approximately 3,000 gallons per day (gpd) per acre of construction activities. The additional water demand generated by project construction will be offset by the reduction in water consumption from demolition of existing uses. Overall, demolition and construction activities will require minimal water demand and will not result in a significant impact on the existing water system or available water supplies.

Implementation of the project will result in an increase in water demand for operational uses. Potable water used for domestic purposes within the Long Beach and Lakewood portions of the site will be obtained from the City of Long Beach Water Department and Lakewood Department of Water Resources, respectively, and water used for irrigation and landscaping purposes will be provided by LBWD via the proposed reclaimed water distribution system. The average potable water demand of the proposed project at full buildout will be approximately 1,407,500 gpd, or an increase of

approximately 1,331,600 gpd over existing conditions. This increase represents approximately 2.1 percent of the approximately 63 million gpd water demand in LBWD's service area. The peak or maximum daily potable water demand will be approximately 2,420,900 gpd at project buildout. Additionally, total project-related water demand within the Long Beach portion of the site represents approximately 2.0 percent of LBWD's future average domestic demand estimated in the 2000 Urban Water Management Plan (UWMP).

The average demand for reclaimed water generated by the project will be approximately 402,715 gpd (the site does not currently use reclaimed water); maximum daily demand will be 939,669 gpd, based on an 8-hour nighttime irrigation period, scheduled three times per week. All reclaimed water will be provided by LBWD. The total project-related reclaimed water demand throughout the site represents approximately 3.5 percent of LBWD's future average domestic demand estimated in the 2000 Urban Water Management Plan. Since the LBWD currently utilizes approximately two-thirds of the total reclaimed water produced, the LBWD will have adequate resources to serve the project site. The project will involve new domestic and reclaimed water systems that follow the proposed roadways and provide connections to service individual sites within the PacifiCenter property. The project will also provide for a new 16-inch water line in Paramount Boulevard parallel to the City of Lakewood's existing lines in order to accommodate fire flow requirements in the Lakewood portion of the site. An emergency interconnect between the Lakewood and Long Beach systems is proposed at the city line at the request of the Lakewood Department of Water Resources.

In addition, on-site water systems will be designed and constructed to provide adequate water service and flows for the project site, water conservation measures will be employed, and project implementation will not inhibit the capacity of the system serving the surrounding project area. Based on this information and in consultation with the LBWD and the City of Lakewood Department of Water Resources, the Cities have adequate water supplies to accommodate the demand for domestic and reclaimed water that will be generated by full buildout of the proposed project. Thus, implementation of the project will not result in a significant impact on water supply or services.

In accordance with SB 610, a water supply assessment has been prepared for the Long Beach portion of the PacifiCenter project by the Long Beach Water Department. The LBWD water supply assessment demonstrates that the projected water supplies available during normal, single-dry, and multiple-dry water years included in the City's UWMP 20-year projection will meet the projected water demand associated with the project as well as existing and other planned future uses of LBWD's system. Based on the land uses, estimated floor area, and maximum employment anticipated within the

Lakewood portion of the site, that portion of the project does not meet the definition of a project per Section 10912 of the Water Code, and the requirements of SB 610 do not apply.

Mitigation

Based on the analysis provided herein, development of the proposed project will not result in any significant impact to water services. However, the following mitigation measures are proposed to ensure implementation of the project features described herein.

V.M.1-1 Water line abandonment, new water system connections, and the construction of on-site infrastructure needed for future development on-site shall be completed in accordance with the requirements of the City of Long Beach Water Department, City of Lakewood Department of Water Resources, Long Beach Fire Department, and the County of Los Angeles Fire Prevention Division, Engineering and Building Plan Check Unit.

V.M.1-2 The installation of new domestic water infrastructure shall be coordinated with PacifiCenter development and on-site street improvements.

V.M.1-3 The proposed on-site reclaimed water distribution system shall be constructed in accordance with the requirements of the Long Beach Water Department. The installation of new reclaimed water infrastructure shall be coordinated with PacifiCenter development and on-site street improvements.

V.M.1-4 Project development shall comply with State law regarding water conservation measures, including pertinent provisions of Title 20 and Title 24 of the California Government Code regarding the use of water efficient appliances.

Level of Significance after Mitigation: The existing infrastructure of the LBWD is adequate to provide both domestic and fire water demands for the Long Beach portion of the project. Additionally, with the proposed off-site water line improvements along Paramount Boulevard, the Lakewood water system will be adequate to provide both domestic and fire water demands for the Lakewood portion of the project. As such, no significant impacts will result from project implementation.

Cumulative Impacts: Few related projects (Related Project Nos. 6, 12 and 44) that are expected to use segments of the water distribution system serving the project site have been identified in the immediate project locale. Given their size and nature, none of these related projects is expected to use substantive existing or anticipated capacity. However, should developments be proposed in the future that exceed local infrastructure capacity, the development(s) will be expected to make appropriate infrastructure upgrades. Therefore, no substantive cumulative impacts on local water distribution infrastructure will occur.

Locally, all of the identified related projects located in the City of Long Beach can be conservatively expected to generate an average daily water demand of approximately 2.0 million gallons or roughly 150 percent of the net increase associated with the proposed project. Cumulatively, PacifiCenter and all identified related projects in the City of Long Beach will then increase total existing Long Beach domestic average daily water demand by as much as a combined 6 percent of total City demand. Related projects in the City of Lakewood when combined with the project can be conservatively expected to increase Lakewood's total existing average daily water demand by as much as 2.5 percent. Considering that each City has independently determined that it can adequately supply PacifiCenter's respective water demand and that these determinations are made with an understanding of other projects simultaneously seeking water connection, it is concluded that cumulative water demand in both cities will not exceed foreseeable accessible water supplies. This conclusion is reinforced with the knowledge that both cities may exercise their rights to supplement current supplies with water from the MWD.

On a regional level, since estimates of project employment and residential population growth are within sub-regional as well as regional forecasts made by SCAG, and SCAG forecasts are consistent with MWD's own projections, it can be concluded from a cumulative perspective that the project is consistent with regional planning for future water supplies. The MWD's Integrated Resource Plan has targeted increased conservation, recycling, storage and water transfers to help ensure the region's future water supply. In addition, similar to the proposed project, any future projects will likely include specific features designed to reduce impacts on water supply. Therefore, no significant cumulative impacts on water services will occur in conjunction with project implementation.

M.2. SEWER

Impacts: The County Sanitation Districts of Los Angeles County (CSDLA) serves the portion of the project site within the City of Lakewood, and the Long Beach Water Department (LBWD) provides sewer service to the portion of the site within the City of

Long Beach. Under existing conditions, sewage flows from the eastern part of the site are conveyed to a private 15-inch sewer line that solely serves the PacifiCenter site. Flows from the western and central portions of the site are conveyed to the 15- to 21-inch public pipeline running along the Conant Street extension. All site-generated wastewater is treated at either the Long Beach Water Reclamation Plant (LBWRP) or the Joint Water Pollution Control Plant (JWPCP). Implementation of the proposed project, under worst-case conditions, will generate average sewage flows of approximately 1.33 million gallons per day (mgd) (2.05 cubic feet per second (cfs)), or an additional 1.24 mgd (1.92 cfs) when compared to existing conditions. Peak flows for the project will be 4.22 cfs (2.73 mgd) or 3.94 cfs (2.55 mgd) more than under existing conditions. The existing sewer infrastructure on the site will be replaced by a new system that will be designed to provide adequate service to the project. New sewer lines will range from 8 to 21 inches in diameter and will be located in the proposed roadways. In addition, with approval by LBWD, the private 15-inch main sewer line located on-site will be transferred to LBWD to increase capacity within the public sewer system, with appropriate upgrades undertaken, as necessary and portions of the existing 15- to 21-inch line in Conant Street will be replaced on-site. The existing downstream sewer lines are not currently used to their full capacity and will be able to accommodate the additional sewage flows from the project site. Furthermore, the CSDLA has indicated that both treatment plants have adequate capacity to treat the additional flows generated by the proposed project. The PacifiCenter project will also comply with all applicable LBWD and CSDLA requirements for design and construction of new sewer infrastructure as well as requirements set forth in Section V.E., Hazards and Hazardous Materials of this EIR. Therefore, the increase in project-generated wastewater will not exceed the capacity of the sewer delivery system, or the existing capacity of LBWRP or JWPCP. In addition, the proposed improvements to the existing infrastructure will not reduce the ability of the sewer system to serve the surrounding project area. Therefore, impacts associated with demand for sewer facilities will be less than significant.

Mitigation

Based on these analyses, implementation of the PacifiCenter project will result in less than significant impacts on sewer service. However, the following mitigation measures are proposed to ensure implementation of the project features described above.

V.M.2-1 The proposed on-site sewer line improvements and associated sewer line connections located within the City of Lakewood portion of the project site shall be designed to meet applicable standards set forth by the Los Angeles County Department of Public Works (LACDPW) and shall be maintained by the County of Los Angeles Sanitation District Number 3 (CSDLA No.3). Associated wastewater flows shall

discharge into sewer facilities located within the City of Long Beach portion of the project site, and the Long Beach Water Department (LBWD), on behalf of the City of Long Beach, shall accept such flows from the Lakewood portion of the on-site sewer system (approximately 1,000 feet in length). During the design phase of the on-site sewer line improvements, a new sewer manhole shall be located at the boundary between the Cities of Long Beach and Lakewood as a point of demarcation.

V.M.2-2 Any food service uses located within the Lakewood portion of the project site shall implement a grease control program that shall include the installation of grease traps at the property, proper maintenance, and regular inspections.

Level of Significance After Mitigation: Implementation of the proposed mitigation measures will ensure that no significant impacts associated with sewer service will occur.

Cumulative Impacts: Cumulative impacts relative to sewage conveyance infrastructure are evaluated locally in the context of anticipated developments expected to utilize the same elements of the sewage collection system. Few related projects that are expected to generate substantive sewage effluent that will consume existing and proposed capacity have been identified in the immediate project locale. In addition, the CSDLA's interceptor trunk sewer (NLBITS) located downstream of the project site and into which nearby related projects (e.g., Related Project Nos. 6, 12, and 44) will ultimately discharge has available capacity of over 5 mgd. Therefore, no substantive cumulative impacts on local sewage collection infrastructure are anticipated in conjunction with this project. The geographic area for the cumulative analysis for sewer treatment is defined as the CSDLA service area. Within its service area, the CSDLA uses SCAG forecasts of future population and employment growth to project needed capacity. Because the CSDLA projects that its existing and programmed wastewater treatment capacity will be sufficient to accommodate the growth forecasts by SCAG, development that is generally consistent with this forecast can also be adequately served by CSDLA facilities. Estimates of project employment and residential population growth fall within SCAG growth projections for the sub-region in Los Angeles County through 2020. Therefore, the project is considered consistent with regional planning for future wastewater treatment capacity and will not contribute to significant cumulative impacts.

M.3. SOLID WASTE

During 2001, approximately 60 percent and 39 percent of the City of Long Beach's solid waste was disposed of at Class III landfills and transformation facilities, respectively. Less than one percent of the City's solid waste was disposed of at Unclassified landfills. Approximately 82 percent of Long Beach solid waste was disposed of at one of the following four landfills: Southeast Resource Recovery Facility (SERRF) (approximately 39 percent); Puente Hills Landfill (32 percent); and Frank R. Bowerman and Olinda Alpha Landfills (11 percent). In 2001, the majority of Lakewood's solid waste (57 percent) was disposed of at the SERRF, and the remainder (43 percent) was disposed of at Class III landfills (approximately 20 percent of the waste was disposed of at Puente Hills Landfill).

The proposed project will generate a net increase of up to 8,874 tons of solid waste per year when compared to 2001 annual solid waste disposal, for an increase of approximately 1.4 percent of the combined waste disposed of by existing uses within the Cities of Long Beach and Lakewood during year 2001. The regional landfills and the SERRF that are currently used for the disposal of solid waste from Long Beach and Lakewood have sufficient capacity to accommodate the demand for Class III disposal facilities generated by the PacifiCenter project. In addition, adequate storage space will be allocated for the collection and loading of recyclable materials and a program to divert 30 to 50 percent of the commercial waste will be implemented. As such, the increase in solid waste generation associated with operation of the PacifiCenter project will not exacerbate landfill capacity shortages in the region to the point of altering the projected timeline of any landfill to reach capacity.

Construction of the proposed project will generate an estimate of 57,000 tons of building material and hardscape. The majority of this material will be processed and reused on-site. About 2,250 tons of materials will be disposed of at Unclassified landfills. As the Unclassified landfills have sufficient capacity to accommodate the demand generated by construction activities, no significant solid waste impacts associated with construction will occur.

With the proposed storage space for recycling, the program to divert commercial waste, and the reuse and recycling of construction and demolition debris, the project will comply with federal, state, and local statutes and regulations related to solid waste.

Mitigation

To ensure that recycling is facilitated, the following mitigation measures are prescribed:

V.M.3-1 The allocation of adequate storage space for the collection and loading of recyclable materials shall be included in the design of buildings and waste collection points throughout the PacifiCenter site to encourage recycling. Recycling shall be provided for residential developments with four or more units as well as commercial and light industrial developments.

V.M.3-2 A program shall be implemented by the City or private hauler to divert 30 to 50 percent of the waste generated by the project's commercial uses. The precise percentage to be diverted will depend on the specific commercial use to be implemented and will be defined by the City of Long Beach Environmental Services Bureau and the City of Lakewood Department of Public Works.

Level of Significance After Mitigation: Implementation of the mitigation measure will facilitate recycling on site and will therefore help to ensure that the project's impact on regional solid waste disposal capacity is minimized to the extent feasible. However, cumulative impacts associated with disposal to Class III landfills will remain significant and unavoidable.

Cumulative Impacts: Related Project Nos. 44, 77, 6 and 12 will contribute to an increased demand for landfill capacity for solid waste from construction activities and ongoing operations. Similar to the proposed project, these projects are expected to recycle and reuse a large portion of the construction debris, thereby reducing the amount of material disposed of at landfills. As demonstrated earlier, the region's Unclassified landfills face no capacity shortfall. Therefore, impacts on the region's Unclassified landfills capacity due to construction activities related to the proposed project and related projects will be less than significant. Solid waste generation from the operation of 86 related projects is estimated to be approximately 55 tpd; cumulative waste generation including the PacifiCenter project will total an estimated 88 tpd. Due to recognized long-term capacity shortages, although development of the project itself will not exacerbate landfill shortages in the region, when considering the project together with other future growth expected by SCAG through 2020, cumulative impacts associated with solid waste disposal will be significant.

M.4. ENERGY

Under existing conditions, Southern California Edison (SCE) provides electricity service to the project site via the two 66-kV lines located along Carson Street that supply the Boost substation, located on a Boeing property immediately east of Lakewood Boulevard, located on the site. Long Beach Energy (LBE) provides the portion of the site within the City of Long Beach with natural gas. In light of current uses and separately permitted demolition activities on-site, LBE extended an 8-inch gas main along Conant Street west of Lakewood Boulevard in 2002, with sufficient capacity to serve the PacifiCenter project. The Lakewood portion of the site does not currently require natural gas, and although the Southern California Gas Company (SoCal Gas) provides natural gas services to the City of Lakewood, any future gas service for this area will be provided by either SoCal Gas or LBE, based upon mutual agreement between the two utilities. The existing on-site electric and natural gas distribution systems are owned and operated by the Boeing Company.

The project will entail the replacement of less efficient and energy-intensive land uses (i.e., aircraft production and associated aviation-related uses) with new uses, structures, and systems that have higher efficiency energy utilization and meet updated regulatory standards.

The peak electrical demand associated with project buildout will be approximately 32.6 megawatts (MW), an increase of 29.5 MW relative to baseline conditions, and annual consumption, projected at 193,629 MWh, will increase by 175,397 MWh. Based on projections for SCE's service area in 2012, the project-related peak demand will represent 0.13 percent of that forecast and maximum project-related annual consumption will represent 0.17 percent of forecast growth. A new underground electrical distribution system to be operated and maintained by SCE will be constructed on-site and will replace the existing private system. Initially the proposed system will connect to an existing 12-kV distribution line adjacent to the site, which SCE has indicated has available capacity to serve initial development. As electricity demand increases concurrent with the phasing of development over time, SCE will construct an on-site 66-kV/12-kV substation (by approximately 2009) to replace the Turbo and Stress substations being removed from the site. The new substation will connect to the existing 66-kV transmission lines along Carson Street. SCE anticipates that less than 25 percent of the substation's capacity will be needed for the PacifiCenter site at full buildout, with the additional capacity available for future demand from off-site uses. Off-site improvements will not be necessary, and the supply and distribution of power within the project area will not be reduced or inhibited as a result of project implementation. As such, impacts relating to electricity will be less than significant.

Development of the proposed project will generate a demand of approximately 32.9 million cubic feet per month (cu.ft./mo.) of natural gas for an increased demand of approximately 31.3 million cu.ft./mo. over baseline conditions. A new gas distribution system will be constructed on-site and will replace the existing private system. The proposed system will connect to existing on- and off-site gas transmission lines (i.e., the new 8-inch gas main which currently supplies the Boeing Enclave and LBE's existing distribution facilities along Carson Street). Project gas demand represents approximately 0.70 percent of LBE's total daily delivery capacity. In addition, the efforts of SoCal Gas to increase the availability of natural gas through transmission expansion projects and the withdrawal of gas from several of its storage fields will ensure that adequate supplies will continue to exist. Substantial adverse physical impacts associated with the construction or provision of new or physically altered energy transmission facilities will not occur, and the project will not result in the use of substantial amounts of natural gas. Therefore, the supply and distribution of natural gas within the area surrounding the project site will not be reduced or inhibited as a result of project implementation, and significant impacts to local or regional supplies will not occur.

Mitigation

Although the project will not result in a significant impact related to energy, the following mitigation measures are provided to ensure that on-site electricity and natural gas system improvements are implemented to the satisfaction of SCE and LBE.

V.M.4-1 The installation of new utility infrastructure and underground substructures shall be coordinated with PacifiCenter development and on-site street improvements. New electricity and natural gas facilities shall utilize current design, construction, and operating specifications and shall be installed per the construction standards and tariffs of Southern California Edison and Long Beach Energy, respectively.

V.M.4-2 During project development, the project Applicant shall coordinate with Southern California Edison to construct a new electric substation on-site or ensure that adequate infrastructure capacity is otherwise provided. The precise location of the substation shall be determined based on input from Southern California Edison. Refer to Figure 8 in Section III, Project Description, of this EIR for an illustration of potential areas within the site that may be utilized for the substation.

V.M.4-3 The installation of gas meters shall be completed in accordance with the specifications of Long Beach Energy and to the extent feasible, gas meters shall be installed outside.

Level of Significance After Mitigation: No significant energy-related impacts will result from project implementation.

Cumulative Impacts: The geographic area for cumulative analysis of electrical and natural gas demand is defined as the Cities of Long Beach and Lakewood. Based on SCAG's growth projections through 2020, preliminary estimates indicate that future development within the area surrounding the project site will generate an additional peak electrical demand of approximately 121 MW with estimated annual consumption of approximately 715,631 MWh. This additional peak demand represents approximately 0.48 percent of that forecast for SCE's service area in 2012; the cumulative annual electricity consumption represents approximately 0.57 percent of the SCE service area forecast. Preliminary estimates for future development in the area indicate an additional natural gas demand of approximately 171 million cu.ft./mo. by project buildout, representing approximately 3.6 percent of LBE's total delivery capacity. SoCal Gas, which has increased its gas receiving capability by 10.7 percent since 2000 with plans for further increases, will service future development in Lakewood. Given the number of expansion projects for major power plants and natural gas facilities that are currently planned or underway, sufficient supplies are anticipated to be available to serve future development. In addition, all development projects will be subject to Title 24 requirements and will be evaluated on a case-by-case basis to determine the need for specific distribution infrastructure improvements. Thus, the project will not contribute to significant cumulative impacts associated with electricity or natural gas.

III. Project Description

III. PROJECT DESCRIPTION

A. INTRODUCTION

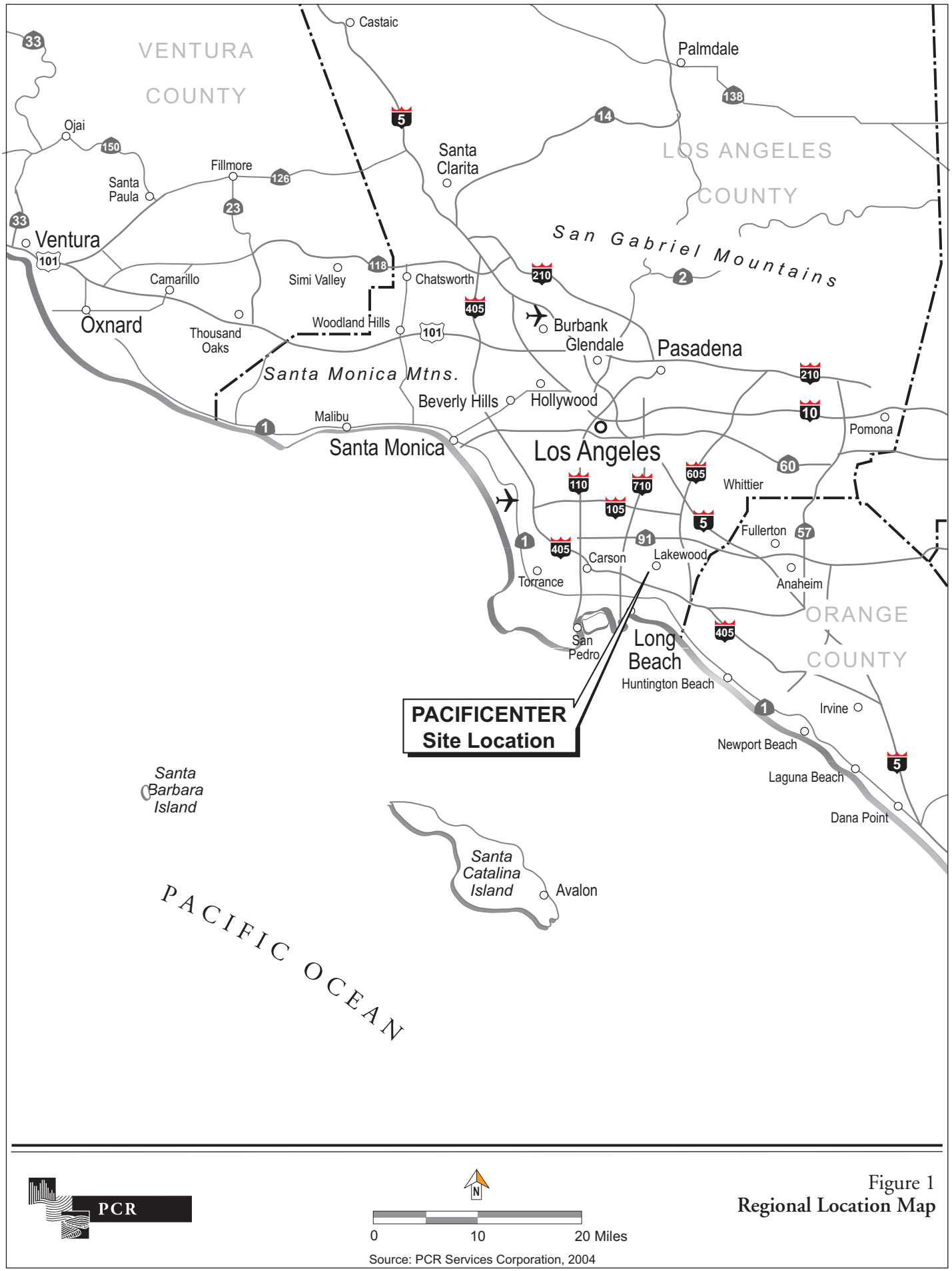
Boeing Realty Corporation (Boeing), the project Applicant, proposes PacifiCenter @ Long Beach (hereafter referred to as the PacifiCenter project or proposed project), which will result in the redevelopment of approximately 261 acres of former and existing Boeing C-1 aircraft production facilities located within the Cities of Long Beach and Lakewood. [12, 13] Project implementation will provide for the replacement of over five million square feet of research and development (R&D), office, warehousing, manufacturing, and other aviation-related floor area previously occupied on the project site with new R&D, light industrial, office, retail, hotel, residential, aviation-related, and ancillary uses. In addition, warehouse uses may be developed as accessory uses to permitted uses within the commercial area of the site. The project will be designed as a master planned community integrating a variety of land uses. The project is anticipated to be fully developed by the year 2020.

B. PROJECT LOCATION

The project site is located approximately five miles northeast of downtown Long Beach and immediately north of the Long Beach Municipal Airport (Airport), as indicated in the Regional Location Map provided in Figure 1 on page 104 and the Project Vicinity Map provided in Figure 2 on page 105. A majority of the site (approximately 238 acres) is located within the City of Long Beach, while the remaining portion of the site (approximately 23 acres) is located within the City of Lakewood. In general, the project site is bounded by Carson Street on the north, the Airport on the south and southwest,

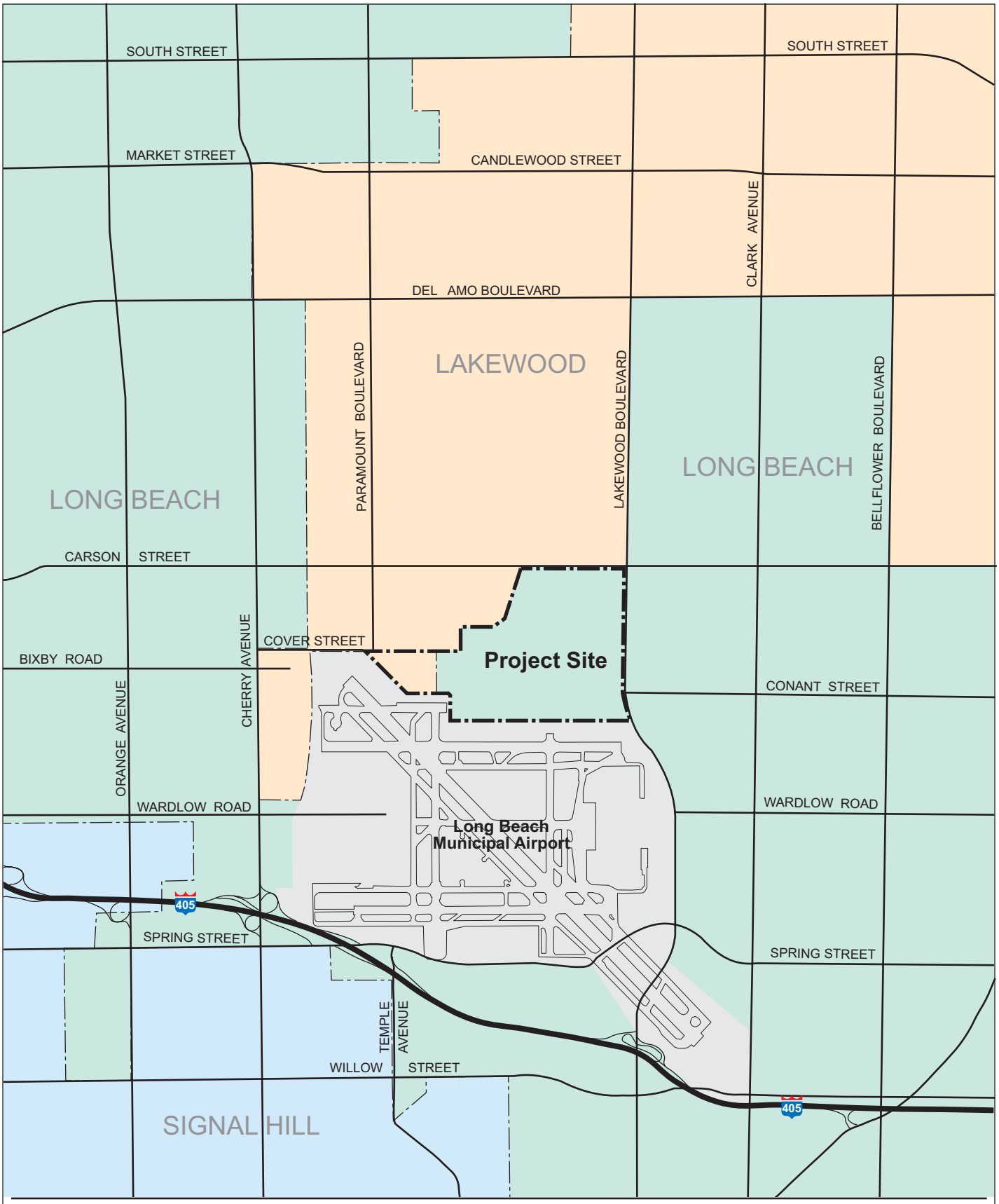
[12] *The project site is owned by McDonnell Douglas Corporation. McDonnell Douglas Corporation and Boeing Realty Corporation are each wholly owned subsidiaries of The Boeing Company. Boeing Realty Corporation has the responsibility for the management (including development) of the real estate assets of The Boeing Company and all its affiliates and subsidiaries, including McDonnell Douglas Corporation.*

[13] *Refer to Section VIII.A, Report Preparation for the contact name and address of the project Applicant.*



Source: PCR Services Corporation, 2004

Figure 1
Regional Location Map



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Source: PCR Services Corporation, 2004

Figure 2
Project Vicinity Map

Lakewood Boulevard on the east, and the Airport and Lakewood Country Club Golf Course on the west.[14]

Surrounding land uses include two Boeing aircraft production facilities. The Boeing commercial 717 assembly plant and office center is located east of the project site along Lakewood Boulevard and the Boeing military C-17 facility is located southwest of the site and west of the Airport. The area immediately north of Carson Street is located within the City of Lakewood and generally includes single-family residences in an area referred to as the Lakewood Country Club Estates and the Lakewood Country Club Golf Course. The closest residences to the project site within this neighborhood are oriented such that the rear yards face Carson Street and are buffered from Carson Street by a block wall and mature trees and other landscaping. This residential neighborhood is generally zoned R-1-15000 (Single Family), while the Lakewood Country Club Golf Course is zoned O-S (Open Space). The Lakewood Country Club Golf Course also extends to the south of Carson Street and borders the project site to the west. Existing commercial development is located near the intersection of Lakewood Boulevard and Carson Street, as well as west of the Lakewood Country Club Golf Course. In addition, the Lakewood Village residential area within the City of Long Beach is located further to the northeast of the intersection of Carson Street and Lakewood Boulevard. Other land uses within the surrounding area include the Sky Links Golf Course to the southeast of the site and Long Beach City College to the north and east of the Boeing 717 facility, both of which are in the City of Long Beach.

In addition to Lakewood Boulevard, a designated regional corridor, and Carson Street, a major arterial, other major roadways in the area surrounding the project site include Spring Street to the south and Cherry Avenue to the west, both of which are classified as major arterials.[15] The project site is also within close proximity to the San Diego Freeway (I-405), the Long Beach Freeway (I-710), the Artesia Freeway (SR-91), and the San Gabriel River Freeway (I-605).

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[14] *Although analyzed as part of the project, a small portion (less than one-half acre) of the PacifiCenter site on the southwest corner of the Lakewood Boulevard and Carson Street intersection is not owned by Boeing. This property was previously used as a service station and is now owned by the City of Long Beach. Disposition of this property to Boeing Realty Corporation or other development entity may be completed as part of the project. In addition, an approximately 0.8-acre piece of land in the northwestern portion of the site located within both the City of Long Beach and City of Lakewood that is owned by the Union Pacific Railroad will be incorporated into the project.*

[15] *Transportation Element of the Long Beach General Plan, City of Long Beach Department of Planning and Building, December 1991.*

C. PROJECT BACKGROUND

Prior to 1941, the PacifiCenter site was an undeveloped area. During the same period of time, the adjacent Airport (then known as Daugherty Field), which began operations in 1923, included an unpaved open airfield with hangars located to the southwest of the project site. In order to meet the aircraft production requirements of World War II, the United States of America War Assets Administration purchased the project site and adjacent properties in 1941 and began to construct an aircraft production facility, known as the Long Beach C-1 facility, to be operated by the Douglas Aircraft Company.

During World War II, the Long Beach C-1 facility became Douglas Aircraft Company's largest production center. During the war years, the facility included approximately 1.4 million square feet of covered workspace, produced one plane per hour, and employed over 50,000 workers on the site located on the west side of Lakewood Boulevard.

During the years following the end of World War II, employment at the C-1 facility declined to approximately 1,000 employees. As a result, in 1947, the Douglas Aircraft Company began to acquire portions of the C-1 facility from the U.S. government. The acquisition of the entire C-1 facility was completed in 1961. In 1967, Douglas Aircraft Company merged with McDonnell Aircraft Company to form the McDonnell Douglas Corporation, which was subsequently acquired in 1997 by The Boeing Company. Between the 1960s and early 1990s, growth in commercial aviation reached a peak employment of approximately 33,000 employees. To date, the types of on-site operations associated with aircraft production have included office, research and development, manufacturing/processing, assembly/subassembly, material storage, testing/laboratories, and ancillary aviation-related services.

The Boeing facilities on the PacifiCenter site recently included a total of over five million square feet of permitted usable floor area.[16] Of this floor area, approximately 537,000 square feet was occupied as of November 2002. The majority of the existing structures within the project site consist of large corrugated metal industrial buildings and airplane hangars. These low- to mid-rise industrial and R&D buildings are located throughout the project site and generally range between 30 to 90 feet in height and from 2,000 up to approximately 500,000 square feet in floor area. In addition, the site includes

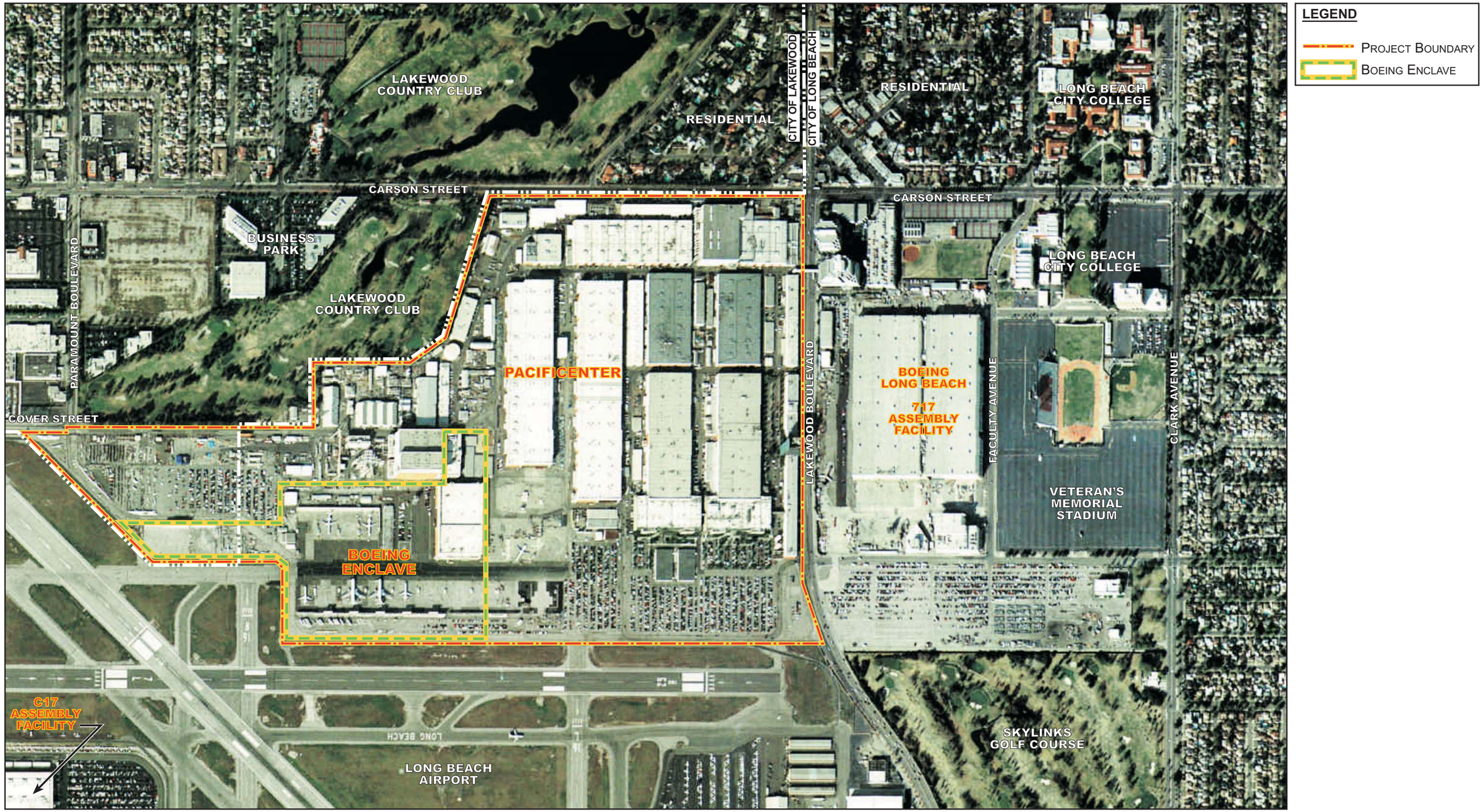
[16] *This floor area excludes approximately one million square feet of floor area associated with trailers, modular buildings, and other miscellaneous structures historically present on the project site.*

a nine-story executive office building along Lakewood Boulevard. The remainder of the project site is paved with asphalt or concrete. An engine run-up/aircraft testing area is located adjacent to the Airport in the southwest corner of the site. Surface parking is concentrated within the southeast corner of the site, with primary vehicular access provided off Lakewood Boulevard at Conant Street, as indicated in the aerial photograph provided in Figure 3 on page 109. Secondary access and surface parking is provided on the west side of the site from Cover Street.

Currently, many of the aviation-related uses and activities on the project site have been discontinued. However, on-site floor area is being used for production associated with Boeing's C-17 and 717 aircraft, including final aircraft preparation; ground support; receiving and delivery operations; customer operations; aircraft testing; commercial flight and avionic testing and development; flight dispatch operations; fire department services; aircraft fueling; security operations; and maintenance operations for buildings and equipment. This floor area is located in an approximately 48-acre area, now known as the "Boeing Enclave" (to distinguish this operational area from the balance of the project site), which is located within the western portion of the site, as indicated in Figure 3 on page 109. Buildings within this area comprise approximately 380,000 square feet. In addition, approximately 11 acres located in the western portion of the project site within the City of Lakewood contain as an interim use a storage facility for RVs, boats, trailers, and shipping containers.

Within the next six months, Boeing is expected to relocate their transportation and salvage sales operations facilities, which are currently located on Cherry Avenue in the City of Lakewood, to a new location within the western portion of the PacifiCenter site as an interim use. These facilities will occupy approximately 9 acres, of which up to approximately 4 acres will be located in the City of Lakewood and up to approximately 5 acres will be located within the City of Long Beach. Approximately 2.5 acres of these uses will be located within the Boeing Enclave. These Boeing operations support the C-17 and 717 aircraft manufacturing programs, and as such are ancillary uses. These interim uses are proposed to remain on the site until the land is ready for development or until Boeing secures alternative locations for these operations. These uses comply with the current General Plan designations and the zoning for the site established by the Cities of Long Beach and Lakewood.

As discussed in detail in Section V.E, Hazards and Hazardous Materials, a soil and groundwater remediation program is presently being implemented at the project site in accordance with Cleanup and Abatement Order 95-048 issued by the California Regional Water Quality Control Board, Los Angeles Region. To implement this mandated remediation program an estimated 4,651,234 square feet of existing development is



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Scale Not Provided

Source: Boeing Realty Corporation, 1999

Figure 3
Aerial Photograph

currently in the process of being removed in accordance with separate permits that have been approved by the City of Long Beach.[17] The remediation program is being overseen by the Los Angeles Regional Water Quality Control Board (LARWQCB). In addition, the demolition program is overseen and monitored by various agencies, including the South Coast Air Quality Management District (SCAQMD) and the California Occupational Safety and Health Department (Cal/OSHA). This remediation and demolition activity is considered a related project for purposes of environmental review. As discussed in detail in Section IV, Overview of Environmental Setting, and Section V.E, Hazards and Hazardous Materials, Environmental Investigation Areas (EIAs) that comprise 204 acres or approximately 80 percent of the site have received regulatory approval for "No Further Action" and closure for soils from the LARWQCB.

The remediation program also covers the additional 380,000 square feet of floor area associated with the ongoing aviation production uses in the Boeing Enclave, which will continue to operate as the project site is built out. Boeing may demolish this area at some point during project development and replace it with the commercial land uses, as described further in this EIR. Alternatively, buildings within this area may also be removed as part of the ongoing remediation activities on-site. However, for purposes of conducting a conservative evaluation of the project's potential environmental impacts, continued operations and the potential future demolition of structures within the Boeing Enclave are evaluated in relevant sections of this EIR (e.g., Sections V.B, Air Quality, and V.I, Noise) as part of the environmental impact analysis for this project. In addition, while approximately 537,000 square feet of floor area was occupied on the site when the most recent NOP was issued in November 2002, baseline occupied floor area assumptions have been revised within the appropriate sections of this draft EIR to provide a comprehensive and conservative analysis of the project. Specifically, an estimated 380,000 square feet within the Boeing Enclave has been assumed in order to account for planned and permitted demolition activities underway as part of the remediation program.

To date, several steps of the public environmental review process have been completed. A Notice of Preparation (NOP) for a Draft Environmental Impact Report (EIR) regarding the PacifiCenter project was originally circulated by the City of Long Beach in May 2001, based on an Initial Study which determined that implementation of the project could result in potentially significant impacts to the environment. Since that time, the project has been revised to reflect input from agencies and the public and to respond to changing economic conditions. Some of the changes that have been incorporated into the project in response to agency and public comment serve to lessen and avoid significant

[17] *These permits were obtained in January 2003 and June 2003.*

environmental effects that would have occurred under the project identified in the May 2001 NOP. As shown in Table 1 on page 112, when compared with the May 2001 NOP, the primary changes that have been made to the project as currently proposed include a reduction of approximately 5.1 million square feet of commercial uses and 200 hotel rooms. Other changes to the project identified in the May 2001 NOP include changes to the location of on-site uses, increased street setbacks, changes to the internal circulation pattern, and a reduction in maximum building heights, including building heights along Carson Street. The project as currently proposed also represents a reduction of 1,300 residential units, a reduction in residential density, and a reduction of 1.4 million square feet of commercial floor area when compared with the project that was revised by the Applicant after the May 2001 NOP and presented to the City and individuals, including individuals at community task force meetings.[18] Based on the changes that have been made to the project, an NOP for the current project was circulated in November 2002 to give the public and agencies an opportunity to provide comments regarding the revised project. Copies of the May 2001 NOP and November 2002 NOP and public comments received during the 30-day public comment period for both of these NOPs are provided in Appendix C. In addition, in accordance with Public Resources Code Section 21083.9, a public scoping meeting was held for the project on December 2, 2002, to obtain input as to the scope and content of the environmental information about the proposed project that should be explored in the EIR. The transcript of the scoping meeting is also provided in Appendix C of this EIR.

D. STATEMENT OF PROJECT OBJECTIVES

Section 15124(b) of the State California Environmental Quality Act (CEQA) Guidelines (Guidelines) states that the Project Description shall contain "a statement of the objectives sought by the proposed project." Section 15124(b) of the CEQA Guidelines further states that "the statement of objectives should include the underlying purpose of the project." Consistent with the Guidelines, this section of the Draft Environmental Impact Report (Draft EIR) provides the list of objectives that the Applicant seeks to achieve. Among the Applicant's objectives and underlying purpose is the intent to assist in the implementation of the Cities' long range visions. The Applicant developed the following set of objectives after consideration of relevant goals, objectives, and policies established by the various planning documents adopted by the Cities of Long Beach and Lakewood. The project objectives developed by the Applicant fall under four primary categories:

[18] *While this project was presented to city staff and various members of the community, it was not included within an NOP.*

Table 1

Comparison of November 2002 NOP with Previous Project Proposals [a]

USE	May 2001 NOP	Project Proposed in Late 2001 [b]	November 2002 NOP
Housing Units	2,513	3,800 [c]	2,500
Commercial Floor Area	8,446,192	4,714,000 [c]	3,300,000
Hotel Rooms	600	600	400

[a] *Refer to Appendix A for copies of the NOPs that have been circulated for the PacifiCenter project.*

[b] *While this project was presented to city staff and various community members, it was not included within an NOP.*

[c] *This proposal included an exchange program between commercial floor area and residential units. Under this exchange program, if the residential unit count were reduced to 2,580 units, up to 6,792,000 square feet of commercial uses could be developed in addition to 600 hotel rooms.*

Source: PCR Services Corporation, 2004.

(1) General Objectives; (2) Design Objectives; (3) Development Implementation Objectives; and (4) Economic Objectives.

The Applicant believes that the General Objectives directly relate to or support the text, goals, objectives, and/or policies of the City of Long Beach and/or the City of Lakewood planning documents. For ease of reference, the text, goal, objective, or policy that is supported by the project objective is provided in parentheses after the statement of the Project Objective. The Design Objectives, which follow the General Objectives, relate primarily to the site planning and community character that the Applicant desires to create for the project site. The Development Implementation Objectives seek to attain sufficient flexibility in the mix and timing of uses ultimately developed within the project site in order to respond to future market conditions in a timely fashion. Finally, the Economic Objectives present the Applicant's economic goals with regard to reuse of the project site.

General Objectives

- Maintain and enhance major employment centers, such as the airport area (City of Long Beach Land Use Generalized Concept Plan; City of Lakewood Land Use Element Goal 5);

- Encourage industrial and commercial projects in underutilized areas, which will make a positive contribution toward the jobs-housing balance and create job

opportunities for the local labor force (City of Lakewood Land Use Element Policy 5.1);

- Retain, expand and attract new business (City of Long Beach Strategic Plan Goal B1);

- Concentrate new housing in proximity to growing employment centers to reduce commute time, lessen energy consumption and improve air quality (City of Long Beach Land Use Element page 22; City of Lakewood Circulation Element Goal 6);

- Assist in improving the quality and availability of neighborhood housing and in building a strong network of healthy neighborhoods (City of Long Beach Strategic Plan Goals N1 and N5);

- Provide for the construction of housing along major arterial corridors by removing underutilized and deteriorated commercial and industrial structures and recycling these old commercial and industrial properties by developing carefully designed, quality residential uses that promote better living conditions and promote access to employment centers (City of Long Beach Strategic Plan Strategic Action N5.3);

- Provide for the opportunity to capitalize on the development and economic potential of underutilized properties zoned for commercial and manufacturing uses (City of Lakewood Economic Development Element Goal 3);

- Ensure that commercial uses are compatible with adjacent residential uses (City of Lakewood Land Use Element Goal 2);

- Maintain and expand property, retail and other City tax revenues in order to support quality service levels (City of Lakewood Economic Development Element Goal 1);

- Help to reverse the trend of local and regional job losses (City of Lakewood Economic Development Element Goal 2); and

- Provide usable open space tailored to project-generated recreational demands that would otherwise be placed on public open space and recreation resources (City of Long Beach Open Space Element Policy 4.10).

Design Objectives—To enhance the public acceptance and long-term investment value of the PacifiCenter project, the Applicant seeks as a basic design objective to

develop a master-planned, mixed-use community, which will blend mutually supportive uses, such as employment, housing and life style amenities, that are desired in today's commercial and residential marketplace; make efficient use of land and infrastructure; and foster a strong sense of community.

The Applicant's basic design objective includes the following specific goals:

- Establish a community that provides a mix of land uses with a live, work, and play environment that includes new infrastructure and amenities to attract and support quality commercial tenants and a stable residential area;
- Provide for creative, flexible, and sustainable commercial development opportunities to allow for various tenant needs from research and development to multi-tenant and corporate office space to warehousing;
- Offer state-of-the-art telecommunication systems and services for tenants and residents;
- Provide a variety of residential types to accommodate the needs of various employees, which is envisioned to enhance PacifiCenter's ability to attract a number of significant employers to the area, including employers whose employees can work and live on the site;
- Include a mix of commercial land uses, including restaurants, retail space, and hotel(s), to support tenant, residential, and community needs; to create a sense of community; and to reduce employee, resident, and visitor trips and trip distance;
- Create an attractive setting, including landscaping and open space, some of which will serve as recreational areas;
- Transform the existing pattern of very large buildings and parcels in order to create identifiable neighborhoods and districts throughout the proposed development to provide a sense of community through the provision of walkable streets and neighborhood amenities;
- Establish design standards with which each and every development within the PacifiCenter project will be required to comply;
- Take advantage of the PacifiCenter project's adjacency to the Airport and consider, as appropriate, aviation-related uses that support or are complementary to new development within the PacifiCenter project; and

- Locate new uses within the PacifiCenter project site in a manner that is appropriate to and compatible with other adjacent uses and with adjacent off-site uses to minimize impacts and maximize economic viability. Particular sensitivity should be directed toward compatibility of on-site uses with adjacent off-site residential uses.

Development Implementation Objectives—The Applicant's primary development implementation objectives are:

- To optimize its ability to respond to market conditions during the buildout of the PacifiCenter project through a development implementation objective that will allow the project to be market-driven. The implementation program:
    - identifies specific land uses that are permitted to be developed within two primary land use categories;
    - establishes a maximum floor area or unit cap that can be developed for each land use category;
    - establishes development intensities that will respond to an anticipated range of market conditions;
    - establishes development standards that include such aspects as maximum building heights and setbacks; and
    - establishes a commercial infrastructure phasing plan that will provide commercial infrastructure in advance of market demand.
- To create a regulatory environment that will facilitate a rapid delivery of space and/or move-in ready facilities so that PacifiCenter becomes one of the most viable and attractive locations in southern California.

Economic Objectives—The Applicant's basic economic objective is to:

- Optimize the value of existing property no longer in use or needed for aircraft manufacturing by balancing reuse opportunities with community needs and environmental constraints, while creating significant employment and housing opportunities.

The achievement of this basic objective is closely dependent on the character, intensity, and mix of development that has been proposed. A critical part of the Applicant's

basic economic objective for the proposed project is to optimize its contribution to the fiscal well-being of the Cities of Long Beach and Lakewood relative to current circumstances and other project objectives.

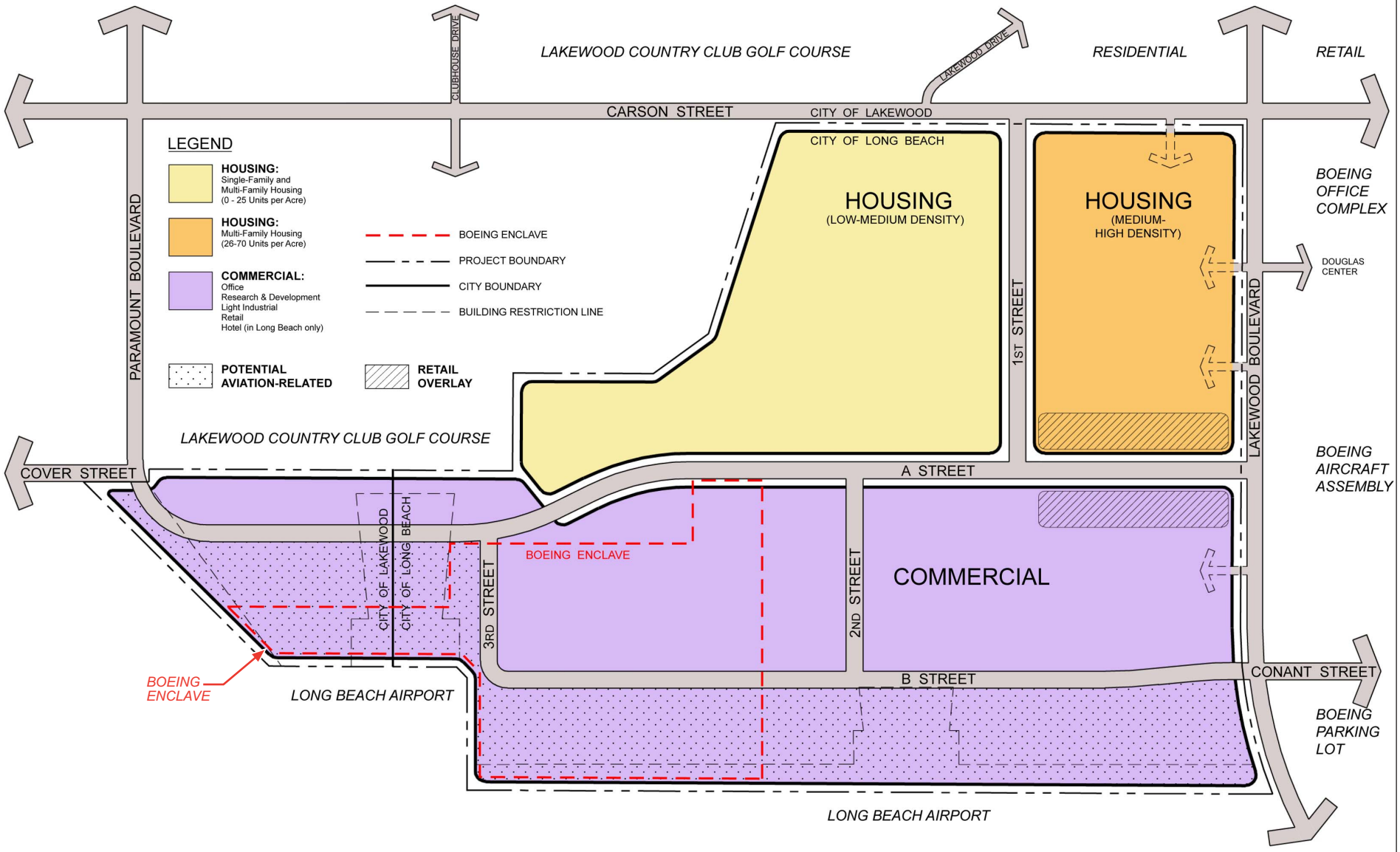
Another economic objective of the project is to provide the opportunity to expand high tech, research and development uses, hotels, restaurants, and offices consistent with the Airport Employment/Activity Center policy. (Refer to Section V.H, Land Use and Planning, for a discussion of land use designations and policies applicable to the project site.)

E. PROJECT CHARACTERISTICS

The proposed project will result in the replacement of the existing aircraft production facilities and related uses. Two primary land use categories have been proposed as part of the PacifiCenter project: Commercial (office, R&D, light industrial, retail, hotel, and aviation-related uses) and Housing (single-family and multi-family uses). Additionally, a retail overlay zone will be established along a portion of the interface between the Commercial and Housing areas within the eastern portion of the site. The general location of these land uses is presented in the Land Use Diagram provided in Figure 4 on page 117. An Illustrative Site Plan based on the land uses designated in Figure 4 is provided in Figure 5 on page 118.

As shown in Figure 4, the uses within the Commercial land use category will be developed within approximately 160 acres located within the southern portion of the project site, including the entire proposed A Street right-of-way. This area will include up to 3.3 million square feet of office, R&D, light industrial, retail, aviation-related, and warehouse development (as an accessory use to permitted uses within the commercial area). The average floor area ratio in this area will be approximately 0.47, which allows for the development of predominantly low-rise and mid-rise buildings. A maximum of 150,000 square feet of this floor area could consist of retail uses. The Commercial area could also include up to 400 hotel rooms within the portion of the project site within the City of Long Beach.[19] As indicated in Figure 4, specific aviation-related uses will be permitted south of B Street to the east of 3rd Street and south of A Street to the west of 3rd Street (a

[19] *A total of 400 hotel rooms are proposed for the project site. Hotel rooms will be in addition to the maximum commercial floor area specified.*



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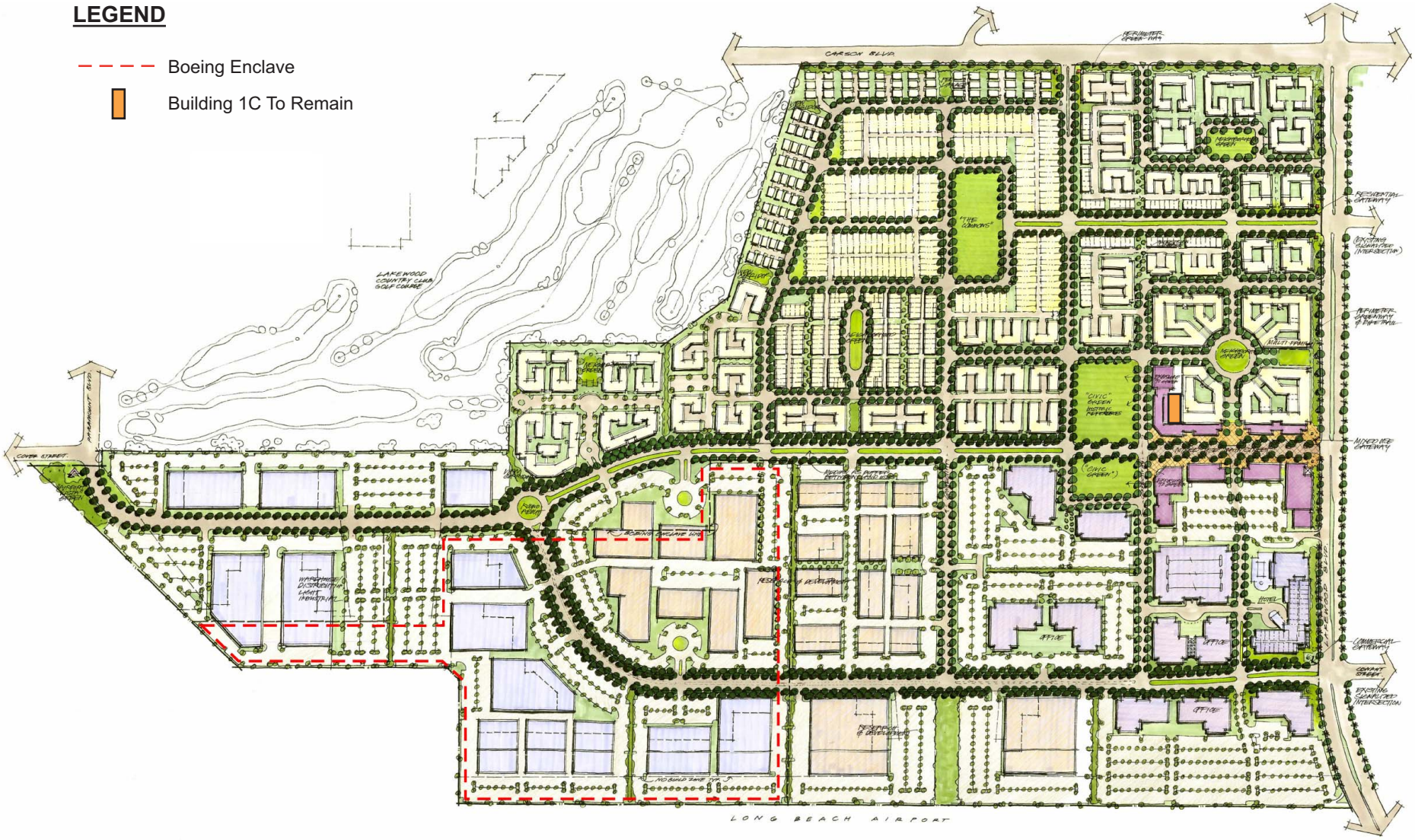
Scale Not Provided

Source: MVE Architects, January 2004

Figure 4
Land Use Diagram



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Source: MVE Architects, January 2004

Figure 5
Illustrative Site Plan

description of the proposed on-site roadway network is provided below). These uses will primarily serve as an amenity to businesses at the project site and may include hanger space for corporate jets and line maintenance "A" checks.[20] While a maximum of 3.3 million square feet of Commercial floor area can be developed throughout the Commercial area of the site within the Cities of Long Beach and Lakewood, the analyses within this EIR assume that approximately 360,000 square feet may be located in the City of Lakewood in accordance with the M-2 zone.[21]

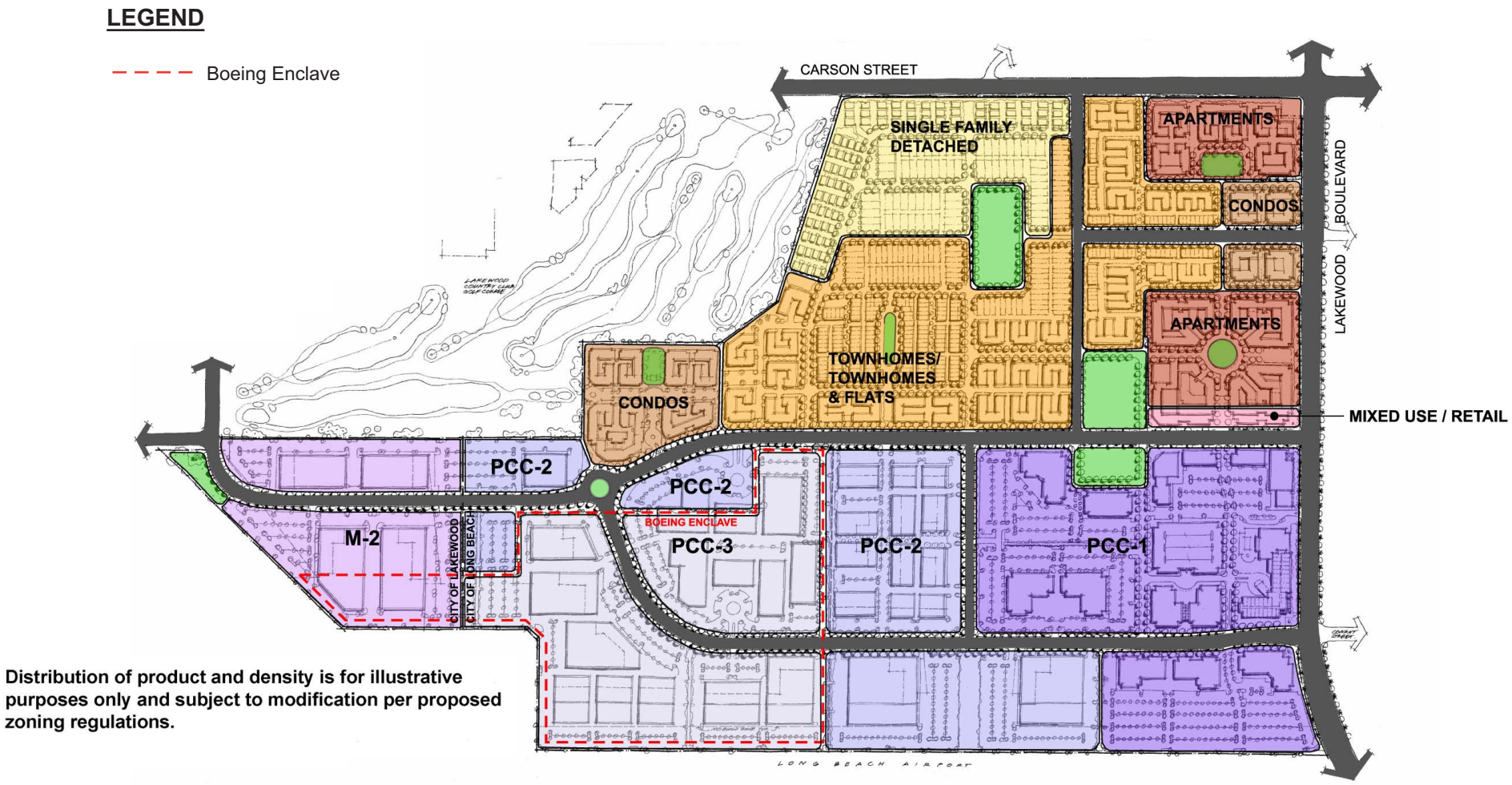
As illustrated by Figure 6 on page 120 and described in more detail in Section V.H, Land Use, within the Commercial area located in the City of Long Beach, development will be guided by three zoning areas: PacifiCenter Commercial-1 ("PCC-1"), comprising 51 acres immediately west of Lakewood Boulevard; PacifiCenter Commercial-2 ("PCC-2"), comprising 42 acres further to the west and PacifiCenter Commercial-3 ("PCC-3") comprising the 43.5 acres of the Boeing Enclave located within the westernmost portion of the site in the City of Long Beach. Allowable land uses in the PCC-1 zone will generally include office, R&D, some light industrial uses, aviation-related uses south of B Street, hotel, and retail. The PCC-2 zone will allow all light industrial uses and aviation-related uses south of B Street, in addition to each of the commercial land uses indicated for the PCC-1 zone. Warehouse uses except as accessory uses to permitted uses will not be allowed (i.e., stand alone warehouse uses will not be permitted). The PCC-3 Zone will allow aviation-related uses associated with the project site to continue, consistent with the current PD-19 ordinance. Should operations in the Enclave be discontinued, this area will be developed with uses that are allowed in the PCC-2 zone.[22] An illustrative graphic showing how commercial uses may be developed within each of these zones is provided in Figure 7 on page 121.

As shown in Figure 4, a retail overlay zone will be established along A Street between Lakewood Boulevard and 1st Street. The overlay zone will allow ground floor retail uses with upper story multi-family residential units in the Housing area (described below) and ground floor retail uses with upper story commercial uses in the Commercial area, as well as stand-alone retail uses. Although retail uses will be concentrated within the retail overlay zone, retail uses may occur elsewhere within the Commercial area in the

[20] *Line Maintenance "A" checks are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts; servicing of fluids; and inspection of components, hoses, electrical items and aircraft structure. Lighting and a ground power unit are used during these checks.*

[21] *360,000 square feet of floor area is an approximate number and is based on the existing zoning and land use designation for this area of the site.*

[22] *The interim uses anticipated to relocate to the PacifiCenter site within the next six months will be located in portions of PCC-2 and PCC-3 as well as within portions of the site located in the City of Lakewood.*



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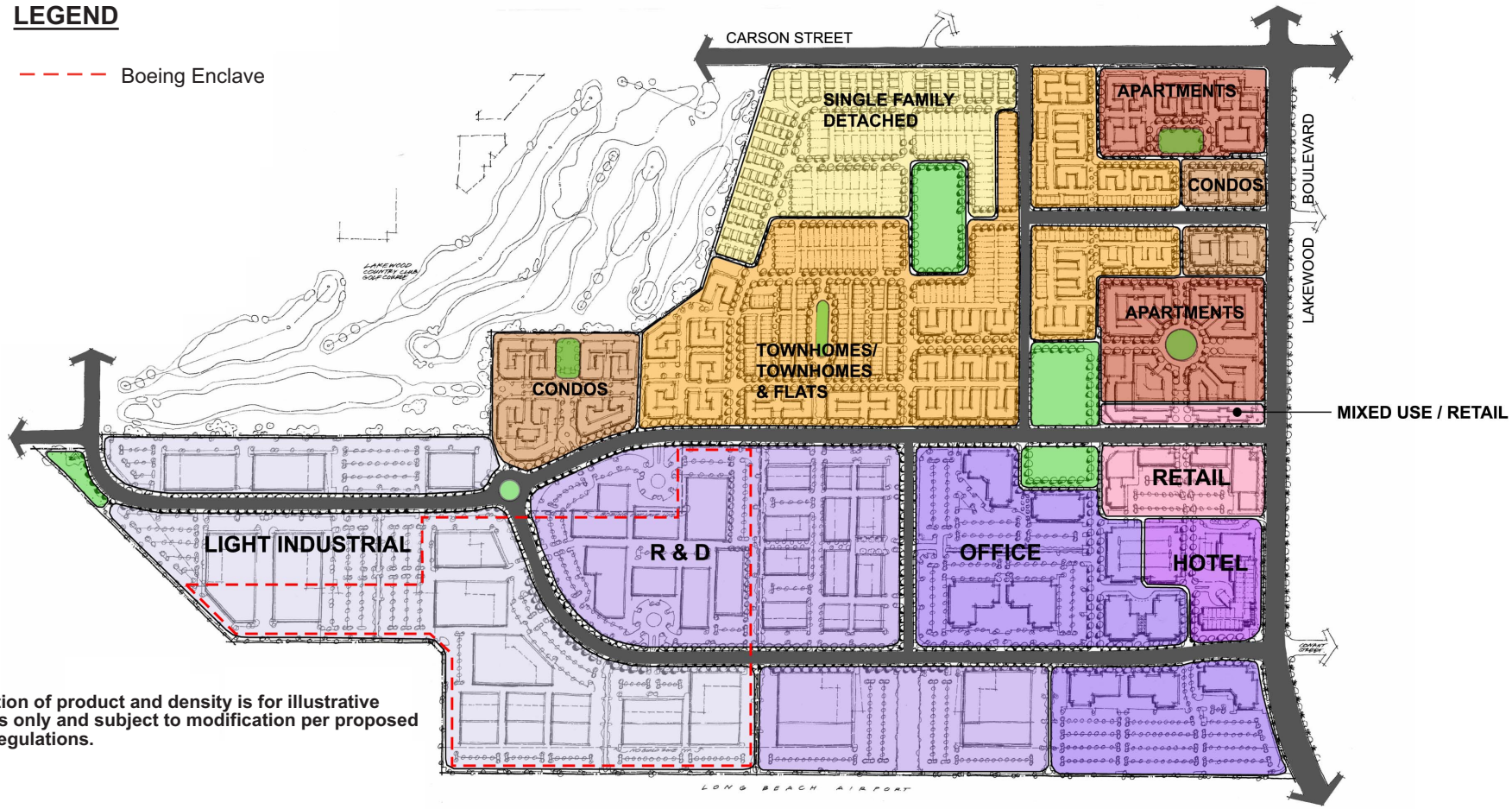
0 400 800 Feet

Source: MVE Architects, October 2003.

Figure 6
Proposed Commercial Zoning Map



Distribution of product and density is for illustrative purposes only and subject to modification per proposed zoning regulations.

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0 400 800 Feet

Source: MVE Architects, January 2004

Figure 7
Conceptual Land Use Plan

southern portion of the site, but will typically be accessory to other uses. As indicated above, a maximum of 150,000 square feet of retail floor area may be developed within the project site.

To manage the flexibility of specific land uses that can be developed within the Commercial land use category, specific development standards set forth in the new Planned Development-32 (PD-32) District for the site will be implemented. These development standards include maximum heights and setbacks from property lines, both of which are described in detail below. In addition, as indicated in Table 2 on page 123, the new PD-32 also specifies the maximum non-residential floor area and the maximum number of hotel rooms that can be developed within the project site.

As also indicated by the Land Use Diagram in Figure 4, residential uses within the Housing land use category will be located on approximately 101 acres within the northern half of the site, including along segments of Carson Street and Lakewood Boulevard, as well as adjacent to the Lakewood Country Club Golf Course. As indicated in Table 2, the Housing land use category will provide up to 2,500 single-family and multi-family residential units. Low- to medium-density housing with an approximate average of 16 units per gross acre net of parks and open space and a range of approximately 5 to 25 units per gross acre will be provided in the 62-acre western portion of the Housing area, extending from the Lakewood Country Club Golf Course to 1st Street. Within this low- to medium-density Housing area of the site, single-family detached units, townhomes, condominiums and townhome/flat combinations may be developed Medium- to high-density housing with an approximate average of 45 units per gross acre and up to approximately 70 units per gross acre will be provided in the 39-acre eastern portion of the Housing area, east of 1st Street to Lakewood Boulevard. Within the medium- to high-density Housing area of the site, condominiums, apartments, townhomes, and townhome/flat combinations may be developed. An illustrative graphic showing how residential product types may be developed within the residential area is provided in Figure 7 on page 121. Refer to Section V.J.3, Population, for the estimated unit mix within the two primary housing areas.

In addition, a 66-kV substation with a maximum footprint of approximately 305 feet by 230 feet is proposed within either the Commercial or Housing areas of the site. As discussed in Section V.M, Energy, this substation is anticipated to be developed around the year 2009 and will serve the project site as well as other off-site areas. An illustration of potential areas within the site that may be utilized for this substation is provided in Figure 8 on page 124. The precise location of this substation will be determined based on further input from Southern California Edison. If located in the residential portion of the project site or fronting A Street in the commercial area, the substation will be a low profile

Table 2

PacifiCenter @ Long Beach
Proposed Land Use Program

Land Use	Gross Acres	Maximum Land Use	Density [a]	
		Square Feet/ Rooms/Units	Average Density	Maximum Density
Commercial (office, R&D, light industrial, retail, hotel, aviation-related, and warehouse)	160	3.3 million sf [b,c] (including an estimated 360,000 sf in Lakewood)	0.47	
Housing	101	2,500 units	low-medium density— 16 du/gross ac [d,e]	low-medium density— 25 du/gross ac [d, e]
			medium-high density— 45 du/gross ac [d,e]	medium-high density— 70 du/gross ac [d, e]
Total Site Acreage	261			
Total Maximum Development				
Non-Residential Floor Area (excluding hotel rooms)		3.3 million sf (including up to 150,000 sf of retail uses)		
Residential Units		2,500 units		
Hotel Rooms [b]		400		

[a] *Density is measured by floor area ratio (FAR) for commercial uses, which is the floor area of a building divided by the size of the lot, and by number of dwelling units per gross acre (du/gross ac) for residential uses.*

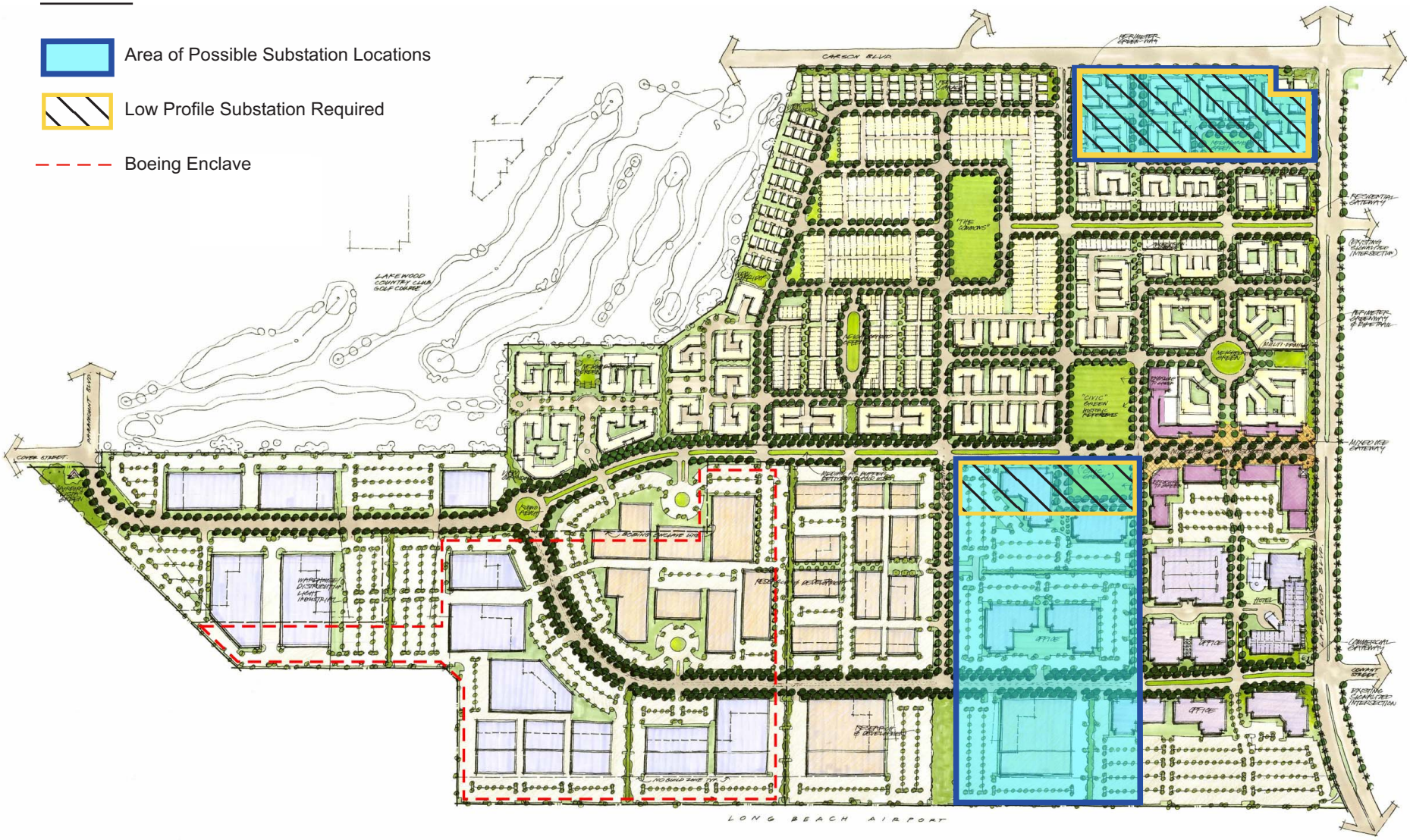
[b] *Up to 400 hotel rooms may be developed on the project site within the Long Beach Commercial area. Hotel development would occur in addition to the 3.3 million square feet of other non-residential floor area (office, R&D, light industrial, retail, aviation-related, and warehouse uses).*

[c] *Within the Commercial land use category, up to 150,000 square feet of retail uses could be developed.*

[d] *The densities provided apply to the entire 62-acre Low- to Medium or 39-acre Medium- to High-Density housing areas as a whole and are not intended to apply to specific parcels that may be developed within these areas.*

[e] *The densities provided for the Housing Area exclude park space.*

Source: Boeing Realty Corporation, 2004.



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0 400 Feet

Source: MVE Architects, November 2003

Figure 8
Possible Locations of SCE Substation

structure (equipment will be approximately 12 feet in height) with underground feed lines, with an 8-foot perimeter masonry screen wall located at the building setback line, and associated perimeter landscaping between the right-of-way and the wall consisting of trees, shrubs, and ground cover. If the substation is located in the commercial area not fronting on A Street, the equipment will be approximately 20 feet in height with underground feed lines and will include an 8-foot masonry wall located at the building setback line with landscaping between the right-of-way and the wall. Such landscaping will include trees, shrubs, and ground cover.

Boeing's communications building, Building 1C, located within the eastern portion of the site, north of proposed A Street will remain as part of the project (refer to Figure 5 on page 118). This building is a rectangular building 35 feet wide and 120 feet long and is constructed of split-face concrete block. The building houses Boeing's data center/telecommunication equipment and is occupied during business hours by three to five employees who maintain the system. In the proposed PacifiCenter Land Use Plan, Building 1C will be located in the Medium-High Density Housing/Mixed-Use/Retail area north of A Street and east of the Civic Park. The south side of 1C will be screened from views along A Street by an architectural facade. This facade could be an actual ground floor retail building, or it could be an unoccupied architectural facade. The remaining east, west and north sides of 1C will also be screened to minimize views of the structure. This will be accomplished with either an architectural facade similar to the south side of the building, with landscape screening using evergreen trees and shrubs in front of a masonry wall or with landscape screening using evergreen trees and shrubs. Should the north, east or west side of 1C be located fronting a street, then the street will be located so that the building is set back from the right-of-way in a similar manner as if it were a new building in this area.

The project includes Project Features specified in the impact analysis for each environmental issue discussed within Section V of this Draft EIR under the heading "Project Features." These project features are also listed separately in Appendix B to this EIR. Such Project Features specify circulation improvements, parking requirements, open space improvements, proposed recreational facilities, maximum height zones, architectural guidelines, setbacks, and lighting requirements that are proposed as part of the project. In addition, these Project Features lessen impacts that might otherwise be expected of the proposed project. As examples, the Project Features will: require the use of sound insulation where necessary within the proposed residential uses; prohibit development of residential uses in close proximity to the Boeing Enclave until such time that aircraft run-up activities permanently cease (refer to Section V.I, Noise); require grading plans to be designed such that final grades will be compatible with streetscape grades and soil erosion will not flow off-site; and require the reuse of building and

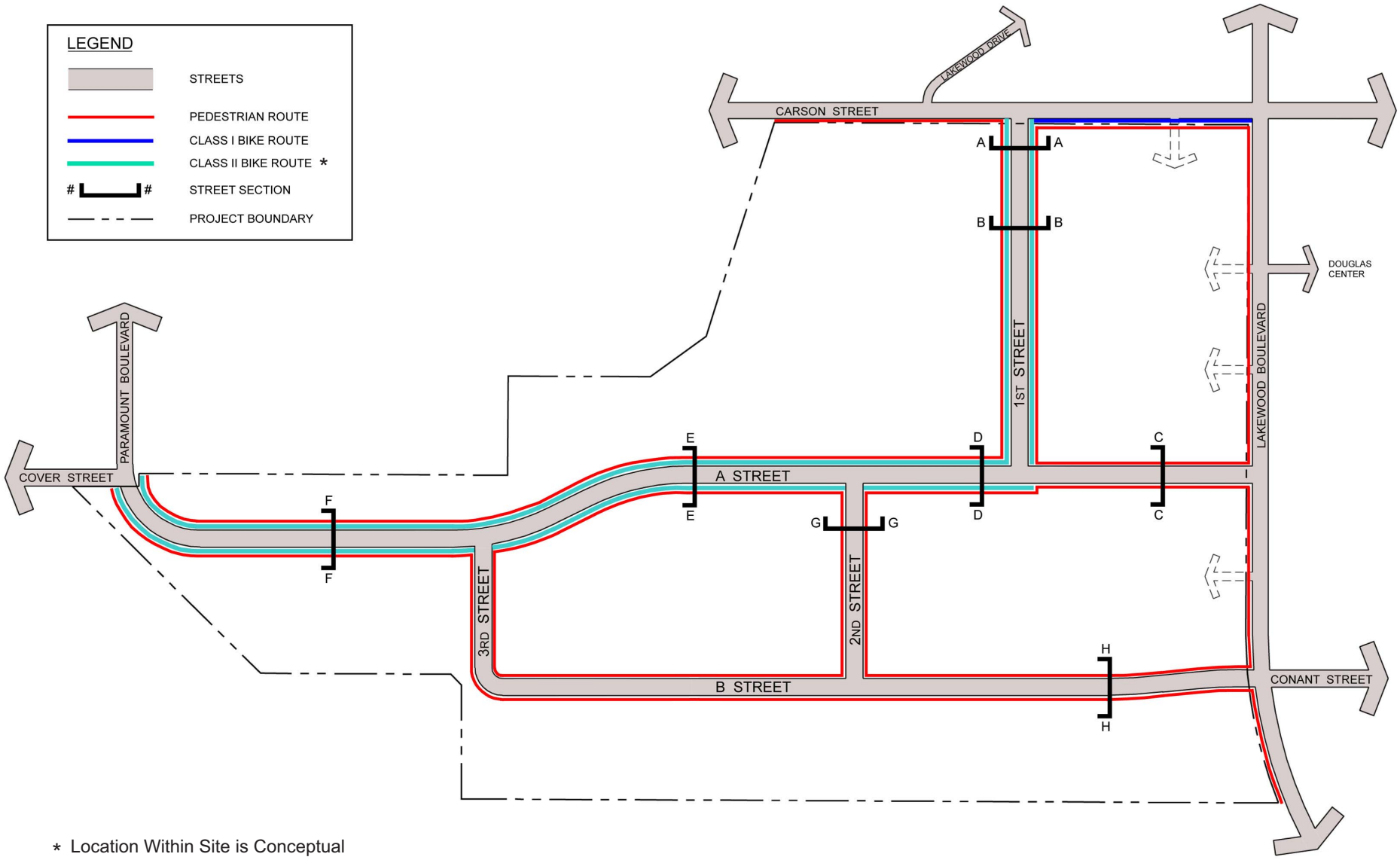
hardscape materials demolished within the Boeing Enclave to the extent feasible in accordance with regulatory requirements in order to reduce the disposal of waste associated with construction activities. All of the Project Features are intended to be incorporated as conditions of approval or zoning regulations (development standards) for the proposed project.

A series of design elements, building setbacks, buffers, and height restrictions will be provided to ensure compatibility between residential uses and commercial and light industrial uses on the project site. Development of the Commercial uses (office, R&D, light industrial, retail, hotel, aviation-related, and warehouse uses) in the southern portion of the site will provide a visual, noise, and spatial buffer between the Airport and the proposed residential units in the northern area of the site. Landscape improvements and in some areas perimeter walls will provide privacy and security to the Housing area from other adjoining uses within and outside of the project site. The alignment of A Street and its associated streetscape will serve as a visual and spatial buffer between commercial uses and adjacent residences. Building heights will be regulated with sensitivity to the on-site residential uses and particularly to the off-site residential neighborhood north of Carson Street. Additional height restrictions will apply as described below.

The proposed project includes a series of circulation improvements within the PacifiCenter site and along the local street network. These improvements will facilitate on-site access, promote efficient circulation throughout the immediate project area, and improve overall safety. As indicated in the Proposed Circulation Plan in Figure 9 on page 127, vehicular access to the proposed development will be provided at several locations around the site. Two new site access points will be constructed along Carson Street, including one at 1st Street (west of Lakewood Boulevard and east of Lakewood Drive) and a second entrance farther to the east.[23,24] As shown in Figure 9, five access points will also be provided along Lakewood Boulevard, including primary entrances at A Street (between Carson Street and Conant Street) and at Conant Street (which is referred to as B Street within the project site), and secondary entrances at Douglas Center, between Douglas Center and A Street, and between A and B Streets. The existing access from Paramount Boulevard and Cover Street will also be reconstructed/realigned to accommodate project-related traffic volumes and patterns. Additional right-in/out access

[23] *The precise alignment of these streets may vary. However, in order to preclude site-generated traffic from traveling through the existing residential neighborhood north of Carson Street, the proposed 1st Street would be offset from Lakewood Drive, and appropriate signage and/or signalization would be provided.*

[24] *Note: The street names presented herein are provided for purposes of describing and evaluating the environmental impacts of the project and do not represent the actual street names that will be used subsequent to development of this project.*



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Scale Not Provided

Source: MVE Architects, January 2004

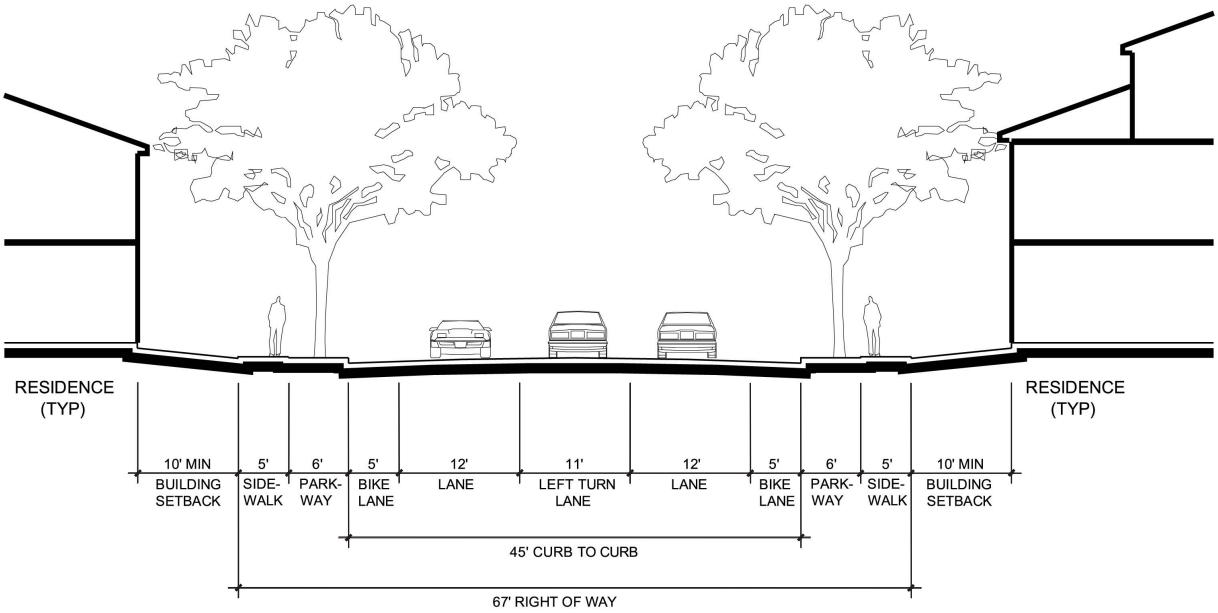
Figure 9
Proposed Circulation Plan and Street Section Key

points may be provided elsewhere along Carson Street and Lakewood Boulevard. New driveways serving the project site will be subject to review and approval by the City of Long Beach with regard to feasibility, location, width, and access movements. Signal and off-site traffic improvements, such as left-turn lanes, will also be constructed as required by the Traffic Study prepared for the project.

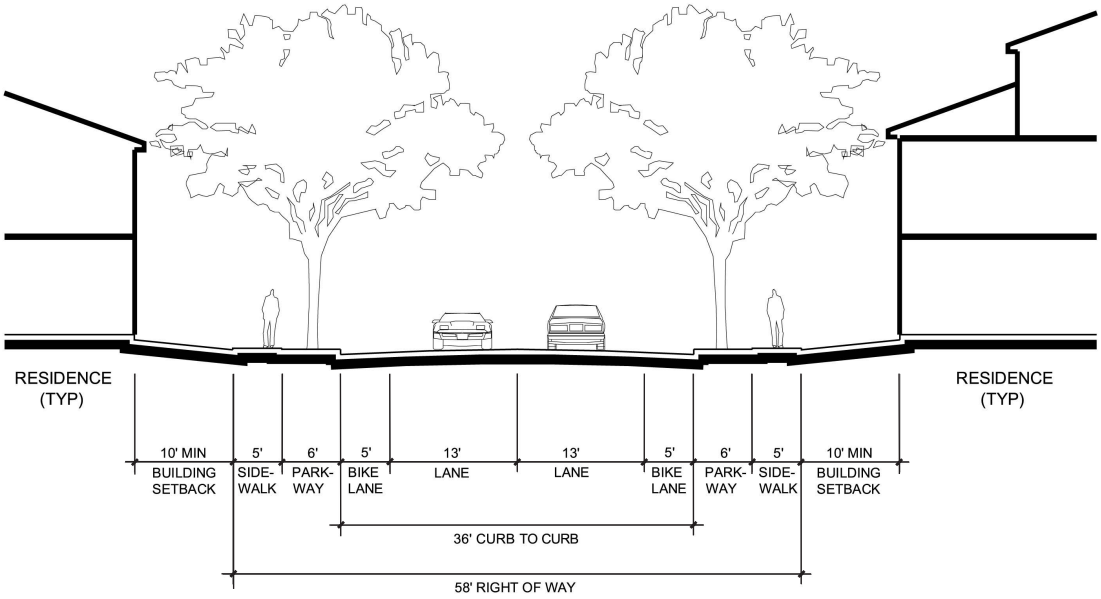
Under the Proposed Circulation Plan, A and B Streets extending from west to east between Cover Street and Lakewood Boulevard and along the former Conant Street to Lakewood Boulevard, respectively, will provide primary access to the southern portion of the project site designated for Commercial land uses (office, R&D, light industrial, retail, hotel, aviation-related, and warehouse uses). Within the western portion of the site, A Street may be located as shown in Figure 9 or it may be located farther to the north, adjacent to the Lakewood Country Club Golf Course. The final alignment of B Street within the western portion of the property may also be adjusted slightly to provide for an adequately designed intersection with A Street. In addition, 1st Street and A Street will provide primary access to the Housing area within the northern portion of the site. Two north-south roadways providing access between A and B Streets, referred to as 2nd and 3rd Streets, will also be provided. The location of 1st Street, 2nd Street, and 3rd Street may be shifted somewhat in response to the specific location of new buildings. However, the location of 1st Street will not be aligned with Lakewood Drive to the north to discourage the use of Lakewood Drive by persons in vehicles traveling through the project site. Additional streets may also be developed to provide internal access throughout the site. A series of conceptual street sections are presented in Figure 10 through Figure 13 on pages 129 through 132. As indicated by these conceptual street sections, the new roadways will typically be two to four lanes wide with enhanced parkways and sidewalks.

Project design will encourage both pedestrian and bicycle access and movement throughout the PacifiCenter site. As illustrated in the Proposed Circulation Plan in Figure 9, a series of pedestrian and bicycle routes will be incorporated into the internal circulation system. Pedestrian routes (i.e., sidewalks and crosswalks) will be provided along all of the proposed on-site local roadways and on Lakewood Boulevard and Carson Street. Class I bike lane improvements will be provided along a portion of Carson Street, and Class II bike lane improvements will be provided on 1st Street as well as on A Street between 1st Street and Paramount Boulevard.[25]

[25] *Class I bike lanes separate bicyclists from motor vehicles through dedicated paths that are separate from streets and highways. Class II bike lanes provide restricted bicycle rights-of-way on streets and highways and are most often designated by a painted line and road signs.*



SECTION A - 1ST STREET WITHIN 350' OF CARSON STREET



SECTION B - 1ST STREET - RESIDENTIAL

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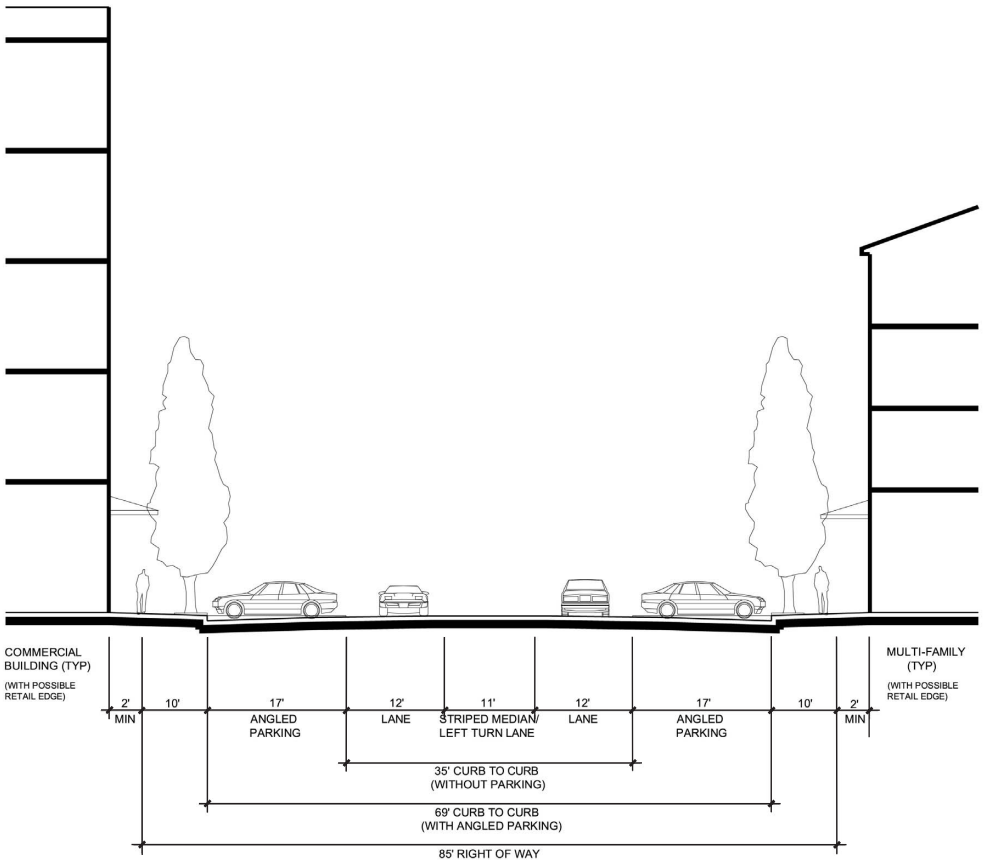
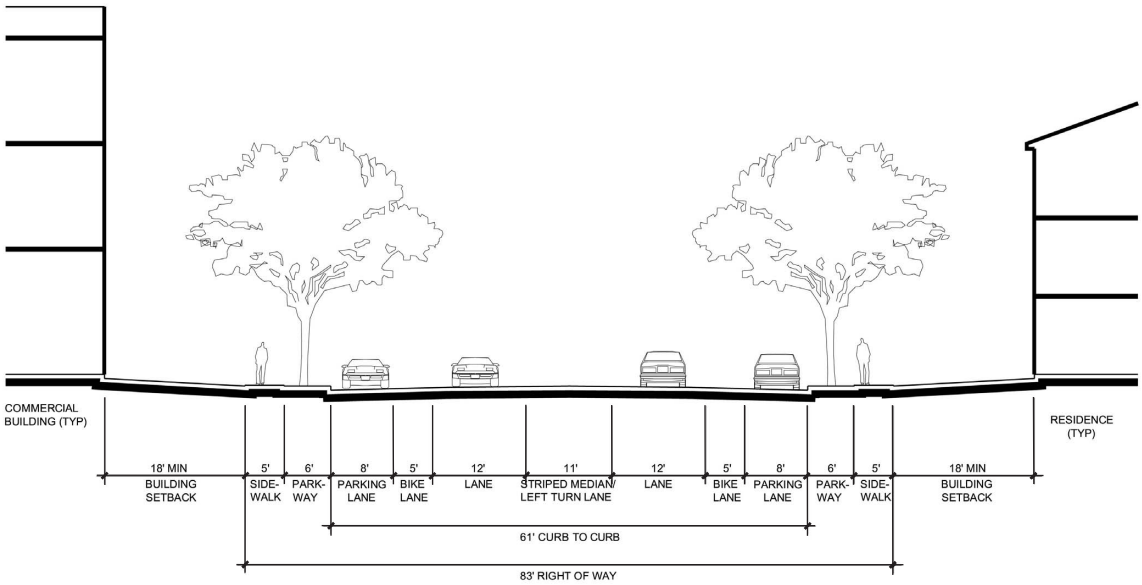
Figure 10
Conceptual Street Layouts and Building Setbacks

Source: MVE Architects, December 2003



SECTION C - RETAIL AREA BETWEEN LAKEWOOD BOULEVARD AND 1 ST STREET



SECTION D - A STREET BETWEEN 1 ST AND 2ND STREETS

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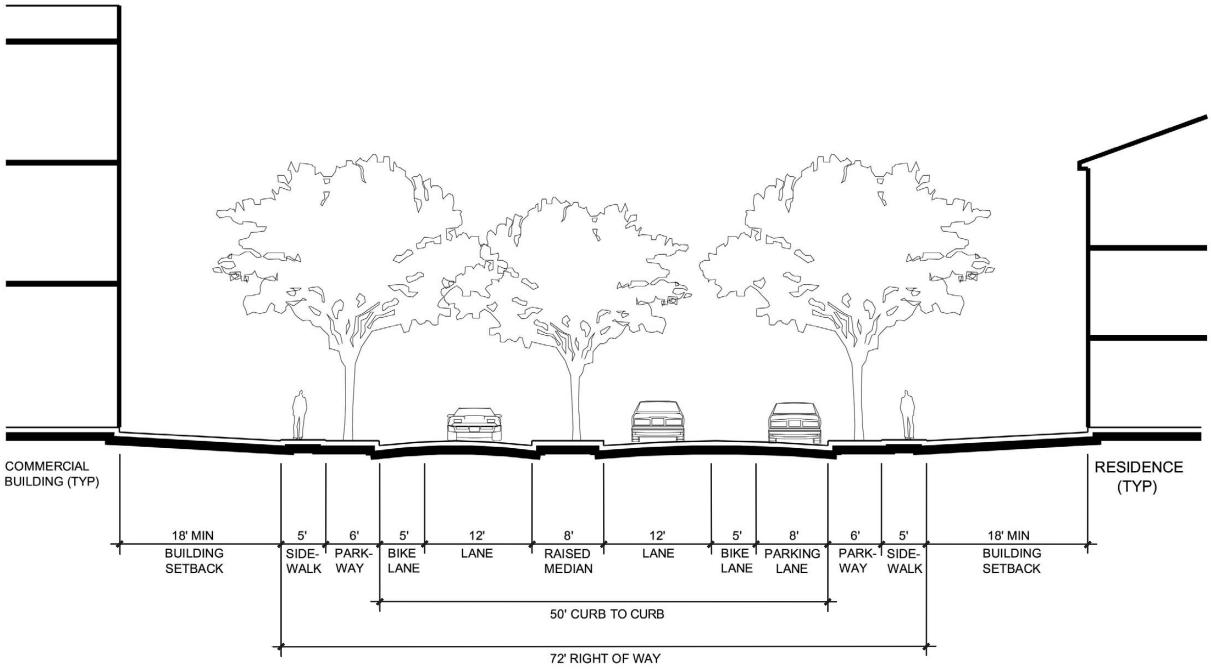
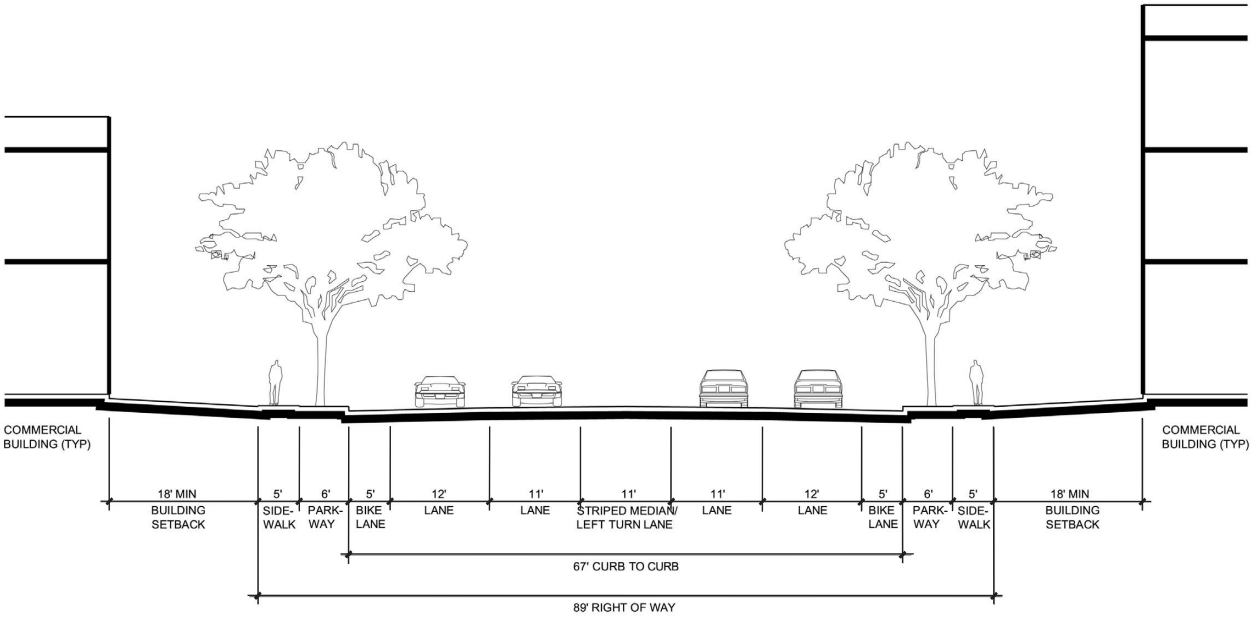
Figure 11
Conceptual Street Layouts and Building Setbacks

Source: MVE Architects, December 2003



SECTION E - A STREET BETWEEN 2ND AND 3RD STREETS



SECTION F - A STREET WEST OF 3RD STREET

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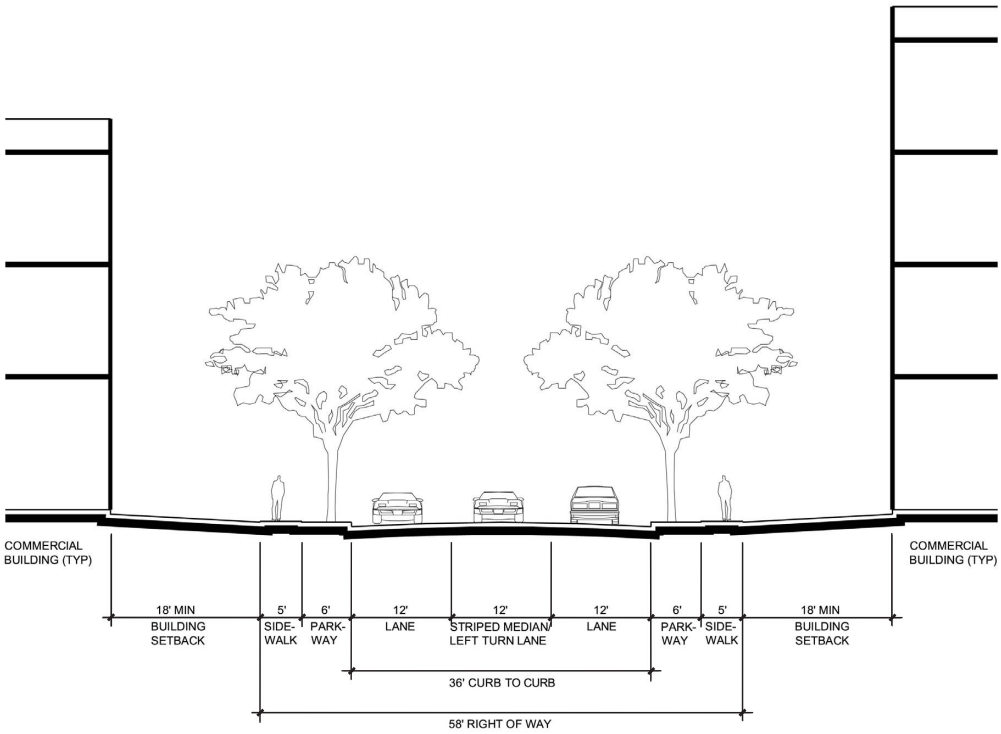
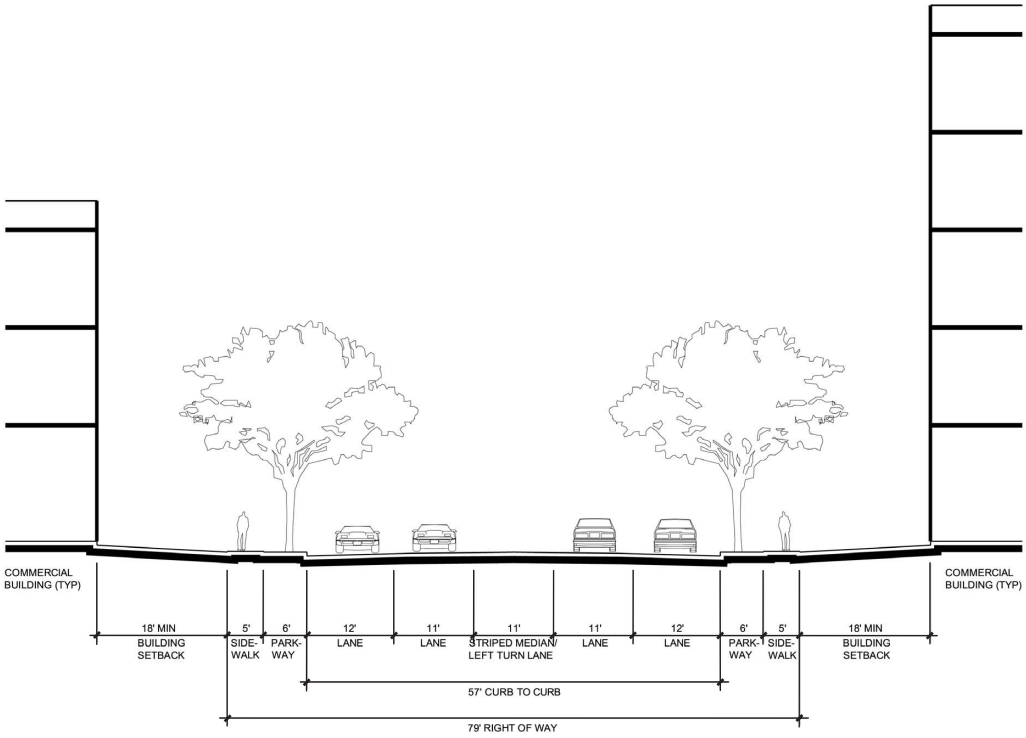
Figure 12
Conceptual Street Layouts and Building Setbacks

Source: MVE Architects, December 2003



SECTION G - 2ND STREET



SECTION H - B STREET EAST OF 2ND STREET

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Figure 13
Conceptual Street Layouts and Building Setbacks

Source: MVE Architects, December 2003

On-site parking will be provided in order to accommodate demand associated with the proposed uses.[26] The parking supply is envisioned to be designed to minimize walking distances for employees, residents, and visitors. The amount of parking provided on each development parcel will generally correspond to the type and intensity of uses proposed on that parcel and may include surface and/or structured parking. Surface parking will generally be associated with Commercial uses (office, R&D, light industrial, retail, hotel, aviation-related, and warehouse uses). In areas with higher development densities parking may be consolidated into sub-surface and/or aboveground structures. Parking structures will be visually treated along public streets through use of different grades, building materials, and/or landscaping. Joint use parking facilities and/or parking districts may be incorporated into the project's parking supply, where appropriate. Tandem parking may be used for certain residential products. On-street parking within the project site may be used to accommodate guest parking requirements for some specified residential products as well as to accommodate parking requirements for parks. As discussed in more detail in section V.L, Transportation and Circulation, parking will comply with Long Beach and Lakewood Municipal Code parking requirements. In addition, on-street parking will be provided near other residential, retail, and certain other commercial uses (but will not count towards compliance with City parking requirements). Refer to Section V.L, Transportation/ Circulation and Parking, of this Draft EIR for additional discussion of parking proposed as part of the project.

The proposed project will include recreational and open space amenities, as shown in the illustrative site plan provided in Figure 5 on page 118. Approximately 10.5 acres of park space are proposed as part of the PacifiCenter project, with 9 acres dedicated and zoned and improved as public park space. Park resources will range in size from less than one acre to approximately 4.5 acres and will include several neighborhood greens, a residential park referred to as The Commons, and a larger, centrally located Civic Green. Neighborhood greens may include amenities such as open lawns, playgrounds, park furnishings (e.g., benches, picnic areas, drinking fountains), shade structures, gardens, and public art. The Commons will serve the greater residential community at PacifiCenter and may include similar amenities as the neighborhood greens as well as a pool, spa and associated accessory structures for private use by on-site residents. Public park acreage may include hard court sports facilities such as basketball courts. The Civic Green will serve both the residential and commercial populations on-site, providing some of the same amenities envisioned for the neighborhood greens and additional uses that may include a band shell, public art reflecting the site's history, and restroom facilities. Other open space areas will include pedestrian routes (i.e., sidewalks and crosswalks) along all of the on-site

[26] *The parking areas provided on-site will not be considered part of the proposed floor area.*

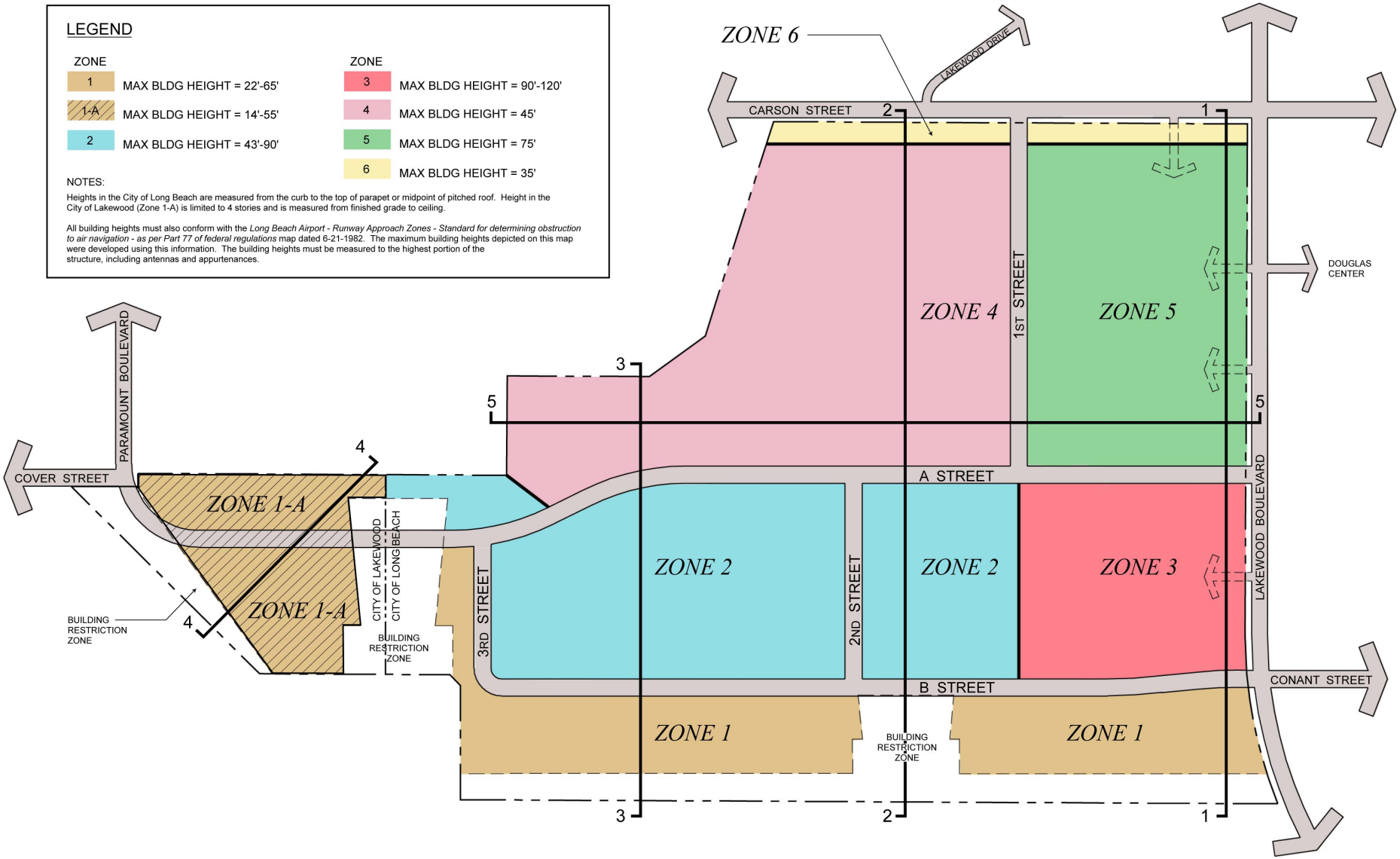
roadways and on Lakewood Boulevard and Carson Street, pathways for walking/jogging, and landscaped parkways along portions of the project boundaries adjacent to public streets. In addition, pedestrian improvements such as hardscaped courtyards, seating areas, and drinking fountains will be provided at key locations to provide passive recreational open space. Refer to Section V.J.4., Recreation, for a more detailed discussion of the park space recreational amenities to be developed as part of the proposed project. In addition, a Community Facilities District to provide for the financing of specific public services and facilities in accordance with the Mello Roos Community Facilities District Act may also be established as part of the project.[27]

Landscaping will also be provided throughout the site along the primary pedestrian walkways, within certain roadway medians, within building setbacks, and at the entrances to the project site. Implementation of such improvements by Boeing has already commenced with the installation of landscaping improvements, including the planting of several hundred trees, along Lakewood Boulevard from Spring Street to the southern site boundary. As part of the PacifiCenter project, these landscaping improvements will be continued along Lakewood Boulevard from the southern property boundary to Carson Street.

As illustrated in Figure 14 on page 135, the PacifiCenter site has been planned with seven height zones. The indicated ranges are dictated by both building types and Federal Aviation Administration height restrictions. Figure 15 on page 136 illustrates building height sections within these zones. Maximum heights range from up to 35 to 75 feet in the Housing area and from up to 14 to 120 feet in the Commercial area.[28] All heights are measured from the curb to the top of the parapet or mid-point of the sloping roof of the proposed structures, except in the City of Lakewood, which is measured from finished grade to the uppermost portion of the ceiling. Mechanical equipment and architectural features will be excluded from these limitations. Heights will be further restricted in some locations due to FAA regulations. In these cases, heights will be limited by the "Long Beach Airport – Runway Approach Zones – Standard for Determining Obstruction to Air Navigation – as per Part 77 of the Federal Aviation Regulations" map dated June 21,

[27] *A Mello-Roos Community Facilities District is a special taxing authority that may be formed to finance certain designated public services and capital facilities by levying special taxes which are continuing liens levied against the real property within the service area. A Mello-Roos Community Facilities District may fund on- and off-site capital improvements, such as transportation improvements and other infrastructure, as well as public services such as police and fire protection services, and parks.*

[28] *The range in heights within some of the zones is due to FAA height restrictions.*



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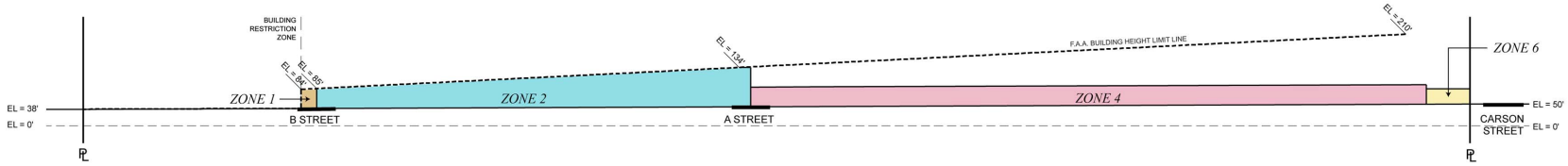
Scale Not Provided

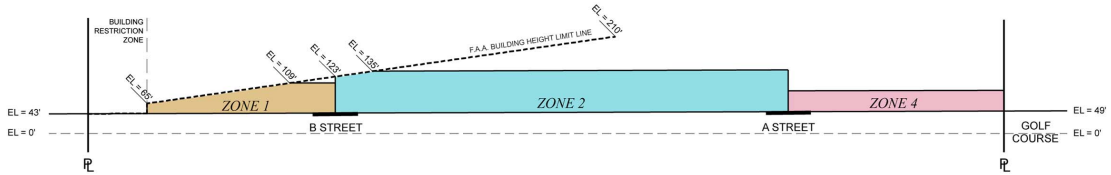
Source: MVE Architects, October 2003

Figure 14
Building Height Zones

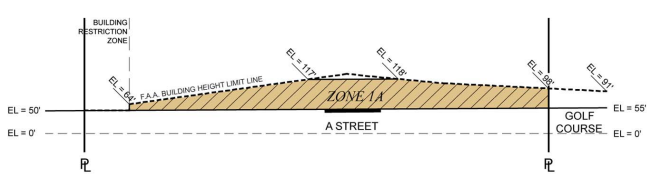
SECTION 1-1



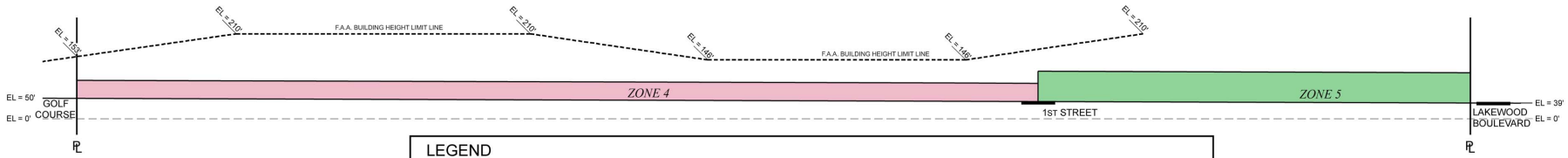
SECTION 2-2



SECTION 3-3



SECTION 4-4



SECTION 5-5

LEGEND

ZONE		ZONE			
1	MAX BLDG HEIGHT = 22'-65'	3	MAX BLDG HEIGHT = 90'-120'	6	MAX BLDG HEIGHT = 35'
1-A	MAX BLDG HEIGHT = 14'-55'	4	MAX BLDG HEIGHT = 45'		F.A.A. BLDG HEIGHT LIMIT
2	MAX BLDG HEIGHT = 43'-90'	5	MAX BLDG HEIGHT = 75'		SEA LEVEL
					PROPERTY LINE

NOTES: Heights in the City of Long Beach are measured from the curb to the top of parapet or midpoint of pitched roof. Height in the City of Lakewood (Zone 1-A) is limited to 4 stories and is measured from finished grade to ceiling.

All building heights must also conform with the *Long Beach Airport - Runway Approach Zones - Standard for determining obstruction to air navigation - as per Part 77 of federal regulations* map dated 6-21-1982. The maximum building heights depicted on this map were developed using this information. The building heights must be measured to the highest portion of the structure, including antennas and appurtenances.

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Scale Not Provided

Source: MVE Architects, October 2003

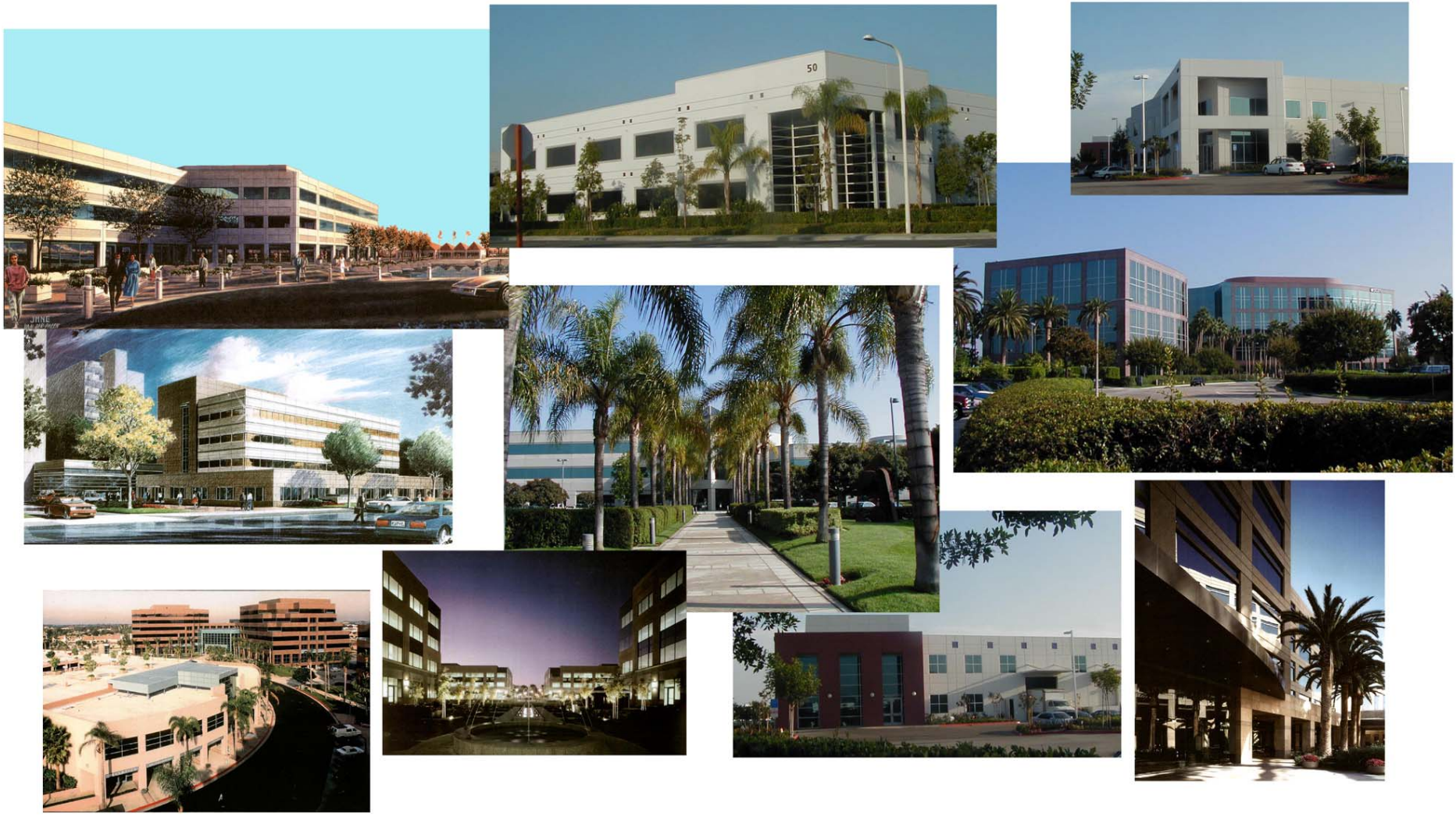
Figure 15
Building Height Sections

1982.[29] Refer to Section V.E, Hazards and Hazardous Materials, of this Draft EIR for additional discussion regarding FAA regulations.

As indicated in Figure 14, structures in Height Zone 1, which consists of the Commercial area south of B Street to the east of 3rd Street, and the area south of A Street immediately west of 3rd Street within the City of Long Beach (with the exception of the Building Restriction Zone), could have building heights of up to 22 to 65 feet above the curb. Zone 1-A, located within the City of Lakewood portion of the site (with the exception of the Building Restriction Zone), permits building heights of 55 feet and four stories, measured to the ceiling of the uppermost story. Zone 2, which consists of the Commercial area between A and B Streets and 1st and 3rd Streets and a portion of the area north of A Street at its intersection with 3rd Street (with the exception of the Building Restriction Zone) could have structures up to a range of 43 to 90 feet above the curb. The remainder of the Commercial area between A and B Streets (along Lakewood Boulevard) constitutes Zone 3, which is the maximum height zone on the project site. Structure heights in this zone could range from up to 90 to 120 feet above the curb. Structures within Zone 4, which consists of the western portion of the Housing area extending from the Lakewood Country Club Golf Course to 1st Street (with the exception of the portion immediately adjacent to Carson Street), will be limited to 45 feet in height above the finished grade. The eastern portion of the Housing area, extending from 1st Street to Lakewood Boulevard (with the exception of the portion that is immediately adjacent to Carson Street) is within Zone 5, which limits structures to 75 feet above the curb. Finally, the portion of the Housing area along Carson Street is in Zone 6, which is limited to 35 feet in height above the curb for the first 100 feet south of Carson Street, similar to the heights allowed by zoning for the existing residential uses north of Carson Street. In all on-site areas, proposed building heights must comply with FAA regulations. In addition, per the "Long Beach Airport – Airport Layout Plan," dated March 1, 2000, no buildings will be located within the Building Restriction Zones, shown in Figure 14, which include but are not limited to the Runway Protection Zones.

The overall design of the proposed PacifiCenter Commercial and Housing land uses is intended to be visually and functionally compatible with the adjacent uses. Please refer to the photographs provided in Figure 16 through Figure 18 on pages 138 through 140 for prototypes of the uses proposed to be developed within the Commercial and Housing land use categories. Figure 16 provides images of representative commercial developments embodying the types of building forms, architectural treatments, and accent

[29] *Building heights in these areas are measured by mean sea level and are measured to the highest point of the structure, including roof-top antennas, signs, elevators, mechanical equipment, and other appurtenances.*



Commercial Development Prototypes

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Figure 16
Commercial Development Prototypes

Source: MVE Architects, March 2003

Low to Medium Density Residential Development Prototypes

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Figure 17
Low to Medium Density
Residential Development Prototypes

Source: MVE Architects, March 2003

Medium to High Density Residential and Retail Development Prototypes

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Figure 18
Medium to High Density Residential and Retail Development Prototypes

Source: MVE Architects, March 2003

landscaping that would be provided by the project. Figure 17 presents a variety of low- to medium-density housing units, including single-family homes, townhouses, and condominiums, illustrative of those that may be developed within the Housing area on-site. Figure 18 includes images of medium- to high-density housing units, associated open space and recreational amenities, and retail development prototypes contemplated within the retail overlay zone.

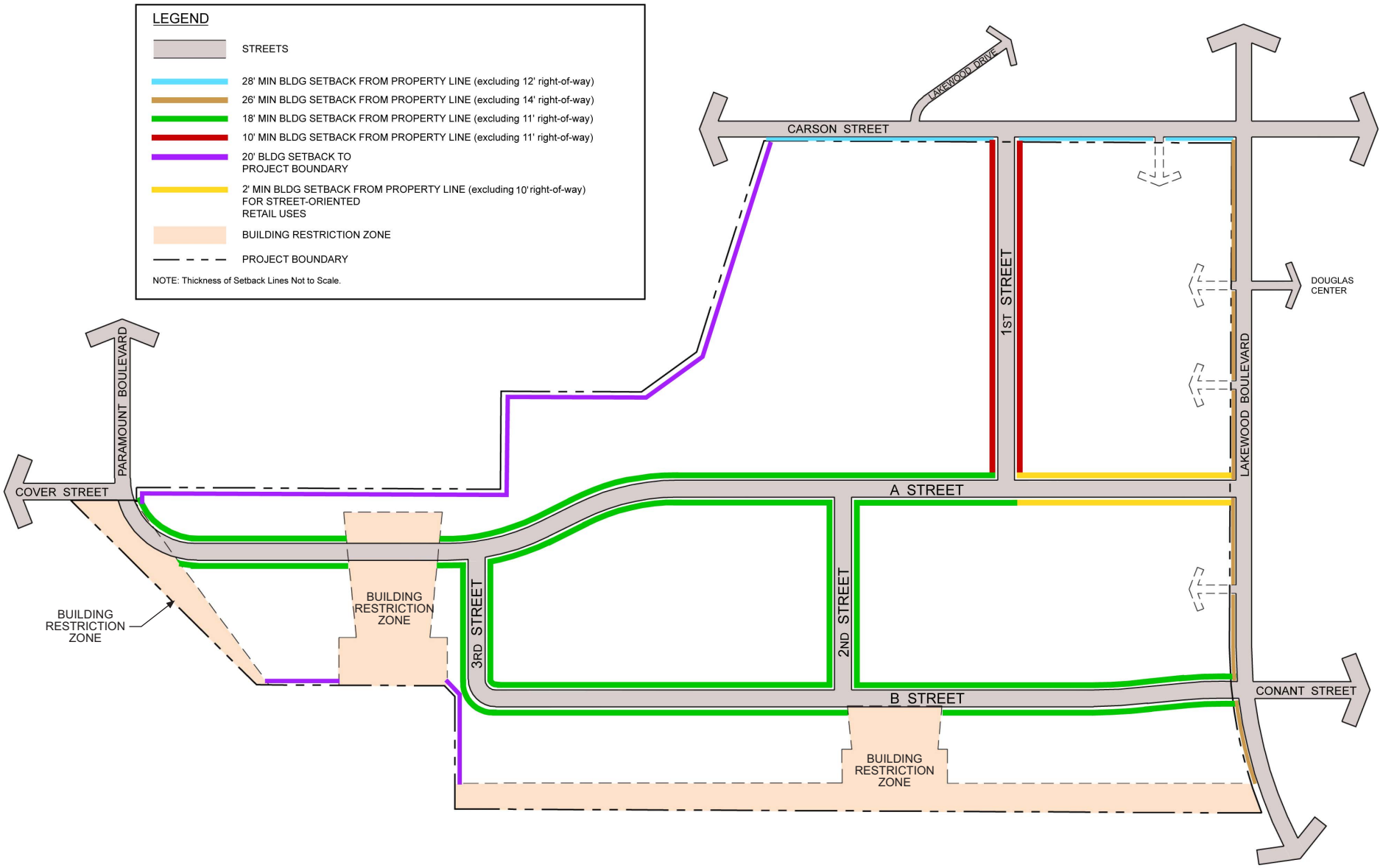
The proposed on-site buildings will typically be separated from the internal roadways by a series of landscaped parkways, bike lanes, and sidewalks. The northern and eastern boundaries of the Boeing Enclave may also be visually screened and/or landscaped. In addition, building setbacks have been established along the primary roadways within the site. As indicated in Figure 19 on page 142, these setbacks, which are generally measured as the distance between the property line and proposed building face, include the following:

- a 28-foot setback from the property line along Carson Street (excluding the 12-foot right-of-way).
- a 26-foot setback from the property line along Lakewood Boulevard (excluding the 14-foot right-of-way).
- a 20-foot setback from the property line adjacent to the Lakewood Country Club Golf Course;[30] and
- a minimum 20-foot setback along the limited portions of the Airport edge on the southern and southwestern boundaries of the project site that are not part of the Long Beach Airport Layout Plan Building Restriction Zone. The no-build zone, which is greater than 20 feet in width, extends along most of the southern portion of the project site.

Setbacks have also been established for several of the internal streets, as follows:

- a 2-foot setback from the property line (excluding the 10-foot right-of-way) along A Street between Lakewood Boulevard and 1st Street for street-oriented retail uses.

[30] *If A Street in the western portion of the site is located adjacent to the Golf Course, the minimum building setback will be 5 feet from the property line (excluding the 11-foot right-of-way).*



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Scale Not Provided

Source: MVE Architects, January 2004

Figure 19
Setback Plan

- a 10-foot setback from the property line (excluding the 11-foot right-of-way) along 1st Street; and
- an 18-foot setback from the property line along other internal collector roadways, including 2nd and 3rd Streets, except for those street segments that abut Building Restriction Zones, where adjacent development is not permitted.[31]

The proposed setbacks described above, as well as proposed sidewalks and landscape areas, are also illustrated in Figure 10 through Figure 13 on pages 129 through 132.

The proposed lighting associated with the PacifiCenter project will vary according to the types of land uses and specific buildings to be developed. In general, the exterior lighting will be designed to enhance security and will be shielded to reduce light spillover effects onto off-site properties and on-site residences. Architectural lighting will utilize indirect or hidden lighting to highlight specific architectural elements, building entries, and landscaping, while overall building illumination will be discouraged. Parking structures will generally include wall-mounted or pole mounted fixtures that will be directed onto the parking areas. Lighting within on-site parking structures will also be screened through architectural elements and landscaping, or through the use of parking structure lights with cut-off shrouds to eliminate the spill of light from within, including from the rooftop. Rooftop lighting in the form of security lighting or aviation warning lights in accordance with Airport/FAA requirements may be provided. Pedestrian walkways, courtyards, arcades, and seating areas will be illuminated for orientation and safety purposes, and rooftop lighting will be limited to security lighting. Refer to Section V.A, Aesthetics, for further discussion of proposed lighting.

Four tunnels are currently located below Lakewood Boulevard between the project site and the Boeing commercial 717 assembly plant to the east. These tunnels previously provided pedestrian or vehicular access, as well as access to several utilities. As part of the demolition activities proposed for the project, these tunnels will be modified to prohibit access from the west within the project site. Specifically, retaining walls will be constructed and the west side of the retaining wall will be backfilled. Boeing's access to the tunnels from the east will still be possible. The pedestrian bridge across Lakewood Boulevard, located just south of Carson Street, that currently connects the project site and the Boeing office center to the east will be removed as part of the remediation program

[31] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than 30 feet, in accordance with the Design Guidelines to be implemented as part of the project.*

that is underway. The remnants of the railway within the northwestern portion of the project site will also be removed as part of the project. In addition, as indicated above, disposition of the less than one-half acre property located at the southwest corner of Lakewood Boulevard and Carson Street from the City of Long Beach to Boeing or other development entity may occur as part of the project. If disposition does not occur, this parcel may also be zoned and improved for use as public open space in conjunction with the overall open space plan.

As discussed in more detail in Section V.H, Land Use, a Development Agreement will also be included for the project. A Development Agreement is typically used for larger projects that develop over time to provide some certainty for the City and Applicant with regard to development standards, implementation of infrastructure, and fees. Consistent with the proposed Planned Development-32 District, the Development Agreement, which will have a 20-year term, will address the maximum amount of development permitted on-site, the general types of uses permitted, the general locations of uses within the Commercial area, the maximum amount of warehouse and retail uses permitted, the maximum density of residential units, residential product types, the proportion of residential units that will be for-sale and rental, and appropriate transportation improvements. Among other provisions, the Development Agreement will also include requirements regarding open space and parks, infrastructure phasing, development impact fees, including affordable housing fees, and a commitment to public art. The contents of the Development Agreement that pertain to physical environmental issues (e.g., building heights, setbacks, etc.) will fall within the development parameters addressed in this EIR.

F. CONSTRUCTION PHASING

PacifiCenter will be developed in phased increments (sequenced according to geography and land use type) and is anticipated to be completed by or before the year 2020. Development of the PacifiCenter project will respond to market demands. However, the project will be developed in accordance with a commercial infrastructure phasing plan that will provide commercial infrastructure in advance of market demand. Such infrastructure will include wet utilities (water, sewer, storm drainage), dry utilities (telephone, electricity, gas, cable), streets, traffic signals and signage, street lighting, sidewalks, and parkway landscaping.

The initial construction phases of PacifiCenter will focus on the development of housing, site infrastructure for the housing and commercial uses, and the development of commercial uses based on market demands. Later phases will involve further commercial

development. As indicated by the illustrative commercial infrastructure phasing plan provided in Figure 20 on page 146, in general, as residential development occurs within the northern portion of the site, basic infrastructure to support the commercial uses (office, R&D, light industrial, retail, hotel, aviation-related, and warehouse uses) will be developed within the site's southern portion. The initial development increment is expected to be concentrated within the northern and eastern portions of the Housing land use area. As part of this initial development increment, construction of certain perimeter landscape improvements such as the Lakewood Boulevard landscaping improvements would also be commenced in concert with the basic project infrastructure improvements. As part of the initial development increment, the residential park referred to as The Commons will also be constructed. The Civic Green will be constructed upon the earlier of: 1) issuance of a Certificate of Occupancy for units occupying at least 50 percent of the gross residential acreage net of open space and parks, or 2) issuance of a Certificate of Occupancy for at least 50 percent of the maximum units.

The 48-acre Boeing Enclave, in which a variety of aircraft production-related uses presently exist, is expected to remain operational during project construction for all or a portion of the development period until Boeing no longer has use for the Enclave in its current capacity. (As discussed above, the eventual demolition and remediation of the Boeing Enclave is governed by California Regional Water Quality Control Board Clean-up and Abatement Order 95-048, which is considered a related project for purposes of this Draft EIR. However, for purposes of conducting a comprehensive and conservative evaluation of the project's potential environmental impacts, continued operations and future demolition of structures within the Boeing Enclave are evaluated in relevant sections of this Draft EIR.) The Boeing Enclave is expected to be the last area of the project site to be developed. The alignment of A Street through the site will allow the continuation of Enclave activities. However, only that segment of B Street between Lakewood Boulevard and 2nd Street will be initially constructed so as not to impede existing operations; B Street will be completed after removal and redevelopment of the Boeing Enclave area.

Construction activities will occur between the hours of 7 A.M. to 7 P.M. Monday through Friday and 9 A.M. to 6 P.M. on Saturdays, in accordance with the City of Long Beach and City of Lakewood Municipal Codes. Within the City of Long Beach, construction will only be permitted on Sundays with the approval of a Sunday Work Permit. However, within the City of Lakewood, Sunday construction will be permitted between 9 A.M. and 7 P.M. Construction activities are expected to commence in 2004 and proceed intermittently, with completion possible by or before 2020.

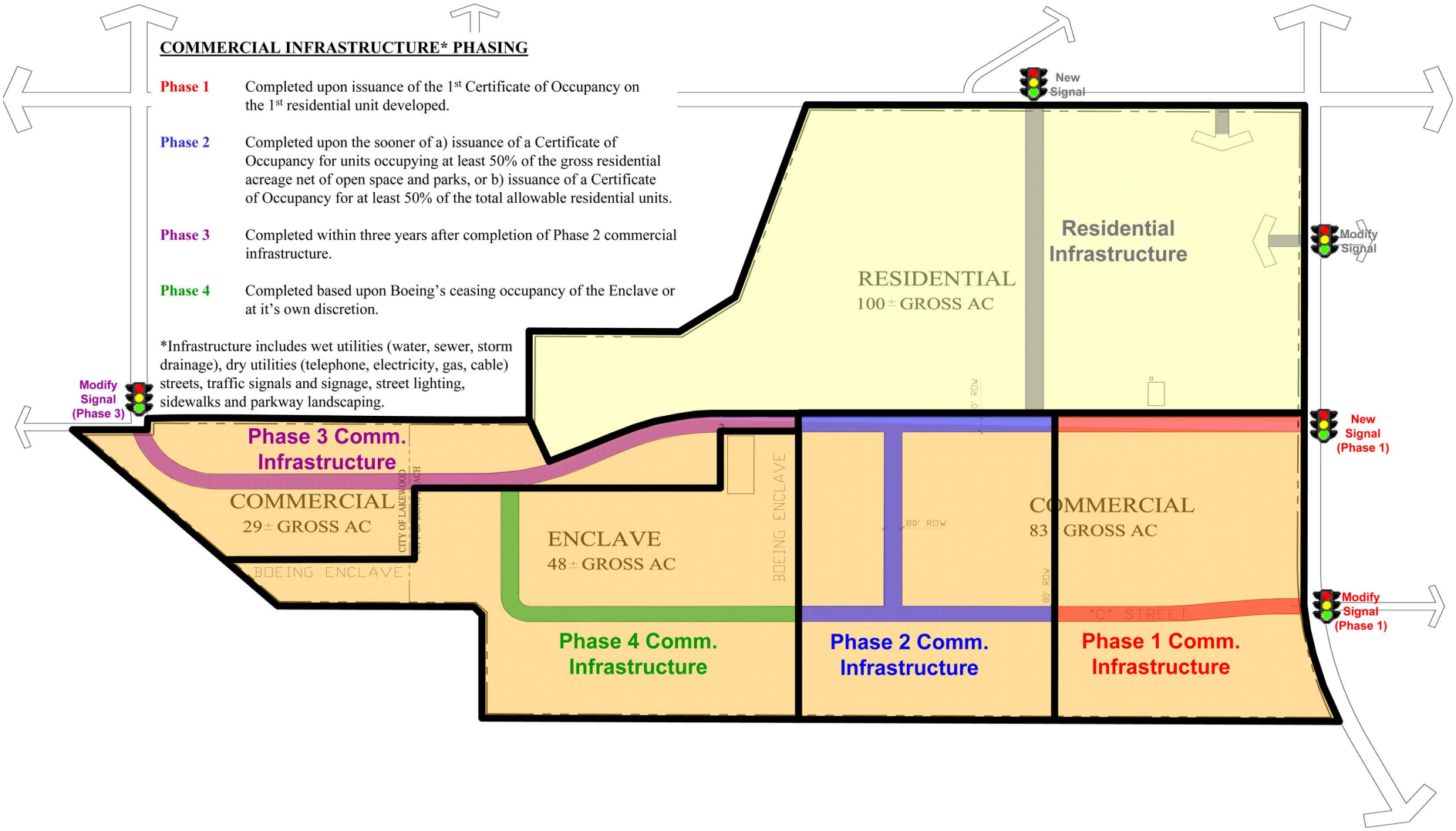

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Figure 20
On-Site Commercial Infrastructure Phasing Plan

Source: Boeing Realty Corporation, November 2003

G. INTENDED USES OF THE EIR

This Environmental Impact Report shall serve as the environmental document for the proposed actions associated with development of the PacifiCenter @ Long Beach project, pursuant to CEQA and the State CEQA Guidelines. The purpose of this Draft EIR is to assist the City of Long Beach, serving as the Lead Agency under CEQA, and the City of Lakewood, serving as a Responsible Agency under CEQA, in the decision-making process regarding the PacifiCenter @ Long Beach project. In accordance with CEQA (Public Resources Code, §21002.1), the intended uses of this Draft EIR are to identify the significant environmental impacts resulting from implementation of the proposed project, to indicate the manner in which these significant effects can be avoided or substantially lessened, and to identify alternatives to the proposed project. This Draft EIR is a Project EIR as defined by the State CEQA Guidelines (§15161).

A series of approvals, entitlements, and permits will be required for development of the proposed PacifiCenter @ Long Beach project from the City of Long Beach, the City of Lakewood, and various other public agencies. Such entitlements and permits may include the following:

- Certification of an Environmental Impact Report for the project as well as making Findings in accordance with CEQA Guidelines Section 15091, and adoption of a Mitigation Monitoring or Reporting Program in accordance with CEQA Guidelines Section 15097 and a Statement of Overriding Considerations in accordance with CEQA Guidelines Section 15093.

- General Plan text amendments to the Land Use Element to: (1) reflect the downturn in the aerospace industry and outdated facilities and allow a greater mix of uses within the Long Beach Airport Activity Center; (2) modify the policies for this Activity Center; (3) modify the associated map; and (4) clarify that residential uses may be allowed with industrial development in LUD No. 7 within the PacifiCenter Planned Development area.

- General Plan text amendments to the Transportation Element to modify the description regarding the Airport Activity Center to reflect the PacifiCenter project.

- General Plan text amendments to the Noise Element to modify maps regarding the Airport Adjacent Land Use and Industrial Land Use to reflect the PacifiCenter project.

- Amendments to the Long Beach Bicycle Master Plan to reflect the bicycle routes proposed by the project .
- Zone change to adopt a new Planned Development District (PD-32) that includes new zoning regulations and development standards for the proposed uses within the PacifiCenter site (to replace existing PD-19 regulations for the PacifiCenter property).
- Revisions to the existing PD-19 ordinance to remove reference to the PacifiCenter site from its boundaries.
- Zone change from CCA to PD-32 for the less than one-half acre parcel at the southwest corner of Carson Street and Lakewood Boulevard.
- Amendment to the General Plan land use designation of the southern portion of the site from LUD No. 12 to LUD No. 7.
- General Plan Amendment and zone change from LUD No. 7 (Mixed Use District) to LUD No. 11 (Open Space and Park District) and from PD-32 to P (Park), respectively, in association with the dedication of public park space, if necessary.
- Development Agreement (pursuant to Chapter 21.29 of the Long Beach Zoning Ordinance and Article 2.5, Chapter 4, Division I of Title 7 of the California Government Code).
- Vesting Tentative Tract Map and Final Tract Map(s).
- Approval of Design Guidelines.
- Construction of on- and off-site street improvements and other infrastructure as required as a condition of the Final Tract Map(s) and Development Agreement.
- Grading and building permits.
- Conditional Use Permit(s), if required for specific uses.
- Amendment to the City of Long Beach Noise Ordinance with regard to District 4 (Industrial) designation for the project site.
- Disposition of the less than one-half acre parcel located at the southwest corner of the Lakewood Boulevard and Carson Street intersection from the City of

Long Beach to Boeing Realty Corporation or other development entity. If disposition does not occur, this property may also be improved and zoned for public open space.

- Other approvals, if determined in the entitlement process to be required.

As discussed in more detail in Section V.H., Land Use and Planning, as the project is implemented, Site Plan Review will be required for individual projects prior to issuance of a building permit.

City of Lakewood

- Consideration of an Environmental Impact Report for the project as well as making Findings in accordance with CEQA Guidelines Section 15091, and adoption of a Mitigation Monitoring or Reporting Program in accordance with CEQA Guidelines Section 15097 (for those mitigation measures that apply to the environmental impacts of those parts of the project that the City of Lakewood decides to approve) and, if necessary, a Statement of Overriding Considerations in accordance with CEQA Guidelines Section 15093.

- Vesting Tentative Tract Map and Final Tract Map(s).

- Construction of on- and off-site street improvements and other infrastructure as required as a condition of project approval.

- Grading and building permits.

- Conditional Use Permit(s), if required for specific uses.

- Other approvals, if determined in the entitlement process to be required.

As discussed in more detail in Section V.H., Land Use and Planning, review by the Lakewood Development Review Board will be required for future individual development projects on the 23-acre portion of the site within the City of Lakewood.

Other Agencies

Other permits or actions may be required from other agencies which may include, without limitation, the South Coast Air Quality Management District (SCAQMD), the California Public Utilities Commission (PUC), the California Department of Transportation,

the Regional Water Quality Control Board (RWQCB), Los Angeles County Flood Control District, Federal Aviation Administration (for filing of Form 7460-1, Notice of Proposed Construction or Alteration, with the appropriate regional FAA office for airspace review), and the Los Angeles County Airport Land Use Commission (for a consistency determination with the Los Angeles County Airport Land Use Plan).

IV. Overview of Environmental Setting

IV. OVERVIEW OF ENVIRONMENTAL SETTING

1. GENERAL DESCRIPTION OF THE ENVIRONMENTAL SETTING

This section provides a generalized overview of the physical environmental setting in which the PacifiCenter project site is located. Detailed discussions of environmental setting are provided within each of the specific impact categories presented in Section V, Environmental Impact Analysis. In addition, please refer to Section III, Project Description for detailed information regarding existing on-site conditions.

a. Aesthetics

The PacifiCenter site is located in an urbanized area within the Cities of Long Beach and Lakewood. The project site includes industrial buildings and surface parking areas with minimal landscaping. In addition, due to demolition activities that are currently underway within the project site in conjunction with a mandated soil and groundwater remediation program, portions of the site are comprised of graded land. The majority of the buildings that are occupied on-site are located within 48 acres within the western portion of the site in an area referred to as the Boeing Enclave. Prior to the recent commencement of demolition activities, the PacifiCenter site included over five million square feet of permitted, usable floor area, most of which was provided in low- to mid-rise industrial structures, R&D buildings, and airplane hangars. Several trailers, modular buildings, and other miscellaneous structures were also located throughout the project site. In addition, the eastern portion of the site includes a nine-story, mid-rise, executive office building constructed of black glass on two facades. There are currently chain link fences along the periphery of much of the project boundary and the current demolition activities have been completely enclosed by screen fencing to conceal views of the site. Substantial aesthetic resources are not present within the project site. Prominent aesthetic features within the surrounding vicinity include the San Gabriel Mountains to the distant north and Signal Hill to the southwest. The Lakewood Country Club Golf Course and Sky Links Golf Course may also be considered aesthetic features, although they are not highly visible within the surrounding area. Additional information regarding aesthetics and views is provided in Section V.A, Aesthetics, of this EIR.

b. Air Quality

The PacifiCenter site is located in the South Coast Air Basin (Basin). The Basin is an area of high air pollution potential, particularly from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmosphere mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. For example, ozone concentrations tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in southern California. The area was previously in non-attainment for all National Ambient Air Quality Standards (NAAQS), except for SO_2. The area is now defined as in attainment for NO_2, lead, SO_2, and CO. While reduced substantially from their peak levels, PM_{10} and ozone levels are still far from attainment. This year resulted in the worst smog season in seven years. The Basin experienced its first Stage 1 smog episode this summer since 1998, which was primarily due to an unusually strong high pressure system and resulting inversion layer that trapped smog close to the ground.[32] Additional information regarding air quality is provided in Section V.B, Air Quality, of this EIR.

c. Cultural Resources

The Long Beach C-1 facility is located within an area historically developed for aviation uses. Douglas Aircraft Company, which subsequently became part of McDonnell Douglas and now the Boeing Company, began airplane production at the site in 1941. The Long Beach facility was built by Douglas to meet wartime aircraft production of World War II. At that time, it was the largest of Douglas' aircraft factories in southern California with more than 1.4 million square feet of covered workspace. During wartime it was a "blackout" facility with limited light-proof access into each of the buildings. The overall grounds and buildings were camouflaged with paint to look like street patterns, trees, and shrubs. For its size, it was also the country's first fully air-conditioned factory. During peak production (1942-1945), the Long Beach plant produced an airplane an hour. None of the buildings, structures, or objects located within the project site has been previously evaluated for historic and/or architectural significance. However, upon concluding the current survey process, one historic resource – a grouping of 18 contributing buildings,

[32] *A Stage 1 episode is declared when ozone levels reach a level of 0.20 parts per million (ppm) during a one-hour average. At that level, most people will notice some adverse effects such as shortness of breath, and everyone is urged to avoid strenuous outdoor exercise. Those who are sensitive to smog, including children, the elderly, and people with heart and lung diseases, are advised to stay indoors.*

four non-contributing buildings, and two other features – was identified as a potential historic district eligible for listing on the National Register of Historic Places, the California Register of Historical Resources, and for local designation as a City of Long Beach historic district. Seventeen of the eighteen contributing buildings and the contributing features in this identified potential historic district are in the process of being demolished and removed pursuant to demolition permits issued by the City of Long Beach in order to provide for remediation activities mandated by the California Regional Water Quality Control Board, Los Angeles Region Cleanup and Abatement Order 95-048. Building 15, which is part of the Boeing Enclave, may eventually be demolished to provide for remediation activities or may be demolished to provide for proposed PacifiCenter commercial uses. To provide for a conservative analysis, this document assumes that demolition of the Boeing Enclave, including Building 15, will occur as part of the PacifiCenter project.

Relevant to archaeological resources, the archaeological assessment survey conducted for the project did not determine the existence of any prehistoric archaeological resources within the study area or within a 1-mile radius of the project site. However, because the project site is entirely covered by buildings or surface paving, the property cannot be surveyed by conventional methods. Furthermore, a subsurface testing program could not previously be undertaken due to the safety and security precautions associated with the project site as part of a military and civilian aircraft manufacturing facility. Because survey and testing procedures could not be done, it must be concluded that there is at least the potential for previously unknown, buried archaeological resources to lie beneath the site's surface exists.

With regard to paleontological resources, the record search conducted for the project identified surficial deposits composed of terrestrial Quaternary Alluvium in the uppermost layers of soils within a 1-mile radius of the project site. Since the project site and much of the surrounding vicinity has been previously graded and developed, these deposits do not likely contain significant fossils in the uppermost layers. However, at greater depths, older terrestrial Quaternary deposits that contain significant vertebrate fossils and Plio-Pleistocene marine sediments and fossil vertebrate remains have been identified within a 1-mile radius of the project site.

Additional information regarding paleontological, archaeological, and historic resources is provided in Section V.C, Cultural Resources, of this EIR.

d. Geology

The project site is located in the northern portion of the City of Long Beach and the southwest portion of the City of Lakewood, within the Los Angeles Basin. Maximum

elevations on the site are approximately 54 feet above mean sea level (amsl) at the western border of the site and minimum elevations are approximately 34 feet amsl at the southeast end of the site. Natural soil types found on the project site generally consist of interlayered mixtures of sand, silt, and clay. The entire southern California region is seismically active. As such, the project site and all areas of the Los Angeles Basin are subject to ground shaking of varying intensities from earthquakes on nearby and distant faults. Additional information regarding topography, geology, and seismicity is provided in Section V.D, Geology and Soils, of this EIR.

e. Hydrology and Water Quality

There are no surface water bodies or wetlands located on the project site, although there are several found in the project vicinity. The primary surface water bodies are lakes within the Lakewood Country Club and wetlands within flood control channels.[33] The project site lies within and downstream of a 1,521-acre (2.4-square mile) watershed. Drainage on the site flows to the south and to the east, and the on-site storm drain system point of discharge is located at the southeast corner of the site, where flows discharge into Los Angeles County Flood Control District-owned culverts located under Lakewood Boulevard. Although the site does not have a history of flooding, the Federal Emergency Management Agency Flood Insurance Study indicates that a small portion of the 100-year floodplain extends west across Lakewood Boulevard onto the project site.[34] Underlying the project site and vicinity are sediments within the Central Groundwater Basin that extend to depths of over 1,250 feet below land surfaces, forming a sequence of aquitards and aquifers.

The project site contains groundwater aquifers and aquitards, which include the following: Bellflower, Artesia, Gage, Hollydale, Jefferson, Lynwood, Silvarado, and Sunnyside. The Bellflower aquitard, Artesia aquifer, and Gage aquifer are not used for municipal supply purposes due to low yields of groundwater levels. The deep aquifers (i.e., Hollydale, Jefferson, Lynwood, Silvarado, and Sunnyside aquifers) are managed for municipal supply uses within the project vicinity. The most shallow aquifer, the Bellflower Aquifer, is impacted by historic chemical releases on the project site. Extensive groundwater testing shows that all other aquifers have not been impacted by these historic

[33] *Tetra Tech, Inc., Phase I Environmental Site Assessment for Boeing C-1 Facility, February 2000.*

[34] *Currently, a Conditional Letter of Map Revisions (CLOMR) is being prepared to remove this portion of the project site from the 100-year floodplain. The CLOMR is standard procedure for removing areas from the FEMA map that are incorrectly shown as part of the 100-year floodplain. As in this case, such errors are typically caused by topographic mapping that is not detailed enough to accurately show the floodplain limits relative to the existing ground conditions.*

releases. The Bellflower Aquifer is the subject of a comprehensive soil and groundwater remediation program mandated by the California Regional Water Quality Control Board, Los Angeles Region, which is described below. Additional information is provided in Sections V.E, Hazards and Hazardous Materials, V.F, Hydrology, and V.G, Water Quality, respectively, of this EIR.

f. Land Use

The project vicinity includes a variety of land uses, such as aviation, office, industrial, recreation, residential, educational, and retail uses. Uses immediately adjacent to the project site include the Long Beach Airport to the south and west, Boeing's 717 assembly facility and office complex to the east, and single-family residences and the Lakewood Country Club to the north and northwest.

The Land Use Element of the City of Long Beach General Plan designates the majority of the project site located within the City of Long Beach as Land Use District (LUD) No. 7 (Mixed-Use), while the southernmost portion of the project site south of the extension of Conant Street is designated LUD No. 12 (Harbor/Airport). Under the Long Beach Zoning Ordinance, the majority portion of the site in the City of Long Beach is currently zoned PD-19 (Douglas Aircraft Planned Development District). In addition, the less than one-acre parcel located at the southwest corner of Lakewood Boulevard and Carson Street is zoned Community Commercial Automobile-Oriented (CCA).

The 23-acre portion of the project site located within the City of Lakewood is designated in the Land Use Element of the Lakewood Comprehensive General Plan as Industrial and is currently zoned M-2 (Heavy Manufacturing). The project site is within the City of Lakewood's Redevelopment Plan for Redevelopment Project Area III. Additional information regarding land use is provided in Section V.H, Land Use and Planning, of this EIR.

g. Noise

The project site and nearby vicinity are primarily exposed to noise generated by traffic on surrounding roadways and freeways, the operations within the Long Beach Municipal Airport, engine testing at Boeing's engine run-up area in the Boeing Enclave, and the separate and ongoing remediation efforts pursuant to the LARWQCB Cleanup and Abatement Order 95-048. The nearest sensitive receptors to the project site are the single-family residences located along and north of Carson Street. Additional information regarding noise is provided in Section V.I, Noise, of this EIR.

h. Public Services

The project site and vicinity are served by several public service providers. Police protection services are provided by the Long Beach Police Department and the Los Angeles County Sheriff's Department. The Long Beach Fire Department and the Los Angeles County Fire Department provide fire protection services to the site. The project site is located within the Long Beach Unified School District. The Long Beach Parks, Recreation and Marine Department and City of Lakewood Recreation and Community Services Department provide parks and recreational facilities for the project site and the surrounding area. Library services are provided by the Long Beach Public Library and the Los Angeles County Public Library system. Additional information regarding police protection, fire protection, schools, recreation, and libraries is provided in Section V.K, Public Services, of this EIR.

i. Transportation/Traffic and Parking

The San Diego Freeway (I-405), the Long Beach Freeway (I-710), the Artesia Freeway (SR-91), and the San Gabriel River Freeway (I-605) provide regional access to the project site. Within the project vicinity, 68 of the 107 existing study intersections currently operate at Level of Service (LOS) D (representing a fair level of service) or better during both the A.M. and P.M. peak hours. Thirty-nine of the existing study intersections operate at LOS E or F in one or both of the peak hours (representing unacceptable levels of service). In addition, all nine of the studied mainline segments on I-405 currently operate at LOS E or F during one or both peak hours and all six of the mainline segments on SR-91 within the study area operate at LOS E or F in both peak hours under existing conditions. Long Beach Transit (LBT) is the primary transit service provider in the City of Long Beach and the project vicinity. The City of Long Beach has a system of Class I, II, and III bikeways that collectively covers approximately 63 miles. The existing bikeway system provides reasonable access to the project site from the east, southeast, and northeast, with more limited access from the west and north. Currently, parking within the project site is comprised of several off-street surface parking lots. Some of this surface parking is in the process of or will be removed as part of the demolition activities associated with the mandated remediation program underway for the project site. Additional information regarding traffic, circulation, and parking is provided in Section V.L, Transportation/Circulation and Parking, of this EIR.

j. Public Utilities

The project site is located within an urbanized area with developed infrastructure systems. Water is provided to the project site by the City of Long Beach Water

Department and the City of Lakewood Department of Water Resources. The City of Long Beach Water Department and County Sanitation Districts of Los Angeles County provide sewer service to the project site. Solid waste collection services with the City of Long Beach are provided by the City of Long Beach Environmental Services Bureau and 21 private, permitted commercial haulers. The City of Lakewood has a franchise agreement with a private hauler for the collection of solid waste generated within the City. Electric service is provided by Southern California Edison and natural gas is supplied by Long Beach Energy. Additional information regarding water, sewer, solid waste, and energy is provided in Section V.M, Utilities, of this EIR.

k. Clean-Up and Abatement of Soils and Groundwater

The Boeing Company is currently implementing a separate and ongoing site wide environmental assessment and remediation program at the project site. This work is being conducted to meet the requirements and schedule of the Cleanup and Abatement Order 95-048 issued by the Los Angeles Regional Water Quality Control Board (LARWQCB) to address historic releases of hazardous materials associated with former aircraft manufacturing activities at the former C-1 site. The California Office of Environmental Health Hazard Assessment (OEHHA) is also providing oversight for human health risk assessment issues.

The remediation program involves a comprehensive environmental assessment program to define the exact extents of impacted soil and groundwater at the site. As of October 2002, all major soil and groundwater assessments have been completed. Approximately 23 localized areas of soil impacted by chemicals and products used at the former facility have been identified as “source areas.” Approximately 15 groundwater plumes have been identified in the Bellflower aquitard beneath the site. Results of sampling conducted in the deeper groundwater zones beneath the property indicate that they have not been impacted.

Soil and groundwater cleanup is underway in several portions of the site. Due to the size of the former C-1 site, it was divided into 18 separate Environmental investigation Areas (EIAs).[35] Remediation is broken down into separate soil and groundwater remediation programs. Soil remediation is being completed in a phased manner. Former industrial buildings and ancillary structures are being demolished and surface soils are being remediated in accordance with LARWQCB requirements (as specifically set forth in the LARWQCB approved Assessment Confirmation and Expedited Remediation (ACER)

[35] *Fifteen EIAs comprise the project site, while the remaining EIAs are located to the east of the project site.*

program). Of the 15 EIAs that comprise the site, regulatory approval for "No Further Action" (NFA) and closure for soils in 12 of the EIAs has been received from the Los Angeles Regional Water Quality Control Board (LARWQCB). These EIAs comprise a total land area of 204 acres, representing approximately 80 percent of the site.[36] Regulatory approval of NFA for the 3 remaining EIAs is expected shortly. It is anticipated that the Boeing Enclave will be the last EIA to be remediated. The Boeing Enclave will continue to operate pending, and possibly during, remediation. This may involve the demolition of some or all buildings and ancillary structures dependent on the specific remediation protocols that have yet to be implemented pursuant to the ACER program. LARWQCB will review and confirm the completion of soil remediation efforts for each EIA. For further information regarding applicable cleanup protocols and the status of soil cleanup efforts, refer to Appendix K of this EIR.

Groundwater remediation efforts are also underway on the site. Various treatment methods have been utilized to remediate impacted groundwater, varying from in situ remediation efforts to pump and treat technology depending on the constituent at issue. It is anticipated that this will take a longer period of time to complete than soil remediation due to the geologic and technical constraints associated with groundwater remediation. This ongoing activity will involve limited surface structures and equipment that will not be accessible to new residents or employees at the site. LARWQCB will also review and confirm the completion of groundwater remediation efforts. For further information on the ongoing groundwater remediation program, refer to Appendix K. In addition, as further discussed in Section V.E, Hazards and Hazardous Materials, the Applicant will implement a Risk Management Plan (RMP) to assure the ongoing protection of residents and employees at the PacifiCenter site in relation to these long-term remediation efforts.

For further information see Sections V.E, Hazards and Hazardous Materials, and V.G, Water Quality, of this EIR.

2. BASIS FOR CUMULATIVE IMPACT ANALYSIS

The California Environmental Quality Act (CEQA) requires that Environmental Impact Reports (EIRs) analyze cumulative impacts. CEQA Guidelines Section 15355 defines cumulative impacts as "two or more individual effects which, when considered

[36] *It should be noted that several smaller "carve-out" areas have been created in several of the closed EIAs. Further investigation and remediation will be conducted in these smaller areas contained within 5 EIAs until soil clean-up goals are reached. Upon completion of this work to the satisfaction of the LARWQCB, closure and NFA will be requested for soil in these remaining carve-out areas.*

together, are considerable or which compound or increase other environmental impacts." In addition, CEQA Guidelines Section 15130(b) indicates that the analysis of cumulative impacts need not be as in-depth as what is performed relative to the proposed project, but instead is to "be guided by the standards of practicality and reasonableness."

Cumulative impacts are anticipated impacts of the project along with reasonably foreseeable growth. According to CEQA Guidelines Section 15130(b)(1)(A) and (B), reasonably foreseeable growth may be based on either of the following:

- A list of past, present, and probable future projects producing related or cumulative impacts; or
- A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental planning document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact.

The PacifiCenter project is anticipated to be implemented through the year 2020, as discussed in Section III, Project Description. Given the planning horizon associated with the project, sole use of a list of anticipated future projects was deemed inappropriate and infeasible as such a list typically covers only a 2- to 5-year period. Therefore, it was determined that land use projections through 2020 by the Southern California Association of Governments (SCAG), as supplemented by a list of approved and proposed projects that are planned in the surrounding project area would be used as the basis for the cumulative analyses in the EIR. This data will be used to conduct the analysis of cumulative impacts for each environmental issue, as appropriate. The list of identified related projects is used to supplement SCAG's forecast and is provided in Table 3 on pages 160 through 163 with the locations of each of the related projects listed in Figure 21 on page 164. This list was compiled in November 2002, at the same general time the NOP for the project was circulated. Subsequent to the initial preparation of this list, several projects were added. In addition, although several of the projects in this list have been completed, they still remain relevant since the traffic counts for the project's traffic analysis were conducted as early as November 2002 and thus would not have included the traffic from these projects which were not yet built.

Table 3

Related Projects Description

Map No.	Size	Description	Location	Jurisdiction
1	1,131 sf	Market Expansion	5453 South Street	Lakewood
2	16,500 sf	Church	3114 South Street	Lakewood
3	11 du	Apartment	20808 Seine Avenue	Lakewood
4	15 du	Apartment	20603 Seine Avenue	Lakewood
5	19,676 sf	Shopping Center	4116-4128 South Street	Lakewood
6	94,268 sf	Department Store (Kohl's)	2650 Carson Street	Lakewood
7	8,015 sf	Restaurant/Bar	4634 Candlewood Street	Lakewood
8	6,853 sf	Restaurant	4404 Candlewood Street	Lakewood
9	168,000 sf	Department Store (Target)	Del Amo and Lakewood (Lakewood Center Mall)	Lakewood
10	14,436 sf	Drug Store (Walgreens)	5829 Lakewood Boulevard	Lakewood
11	35,192 sf	Retail (tenant improvement)	Del Amo and Lakewood (Lakewood Center Mall)	Lakewood
12	9,587 sf	Commercial Retail	2700-18 Carson Street	Lakewood
13	12,000 sf	Drug Store (CVS)	4909 Paramount Boulevard	Lakewood
14	2,700 sf	Commercial Retail	4925-63 Paramount Boulevard	Lakewood
15	10 du	Condominium	11716-24 205th Street	Lakewood
16	8 du	Condominium	11711-19 216th Street	Lakewood
17	20 du	Condominium	20741-20809 Seine Avenue	Lakewood
18	8 du	Single-Family Residential (planned development)	5813 Allington Street	Lakewood
19	20 du	Single-Family Residential (planned development)	SE corner of Paramount and Candlewood	Lakewood
20	430 rm	Hotel	100 East Ocean Boulevard	Long Beach
21	16,200 sf	Drug Store (Sav-On)	6000 Atlantic Avenue	Long Beach
22	160 du	Apartment	3801 Pacific Coast Highway	Long Beach
23	106 du	Single-Family Residential	2080 Obispo Avenue	Long Beach
24	500,000 sf	Commercial/Entertainment	Shoreline Drive & Pine Avenue	Long Beach
25	162 rm	Hotel	201 The Promenade	Long Beach
26	400,000 sf	Technology Park Industrial/R&D	2000 West 19th Street	Long Beach
27	82 du	Condominium (50 adaptive reuse/ 32 new construction)	835 Locust Street	Long Beach
28	92,000 sf	Self Storage	4200 Pacific Coast Highway	Long Beach
29	66 du	Condominium	1000 E. Ocean Boulevard	Long Beach
30	770 du	Apartment	300 W. Ocean Boulevard	Long Beach
	500 rm	Hotel		
	25,000 sf	Commercial		
31	302 du	Residential	6400 E. Pacific Coast Highway	Long Beach
	199 rm	Hotel		
32	470,000 sf	Retail	301 Long Beach Boulevard	Long Beach
	250 du	Apartment		
33	75,100 sf	Self Storage	2323 South Street	Long Beach

Table 3 (Continued)

Related Projects Description

Map No.	Size	Description	Location	Jurisdiction
34	179,000 sf	General Office	5950 Spring Street	Long Beach
35	15,200 sf	Drug Store	1250 E. Pacific Coast Highway	Long Beach
36	34 du	Condominium	834 E. Fourth Street	Long Beach
	6,900 sf	Commercial		
37	20,000 sf	Police Station	4891 Atlantic Avenue	Long Beach
38	10 du	Condominium	23 Fourth Place	Long Beach
39	556 du	Condominium	350 E. Ocean Boulevard	Long Beach
40	48 du	Apartment	248 W. Broadway	Long Beach
	9,000 sf	Commercial		
41	105,800 sf	Hospital	2702 Long Beach Boulevard	Long Beach
42	8,000 sf	Specialty Retail Center	2302 Bellflower Boulevard	Long Beach
43	66 du	Apartment	1601 Pacific Avenue	Long Beach
44		Boeing—Cleanup and Abatement Order 95-048	Lakewood Boulevard and Carson Street	Long Beach
45	63 du	Senior Citizens Assisted Living (conversion)	117 E. Eighth Street	Long Beach
46		Queen Mary Expanded Attractions	1126 Queen's Highway	Long Beach
	50,000 sf	Attraction Venue		
	1,300 sp	Parking Structure		
47	52 du	Single-Family Residential	301 Manila Avenue	Long Beach
48	69 rm	Hotel	517 E. First Street	Long Beach
49		Parking Structure for Carnival Cruise Ships	1126 Queen's Highway	Long Beach
50	7,000 sf	Retail	3400 Long Beach Boulevard	Long Beach
	1,500 sf	Fast-Food Restaurant with Drive-Thru		
51	19,500 sf	Commercial	190 Marina Drive	Long Beach
52	16 du	Residential Lofts (conversion)	829 Pine Avenue	Long Beach
53	35 du	Condominium	6000 Loynes Drive	Long Beach
54	71,536 sf	Self-Storage	5400 Paramount Boulevard	Long Beach
	1,100 sf	General Office		
55	106,636 sf	Self-Storage Facility and RV Parking	6897 Paramount Boulevard	Long Beach
56	58,500 sf	Shopping Center	120 Studebaker Road	Long Beach
57	6,172 sf	Commercial	3918-3926 Long Beach Boulevard	Long Beach
	2,714 sf	Fast-Food Restaurant with Drive-Thru		
58	11,984 sf	Commercial	1570-1598 Long Beach Boulevard	Long Beach
59	3,200 sf	Fast-Food Restaurant with Drive-Thru	1840 Long Beach Boulevard	Long Beach

Table 3 (Continued)

Related Projects Description

Map No.	Size	Description	Location	Jurisdiction
60	519,135 sf	Self-Storage	712 W. Baker Street	Long Beach
61	11,550 sf	Drug Store with Drive-Thru	3570 Atlantic Avenue	Long Beach
62	30,000 sf	Education Building	2244 Clark Avenue	Long Beach
63	15,000 sf	Commercial	2005-2011 Long Beach Boulevard	Long Beach
64	5 du	Single-Family Residential	315 Flint Avenue	Long Beach
65	11 du	Condominiums (conversion)	201-205 E. Broadway	Long Beach
66	10,000 sf	Office/Retail	1900 Atlantic Avenue	Long Beach
67	4,000 sf	Expansion/Remodel of Target Store (net increase)	2270 Bellflower Boulevard	Long Beach
68	41,000 sf	Church Expansion	5950 E. Willow Street	Long Beach
69	6,356 sf	Industrial Building	1690-1694 Cota Avenue	Long Beach
70	201 rm	Transitional Housing Facility	2001 River Avenue	Long Beach
71	16,000 sf	Public Library	1401 E. Anaheim Street	Long Beach
72	5,750 sf	Commercial Shopping Center	1422 W. Willow Street	Long Beach
73	26,000 sf	Self-Storage Facility	3401 Golden Avenue	Long Beach
74	7,200 sf	Medical Office	2760 Atlantic Avenue	Long Beach
75	5,800 sf	Retail	4085 Atlantic Avenue	Long Beach
76		California State University Long Beach Expansion	Atherton Street and Palo Verde Avenue	Long Beach
	120,000 sf	Recreation Center		
		New Parking Structure		
77		Long Beach Airport Terminal Area Improvements [a]	4100 Donald Douglas Drive	Long Beach
	43,000 sf	Building Improvements		
	4,000 sp	Parking Structure		
78	156 du	Senior Assisted Housing	SW corner of Cherry Avenue and Willow Street	Long Beach
79	270 du	Single-Family Residential	Hill Street between	Signal Hill
	44 du	Duplexes	Cherry Avenue/Temple Avenue	
	150 du	Multi-Family Residential		
80	172 du	Single-Family Residential	North of Hill Street at Hathaway Avenue	Signal Hill
81	20 du	Single-Family Residential	Hathaway Avenue and Temple Avenue	Signal Hill
82	120,000 sf	Self Storage Facility	California and 32nd Street	Signal Hill
83	4 du	Single-Family Residential	Freeman Avenue and 20th Street	Signal Hill
84	130,000 sf	Retail	Atlantic Avenue and Spring Street	Signal Hill

Table 3 (Continued)

Related Projects Description

Map No.	Size	Description	Location	Jurisdiction
85		Kilroy (est. remaining entitlement)	South of Spring Street between Lakewood Boulevard and Redondo Avenue	Long Beach
	359 ksf	359,000 sf Office		
	220 rm	220-Room Hotel		
86		LB Business Park (est. remaining entitlement)	SEC of Lakewood Boulevard and Spring Street	Long Beach
	288 sf	288,000 sf Office		
	105 rm	105-Room Addition to Existing Hotel		

[a] *Based on the November 2003 NOP for the Long Beach Airport Terminal Area Improvements, the terminal improvements are being designed to accommodate 41 air carrier flights and 25 commuter flights, passengers associated with those flights, and security requirements imposed by the Transportation Security Administration. This flight level is anticipated to result in approximately 3.8 million annual passengers (MAP) being served at the Airport. As of November 2002, 38 air carrier and 3 commuter flights were generated by the Airport. The traffic study provided in Appendix Q assumes the Airport will accommodate the full 41 air carrier flights and the 25 commuter flights.*

Source: Crain & Associates, Traffic Study January 2004 (list compiled in November 2002 with projects added in August 2003).

Cumulative study areas are defined based on an analysis of the geographical scope relevant to each particular environmental issue. Therefore, the cumulative study area for each individual environmental impact issue may vary. For example, a cumulative visual impact generally could only affect the area within the view of the project site, while a cumulative air quality impact could affect the entire Southern California Air Basin. The specific boundaries and the projected growth within those boundaries, for the cumulative study area of each environmental issue, are identified in the applicable environmental issue section in Section V, Environmental Impact Analysis, of this EIR.

3. THRESHOLDS OF SIGNIFICANCE

As set forth by CEQA Guidelines Section 15064.7, a threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental

PCR

Scale Not Provided

Source: Crain & Associates, 2004

Figure 21
Related Projects Location Map

effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect will normally be determined to be less than significant. The thresholds of significance used by the City of Long Beach for this project are based on the questions presented in Appendix G of the CEQA guidelines as well as other specific guidance within the CEQA Guidelines, regulations within the Public Resources Code, standards and guidance from other agencies and various departments within the City of Long Beach. This EIR includes the following specific thresholds of significance that have been identified for each of the specific environmental issue areas that are addressed:

A. AESTHETICS

Impacts to aesthetics will be considered significant if:

- Components of the project will be inconsistent with applicable plans and policies, as set forth by the Cities of Long Beach and Lakewood General Plans and Zoning Ordinances;
- The project will substantially degrade the existing visual character or quality of the site and its surroundings;
- The height and massing of structural elements proposed by the project will not be compatible with existing development within comparable zones or substantively exceed expectations associated with adjoining zones within the surrounding area; or
- Features or elements that contribute positively to the visual character of the area will be removed or demolished.

Impacts to views will be considered significant if:

- Implementation of the proposed project will conflict with applicable regulations relating to view resources, as set forth by the Cities of Long Beach and Lakewood General Plans and Zoning Ordinances;
- Project development will substantially obstruct valued views of on- or off-site aesthetic features from public or private vantages; or
- The project has a substantial adverse effect on a scenic vista.

Impacts associated with light and glare will be considered significant if:

- Implementation of the proposed project will conflict with applicable regulations relating to visual resources associated with light and glare, as set forth by the Cities of Long Beach and Lakewood General Plans and Zoning Ordinances;
- The project creates a new source of substantial light or glare which would adversely affect day or nighttime views in the area; or
- The project will include highly reflective surfaces that produce intense glare onto adjacent glare-sensitive uses.

B. AIR QUALITY

Construction Emissions

The SCAQMD has promulgated daily emission thresholds for construction activities that promote or maintain regional attainment of the relevant ambient air quality standards. A project is deemed to have a significant impact on regional air quality if emissions of criteria pollutants (specified in pounds of pollutant emitted per day) related to project construction exceed the significance thresholds summarized in Table 4 on page 168.

While the *SCAQMD CEQA Air Quality Handbook* does not provide any localized thresholds, the SCAQMD currently recommends localized significance thresholds (LST) for PM_{10}, NO_2, and CO in its recently adopted document titled *"SCAQMD Localized Significance Threshold Methodology for CEQA Evaluations (SCAQMD LST Guidelines)"*, June 19, 2003. Based on this guidance, the following additional significance thresholds are used in this analysis for determining potential air quality impacts from on-site construction activities.

- If the project causes an incremental increase in localized construction concentrations of 10.4 $\mu g/m^3$ for PM_{10} (24-hours), 188 $\mu g/m^3$ for NO_2 (1-hour), 11,500 $\mu g/m^3$ for CO (1-hour), or 3,680 $\mu g/m^3$ for CO (8-hours).

The SCAQMD also provides additional indicators of potential air quality impacts in Chapter 6 of the *SCAQMD CEQA Air Quality Handbook*. Whenever possible, these additional indicators should be evaluated in a quantitative analysis; otherwise a qualitative analysis is appropriate. Based on these indicators, the following additional significance

thresholds are used in this analysis for determining potential construction-related air quality impacts.

- If the project emits carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million above background risk levels.
- If the project creates objectionable odors affecting a substantial number of people.

Operation Emissions

The SCAQMD has promulgated daily emission thresholds for operational activities that promote or maintain regional attainment of the relevant ambient air quality standards. A project is deemed to have a significant impact on regional air quality if emissions of criteria pollutants (specified in pounds of pollutant emitted per day) related to project operation exceed the significance thresholds summarized in Table 4 on page 168.

While the *SCAQMD CEQA Air Quality Handbook* does not provide any localized thresholds, the SCAQMD currently recommends localized significance thresholds (LST) for PM_{10}, NO_2, and CO in its recently adopted document titled *"SCAQMD Localized Significance Threshold Methodology for CEQA Evaluations (SCAQMD LST Guidelines)"*, June 19, 2003. Based on this guidance, the following additional significance thresholds are used in this analysis for determining potential air quality impacts from on-site stationary sources.

- If the project causes an incremental increase in localized concentrations of 2.5 $\mu g/m^3$ for PM_{10} (24-hours), 188 $\mu g/m^3$ for NO_2 (1-hour), 11,500 $\mu g/m^3$ for CO (1-hour), or 3,680 $\mu g/m^3$ for CO (8-hours) from on-site stationary sources.

The SCAQMD also provides additional indicators of potential air quality impacts in Chapter 6 of the *SCAQMD CEQA Air Quality Handbook*. Whenever possible, these additional indicators should be evaluated in a quantitative analysis; otherwise a qualitative analysis is appropriate. Based on these indicators, the following additional significance thresholds are used in this analysis for determining potential operation-related air quality impacts.

Table 4

SCAQMD SIGNIFICANCE THRESHOLDS

	Project Construction (pounds per day)	Post-Construction Project Operations (pounds per day)
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_x)	100	55
Reactive Organic Compounds (ROC)	75	55
Particulate Matter (PM_{10})	150	150
Sulfur Oxides (SO_x)	150	150

Source: South Coast Air Quality Management District, CEQA Air Quality Handbook, November 1993.

- If the project causes an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 parts per million (ppm), respectively, at an intersection or roadway within one-quarter mile of a sensitive receptor.[37]

- If the project emits carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million above background risk levels.

- If on-site hazardous materials result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.

- If the project will be occupied by sensitive individuals within one-quarter mile of existing facilities that could result in an incremental maximum individual cancer risk of 10 in one million (1×10^{-5}) or a Hazard Index of 1.0 for noncarcinogens.

- If the project creates objectionable odors affecting a substantial number of people.

- The project will not be compatible with SCAQMD and SCAG air quality polices if the project causes an increase in the frequency or severity of existing air quality violations;

[37] *In cases where the background concentration at the intersection already exceeds the State 1-hour and 8-hour CO standards, a measurable increase of one ppm for the 1-hour standard and 0.45 ppm for the 8-hour standard is used as the significance threshold.*

- causes or substantially contributes to new air quality violations;
- delays timely attainment of air quality standards or the interim emission reductions specified in the AQMP; or
- exceeds the growth assumptions utilized in preparing the SCAQMD's AQMP.

- If the project is inconsistent with the air quality goals and policies set forth within the General Plans.

C. CULTURAL RESOURCES

Impacts to archaeological resources will be considered significant if:

- The project will cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15564.5 of the CEQA Guidelines.

In accordance with Section 21083.2 of the CEQA statute, project impacts to archaeological resources are considered significant if project activities could cause the damage to, and/or destruction of, a site that has been identified as archaeologically unique. The CEQA Guidelines also note that if an archaeological resource is identified as neither a unique archeological resource nor a historical resource, the affects of the project on those resources shall not be considered a significant effect on the environment (CEQA Guidelines § 15064.5(c)(4). Impacts to historic resources will be considered significant if:

- The project will cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines.

According to Section 15064.5(b), a project involves a "substantial adverse change" when one or more of the following occurs:

- Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.
- The significance of a historical resource is materially impaired when a project:

a. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

1. b. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or[38]

2. c. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.[39]

Impacts to paleontological resources will be considered significant if:

- The project will directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

D. GEOLOGY AND SOILS

For the purposes of this analysis, a distinction is made between geotechnical impacts associated with proposed grading and site design activities and impacts related to seismic events. Impacts will be considered significant if:

Grading and Site Design

- Development of the proposed project will result in substantial soil erosion or the loss of topsoil;

[38] *State CEQA Guidelines, 14 CCR Section 15064.5(b)(1).*

[39] *State CEQA Guidelines, 14 CCR Section 15064.5(b)(1).*

- The project will be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse;

- The project will be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or

- Proposed grading and earthmoving plans are not in accordance with applicable City of Long Beach or City of Lakewood regulations.

Seismicity

- The proposed project will expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

  – Rupture of a known earthquake fault, as delineated on the most recent Alquist Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;

  – Strong seismic ground shaking; or

  – Seismic-related ground failure, including liquefaction.

E. HAZARDS AND HAZARDOUS MATERIALS

Impacts associated with health and safety hazards and the use of hazardous materials would be considered significant if the project will:

Hazardous Materials

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment; or

Airport Safety

- Result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.

F. HYDROLOGY

Hydrology impacts will be considered significant if the project will:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;

- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or

- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.

G. WATER QUALITY

Surface water quality and groundwater quality impacts will be considered significant if:

Surface Water

- Development of the proposed project degrades the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or development of the proposed project violates waste discharge requirements;
- Activities associated with the proposed project impair the beneficial uses of the receiving waters;

Groundwater

- Development of the proposed project degrades the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies; or
- Development of the proposed project substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowing of the local groundwater table level.

H. LAND USE AND PLANNING

A land use impact will be considered significant if the proposed project will result in:

- Conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- Non-conformance with the applicable goals, objectives, and requirements of the City of Long Beach General Plan, Strategic Plan 2010, or Zoning Ordinance, or the City of Lakewood General Plan, Redevelopment Area III Plan, or Zoning Ordinance; or

- Substantial conflicts with surrounding land uses due to an incompatible interface between such uses and the physical and/or operational characteristics of the proposed uses.

I. NOISE

In general, impacts to noise will be considered significant if the project will result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the project will expose people residing or working in the project area to excessive noise levels.

In order to determine if the project exceeds any of the general thresholds listed above, more specific noise thresholds are typically applied. In accordance with the CEQA Guidelines, the following specific significance thresholds were used to evaluate the project's short-term construction and long-term operations impacts. These thresholds are based on applicable federal, state, and local policies and regulations.

Construction Noise

Neither the City of Long Beach nor the City of Lakewood have established significance thresholds for construction noise impacts. In the absence of such thresholds

and consistent with thresholds often used in other jurisdictions, including the City of Los Angeles, a significant impact associated with construction noise will result if : [40]

- Project construction activities lasting more than 10 days in a three-month period will exceed existing ambient exterior noise levels by 5 dBA L_{eq} or more at a noise sensitive use.

Roadway Noise

A significant impact will occur if any of the significance thresholds listed below are exceeded:

- Project traffic causes an increase in CNEL along any roadway segment by 5 dBA or more when the CNEL is within the acceptable range as shown on the Community Compatibility Matrix.

- Project traffic increases the CNEL along any roadway segment by an audible amount (3 dBA or more) and causes the noise levels to move from acceptable range to unacceptable range as shown on the Community Compatibility Matrix.

Airport Noise

In compliance with California Title 21, Caltrans' California Airport Land Use Planning Handbook, and FAA Guidelines, a significant impact will occur if proposed residential uses and associated outdoor recreational areas were located within the published Airport 65 CNEL contour.

Aviation-related Uses

In compliance with Chapter 16.43 of the LBMC, a significant impact will occur if proposed aviation-related uses will result in aircraft using the Long Beach Airport that will not comply with the Noise Ordinance SENEL limitations.

[40] *L.A. CEQA Thresholds Guide, August 2001.*

On-site Activities

Within the portion of the project site located within the City of Long Beach, a significant impact associated with on-site activities (i.e., aviation-related uses, mechanical, equipment, parking facilities) will occur during daytime (7:00 A.M. to 10:00 P.M.) and nighttime (10:00 P.M. to 7:00 A.M.) hours if:

- Exterior noise levels for predominantly residential or commercial uses exceed those set forth by Section 8.80.150 of the LBMC and presented in Table 28 on page 492. Noise levels in excess of the levels indicated in Table 28 are conditionally permitted, depending on the intensity of the noise and the duration of exposure. Specifically, noise levels may not exceed the exterior noise standard for a cumulative period of more than thirty minutes in any hour; or plus five decibels for a combined period of more than fifteen minutes in any hour; or plus ten decibels for a combined period of more than five minutes in any hour; or plus fifteen decibels for a combined period of more than one minute in any hour; or plus twenty decibels for any period of time (maximum noise level). [41]

- Interior noise levels for residential uses exceed those set forth by Section 8.80.170 of the LBMC and presented in Table 29 on page 493. Noise levels in excess of the levels indicated in Table 2 are conditionally permitted, depending on the intensity of the noise and the duration of exposure. Specifically, noise levels may not exceed the interior noise standard for a cumulative period of more than five minutes in any hour; or plus five decibels for a combined period of more than one minute in any hour; or plus ten decibels for any period of time (maximum noise level). [42]

In addition, a significant impact will occur as a result of on-site activities in the City of Lakewood portion of the site if:

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[41] *If the existing exterior ambient noise level exceeds that permissible within the noise limit categories, the allowable noise exposure standard is increased to ambient conditions (Section 8.80.150 of the LBMC). In addition, Section 8.80.240 of the LBMC (vehicle, motorboat or aircraft repair and testing) provides an exemption to the exterior noise limits (Section 8.80.150 of the LBMC) for aircraft within the airport property or within any other aviation-related property abutting it.*

[42] *If the existing interior ambient noise level exceeds that permissible within the noise limit categories, the allowable noise exposure standard is increased to ambient conditions (Section 8.80.170 of the LBMC). Section 8.80.240 of the LBMC (vehicle, motorboat or aircraft repair and testing) provides an exemption to the interior noise limits (Section 8.80.170 of the LBMC) for aircraft within the airport property or within any other aviation-related property abutting it.*

- In accordance with the LMC, any person within any area zoned for residential use or any area adjacent to residential use operates air conditioners, mechanical equipment, or mechanical machinery that causes the noise level at the residential property line to exceed 65 dBA L_{eq}.[43]

- In accordance with the LMC, commercial noise levels exceed 60 dBA L_{eq} at residentially zoned or occupied property.[44]

Ground-borne Vibration

The City of Long Beach and Lakewood do not have any adopted policies or standards for construction ground-borne vibration. However, the Federal Transit Authority (FTA) provides a construction equipment vibration damage threshold criterion of 0.20 inches per second PPV for fragile buildings (U.S.DOT, 1995). In the absence of any City significance thresholds for vibration associated with construction, an exceedance of the FTA standard was used to determine construction vibration impacts.

The City of Long Beach's vibration perception criteria described above will be used to evaluate potential impacts associated with operation of the project site. A significant impact will occur if;

- Project operation activities cause a RMS of 0.01 inch/sec at or beyond the property boundary of the source if on a private property or at 150 feet from the source if on a public space.

J.1. EMPLOYMENT

An employment impact will be considered significant if construction and operation of the proposed project substantially alters the location, distribution, density, or growth rate of employment planned for the area pursuant to local and regional plans or if the project does not support relevant local or regional policies regarding employment.

[43] *LMC, Section 9376.*

[44] *LMC, Section 9347.*

J.2. HOUSING

A project will have a significant housing impact if its construction, operation, or associated indirect demand substantially alters the location, distribution, density, or growth rate of housing contemplated for the area by regional or local plans or if the project does not support relevant local or regional policies regarding housing.

J.3. POPULATION

A project will have a significant impact on population if the construction and operation of the project substantially alters the location, distribution, density, or growth rate of population planned for the area by local and regional plans.

K.1. POLICE

Impacts to police protection services will be considered significant if:

- The proposed project substantially reduces the existing level of police protection services within the area surrounding the project site;
- The proposed project results in a substantial increase in emergency response times within the area surrounding the project site; or
- The project would result in substantial adverse physical impacts associated with the provision of new or physically altered facilities, or the need for new or physically altered facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police services.

K.2. FIRE PROTECTION

Impacts to fire protection and emergency medical services will be considered significant if:

- Fire flows are inadequate to meet new land use and building requirements;

- Response times are substantially increased from fire station(s) to the project site;
- The Insurance Service Organization lowers its rankings for the Cities of Long Beach or Lakewood;
- The Fire Departments determine that current fire protection services and facilities cannot adequately accommodate project demands;
- The project will impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- The project will result in substantial adverse physical impacts associated with the provision of new or physically altered facilities, or the need for new or physically altered facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.

K.3. SCHOOLS

Impacts on school facilities will be considered significant if the proposed project will result in a need for substantial expansion of existing schools or the construction of additional schools to maintain acceptable performance levels.

K.4. RECREATION

Impacts to recreational facilities will be considered significant if:

- The proposed project creates a demand for recreational facilities that causes the existing ratio of developed parkland per resident to substantially decrease;
- Development of the proposed project substantially increases the demand for local park and recreational facilities for which current demand already exceeds the ability of facilities to adequately serve the population;
- The proposed project results in conflicts with parks and recreation goals or standards set forth by the City of Long Beach or the City of Lakewood;

- The project would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated and applicable fees or project design features will not offset the cost for providing replacement park and recreational facilities; or

- The project includes recreational facilities or requires the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

K.5. LIBRARIES

Impacts to library services will be considered significant if anticipated demand for libraries associated with the proposed project will substantially exceed the supply of existing and planned library resources.

L. TRANSPORTATION AND CIRCULATION

In general, impacts to transportation, circulation, and parking will be considered significant if the project will:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections); or

- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.

In order to determine if the project exceeds any of the general thresholds listed above, more specific transportation, traffic, and parking thresholds are typically applied. According to City of Long Beach criteria, a significant impact associated with traffic at analyzed intersections would occur if:

- The project results in a worsening of the volume-to-capacity ratio by 0.020 or more and a final (“with project”) LOS of E or F.

According to the CMP, a significant regional CMP impact will occur if:

- Implementation of the project increases the D/C ratio at a CMP location by 0.020 or more with a final LOS of F.

According to the City of Long Beach criteria, a significant impact to residential street segments will occur if:

- The project contributes 500 or more net daily trips (total both directions) or 50 or more net hourly trips (total both directions) to a residential street segment.[45]

A significant impact to public transit service will occur if:

- The project results in a substantial increase in ridership on the existing public transit system, thereby necessitating improvement of the system to accommodate the additional demand; or

- The project conflicts with adopted policies, plans or programs supporting alternative transportation.

A significant impact to bicycle and pedestrian circulation will occur if:

- The project is not in compliance with applicable plans or regulations; or

- The project will disrupt existing bicycle or pedestrian routes.

A significant impact to parking will occur if:

- The project will result in inadequate parking capacity.

M.1. WATER

Impacts to water supply will be considered significant if, after project-related infrastructure improvements:

[45] *The City of Long Beach has recommended this threshold for the analysis of residential street segments.*

- The estimated water requirements for the proposed project exceed available water supplies or the capacity of the existing delivery system in conjunction with planned improvements proposed for the project by a substantial magnitude; or

- Any alterations to the water system made necessary by the proposed project reduce or inhibit the capacity of the water system serving the project area.

M.2. SEWER

Impacts to sewer capacity will be considered significant if, after project-related infrastructure improvements:

- The increase in project-generated wastewater will exceed the existing or planned capacity of the wastewater delivery system and/or wastewater treatment plant(s) serving the project site by a substantial magnitude;

- Alteration to existing infrastructure will substantially reduce or inhibit the ability of the sewer system to serve the project site or the area surrounding the project site;

- Wastewater treatment requirements of the applicable Regional Water Quality Control Board would be exceeded;

- The project would require the construction of a new wastewater treatment facility or expansion of an existing facility, the construction of which could cause significant environmental effects; or

- The wastewater treatment provider that serves the project determines that there is not adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

M.3. SOLID WASTE

In general, a project's impact on solid waste is considered significant if:

- The project would not be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or

- The project would not comply with federal, state, and local statutes and regulations related to solid waste.

Based on the complex system of waste disposal using numerous landfills within and outside of Los Angeles County as well as research regarding significance thresholds employed or considered in other Southern California jurisdictions (presented in Appendix U, Research of Solid Waste Impact Thresholds), a more specific threshold of significance for solid waste impacts is used herein. Specifically, a significant impact to solid waste disposal facilities will occur if:

- Solid waste disposal generated by implementation of the proposed project or cumulative projects is determined to represent more than one percent of the forecasted cumulative Countywide increase in the solid waste stream flowing into major County solid waste facilities between 2003 and 2020.

M.4. ENERGY

Impacts to energy will be considered significant if, after project-related infrastructure improvements, the project:

- Results in substantial adverse physical impacts associated with the provision of new or physically altered energy transmission facilities, or the need for new or physically altered energy transmission facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable levels of service.

- Results in the use of substantial amounts of fuel and/or energy.

V. Environmental Impact Analysis

V. ENVIRONMENTAL IMPACT ANALYSIS
A. AESTHETICS

1. INTRODUCTION

The following analysis includes a discussion of aesthetics, views, and light and glare. Aesthetics refers to the visual qualities of an area or within a given field of view. Aesthetics includes aspects such as size, shape and color as well as the relationships between these elements. Aesthetic features consist of unique or prominent natural or man-made attributes or several small features that, when viewed together, create an image that is visually interesting or appealing.

Views involve visual access to aesthetic features. Viewsheds are defined by landscape elements and/or building locations. In general, visual access is closely tied to topography and distance from the resource.

Light impacts are associated with the use of artificial light during the evening and nighttime hours. Artificial light may be generated from point sources as well as from indirect sources of reflected light. Uses such as residences and hotels are considered light sensitive since occupants have expectations of privacy during evening hours and may be subject to disturbance by bright light sources.

Glare is primarily a daytime occurrence caused by the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces. Daytime glare generation is common in urban areas and is typically associated with buildings with exterior facades largely or entirely comprised of highly reflective glass. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources such as automobile headlights. Glare-sensitive uses include residences, hotels, transportation corridors, and aircraft landing corridors.

2. ENVIRONMENTAL SETTING

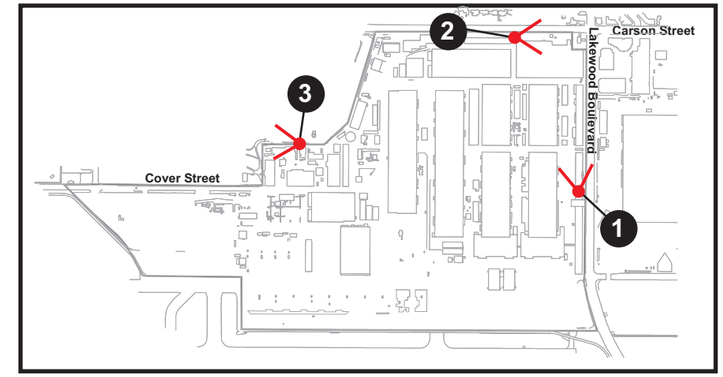
a. Existing Conditions

(1) Aesthetics

As described in Section III, Project Description, occupied floor area within the project site is generally located within the western portion of the site, in an area known as the Boeing Enclave. Most of the other buildings that remain on this site are currently vacant. Demolition activities are currently underway throughout the project site in conjunction with a mandated soil and groundwater remediation program (refer to Section IV, Overview of Environmental Setting, for further discussion). Prior to commencement of demolition, the PacifiCenter site included over five million square feet of permitted, usable floor area, consisting of office, manufacturing, assembly, research and development (R&D), warehouse, and mechanical space. The majority of this floor area was provided in low- to mid-rise industrial structures, R&D buildings, and airplane hangars. Most of the buildings were constructed of corrugated metal, with portions of some buildings containing brick and/or concrete. Several trailers, modular buildings, and other miscellaneous structures were also located throughout the project site. In addition, the eastern portion of the site includes a nine-story, mid-rise, executive office building constructed of black glass on two facades. The remainder of the site is paved with asphalt or concrete and is used for a variety of purposes, including an engine run-up/aircraft testing area and surface parking lots. There are currently chain link fences along the periphery of much of the project boundary. Figure 22 on page 186, Figure 23 on page 187, and Figure 24 on page 188 provide photographs that depict the aesthetic character of recent development within and around the project site.

The type and amount of development within the project site and the immediate vicinity create an urban setting. The project site itself has historically been characterized by warehouse/industrial structures. Prior to commencement of demolition, the majority of the project site was oriented inward, with unbroken building facades along much of Lakewood Boulevard. Vegetation within the project site is limited to landscape plantings of common ornamental trees and shrubs, the majority of which are located in the southeastern portion of the site and along the northern and eastern perimeters fronting Carson Street and Lakewood Boulevard. Designated open space areas or unique natural features are not located within the project site. The demolition of existing structures on-site has affected the aesthetic character of the PacifiCenter site such that portions of the site are likely to have an incomplete, disrupted, or unattractive appearance that will visually contrast with surrounding development. To conceal views of demolition sites, the current demolition activities have been completely enclosed by screen fencing.

Photograph 1: View of development within and adjacent to the site along Lakewood Boulevard, looking north (prior to the commencement of demolition activities).



VIEW LOCATION OF
SITE PHOTOGRAPHS

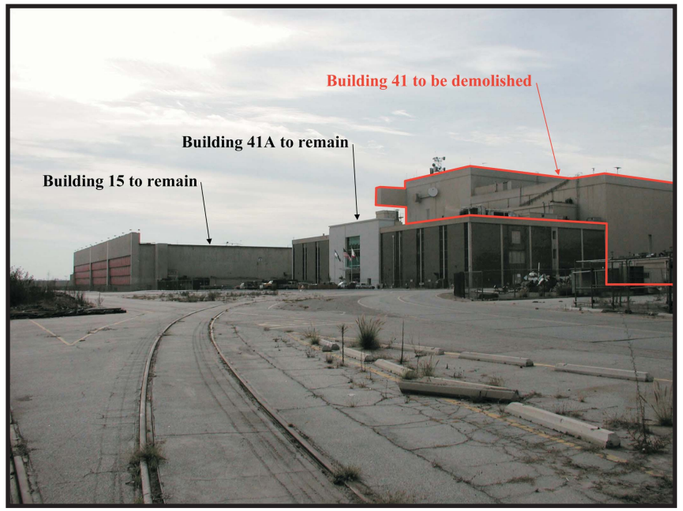
Photograph 2: View of on-site development along Carson Street, looking east toward Lakewood Boulevard (prior to the commencement of demolition activities).

Photograph 3: View along the perimeter of the site, adjacent to Lakewood Country Club, looking southwest

PCR

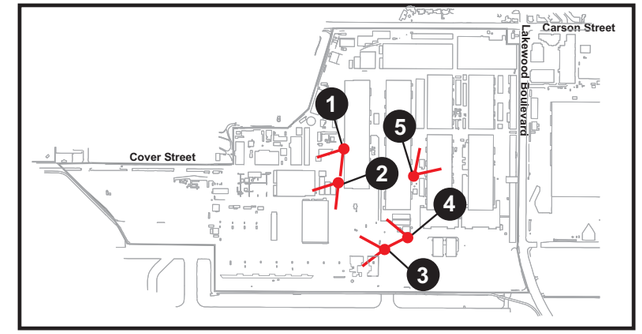
Figure 22
Site Photographs

Source: Boeing Realty Corporation, 2003



Photograph 1: Looking southwest from the central portion of the site at the Enclave.

Photograph 2: Looking southwest from the central portion of the site at the Enclave.

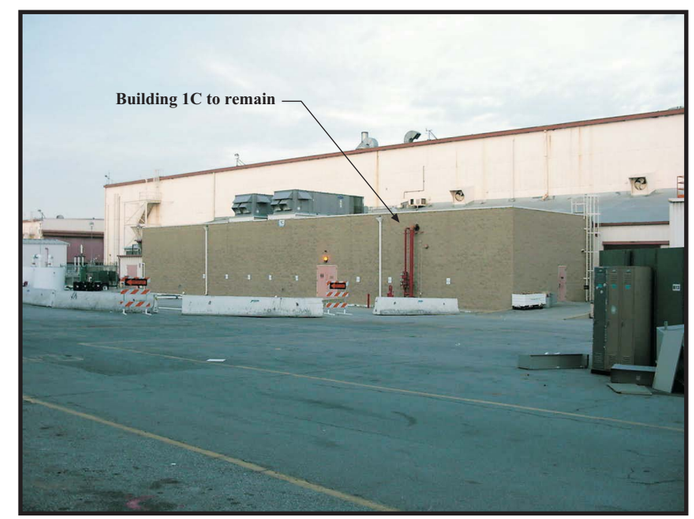


VIEW LOCATION OF SITE PHOTOGRAPHS

New Facade on Building 41A in the Enclave

Photograph 3: Looking northwest from the southern portion of the site at the Enclave.

Photograph 4: Looking northwest from the southern portion of the site at the Enclave.



Photograph 5: Looking east at Buildings 1 and 1C.

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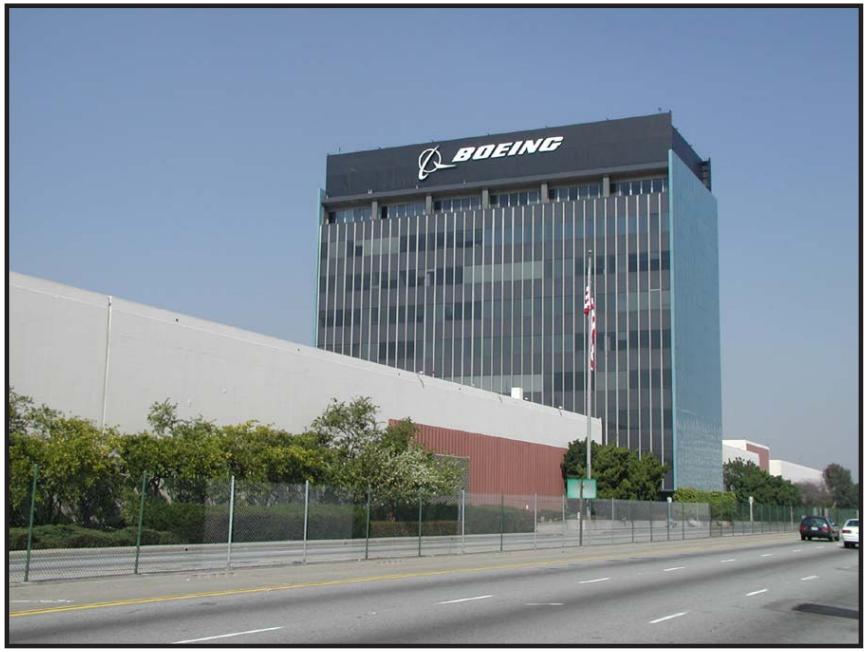
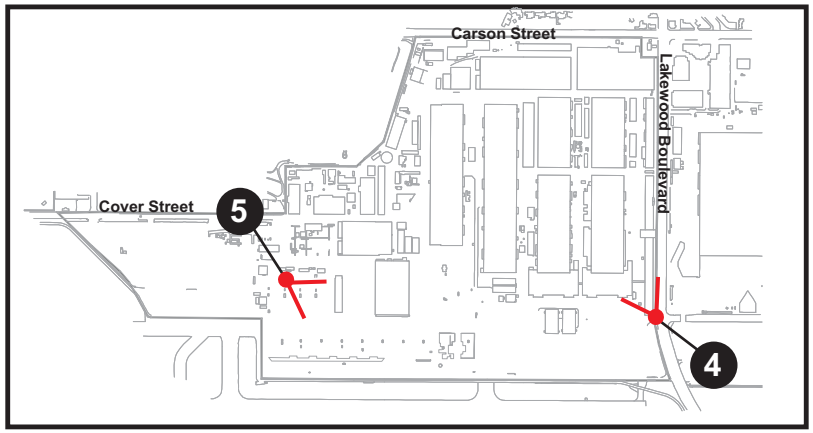
Figure 23
Site Photographs

Source: Boeing Realty Corporation, 2004



Photograph 4: View of existing on-site development along Lakewood Boulevard.



VIEW LOCATION OF
SITE PHOTOGRAPHS

Photograph 5: View of existing development within the interior of the project site.

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Figure 24
Site Photographs

Source: Boeing Realty Corporation, 2003

As discussed in Section III, Project Description, the Long Beach Municipal Airport (Airport) and airport-related land uses are located to the south and southwest of the site. In addition, Boeing currently operates two aircraft assembly facilities within the area. One is located east of the project site along Lakewood Boulevard and the other is located southwest of the site and west of the Airport. The area immediately north of the site consists of the Lakewood Country Club Golf Course and single-family residences known as the Lakewood Country Club Estates. There is some commercial development located near the intersection of Lakewood Boulevard and Carson Street and on Carson Street west of the Lakewood Country Club. In addition, the Skylinks Golf Course is located to the southeast of the site.

Notable aesthetic features within the surrounding vicinity include the San Gabriel Mountains to the distant north and Signal Hill to the southwest. Additional facilities in the local area that could be considered aesthetic features include the Lakewood Country Club Golf Course and Skylinks Golf Course, the latter of which is not very visible from the project site or from areas surrounding the site due to the relatively flat topography of the area.

(2) Views

The project site is relatively flat, with a slight increase in elevation from the southeastern boundary to the northwestern boundary of the site. Existing views from the site and the surrounding areas are short in range and generally limited to the roadway corridors and parking areas. However, intermittent views of Signal Hill are provided from the western side of the site and from other areas in the vicinity of the site. In addition, the San Gabriel Mountains can be seen from certain areas in the surrounding vicinity, although due to their distance, the mountains are not a prominent feature from any vantage point. Views of the Airport and associated aviation activities are also available from the project site and surrounding roadways. Views from and across the project site will be affected by the demolition activities presently occurring on portions of the site. Although long-range views from certain vantages may become available as buildings are removed, off-site views of those portions of the site where demolition activities are occurring may be considered to be negatively affected.

Views from the Lakewood Country Club Estates consist primarily of short-range views defined by the location of the residences as well as by the street trees that line the roadways throughout that neighborhood. Within the neighborhood, there are intermittent views of the upper portions of some of the existing buildings on the project site. Some of these views will be altered as taller buildings are removed as part of the ongoing

demolition activities. There are also limited intermittent views of Signal Hill from this neighborhood.

Views of the site from areas to the east and west are also limited to the upper portions of the existing on-site structures. These views are shaped by existing development on the project site and in the surrounding vicinity, including the office buildings on the east side of Lakewood Boulevard, buildings associated with Long Beach Community College, and commercial structures throughout the vicinity. Such views may be altered as buildings are removed as part of the ongoing demolition activities on-site.

Open space associated with the Airport provides more expansive views of the project site from the south. In addition, there are views of the project site from portions of the Lakewood Country Club, particularly from the southernmost portion of the golf course south of Carson Street. From vantages within the southeastern corner of the golf course, views of and beyond the site include portions of the Airport and views of Signal Hill.

Signal Hill, which is located to the southwest of the site on the opposite side of Interstate-405, is the only predominant topographical feature in the area. This area, which is at an elevation of approximately 400 feet above mean sea level (amsl), provides panoramic views of the City of Long Beach and surrounding areas, as well as the Pacific Ocean. Signal Hill also provides unobstructed, long-range views of the project site and the vicinity, including the San Gabriel Mountains in the distance to the north.

(3) Light and Glare

Nighttime lighting is present throughout the vicinity of the project site. Such lighting consists of street lights, aviation-related lighting associated with the Airport, building façade lighting along Lakewood Boulevard and along Carson Street east of Lakewood Boulevard, including illuminated signs and rooftop neon signage (including the Fly DC Jets neon roof sign[46]), and illumination from vehicle headlights. The intensity of this lighting is reduced within the Lakewood Country Club where there is no nighttime lighting. The Skylinks Golf Course has a driving range that is lighted at night. Night lighting also includes red, steady, low-intensity aircraft warning lights located on top of some buildings, blast walls and other structures such as light poles. For purposes of this aesthetics analysis, the primary light-sensitive use in the vicinity of the project is the residential neighborhood located to the north of the project site (the Lakewood Country Club Estates).

[46] *The Fly DC Jets is a potentially historic, rooftop, neon sign located at the 717 facility on the property on the east side of Lakewood Boulevard.*

Light levels generated within the project site are low, as most of the buildings are industrial and do not have brightly lit façades or entrances. Furthermore, the removal of several buildings has correspondingly reduced light levels on-site. The flight ramp has seven light poles. Of the seven poles, only portions of four poles are used for security purposes from dusk until dawn. During production, one of the poles is used as needed based on production rates and daylight savings time. There is a large surface parking lot located in the southeastern portion of the site and a smaller surface lot located in the western-most portion of the site, both of which have low-level night lighting. In addition, there are several smaller surface parking areas located throughout the site that have low-level night lighting. However, most of these lots are concentrated within the southern portion of the site and are screened from residential uses by buildings on the northern portion of the site. (Such screening will continue to the extent that these buildings remain.) Illuminated signage is limited on-site and includes a lit sign at the top of the nine-story office tower, which is visible from surrounding surface streets, the 405 freeway, and certain vantages within the Lakewood Country Club Estates. Aside from nighttime lighting directed onto a flagpole located on Lakewood Boulevard, there is no other accent lighting on-site.

Sensitive receptors relative to glare generation include motorists traveling on the surrounding roadways and the Lakewood Country Club Estates. There are no buildings, structures, or facilities on the project site that presently generate substantial glare since most of the buildings on the project site are constructed of corrugated metal and have few or no windows. However, the nine-story office building located along Lakewood Boulevard is constructed of black glass on its northern and southern façades and has some potential to generate glare along Lakewood Boulevard. In addition, the surface parking lots on-site have a limited potential to generate glare reflected off vehicle windows and surfaces in some locations during daytime and nighttime hours. These surface parking lots are shielded by screen fencing and are not located in close proximity to the residential uses or major transportation corridors.

b. Regulatory Framework

Several City of Long Beach and City of Lakewood policies and ordinances that regulate aesthetics, views, and light and glare issues are applicable to the proposed project. These policies and ordinances are summarized below.

(1) City of Long Beach

(a) City of Long Beach General Plan

The Long Beach General Plan includes several elements that address issues related to urban design and the overall aesthetic nature of the City. The Land Use Element includes an Urban Design Analysis that outlines several goals and objectives for the urban character of the City. This analysis identifies the importance of building heights and masses and the tendency toward a greater variety of uses within the Airport Activity Center, which includes the project site. It also emphasizes visual compatibility, good design, and landscaping.

The Transportation Element of the Long Beach General Plan includes a functional classification of streets policy that addresses the integration of land use and transportation policies. Policy 5 of the Functional Classification of Streets section of the Transportation Element calls for the application of a strict set of design criteria to future improvements that assure aesthetic appeal to users and residents, including the undergrounding of utilities and landscaping where appropriate.

The Scenic Routes Element of the Long Beach General Plan is the most relevant to aesthetics, views, and light and glare. The Scenic Routes Element was adopted in 1975 and addresses aesthetics and physical design throughout the City. This Element identifies Carson Street as a potential scenic route. However, the only officially designated scenic route within the City of Long Beach is Ocean Boulevard, which is located outside of the area immediately surrounding the project site.

(b) City of Long Beach Zoning Ordinance

The City of Long Beach Zoning Ordinance regulates urban form and aesthetics through land use designations and implementation of development standards. As discussed in detail in Section V.H, Land Use and Planning, of this EIR, the 238-acre portion of the project site that is located within the City of Long Beach is currently zoned Douglas Aircraft Planned Development District (PD-19). The ordinance dictates the height limitations and setbacks of the buildings on the project site and requires that if a tall building is constructed adjacent to a public right-of-way, the building shall be designed so as not to be visually imposing on adjacent properties. Furthermore, such buildings are to be designed to enhance visual character through the use of appropriate building materials, façade treatments, finishes, and landscaping. In addition, the Zoning Ordinance requires screening of parking lots, parking structures, and rooftop mechanical equipment. The

Zoning Ordinance requires site plan review for new development either by the Planning and Building Department or by the Planning Commission to ensure high quality design and site planning.

(2) City of Lakewood

(a) City of Lakewood General Plan

The 23-acre portion of the project site that is located within the City of Lakewood is designated in the Lakewood General Plan Land Use Element (1996) as Industrial and is located within a Redevelopment Area, as discussed in Section V.H, Land Use and Planning, of this EIR. The General Plan indicates that the maximum height for buildings located within this designation is four stories or 55 feet, whichever is less.

The Land Use Element recognizes aesthetic considerations that serve to establish goals to direct the physical design of the City. These aesthetic considerations are implemented through a variety of programs, including Lakewood Beautiful, the City's Development Review Board, and the Underground Utility District, and include the following:

Goal 6: Physical improvements within the City shall be attractive and relate well with the surrounding setting and landscape. Less pleasing aspects of development shall be tempered with appropriate physical and/or landscape designs.

Policy 6.1: Temper the less pleasing aspects of development, such as commercial signs, above ground storage tanks, parking lots, large expanses of plain or stucco walls, roof-mounted equipment, etc.

(b) City of Lakewood Zoning Ordinance

As discussed in Section V.H, Land Use and Planning, of this EIR, the portion of the project site located within the City of Lakewood is zoned M-2 (Heavy Manufacturing). Building heights in the M-2 zone are limited to four stories or 55 feet, whichever is less.[47] The Lakewood Zoning Ordinance also includes regulations regarding the screening of rooftop equipment, storage areas, parking areas, and loading zones. In addition, the Zoning Ordinance sets light and glare standards for public streets and other parcels.

[47] *Zoning Ordinance building height restrictions are measured to the ceiling of the uppermost floor.*

3. ENVIRONMENTAL IMPACTS

a. Methodology

The assessment of aesthetic impacts is based upon the potential for the project to negatively affect the aesthetic character of the surrounding vicinity. The potential for project implementation to improve the aesthetic qualities associated with the site is also addressed. As part of this analysis, distinct aesthetic features and the overall aesthetic character of the area were recorded based on field surveys, photographic interpretation, and topographic analysis.

The analysis of view impacts is based on the potential for the project to result in changes to existing views within and near the project site as perceived by the public (e.g., motorists and pedestrians on the surrounding roadways) and private citizens (e.g., residents and property owners within the vicinity and users of the golf courses). The analysis addresses both the degree to which proposed development may obstruct or detract from existing views and on- or off-site aesthetic features from representative viewing locations, as well as the extent to which project development or design features may create new view opportunities or improve existing views. The identification of views within the project site and surrounding area was accomplished through field surveys, photographic interpretation, and topographic analysis.

The analysis of light conditions associated with the PacifiCenter site consisted of visual observations during the evening and nighttime hours. The evaluation of nighttime illumination included an assessment of the lighting conditions within the surrounding vicinity, as well as the degree of exposure to light intensities experienced by surrounding land uses. Potential light sources from the PacifiCenter project will include low to moderate levels of interior and exterior lighting for security, parking, signage, architectural highlighting, and landscaping, as well as street lighting and residential lighting. A qualitative analysis of the potential for an increase in ambient light levels and light spillover onto off-site light-sensitive uses was conducted. Nearby sensitive receptors were identified through review of the aerial photograph and during a survey of the area.

The evaluation of existing glare conditions associated with the project site included visual observations of the site. The potential for substantial changes to existing glare generation from future development of the site was then evaluated. Nearby receptors

sensitive to glare exposure were identified through a windshield survey of the area and review of the aerial photograph.[48]

b. Thresholds of Significance

For the purposes of this analysis, impacts to aesthetics will be considered significant if:

- Components of the project will be inconsistent with applicable plans and policies, as set forth by the Cities of Long Beach and Lakewood General Plans and Zoning Ordinances;
- The project will substantially degrade the existing visual character or quality of the site and its surroundings;
- The height and massing of structural elements proposed by the project will not be compatible with existing development within comparable zones or substantively exceed expectations associated with adjoining zones within the surrounding area; or
- Features or elements that contribute positively to the visual character of the area will be removed or demolished.

For the purposes of this analysis, impacts to views will be considered significant if:

- Implementation of the proposed project will conflict with applicable regulations relating to view resources, as set forth by the Cities of Long Beach and Lakewood General Plans and Zoning Ordinances;
- Project development will substantially obstruct valued views of on- or off-site aesthetic features from public or private vantages; or
- The project has a substantial adverse effect on a scenic vista.

For purposes of this analysis, impacts associated with light and glare will be considered significant if:

[48] *A windshield survey is an overview of the project site as observed from an automobile.*

- Implementation of the proposed project will conflict with applicable regulations relating to visual resources associated with light and glare, as set forth by the Cities of Long Beach and Lakewood General Plans and Zoning Ordinances;

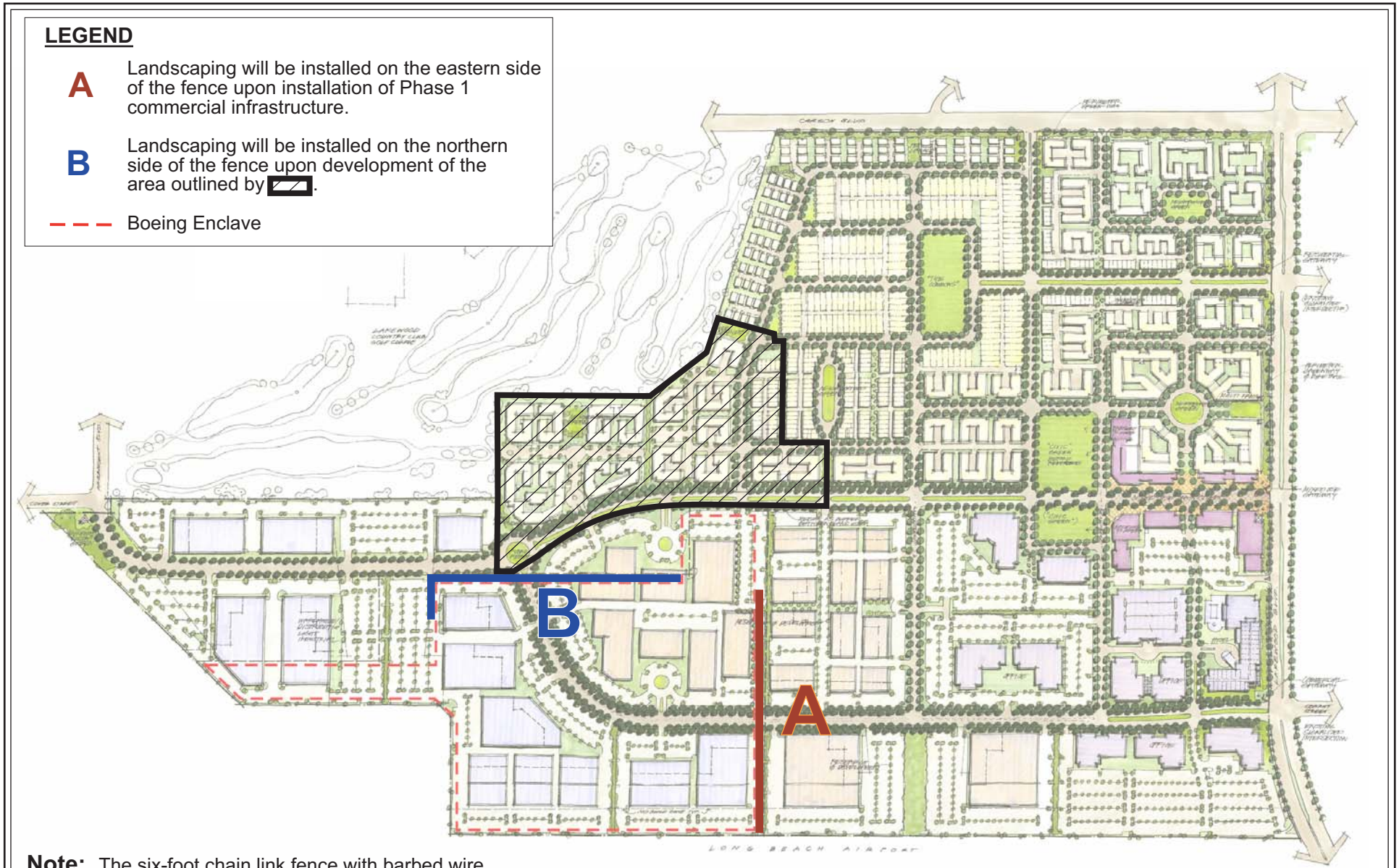
- The project creates a new source of substantial light or glare which would adversely affect day or nighttime views in the area; or

- The project will include highly reflective surfaces that produce intense glare onto adjacent glare-sensitive uses.

c. Project Features

As discussed in Section III, Project Description, while the majority of the buildings will be removed as part of the remediation program that is currently underway, the 48-acre Boeing Enclave, in which a variety of aircraft production-related uses presently exist, is expected to remain operational during project construction for all or a portion of the development period until Boeing no longer has use for the Enclave in its current capacity. Figure 22 provides photographs of Buildings 15 and 41A located within the northern and eastern portion of the Boeing Enclave. As shown in Figure 25 on page 197, landscaping will be installed on the eastern side of the Enclave and on the north side of the fence surrounding the Enclave to provide a softer edge around the Enclave.

As discussed in Section III, Project Description, and shown in Figure 5 on page 118 Boeing's communications building, Building 1C, located within the eastern portion of the site, north of proposed A Street will remain as part of the project. This building is a rectangular building 35 feet wide and 120 feet long and is constructed of split-face concrete block as shown in Figure 23 on page 187. In the proposed PacifiCenter Land Use Plan, Building 1C will be located in the Medium-High Density Housing/Mixed Use/Retail area north of A Street and east of the Civic Park. The south side of 1C will be screened from views along A Street by an architectural facade. This facade could be an actual ground floor retail building, or it could be an unoccupied architectural facade. The remaining east, west and north sides of 1C will also be screened to minimize views of the structure. This will be accomplished with either an architectural facade similar to the south side of the building, with landscape screening using evergreen trees and shrubs in front of a masonry wall or with landscape screening using evergreen trees and shrubs. Should the north, east or west side of 1C be located fronting A street, then the street will be located so that the building is set back from the right-of-way in a similar manner as if it were a new building in this area.



Note: The six-foot chain link fence with barbed wire will remain.

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0 400 Feet

Source: MVE Architects, January 2004

Figure 25
Proposed Landscaping Around the Enclave

Minimum setbacks will be established within PD-32 for the primary roadways within the project site. These setbacks are illustrated in Figure 19 on page 142 in Section III, Project Description. These setbacks, which are generally measured as the distance between the property line and proposed building face, range from 2 feet along A Street within the retail overlay zone for street oriented retail buildings to 28 feet along Carson Street. The established setbacks along the project's periphery include:

- A 28-foot setback from the property line along Carson Street (excluding the 12-foot right-of-way).
- A 26-foot setback from the property line along Lakewood Boulevard (excluding the 14-foot right-of-way).
- A 20-foot setback from the property line adjacent to the Lakewood Country Club.[49]
- A minimum 20-foot setback along the limited portions of the Airport edge on the southern and southwestern boundaries of the project site that are not part of the Long Beach Airport Layout Plan Building Restriction Zone. The no-build zone, which is greater than 20 feet in width, extends along most of the southern portion of the project site.

Setbacks for several of the internal streets are as follows:

- A 2-foot setback from the property line (excluding the 10-foot right-of-way) along A Street between Lakewood Boulevard and 1st Street for street-oriented retail uses.
- A 10-foot setback from the property line (excluding the 11-foot right-of-way) along 1st Street.
- An 18-foot setback from the property line (excluding the 11-foot right-of-way) along other internal collector roadways, including 2nd and 3rd Streets, except

[49] *If A Street in the western portion of the site is located adjacent to the Golf Course, the minimum building setback will be 5 feet from the property line (excluding the 11-foot right-of-way).*

for those street segments that abut Building Restriction Zones, where adjacent development is not permitted.[50]

These proposed setbacks, as well as proposed sidewalks and landscape areas, are also illustrated in Figure 10 on page 129 through Figure 13 on page 132 within Section III, Project Description.[51]

As shown in Figure 14 on page 135 in Section III, Project Description, seven height zones are proposed as part of the project. All height zones will comply with FAR Part 77 height requirements. Within these height zones, maximum building heights will range from 14 to 120 feet above proposed grades.[52] The tallest structures will be located within a northern portion of the proposed Commercial area, located primarily between A and B Streets and extending from Lakewood Boulevard to just west of 3rd Street (north of A Street). Within this area, east of 1st Street and along Lakewood Boulevard, commercial buildings could reach a maximum of between 90 and 120 feet above grade; west of 1st Street, commercial buildings ranging from up to 43 to 90 feet above grade could be developed.[53] The minimum Commercial height zone will be located in the City of Lakewood. Building heights in this area will be limited to 14 to 55 feet. Building heights within the first 100 feet south of Carson Street will be limited to 35 feet above the curb elevation similar to heights allowed by the R-1 zoning for the existing residential uses north of Carson Street. Within the eastern portion of the Housing area, from just east of 1st Street to Lakewood Boulevard (with the exception of the portion that is immediately adjacent to Carson Street), structures will be limited to 75 feet above the curb elevation. The western portion of the Housing area extending from just east of 1st Street to the Lakewood Country Club golf course (with the exception of the portion immediately adjacent to Carson Street), will be limited to 45 feet in height above the curb elevation. Commercial uses south of B Street to the east of 3rd Street, south of A Street to the west of 3rd Street, (except for areas within the Building Restriction Zone and in the City of Lakewood) will be limited to between 22 and 65 feet above grade.

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[50] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than 30 feet, in accordance with the Design Guidelines to be implemented as part of the project.*

[51] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than the setbacks indicated in Figure 19 on page 142.*

[52] *The proposed maximum building heights are measured from curb elevation to the top of a parapet or midpoint of a pitched roof within the City of Long Beach. Project buildings located within City of Lakewood will be limited to four stories and 55 feet, measured to the ceiling of the uppermost story.*

[53] *The range in heights within some of the height zones is due to FAA height restrictions.*

Within the project site, utility lines for water, gas, sewer, electricity (including the transmission lines for the 66-KV substation), and communications will generally be installed underground. The installation of underground utilities will not interfere with the ongoing remediation program mandated by the Los Angeles Regional Water Quality Control Board (LARWQCB) and shall be consistent with a Risk Management Plan (RMP) that is designed to ensure the long-term health and safety of future residents and employees at PacifiCenter as it relates to the separate remediation program. For further information refer to Section IV, Overview of Environmental Setting, and Section V.E, Hazards and Hazardous Materials.

Service areas, including loading docks, refuse collection areas and storage areas will be visually screened from the street and adjacent parcels through the incorporation of architectural elements and landscaping or located in a manner that reduces public view impacts. Parking structures will also be visually integrated along public streets through use of different grades, building materials, and/or landscaping.

The Design Guidelines for the project will address landscaping, which will be provided throughout the project site along the primary parkways, within building setbacks, parks and at the entrances to the site. The landscaped areas along the site periphery will be the most visible areas from off-site and will act as visual buffers between on- and off-site uses. For example, new landscaping will be introduced along Lakewood Boulevard.[54] Landscaped parkways provided along portions of the project boundaries adjacent to public streets may include sidewalks and will provide separation between the proposed on-site development and the off-site land uses and roadways. In addition, approximately 10.5 acres of park space are proposed as part of the PacifiCenter project, with 7.5 acres located within the residential land use area and 3.0 acres within the commercial area of the site. Park resources will range from less than one to approximately 4.5 acres in size and will include several neighborhood greens, a residential park referred to as The Commons, and a larger, centrally located Civic Green which would include a band stand, public art and restrooms.

The project includes roadway improvements throughout the site, as shown on the Proposed Circulation Plan in Figure 9 on page 127, in Section III, Project

[54] *Boeing has already commenced with the installation of landscaping improvements, including the planting of several hundred trees, along Lakewood Boulevard from Spring Street to Conant Street. As part of the PacifiCenter project, these landscaping improvements will be continued from the project site boundary to Carson Street as the project is developed.*

Description.[55] Primary vehicular entrances will be developed at A Street (between Carson Street and Conant Street) and Conant Street (referred to as B Street within the project site), as well as at 1st Street off of Carson Street and at Paramount Boulevard, from which existing site access will be realigned. The new roadways will typically be two to four lanes wide with streetscaping and pedestrian improvements, including sidewalks and bike lanes, as shown in Figure 10 on page 129 through Figure 13 on page 132 in Section III, Project Description.

Project signage and exterior lighting will be limited in accordance with the Design Guidelines, which will address aspects such as sign and fixture type, height, design, spacing, and color. Nighttime exterior light sources will be focused onto the surfaces to be lit (e.g., building details, landscape elements, signs, and pedestrian areas) and shielded as appropriate. Lighting for parking facilities will be directed onto the site and shielded so as to prevent light spillover effects. Architectural and accent lighting will use indirect or hidden light sources. Lighting within on-site parking structures will be screened through architectural elements and landscaping, or through the use of parking structure lights with cut-off shrouds to eliminate the spill of light from within, including from the rooftop. Rooftop lighting will be limited to security lighting or aviation warning lights that may be required by FAA. As discussed in Section V.E, Hazards and Hazardous Materials, of this EIR, in accordance with Airport Land Use Plan (ALUP) Safety Policies, uses that may direct a steady or flashing light of red, white, green, or amber colors toward aircraft engaged in takeoff or landing within a Runway Protection Zone (RPZ) will not be permitted within the project site. In order to minimize glare potential, glass box buildings, mirrored glass with high exterior daylight reflectance, or reflective glazing will not be permitted on the site.

As discussed in Section V.M.4, Energy, an electrical substation may be developed on-site by approximately 2009. Although design of the substation will not commence until approximately 2006, Southern California Edison has provided general information on the size of the facility. The substation will have a maximum footprint of approximately 230-feet by 305-feet, and power lines connecting to the substation will be routed through new underground substructures. Thus far, two potential locations have been identified for the substation as shown in Figure 8 on page 124, Section III, Project Description. If located in the residential portion of the project site or fronting A Street in the commercial area, the substation will be a low profile structure (equipment will be approximately 12 feet in height) If the substation is located in the commercial area not fronting on A Street the equipment

[55] *As referenced in Figure 6 on page 120, the locations of 1st, 2nd, and 3rd Streets may be shifted slightly in response to the specific locations of new buildings. In any case, the location of 1st Street will not be aligned with Lakewood Drive to the north. Slight changes in the street alignments will not affect the analysis of aesthetics, views, light, or glare, as presented herein.*

will be approximately 20 feet in height. In either scenario, an 8-foot masonry wall will be located at the building setback line, and perimeter landscaping will be installed between the right-of-way and the wall consisting of trees, shrubs, and ground cover. In addition, fencing and perimeter landscaping located along the north and east sides of the Boeing Enclave as shown in Figure 25 on page 197 will obstruct views from and across the project site of the run-up and demolition activities.

d. Analysis of Project Impacts

(1) Aesthetics

The proposed project will result in the removal of existing on-site buildings and landscaping, with development of new buildings, structures, recreational areas, open space, and landscaping.[56] The Land Use Diagram provided in Figure 4 on page 117 in Section III, Project Description, depicts the general location of the proposed land uses. Development will visually alter the character of the PacifiCenter site. However, based on the existing visual setting, including the disrupted appearance of those portions of the site currently being demolished, and the limited aesthetic features in the vicinity, the project elements that will be introduced will substantially improve the site's overall aesthetic setting, given the Project Features that will be implemented as part of the development.

The proposed architecture, height and location of proposed structures, building setbacks, massing, and landscaping will influence the overall aesthetic character of the site. The Project Features, described above, are designed to create a high quality visual setting. Any infrastructure-related elements such as service areas, communications facilities, and utility lines will be visually integrated into the site or placed underground. Parking structures will also be visually integrated into the site as discussed above.

While the maximum building heights in some areas will increase with implementation of the proposed project pursuant to the proposed rezoning of the site,[57] reduced heights will be established in proximity to surrounding sensitive uses, particularly residences to the north. The site-wide variation in building heights will introduce new

[56] *Many on-site structures are currently in the process of being removed as part of permitted demolition activities necessitated by a mandated remediation program for the project site. Refer to Section IV, Overview of Environmental Setting, and Section V.H, Hazards for further discussion of the mandated remediation program and associated demolition activities.*

[57] *With project implementation, maximum building heights in certain areas of the site, such as the medium-high density residential area, will be lower than existing buildings on-site. Additionally, much of the project site will involve building heights that are comparable to existing buildings.*

architectural and design elements, thereby providing visual interest. In addition, the landscaped setbacks described above will create visual buffers between the project and the adjacent uses on all peripheral edges of the site.

The most aesthetically sensitive uses adjacent to the project site are the nearby single-family residences within the Lakewood Country Club Estates. Residential uses will be developed in the Housing area in the northern portion of the site. The aesthetic character of this portion of the site will change from very large industrial buildings to low-medium and medium-high density residential uses, including detached single family homes, townhomes, townhomes/flats and condominiums and apartments.[58] In addition, the new residential structures adjacent to Carson Street will be limited to a height of 35 feet above the curb elevation for the first 100 feet south of Carson Street, as indicated in Figure 14 on page 135 in Section III, Project Description.[59] South of this height zone, building heights in the low/medium residential area will be a maximum of 45 feet and 75 feet in the medium/high residential area, as shown in Figure 14 on page 135. As shown in Figure 26 on page 204, the height of the buildings in the medium/high density residential area will be lower than the existing and former industrial buildings (e.g., Building No. 5, which is 80 feet in height). Also, as shown in Figure 22, the rooflines of the buildings in the low/medium density residential area could be slightly higher than the existing and former structures (e.g., Building 21). However, with the 28-foot setback plus the 12-foot right-of-way to be introduced, the northernmost façades of the proposed residential structures along Carson Street will be located more than 125 feet from the nearest off-site residential property lines north of Carson Street, and over 175 feet from the southern façades of most of the 12 single-family residences located directly to the north. This intervening space is occupied by considerable landscaping, including trees, in the rear yards of the homes north of Carson Street, as well as street trees bordering the north side of Carson Street (which the project will not affect), and a busy multi-lane major arterial street. An existing block wall is located in the rear yard of the Lakewood Country Club residences and will provide a visual barrier from the proposed residential development. The physical separation between the existing single-family residences and the proposed residential structures along Carson Street, in combination with the amount of existing and proposed landscaping, will create a sufficient buffer and the character of the existing neighborhood will be complemented. Associated affects on views and privacy are discussed below.

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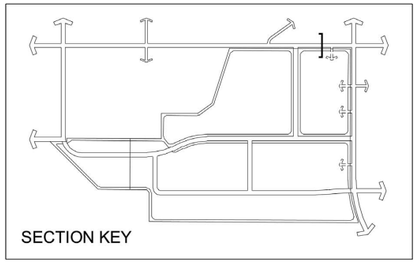
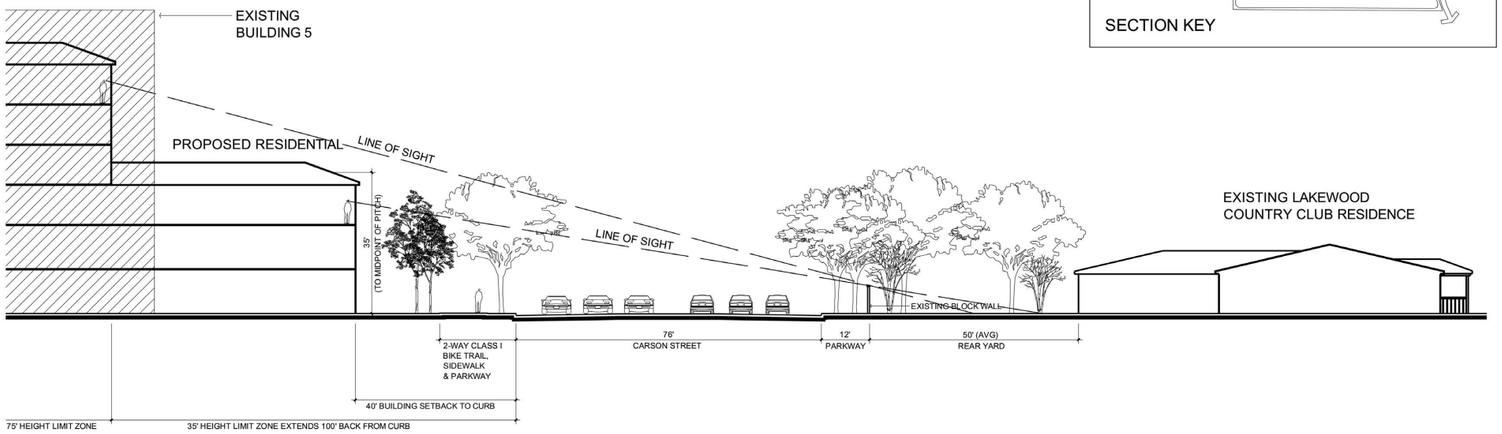
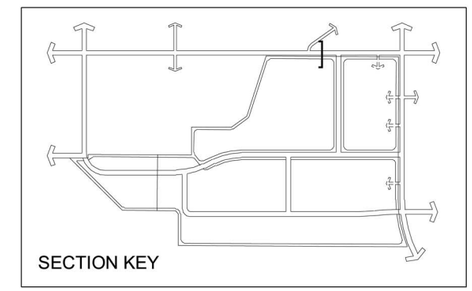
[58] *As discussed in Section III, Project Description, the low-medium density residential area will comprise an average of 16 dwelling units per gross acre and a range of 5 to 25 units per gross acre; the medium-high density residential area will comprise an average of 46 and maximum of 70 units per gross acre.*

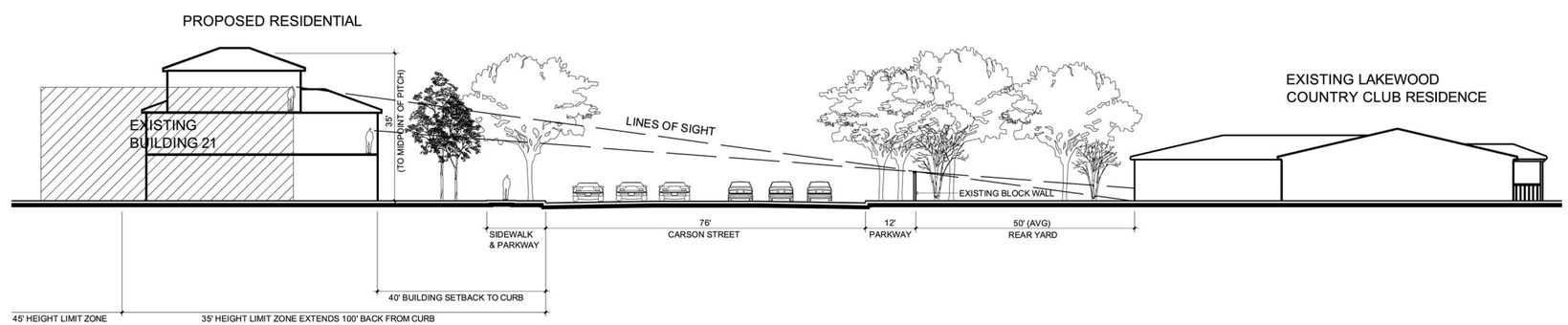
[59] *The proposed maximum building heights are measured from curb elevation to the top of a parapet or midpoint of a pitched roof within the City of Long Beach.*





CARSON STREET SECTION - MEDIUM/HIGH DENSITY RESIDENTIAL AREA
SCALE: 1" = 30'





CARSON STREET SECTION - LOW/MEDIUM DENSITY RESIDENTIAL AREA
SCALE: 1" = 30'

PCR

Figure 26
Section of Proposed Residential Development along Carson Street

Source: MVE Architects, January 2004.

The highest structures permitted within the PacifiCenter site, ranging from a maximum of 90 to 120 feet above curb elevation, will be located along Lakewood Boulevard between A and B Streets, as shown in Figure 14 on page 135 in Section III, Project Description. Although heights will increase in this area, design guidelines approved as part of the project will provide for buildings that include human-scaled elements and varied building masses.[60] The off-site uses surrounding this portion of the project site consist of the Boeing commercial 717 assembly plant and office center to the east across Lakewood Boulevard, which are not considered sensitive to the proposed increase in potential building heights. Additionally, the areas along both sides of A Street between Lakewood Boulevard and 1st Street will be designated as a retail overlay zone, potentially allowing ground floor retail development with upper story multi-family residential units in the Housing area and ground floor retail uses with upper story commercial uses in the Commercial area, as well as stand-alone retail uses. The retail overlay zone will provide a visual transition between the medium-high density residential uses north of A Street and the potentially taller commercial buildings between A and B Streets. Project development in this area will replace an existing nine-story office building which contrasts with the surrounding low- to mid-rise industrial buildings on-site.

As indicated in Section III, Project Description, the project is a master planned community integrating a variety of land uses. The uses will be located and oriented so as to minimize visual impacts within the project site. For example, residential uses will be generally separated from commercial uses by streets, landscaped areas, and setbacks. The retail overlay area will allow both residential and commercial uses within close proximity. However, the types of retail uses will be service oriented, which is common in a mixed use development in an urban setting. In addition, screening of the Enclave, which will remain in operation during the construction and occupancy of portions of the project, will be provided as shown in Figure 25 to provide a buffer between the Enclave and adjacent uses.

Based on the above, although the height and bulk of some of the PacifiCenter structures in portions of the site may contrast with recent and existing development on the site and in the surrounding vicinity, implementation of the project will result in overall aesthetic benefits. The project will introduce uses that are visually and functionally compatible with the adjacent areas. In addition, the project will not introduce elements that substantially degrade the existing visual character or quality of the site and its surroundings, nor will the project remove or demolish features or elements that contribute

[60] *For example, rather than providing entrances that are tall and grandiose, building entrances will be designed to relate in height to the human form. In addition, breaking up the building mass and using smaller building elements to create a larger building serves to reduce the perceived size of a structure.*

positively to the visual character of the vicinity. Project development will also represent a substantial aesthetic improvement relative to the appearance of the site as it undergoes building removal as part of the mandated remediation program, which visually contrasts with surrounding development. The project will incorporate landscaping within the public rights-of-way and on private property in accordance with ordinance requirements. Furthermore, the project will be consistent with the goals of the City of Long Beach General Plan through implementation of design guidelines that will allow a variety of building types incorporating quality design and landscaping. The City of Lakewood General Plan goals will also be met, as the project will maintain a human scale and create organization and functional cohesiveness. The project will also comply with the zoning ordinances of each of these Cities and applicable FAA regulations. Accordingly, project impacts associated with aesthetics will be less than significant.[61]

(2) Views

Development of the proposed project may result in structures with heights greater than some that currently exist on the site, as well as structures with reduced building heights. As with the existing development, new development will be visible from the surrounding vicinity, including portions of the residential and commercial areas to the north of Carson Street, the Airport, and portions of the Lakewood Country Club, Skylinks Golf Course, and Long Beach Community College. The site will also continue to be visible from the surrounding roadways, including Carson Street, Lakewood Boulevard, Paramount Boulevard, and Cover Street. Figure 27 through Figure 31 on pages 207 through 211 present visual comparisons of existing conditions and future conditions with development of buildings, structures, and landscaping associated with the PacifiCenter project. These conceptual illustrations show the potential effect that proposed development might have on views of and across the PacifiCenter site.

As illustrated in the figures, proposed landscaping will affect the short-range views of and around the project site. In addition, incorporation of the architectural and design elements described above, including establishment of setbacks, will positively affect short-range views in the area.

Views from the surrounding roadways will be modified by the proposed development. Views along Carson Street, Lakewood Boulevard, Paramount Boulevard, and Cover Street will be more defined as a result of the project, with proposed buildings

[61] *Impacts will remain the same when compared with the site subsequent to the completion of all permitted demolition activities in association with the remediation program.*

Conceptual view looking west adjacent to intersection of Carson Street and Lakewood Boulevard.

VIEW LOCATION ADJACENT TO INTERSECTION OF CARSON STREET AND LAKEWOOD BOULEVARD

Existing view looking west adjacent to intersection of Carson Street and Lakewood Boulevard

PCR

Figure 27
Existing and Conceptual Views From Carson Street and Lakewood Boulevard

Source: MVE Architects, October 2003

Conceptual view looking west on Carson Street from just east of Lakewood Country Club.

VIEW LOCATION ON CARSON STREET NEAR LAKEWOOD COUNTRY CLUB

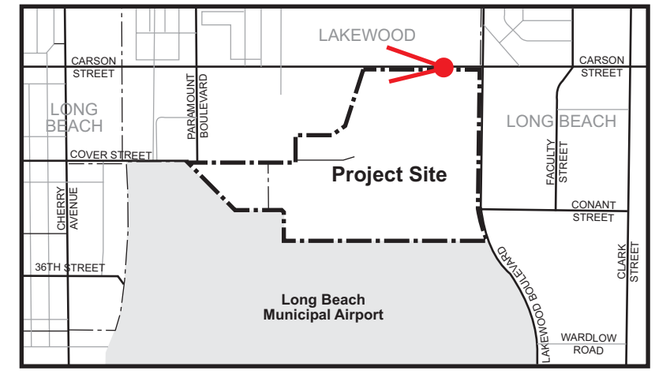
Existing view looking west on Carson Street from just east of Lakewood Drive.

PCR

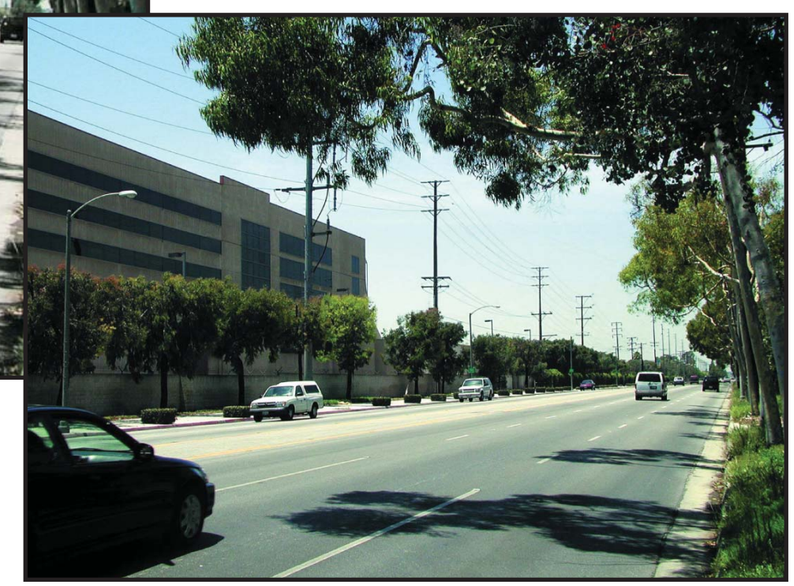
Figure 28
Existing and Conceptual Views From Carson Street near Lakewood Country Club

Source: MVE Architects, October 2003.

Conceptual view looking west along Carson Street.



VIEW LOCATION AT
CARSON STREET



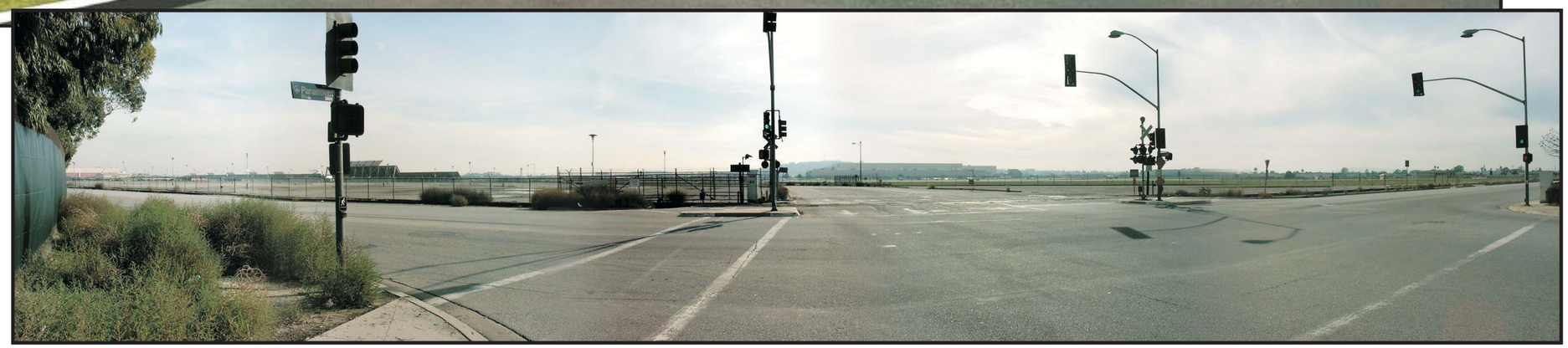
Existing View looking west along Carson Street.

PCR

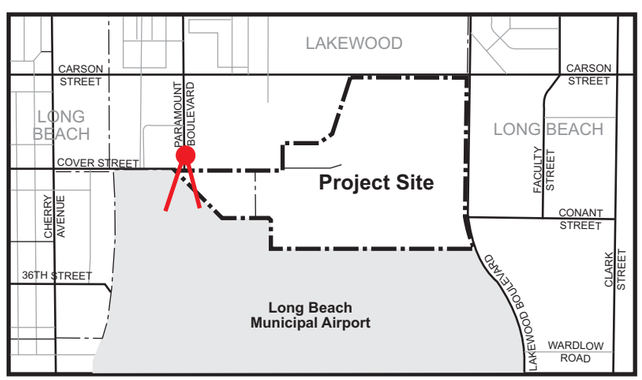
Figure 29
Existing and Conceptual Views Along Carson Street East of 1st Street

Source: MVE Architects, October 2003.

Conceptual view looking south from Paramount Boulevard near Cover Street.



Existing view looking south from Paramount Boulevard near Cover Street.



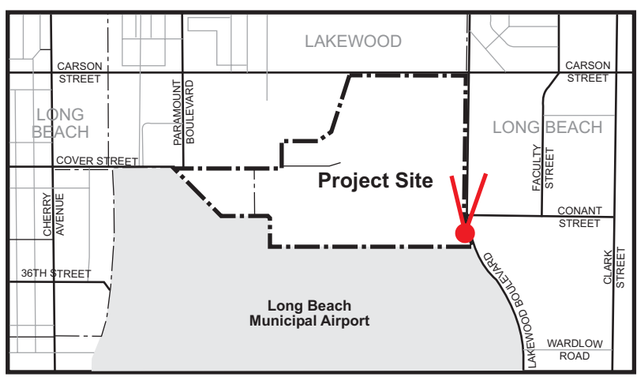
VIEW LOCATION FROM PARAMOUNT BOULEVARD NEAR COVER STREET

PCR

Figure 30
Existing and Conceptual Views from Paramount Boulevard and Cover Street

Source: MVE Architects, October 2003

Conceptual view looking north on Lakewood Boulevard at Conant Street.



VIEW LOCATION ON
LAKEWOOD BOULEVARD AT CONANT STREET

Existing view looking north on Lakewood Boulevard at Conant Street.

PCR

Figure 31
Existing and Conceptual Views From Lakewood Boulevard at Conant Street

Source: MVE Architects, October 2003

and landscaping defining and framing such views, as illustrated in the figures. For example, views of the project site from Carson Street east of Lakewood Boulevard will predominantly be of the new landscaping and residential buildings located at the corner of Lakewood Boulevard and Carson Street, as depicted in Figure 27 on page 207. The existing building on that corner will be removed, and no aesthetic resources will be blocked by the proposed buildings. Overall, as the existing views along the roadways in the surrounding vicinity are limited and there are no aesthetic resources visible in the distance, no valued views will be obstructed and impacts will be less than significant.

Due to the relatively flat topography of the area, the site will not be clearly visible from within the Lakewood Country Club Estates, with the exception of intermittent views of upper stories of the proposed buildings, as occur under existing conditions. To the extent that project development will introduce quality, sensitively designed, and visually attractive architecture, intermittent views of project buildings will improve. As described above and indicated in Figure 26 on page 204, while the height of structures within the low to medium density may be taller than existing buildings in that area of the site, the height of structures developed within the medium to high density residential area along Carson Street will be lower than the former and existing buildings in that area of the project site. As also shown in Figure 26, while the upper floors may have views into the rear yards of residential uses to the north, such views will be obscured by existing and proposed landscaping as well the existing block wall.[62] Furthermore, the intervening distance between on-site development and residences to the north (i.e., over 175 feet) will be sufficient to reduce visual acuity to beyond a level capable of interfering with residential privacy. Additionally, the existing trees on the north side of Carson Street in combination with street trees that will be planted along the south side of Carson Street will also reduce visibility. Therefore, the privacy of the single-family residences to the north will be preserved relative to views from taller buildings south of A Street due to substantial distances and view obstruction by on-site development, the existing block wall, and landscaping.

Views of the project site from the Lakewood Country Club Golf Course will also be mainly of the upper portions of proposed buildings, similar to existing conditions, with more direct views of the site available from the southern portion of the golf course south of Carson Street. As discussed above, to the extent that project development is considered more visually attractive than the former industrial uses, intermittent views from the golf course to the project site will improve. Nonetheless, existing golf course landscaping and proposed setbacks along the adjacent project site boundary will serve to obscure views of

[62] *The landscaping on the north side of Carson Street will continue to be maintained by Boeing or its heirs or assignees, which will ensure that the landscaping provides a visual buffer between the existing residences and the proposed residences on the project site.*

project development. If the western portion of A Street is moved to the north to run parallel with the project boundary along the Golf Course, this roadway configuration will result in a greater distance between the Golf Course and any future building. With this optional configuration, A Street and the associated parkways will create an additional visual buffer between the Golf Course and buildings developed on the project site. Views across the Airport will continue to be urban in nature and will benefit from the aesthetic improvements that are proposed as part of the project. Views of the San Gabriel Mountains from areas located at the same elevation as the project site are currently limited and will not be impacted by the project. Existing views of Signal Hill may be intermittently interrupted or partially obscured by new development, though lower building heights in portions of the site may also open up new views. Regardless, project development will not entirely or substantially obstruct such views.

In addition to the viewsheds within the general vicinity of the project site, the proposed development will be clearly visible from atop Signal Hill. However, Signal Hill is located at an increased elevation and at a sufficient distance from the project site such that development at the PacifiCenter site will not impact views from this vantage point, including long-range views of the San Gabriel Mountains.

View corridors within the site, running in a north-south direction, will be created by the RPZs in the southern portion of the site. In addition, as shown on Figure 5 on page 118 in Section III, Project Description, the open space areas (i.e., parks, parkways, and setback areas) provided throughout the site will create a greenbelt system, which provides visual relief from the urban development. The streets and bike lanes will serve to link the greenbelt system together.

Based on the above, there are currently only limited or intermittent views within and of the project site. While development of the project site may alter such views, the project will not substantially obstruct or eliminate existing views of valued on- or off-site aesthetic features. In addition, implementation of the project will not conflict with applicable regulations relating to view resources included in the Long Beach and Lakewood General Plans and Zoning Ordinances, since, pursuant to such regulations, the project will enhance the overall aesthetic environment while shielding the less aesthetically pleasing elements of development, thereby improving views in the vicinity. Furthermore, the beneficial effects of the project on the aesthetic character of the area, as discussed above,

will similarly improve associated views. Thus, view impacts associated with implementation of the project will be less than significant.[63]

(3) Light and Glare

Implementation of the proposed project will increase ambient light levels on the project site and in the immediately surrounding vicinity. Project-related lighting will consist of point light sources of low to medium brightness. Nighttime exterior lighting will consist of street lighting, vehicular circulation and parking area lighting, pedestrian lighting, architectural and accent lighting, service area lighting, flight ramp lighting, and parking structure lighting. Impacts from the flight ramp lighting (within the Enclave) will be shielded by remaining buildings within the Enclave (e.g., Buildings 41A and 15) and to some extent by the proposed fence and landscaping around the northern and eastern perimeter of the Enclave. In addition, as discussed in Section V.I., Noise, a mitigation measure is proposed that prohibits development of residential uses in close proximity to the Boeing Enclave until such time that 717 run-up activities permanently cease, which further reduces the potential for new residential units to be affected by lighting from the Enclave. As discussed above, nighttime exterior light sources will be focused onto the surfaces to be lit (e.g., building details, landscape elements, signs, and pedestrian areas) and shielded as appropriate. Lighting for parking facilities will be directed onto the site and shielded so as to prevent light spillover effects. Of the existing aircraft warning lights, only those on Building 15, the blast walls and on tall light poles will remain as part of the proposed project while the Enclave remains. The need for new aircraft warning lights will be determined by the FAA per Part 77. These remaining warning lights will be low-intensity, LED (light emitting diode) lights and approximately 28 watts. Based on the discussion above, no direct rays or glare will be permitted to shine onto local streets or adjacent lots. In addition, lighting will comply with ALUP Safety Policies, as described in Section V.E, Hazards and Hazardous Materials.

In addition to the specific design considerations that address exterior lighting, the landscaped setback zones will act as further light shields. For example, the Carson Street landscaped setback will act as an effective shield to block any residual light from reaching the residential neighborhood on the north side of Carson Street. If the western portion of A Street is moved to the north to run parallel with the project boundary along the Golf Course, this roadway configuration will place the street and therefore, vehicles closer to the golf course. However, given that the site is flat and there will be an 11-foot right-of-way

[63] *Impacts will remain the same when compared with the site subsequent to the completion of all permitted demolition activities in association with the remediation program.*

between the project boundary and the roadway, no substantial light and glare affects from vehicles on A street will result with this configuration. As such, the project will not result in substantial illumination of any light-sensitive uses in the surrounding vicinity, nor will the project conflict with applicable light regulations. Thus, impacts on lighting will be less than significant.

The intensity of glare will depend on the building materials used and the ultimate design of the new development. As discussed above, highly reflective glass materials or glazing will not be permitted on the site. The indirect reflection of sunlight from parked vehicles and direct glare generated from vehicle headlights within the parking areas and on the internal and peripheral roadways during evening and nighttime hours could potentially occur off-site. However, the surface parking lots will be associated with commercial buildings and will be located in the southern portion of the site.[64] Parking structures will be designed to minimize light spillover onto adjacent properties or roadways. Landscaping will help screen any potential glare, protecting glare-sensitive uses, which generally include the Lakewood Country Club Estates and the surrounding transportation corridors. Furthermore, the project will not conflict with applicable glare regulations set forth by the Cities of Long Beach and Lakewood and by the FAA. Accordingly, glare impacts will be less than significant.[65]

4. CUMULATIVE IMPACTS

Several projects are proposed in the general vicinity of the project site, including: the ongoing Cleanup and Abatement Order 95-048 (Related Project No. 44, the on-site remediation program discussed above); a 94,268 square foot Kohl's department store (Related Project No. 6) and a 9,587 square foot commercial building (Related Project No. 12) both located on Carson Street, just west of Lakewood County Club;[66] and operational improvements at the Airport (Related Project No. 77) involving 43,000 square feet of building improvements, and a 4,000 space parking garage. Additional development planned south and west of the Airport includes new office, hotel, and self-storage uses (Related Project Nos. 82, 85, and 86) which could potentially involve mid- to high-rise structures.

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[64] *Large surface parking lots (i.e., greater than 25 spaces) will not likely be located within the residential area since parking will be provided in structures or on the streets.*

[65] *Impacts will remain the same when compared with the site subsequent to the completion of all permitted demolition activities in association with the remediation program.*

[66] *Related Projects No. 6 and No. 12, which were proposed at the time of the preparation of the related projects list, have been completed.*

While potential mid- to high-rise structures in the project area may be visible from vantage points within the project site or on adjacent roadways, due to the relatively flat topography and the urbanized nature of the area, the related projects will not be prominent in views from the site or the immediately surrounding area. None of the related projects is expected to appreciably alter the urban character of the area. Although Related Project No. 6 has the potential to increase ambient light levels in the area in association with exterior and parking lot lighting, project-specific mitigation and the presence of intervening trees and considerable landscaping at the adjacent Lakewood Country Club golf course will minimize light effects experienced at or near the PacifiCenter site. Given the relatively small size of Related Project No. 12, it will not substantially contribute to aesthetic, view, light, or glare impacts. Similarly, the Airport improvements are not proposed to include tall buildings and will not change the visual character of uses or activities on that property. Other projects in the general vicinity will be sufficiently distant from the project site so as to have a minimal cumulative effect, if any, on aesthetics and views. In addition, the proposed commercial uses within the southern portion of the project site will create a buffer between the on-site residential uses and the Airport activities and other development to the south of the project site. Furthermore, each of the related projects will be subject to the project and permit approval process. As such, no significant cumulative impact to aesthetics, views, or light and glare will occur.

5. MITIGATION MEASURES

The following mitigation measures are provided to ensure that potential impacts associated with aesthetics, views, and light and glare will be less than significant.

V.A-1 Minimum setbacks measured from the property line to the building face shall be provided in accordance with PD-32 requirements (refer to Figure 19 in Section III, Project Description, of this EIR. The setbacks along the periphery include:

- A 28-foot setback from the property line along Carson Street (excluding the 12-foot right-of-way).
- A 26-foot setback from the property line along Lakewood Boulevard (excluding the 14-foot right-of-way).
- A 20-foot setback from the property line adjacent to the Lakewood Country Club.

- A minimum 20-foot setback along the limited portions of the Airport edge on the southern and southwestern boundaries of the project site that are not part of the Long Beach Airport Layout Plan Building Restriction Zone. The no-build zone, which is greater than 20 feet in width, extends along most of the southern portion of the project site.

Setbacks have also been established for several of the internal streets, as follows:

- A 2-foot setback from the property line (excluding the 10-foot right-of-way) along A Street between Lakewood Boulevard and 1st Street for street-oriented retail uses.

- A 10-foot setback from the property line (excluding the 11-foot right-of-way) along 1st Street.

- An 18-foot setback from the property line (excluding the 11-foot right-of-way) along other internal collector roadways, including 2nd and 3rd Streets, except for those street segments that abut Building Restriction Zones, where adjacent development is not permitted.[67,68]

These proposed setbacks shall be set forth by the Planned Development-32 District for the City of Long Beach portion of the site. (For those internal streets that may be constructed within the project site but are not depicted in Figure 19 on page 142 of this EIR, setbacks may vary and may be less than the setbacks indicated in Figure 19 on page 142 of this EIR.)

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

[67] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than 30 feet, in accordance with the Design Guidelines to be implemented as part of the project.*

[68] *If A Street in the western portion of the site is located adjacent to the Golf Course, the minimum building setback will be 5 feet from the property line (excluding the 11-foot right-of-way).*

Action Indicating Compliance: Site plan review/issuance of building permits/certificate of occupancy

V.A-2 Maximum building heights shall be defined in the PD-32 ordinance in conformance with Figure 14 of this EIR, Height Zones, in Section III, Project Description, of this EIR. The proposed maximum building heights shall be measured from curb elevation to the top of a parapet or midpoint of a pitched roof within the City of Long Beach. Project buildings located within the City of Lakewood shall be limited to four stories and 55 feet, measured from finished grade to the ceiling of the uppermost story.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-3 Design Guidelines shall be developed for the PacifiCenter project and shall establish standards regarding building and roof design, landscape amenities, streetscaping and pedestrian improvements, including sidewalks and bike lanes, and signage and exterior lighting.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-4 New utility lines for water, gas, sewer, electricity, and communications associated with the project shall be installed underground, to the extent feasible. Underground utility installation shall not interfere with the

ongoing remediation program and shall comply with the Risk Management Plan (RMP) designed to assure the long-term protection of health and safety of future residents and employees at the project site. Service areas, including loading docks, refuse collection areas and storage areas shall be visually screened from the street and adjacent parcels to the extent feasible.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-5 All night lighting installed on private property within the project site shall be shielded, directed away from residential uses, and confined to the project site. Rooftop lighting shall be limited to security lighting or aviation warning lights in accordance with Airport/FAA requirements.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-6 All lighting shall comply with all applicable ALUP Safety Policies and FAA regulations.

Monitoring Phase: Construction

Enforcement Agency: Federal Aviation Administration

Monitoring Agency: City of Long Beach Airport Bureau and City of Lakewood Community Development Department

Action Indicating Compliance: Filing of Form 7460-1 with FAA

V.A-7 The use of glass with over 25 percent reflectivity shall be prohibited in the exterior of all buildings on the project site.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-8 If located in the residential portion of the project site or fronting A Street in the commercial area, the electrical substation shall be a low profile structure (equipment will be approximately 12 feet in height) whereas if the substation is located in the commercial area not fronting on A Street the equipment may be approximately 20 feet in height.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-9 The electrical substation to be constructed on-site shall include an 8-foot masonry wall located at the building setback line. The area between the right-of-way and the setback shall be landscaped with groundcover, shrubs and trees.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-10 Landscaping shall be installed on the eastern side of the Enclave fence from the north end of Building 15 to the southern property line upon installation of Phase I commercial infrastructure. Landscaping shall be installed on the northern side of the fence surrounding the Enclave or along the proposed street to the north of the Enclave upon development of the residential units in the northwestern portion of the site as shown in Figure 25 of this EIR.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-11 All parking structure lighting shall be shielded and directed away from residential uses. Such lighting shall be primarily located and directed so as to provide adequate security. Rooftop lighting shall be limited to security lighting and aircraft warning lights as may be required by FAA.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-12 The south side of existing Building 1C shall be screened from views along A Street by an architectural facade. The remaining east, west and north sides of 1C shall also be screened to minimize views of the structure. This shall be accomplished with either an architectural facade similar to the south side of the building, with landscape screening using evergreen trees and shrubs in front of a masonry wall or with landscape screening using evergreen trees and shrubs. Should the north, east or west side of 1C be located fronting A street, then the street shall be located so that the building is set back from the right-of-way in a similar manner as if it were a new building in this area.

Monitoring Phase: Pre-Construction /Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

6. SIGNIFICANCE AFTER MITIGATION

Incorporation of the Project Features and mitigation measures described above will ensure that the project will not result in significant and unavoidable impacts relative to aesthetics, views, or light and glare.

V. ENVIRONMENTAL IMPACT ANALYSIS
B. AIR QUALITY

1. INTRODUCTION

This section addresses the potential impacts on air quality from air pollutants generated by the proposed project. The analysis evaluates air emissions attributable to the project's construction and post-construction (e.g., operational) activities. Construction-related activities which generate various pollutants include site preparation, travel by construction workers to and from the site, delivery and hauling of construction materials to and from the site, fuel combustion by on-site construction equipment, and the application of architectural coatings and other building materials that release pollutants. Types of activities addressed in the post-construction analysis include the consumption of electricity and gas for site activity and the operation of on-road vehicles. Miscellaneous area sources are also considered in the operations analysis, including among other sources, consumer/commercial solvent usage, landscaping equipment, architectural and automotive coatings, restaurant charbroilers, and emergency generators.

2. ENVIRONMENTAL SETTING

a. Regulatory Setting

In response to longstanding concerns about air pollution, Federal, State, and local authorities adopted various rules and regulations requiring evaluation of air quality impacts of a planned project and appropriate mitigation for air pollutant emissions. The following discussion focuses on current air quality planning efforts and the responsibilities of agencies involved in these efforts. A discussion of ambient air quality standards is also provided.

(1) Federal

The United States Environmental Protection Agency (USEPA) is responsible for implementation of the Federal Clean Air Act (CAA). The CAA was first enacted in 1955 and amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, 1990, and 1997). The CAA establishes Federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: (1) Ozone

(O_3); (2) Nitrogen Dioxide (NO_2); (3) Sulfur Dioxide (SO_2); (4) Particulate Matter (PM_{10}) (5) Carbon Monoxide (CO); and (6) Lead (Pb). The NAAQS were amended in July 1997 to include an additional standard for ozone and to adopt a NAAQS for fine particulates ($PM_{2.5}$). Table 5 on page 225 shows the NAAQS currently in effect for criteria pollutants.

The CAA also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The 1990 amendments to the CAA identify specific emission reduction goals for basins not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones.

The Cities of Long Beach and Lakewood are included in the South Coast Air Basin (Basin), which is designated as a non-attainment area for O_3 and PM_{10}. Non-attainment designations are categorized into four levels of severity based on projected attainment date and level of concentration above the standard including: moderate, serious, severe, and extreme. In addition, the Basin is classified as being in maintenance for NO_2 and CO since they are currently in attainment and measures are being taken to ensure that they do not go back into non-attainment. The Basin's attainment status with regard to each criteria pollutant is shown in Table 6 on page 227. The CAA sets certain deadlines for meeting the NAAQS within the Basin including: (1) O_3 by the year 2010; and (2) PM_{10} by the year 2006. No official determination has been made regarding the attainment status of the new O_3 and $PM_{2.5}$ standards. However, selected monitoring stations are already analyzing air samples for $PM_{2.5}$. Deadlines for meeting this standard will be set for 10 years after the region is designated as being in non-attainment by the USEPA. Table 5 on page 225 lists the criteria pollutants, along with their respective standards, health and atmospheric effects, and major sources.

(2) State

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CAAQS incorporate additional standards for most of the criteria pollutants and set standards for other pollutants recognized by the State. California standards tend to be more restrictive than NAAQS and are based on even greater health and welfare concerns. California also sets standards for $PM_{2.5}$, sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. The Basin does meet the California standards for sulfates, hydrogen sulfide and vinyl chloride, but does not meet

Table 5

AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standard [a]	Federal Primary Standard [a]	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Motor vehicles.
	8 hour	—	0.08 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hour	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm			
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm			
	24 hour	0.04 ppm	0.14 ppm		
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	—	May irritate eyes and respiratory tract. Absorbs sunlight, reducing amount of solar energy reaching the earth. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Geometric Mean	50 $\mu g/m^3$	150 $\mu g/m^3$		
	24 Hour	—	50 $\mu g/m^3$		
Particulate Matter ($PM_{2.5}$) [b]	Annual Geometric Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, premature death; reduced visibility; surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).
	24 Hour	—	65 $\mu g/m^3$		

Table 5 (Continued)

AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standard [a]	Federal Primary Standard [a]	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Lead	Monthly	1.5 ug/m^3		Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly		1.5 ug/m^3		
Sulfates (SO_4)	24 hour	25 ug/m^3	—	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.

[a] *ppm=parts per million and µg/m^3 = micrograms per cubic meter.*
[b] *A Federal air quality standard for $PM_{2.5}$ was adopted in 1997. Presently, no methodologies for determining impacts relating to $PM_{2.5}$ have been developed. In addition, no strategies or mitigation programs for this pollutant have been developed or adopted by federal, state, or regional agencies.*

Source: California Air Resources Board, Ambient Air Quality Standards*, 2004 and the USEPA, 2004.*

the California standard for visibility reducing particles and is not expected to fully meet the visibility standard until 2010. No date for meeting the $PM_{2.5}$ standard has been established.

(3) Regional

(a) South Coast Air Quality Management District (SCAQMD)

The SCAQMD has jurisdiction over an area of 10,743 square miles consisting of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties, and the Riverside County portions of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a subregion of the SCAQMD's jurisdiction and covers an area of 6,745 square miles. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. While air

Table 6

SOUTH COAST AIR BASIN ATTAINMENT STATUS

Pollutant	National Standards	California Standards
Ozone (O_3)	Extreme	Extreme
Carbon Monoxide (CO)	Maintenance [a]	Serious
Sulfur Dioxide (SO_2)	Attainment [b]	Attainment [b]
Nitrogen Dioxide (NO_2)	Maintenance [c]	Maintenance [c]
PM_{10}	Serious	Serious
$PM_{2.5}$	Pending [d]	Pending [d]

[a] *The national standard for CO was achieved for the first time at the end of 2002 and the 2003 AQMP identifies measures necessary to ensure that it does not go back into non-attainment.*

[b] *An air basin is designated as being in attainment for a pollutant if the standard for that pollutant was not violated at any site in that air basin during a three year period.*

[c] *NO_2 and CO are classified as being in maintenance since it is currently in attainment and measures are being taken to ensure that they do not go back into non-attainment.*

[d] *Attainment status with the $PM_{2.5}$ standard will not be determined until 2004.*

Source: California Air Resources Board, 2004.

quality in this area has improved, with 2002 (the latest year for which comprehensive data are available) registering some of the lowest levels of air pollutant concentrations in decades, the Basin requires continued diligence to meet air quality standards.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMP) to meet the CAAQS and NAAQS. These plans require, among other emissions-reducing activities, control technology for existing sources; control programs for area sources and indirect sources; a SCAQMD permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions; transportation control measures; sufficient control strategies to achieve a five percent or more annual reduction in emissions (or 15 percent or more in a three-year period) for Reactive Organic Compounds (ROC), NO_X,[69] CO, and PM_{10}; and demonstration of compliance with the California Air Resources Board's (CARB) established reporting periods for compliance with air quality goals.

[69] *NO_X is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) emitted as by-products of the combustion process. However, since most of these chemicals eventually convert to NO_2 in the atmosphere, all NO_X emissions are conservatively reported as the criteria pollutant NO_2.*

The 1997 AQMP was amended in 1999 and resubmitted to the USEPA, which approved the amended plan in April 2000. The 1999 Amendment provides additional short-term stationary source control measures that implement portions of the 1997 Ozone State Implementation Plan's (SIP) long-term stationary source control measures. In addition, the Amendment revised the adoption and implementation schedule for the remaining 1997 Ozone SIP short-term stationary source control measures that the SCAQMD is responsible to implement. The SCAQMD updated the SIP in 2002 with respect to the adoption and implementation schedule of various PM_{10} related measures and SIP approval is expected in late 2003.[70]

The SCAQMD adopted a comprehensive AQMP update, the 2003 Air Quality Management Plan for the Basin, on August 1, 2003 (2003 AQMP). [71] The 2003 AQMP outlines the air pollution control measures needed to meet federal health-based standards for O_3 by 2010, and for PM_{10} by 2006. It also demonstrates how the federal standard for CO, achieved for the first time at the end of 2002, will be maintained. Lastly, the plan takes a preliminary look at what will be needed to achieve new and more stringent health standards for O_3 and $PM_{2.5}$. The 2003 AQMP will be forwarded to the CARB for its review. If approved by the State, it will be sent to the USEPA for its final approval.

In adopting the 2003 AQMP, the SCAQMD: (1) committed to analyzing 12 additional long-term control measures, such as requiring the electrification of all cranes at ports; (2) set a target for distributing needed long-term emission reductions between SCAQMD, CARB and USEPA; (3) assigned emission reductions to the USEPA (in the event that USEPA rejects the plan due to the assignment, the plan will drop the provision); and (4) forwarded to CARB and USEPA a list of more than 30 specific measures for consideration to further reduce emissions from on- and off-road mobile sources and consumer products. The 2003 AQMP also identifies 26 air pollution control measures to be adopted by the SCAQMD to further reduce emissions from businesses, industry and paints. It also identifies 22 measures to be adopted by CARB and the USEPA to further reduce pollution from cars, trucks, construction equipment, aircraft, ships and consumer products.

The SCAQMD also adopts rules to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. For example, Rule 403 requires the implementation of best available fugitive dust control measures during active

[70] *SCAQMD, Preview of the Proposed 2003 Air Quality Management Plan for the South Coast Air Basin, January 2003, p. i.*

[71] *SCAQMD, AQMD Websitehttp://www.aqmd.gov/news1/aqmp_adopt.htm.*

operations capable of generating fugitive dust emissions from onsite earth-moving activities, construction/ demolition activities, and construction equipment travel on paved and unpaved roads. Specific Rule 403 control requirements are included in Appendix D of this EIR.

Certain stationary sources of air pollution that may be part of the project (e.g., heaters and generators) may require permits from the SCAQMD pursuant to Rules 201, 202 and 203. Emission increases related to those sources may also be subject to SCAQMD Regulation XIII or Regulation XXX which, among other things, requires that Best Available Control Technology (BACT) be utilized to reduce pollutants and that any increases of criteria air pollutants be offset by achieving equivalent emission reductions at a facility within the Basin. Emergency equipment, however, is exempt from modeling and offset requirements (Rule 1304) and does not require a health risk assessment (Rule 1401).

In addition to the AQMP and its rules and regulations, the SCAQMD published a handbook (*CEQA Air Quality Handbook*; most recent version: November 1993) that is intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts for both land use and permitting projects. The *Handbook* provides standards, methodologies and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. A detailed discussion of the methodologies used in the analysis of air quality impacts is provided in Appendix D of this EIR.

(b) Los Angeles County Congestion Management Plan

The Congestion Management Plan (CMP) for the County of Los Angeles has been developed to meet the requirements of Section 65089 of the California Government Code. In enacting the CMP statute, the State legislature noted the increasing concern that urban congestion was impacting the economic vitality of the State and diminishing the quality of life in many communities. The CMP was created to further the following objectives:

- To link land use, transportation and air quality decisions.
- To develop a partnership among transportation decision makers to encourage appropriate transportation solutions that include all modes of travel.
- To propose transportation projects which are eligible for State gas tax funds.

Refer to Section V.L, Transportation and Circulation, for additional discussion regarding the CMP.

(c) Regional Comprehensive Plan and Guide

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development and the environment. SCAG serves as the federally designated metropolitan planning organization (MPO) for the southern California region and is the largest MPO in the United States. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the AQMP and are utilized in the preparation of air quality forecasts and consistency analysis included in the AQMP.

(4) Local Plans

The Cities of Long Beach and Lakewood have adopted General Plan Air Quality Elements to aid the greater Los Angeles region in attaining state and federal ambient air quality standards at the earliest feasible date, while still maintaining economic growth and improving the quality of life. These Air Quality Elements acknowledge the inter-relationships between transportation and land use planning in meeting mobility and clean air goals. By adopting Air Quality Elements, both Cities are seeking to achieve consistency with the AQMP, RCPG and CMP.

(a) City of Long Beach General Plan Air Quality Element

Contained in the City of Long Beach General Plan Air Quality Element are numerous Goals, Policies, and Actions that are intended to improve air quality throughout the City, which are based on the following guiding principles:

1. To achieve air quality improvements in such a manner that sustains current economic development while encouraging future growth.

2. To improve the quality of life for citizens by providing greater opportunities, conveniences, and choices.

3. To reinforce local mobility goals by reducing peak-hour traffic congestion.

4. To foster behavior change through public information and education, incentives, and pricing that reflects total societal costs for administration and enforcement.

The Air Quality Element is divided into seven topical areas: Government Organization, Roles and Responsibilities; Ground Transportation; Air Transportation; Land Use; Particulate Emissions; Energy Conservation; and Education. A general goal statement for each topic expresses the general, long-range condition toward which effort is being directed. Each goal is reinforced by a series of policies that provide guidance for decision making that will advance that particular goal. Policies are then implemented through a number of actions. For the project, the following actions are applicable:

- Action 2.1.2.3—Promote the creation of, and develop incentives for, sector committees consisting of local establishments providing consumer services and goods to offer and distribute those services and goods in a manner that will reduce overall automobile travel.

- Action 2.1.3.1—Apply system management techniques specified in the City's Transportation Element, such as traffic signal synchronization or computerization, parking prohibitions, left-hand turn pockets, and recessed bus ways where appropriate to optimize existing capacity on regional corridors, and major and minor arterials.

- Action 2.1.3.6—Invest in capital improvements intended to eliminate traffic bottlenecks, such as grade separations, street widening, intersection improvements, and new or realigned roadways.

- Action 2.4.1.3—Ensure that all new development is designed and constructed to facilitate and encourage travel by carpool, vanpool, transit, bicycle, and foot.

- Action 2.4.1.10—Ensure that pedestrian walkways are safe, convenient, and aesthetically appealing, especially at major activity centers.

- Action 5.2.2—Improve the jobs/housing balance at the Southeast Los Angeles County Sub-regional level in relation to major activity centers as new development occurs.

- Action 6.1.8—Once sources of particulate pollution have been identified, the City shall pursue potential mitigation measures through private/public collaborations, or through other available means.

- Action 7.1.4—Encourage the incorporation of energy conservation features in the design of all new construction.

- Action 7.1.5—Encourage the installation of conservation devices and low energy using/water consuming appliances in new and existing development.

(b) City of Lakewood General Plan Air Quality Element

The City of Lakewood has adopted a General Plan Air Quality Element that was derived (in large part) from the Model Air Quality Element that was prepared jointly by 21 jurisdictions during the early 1990s. Many of the element's goals and policies are directed at economic efficiency and jurisdictional coordination. Others promote reduction in vehicle miles traveled (VMT) by encouraging compact development patterns and an increase in commuter average vehicle ridership (AVR). Policies applicable to the project include the following:

- Policy 3.1—Achieve a pattern of land uses that facilitates a reduction in mobile emissions through the availability of alternative transportation modes.

- Policy 4.1—Reduce particulate emissions through regulations and enforceable measures to the extent possible. Sources of particulate emissions include unpaved roads, accumulated debris on paved roads, and dirt lots.

b. Existing Air Quality Conditions

(1) Regional Air Quality

The distinctive climate of the Basin is determined primarily by its terrain and geographical location. Regional meteorology is dominated by a persistent high pressure area which commonly resides over the eastern Pacific Ocean. Seasonal variations in the strength and position of this pressure cell cause changes in the weather patterns of the area. Warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and moderate humidity characterize local climatic conditions. This normally mild climatic condition is occasionally interrupted by periods of hot weather, winter storms, and hot easterly Santa Ana winds.

The Basin is an area of high air pollution potential, particularly from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds and shallow vertical atmospheric mixing. This frequently reduces

pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys and lower in the far inland areas of the Basin and adjacent desert.

Over the past 30 years, substantial progress has been made in reducing air pollution levels in southern California. The Basin previously was in non-attainment for all NAAQS, except SO_2. The Basin is now in attainment for NO_2, lead, SO_2, and CO. PM_{10} and ozone levels, while reduced substantially from their peak levels, are still far from attainment. This year has resulted in the worst smog season in seven years. For example, the Basin experienced its first Stage 1 smog episode this summer since 1998.[72] A Stage 1 episode was recorded after 4 p.m. in the central San Bernardino Mountains when ozone levels reached 0.21 parts per million, considered a very unhealthy level. Several other areas, including the Santa Clarita, San Fernando, San Gabriel and San Bernardino valleys, experienced unhealthy levels of O_3.[73] The Stage 1 episode was primarily due to an unusually strong high pressure system and resulting inversion layer that trapped smog close to the ground.

The SCAQMD published a Basin-wide air toxics study (MATES II, *Multiple Air Toxics Exposure Study*, March 2000). The MATES II study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The study determined the cancer risk from toxic air emissions throughout the Basin by conducting a comprehensive monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to fully characterize health risks for those living in the Basin. The study concluded that the average carcinogenic risk in the Basin is approximately 1,400 in one million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. About 70 percent of all risk is attributed to diesel particulate emissions, about 20 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and about 10 percent of all carcinogenic risk is attributed to stationary sources (which include industries and other certain businesses such as dry cleaners and chrome plating operations).

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[72] *A Stage 1 episode is declared when ozone levels reach a level of 0.20 ppm during a 1-hour average. At that level, most people will notice some adverse effects, such as shortness of breath, and everyone is urged to avoid strenuous outdoor exercise. Those who are sensitive to smog, including children, the elderly and people with heart and lung diseases, are advised to stay indoors.*

[73] *Far inland valleys typically experience the highest ozone readings in the region because they are furthest downwind from the western portion of the Los Angeles Basin, where most air pollution originates. The fact that ozone takes time to "cook" in sunlight means that the highest concentrations occur several hours—and many miles—downwind of major sources.*

(2) Local Area Conditions

(a) Existing Pollutant Levels at Nearby Monitoring Stations

The SCAQMD maintains a network of air quality monitoring stations located throughout the Basin. As defined by the SCAQMD, the monitoring station most representative of existing air quality conditions in the project area is the South Los Angeles County Coastal Monitoring Station (also referred to herein as the Long Beach Monitoring Station), located at 3648 North Long Beach Boulevard, in the City of Long Beach, approximately two miles west of the project site. Criteria pollutants, including O_3, CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2 are monitored at this station. The most recent data available from this monitoring station encompasses the years 1998 to 2002. The data, shown in Table 7 on pages 235 and 236, show the following pollutant trends:

Ozone—The maximum 1-hour O_3 concentration recorded at the Long Beach Monitoring Station from 1998-2002 period was 0.13 ppm in 1999. During the 1998-2002 period, the CAAQS was exceeded between 0 and 3 times annually and the NAQQS was exceeded 1 time in 1999. The maximum 8-hour concentration was 0.08 and no exceedance of the NAAQS was recorded.

Carbon Monoxide—The maximum 1-hour CO concentration recorded at the Long Beach Monitoring Station during the 1998-2002 period was 10 ppm and the maximum recorded 8-hour CO concentration was 6.6 ppm. There was no exceedance of either the CAAQS or NAAQS 1-hour or 8-hour standards during this time period.

Nitrogen Dioxide—The highest concentration of NO_2 recorded at the Long Beach Monitoring Station during the period 1998-2002 was 0.16 ppm in 1998. The maximum annual arithmetic mean was 0.034 recorded in 1999. There was no NO_2 exceedance of either the CAAQS or NAAQS during this time period.

Sulfur Dioxide—The highest 1-hour, 24-hour, and annual arithmetic mean SO_2 concentrations recorded at the Long Beach Monitoring Station during the period 1998-2002 were 0.08, 0.013, and 0.003, respectively. No exceedances of the CAAQS or NAAQS were recorded during this time period.

Particulate Matter (PM_{10})—The highest PM_{10} concentration recorded at the Long Beach Monitoring Station during the period 1998-2002 was 105 micrograms per cubic

Table 7

POLLUTANT STANDARDS AND SOUTH LOS ANGELES COUNTY COASTAL MONITORING STATION (LONG BEACH) AMBIENT AIR QUALITY DATA

Pollutant/Standard	1998	1999	2000	2001	2002
Ozone (O_3)					
O_3 (1-hour)					
Maximum Concentration (ppm)	0.12	0.13	0.12	0.09	0.09
Days > CAAQS (0.09 ppm)	2	3	3	0	0
Days > NAAQS (0.12 ppm)	0	1	0	0	0
O_3 (8-hour)					
Maximum Concentration (ppm)	0.08	0.08	0.08	0.07	0.06
Days > NAAQS (0.08 ppm)	n/a	0	0	0	0
Particulate Matter (PM_{10})					
PM_{10} (24-hour)					
Maximum Concentration ($\mu g/m^3$)	69	79	105	91	74
Percent of Samples > CAAQS (50 $\mu g/m^3$)	10	22	21	17	8
Percent of Samples > NAAQS (150 $\mu g/m^3$)	0	0	0	0	0
PM_{10} (Annual Average)					
Annual Arithmetic Mean (50 $\mu g/m^3$)	32	39	38	37	37
Annual Geometric Mean (20 $\mu g/m^3$)	29	36	34	34	34
Particulate Matter ($PM_{2.5}$)					
$PM_{2.5}$ (24-hour)					
Maximum Concentration ($\mu g/m^3$)	n/a	67	82	73	63
Percent of Samples > NAAQS (65 $\mu g/m^3$)	n/a	1	1.3	0.3	0
$PM_{2.5}$ (Annual)					
Annual Arithmetic Mean (15 $\mu g/m^3$)	n/a	22	20	21	20
Carbon Monoxide (CO)					
CO (1-hour)					
Maximum Concentration (ppm)	8	7	10	6	N/A
Days > CAAQS (20 ppm)	0	0	0	0	0
Days > NAAQS (35 ppm)	0	0	0	0	0
CO (8-hour)					
Maximum Concentration (ppm)	6.6	5.4	5.7	4.7	4.6
Days > CAAQS (9.0 ppm)	0	0	0	0	0
Days > NAAQS (9 ppm)	0	0	0	0	0

Table 7 (Continued)

POLLUTANT STANDARDS AND SOUTH LOS ANGELES COUNTY COASTAL MONITORING STATION (LONG BEACH) AMBIENT AIR QUALITY DATA

Pollutant/Standard	1998	1999	2000	2001	2002
Nitrogen Dioxide (NO_2)					
NO_2 (1-hour)					
Maximum Concentration (ppm)	0.16	0.15	0.14	0.12	0.13
Days > CAAQS (0.25 ppm)	0	0	0	0	0
NO_2 (Annual)					
Annual Arithmetic Mean (0.053 ppm)	0.034	0.034	0.032	0.030	0.029
Sulfur Dioxide (SO_2) [a]					
SO_2 (1-hour)					
Maximum Concentration (ppm)	0.08	0.05	0.05	0.05	N/A
Days > CAAQS (0.25 ppm)	0	0	0	0	0
SO_2 (24-hour)					
Maximum Concentration (ppm)	0.01	0.01	0.01	0.01	0.01
Days > CAAQS (0.04 ppm)	0	0	0	0	0
Days > NAAQS (0.14 ppm)	0	0	0	0	0
SO_2 (Annual)					
Annual Arithmetic Mean (0.03 ppm)	0.002	0.002	0.002	0.002	0.002

ppm = parts per million; mg/m^3= micrograms per cubic meter; AAM Annual Arithmetic Mean; n/a = not available

Note: Ambient data for airborne lead is not included in this table since the Basin is currently in compliance with state and national standards for lead.

Source: SCAQMD, Air Quality Data 1998-2001 and CARB Air Quality Data 2002.

meter of air (µg/m^3) in 2000. During the 1998-2002 period, the California PM_{10} standard was exceeded between 8 and 22 percent of the time annually, with the highest number of exceedances in 1999 and the lowest number of exceedances recorded in 2002. No exceedances of the NAAQS were recorded from 1998-2002.

Fine Particulates ($PM_{2.5}$)—$PM_{2.5}$ concentrations of 67, 82, 73, and 63 µg/m^3 were recorded at the Long Beach Monitoring Station from the years 1999 to 2002, respectively. During these years the NAAQS was exceeded between 0 and 1.3 percent of the time annually. A CAAQS for $PM_{2.5}$ has not yet been set.

(b) Existing Health Risk in the Surrounding Area

Based on the MATES II Study, the project area is characterized by a risk of approximately 1,000 to 1,200 in one million due to toxic air contaminants. Approximately 90 percent of the measured risk from toxic air contaminants at the Long Beach Monitoring Station is due to mobile combustion sources (e.g., cars, trucks, trains, ships, aircraft, etc.) associated with the Port of Long Beach, I-405, I-710, I-605, SR-91, Alameda Corridor, and the Long Beach Airport. In addition, the project vicinity cancer risk of 1,000 to 1,200 in one million is approximately 14 to 29 percent lower than the average cancer risk within the Basin as a whole, which is 1,400 per million.

(c) Receptor Locations

Certain population groups are especially sensitive to air pollution and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. As defined in the SCAQMD *CEQA Air Quality Handbook* (1993), a sensitive receptor to air quality is defined as any of the following land use categories: (1) long-term health care facilities; (2) rehabilitation centers; (3) convalescent centers; (4) retirement homes; (5) residences; (6) schools; (7) parks and playgrounds; (8) child care centers; and (9) athletic fields. The closest sensitive receptors are residences located to the north of Carson Street, across from the project site. The closest school is located approximately 0.6 mile northwest of the project site along Cherry Avenue (James Madison Elementary School).

3. ENVIRONMENTAL IMPACTS

a. Methodology

An analysis of the potential air quality impacts was conducted for construction and operation of the project. For each of these phases, an analysis was performed for regional emissions. The analysis also addresses local area concentrations of PM_{10}, CO, and NO_2 for construction impacts.[74] CO is the primary pollutant of concern when analyzing local traffic-related air quality impacts, and it is the only pollutant from mobile sources for which standardized modeling methodologies for estimating localized concentrations have been

[74] *While an AAQS has been established for $PM_{2.5}$, no significance thresholds have been established for evaluating potential $PM_{2.5}$ impacts. Therefore, PM_{10} is used as an indicator for potential $PM_{2.5}$ impacts.*

developed and approved by the SCAQMD. A detailed discussion of the methodologies used in the analysis of air quality impacts and the air quality modeling output files are provided in Appendix D of this EIR.

b. Significance Thresholds

Neither the City of Long Beach nor the City of Lakewood has adopted specific Citywide significance thresholds for air quality impacts. Because of the SCAQMD's regulatory role in the Basin, the SCAQMD *CEQA Air Quality Handbook* was used to reference screening criteria, significance thresholds, and analysis methodologies.

(1) Construction Emissions

The SCAQMD has promulgated daily emission thresholds for construction activities that promote or maintain regional attainment of the relevant ambient air quality standards. A project is deemed to have a significant impact on regional air quality if emissions of criteria pollutants (specified in pounds of pollutant emitted per day) related to project construction exceed the significance thresholds summarized in Table 8 on page 239.

While the SCAQMD *CEQA Air Quality Handbook* does not provide any localized thresholds, the SCAQMD currently recommends localized significance thresholds (LST) for PM_{10}, NO_2, and CO in its recently adopted document titled "*SCAQMD Localized Significance Threshold Methodology*", June 2003. Based on this guidance, the following additional significance thresholds are use in this analysis for determining potential air quality impacts from on-site construction activities.

- If the project causes an incremental increase in localized construction concentrations of 10.4 $\mu g/m^3$ for PM_{10} (24-hours), 207 $\mu g/m^3$ for NO_2 (1-hour), 11,500 $\mu g/m^3$ for CO (1-hour), or 3,674 $\mu g/m^3$ for CO (8-hours).

The SCAQMD also provides additional indicators of potential air quality impacts in Chapter 6 of the SCAQMD *CEQA Air Quality Handbook*. Whenever possible, these additional indicators should be evaluated in a quantitative analysis; otherwise a qualitative analysis is appropriate. Based on these indicators, the following additional significance thresholds are used in this analysis for determining potential construction-related air quality impacts.

Table 8

SCAQMD SIGNIFICANCE THRESHOLDS

	Project Construction (pounds per day)	Post-Construction Project Operations (pounds per day)
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_X)	100	55
Reactive Organic Compounds (ROC)	75	55
Particulate Matter (PM_{10})	150	150
Sulfur Oxides (SO_X)	150	150

Source: South Coast Air Quality Management District, CEQA Air Quality Handbook, November 1993.

- If the project emits carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million above background risk levels.

- If the project creates objectionable odors affecting a substantial number of people.

(2) Operation Emissions

The SCAQMD has promulgated daily emission thresholds for operational activities that promote or maintain regional attainment of the relevant ambient air quality standards. A project is deemed to have a significant impact on regional air quality if emissions of criteria pollutants (specified in pounds of pollutant emitted per day) related to project operation exceed the significance thresholds summarized in Table 8.

While the SCAQMD *CEQA Air Quality Handbook* does not provide any localized thresholds, the SCAQMD currently recommends localized significance thresholds (LST) for PM_{10}, NO_2, and CO in its recently adopted document titled "*SCAQMD Localized Significance Threshold Methodology*", June 2003. Based on this guidance, the following additional significance thresholds are used in this analysis for determining potential air quality impacts from on-site stationary sources.

- If the project causes an incremental increase in localized concentrations of 2.5 $\mu g/m^3$ for PM_{10} (24-hours), 207 $\mu g/m^3$ for NO_2 (1-hour), 11,500 $\mu g/m^3$ for CO (1-hour), or 3,674 $\mu g/m^3$ for CO (8-hours) from on-site stationary sources.

The SCAQMD also provides additional indicators of potential air quality impacts in Chapter 6 of the SCAQMD *CEQA Air Quality Handbook*. Whenever possible, these additional indicators should be evaluated in a quantitative analysis; otherwise a qualitative analysis is appropriate. Based on these indicators, the following additional significance thresholds are used in this analysis for determining potential operation-related air quality impacts.

- If the project causes an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 parts per million (ppm), respectively, at an intersection or roadway within one-quarter mile of a sensitive receptor.[75]
- If the project emits carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million above background risk levels.
- If on-site hazardous materials result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.
- If the project will be occupied by sensitive individuals within one-quarter mile of existing facilities that could result in an incremental maximum individual cancer risk of 10 in one million (1×10^{-5}) or a Hazard Index of 1.0 for noncarcinogens.
- If the project creates objectionable odors affecting a substantial number of people.
- The project will not be compatible with SCAQMD and SCAG air quality polices if the project
  - Causes an increase in the frequency or severity of existing air quality violations;
  - Causes or substantially contributes to new air quality violations;
  - Delays timely attainment of air quality standards or the interim emission reductions specified in the AQMP; or

[75] *In cases where the background concentration at the intersection already exceeds the State 1-hour and 8-hour CO standards, a measurable increase of one ppm for the 1-hour standard and 0.45 ppm for the 8-hour standard is used as the significance threshold.*

- Exceeds the growth assumptions utilized in preparing the SCAQMD's AQMP.

- If the project is inconsistent with the air quality goals and policies set forth within the General Plans.

c. Project Features

All on-site heavy-duty construction equipment will be equipped with diesel particulate traps. In addition, land uses on the project site will be limited to those that do not emit high levels of potentially toxic contaminants or odors.

d. Impact Analysis

(1) Construction

(a) Regional Construction Impacts

Construction of the project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the project site. In addition, fugitive dust emissions will result from demolition and construction activities. Mobile source emissions, primarily NO_X, will result from the use of construction equipment such as bulldozers, wheeled loaders, and cranes. During the finishing phase, paving operations and the application of architectural coatings (i.e., paints) and other building materials will release reactive organic compounds. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources.

Emissions for the regional construction air quality analysis were compiled using the URBEMIS2002 emissions inventory model developed by the CARB. The URBEMIS2002 model separates the construction process into three stages and is consistent with staging of project construction activities. The first stage is building demolition with emissions resulting from demolition dust, debris haul truck trips, equipment exhaust, and worker commute trip exhaust. The second stage of construction is site grading with emissions resulting from soil disturbance activities (fugitive dust), soil haul truck trips, equipment exhaust, and worker commute exhaust. Emissions from the third stage of construction include equipment exhaust from building construction and asphalt paving, ROC emissions

from architectural coating and asphalt paving, and worker commute trip exhaust. The equipment mix and construction duration for each stage is detailed in Appendix D of this EIR.

The project is anticipated to be developed in sequences according to geography and land use type, where construction activities will generally consist of four phases moving from east to west across the site. The initial construction phases will focus on development of site infrastructure for commercial and housing uses. In general, as residential development occurs within the northern portion of the site, basic infrastructure to support the commercial uses (office, R&D, light industrial, retail, hotel, and aviation-related uses) will be developed within the site's southern portion. The initial development increment will generally be concentrated within the eastern portion of the site. As part of this initial development increment, construction of certain perimeter landscape improvements will also be commenced in concert with the basic project infrastructure improvements. Construction activities are expected to commence in 2005 and proceed intermittently, with completion by or before 2020.

As described in Section III, Project Description, of this EIR, PacifiCenter will be developed in phased increments (sequenced according to geography and land use type) and is anticipated to be completed by or before the year 2020. Development of the PacifiCenter project will respond to market demands. However, the project will be developed in accordance with a commercial infrastructure phasing plan that will provide commercial infrastructure in advance of market demand. Such infrastructure will include wet utilities (water, sewer, storm drainage), dry utilities (telephone, electricity, gas, cable), streets, traffic signals and signage, street lighting, sidewalks, and parkway landscaping., Using the on-site commercial infrastructure phasing plan provided in Figure 20 on page 146 of Section III, Project Description, the analysis of construction impacts associated with air quality assumes that the proposed project will be developed in four general phases which may have overlapping construction activities. As discussed in Section III, Project Description, Phase 1 construction activities are anticipated to include development of approximately 50 percent of the gross residential acreage (net of open space and parks) in the northern portion of the project site together with completion of the commercial infrastructure within the lower southeast portion of the site. Phase 2 construction activities are expected to include development of the next 50 percent of the total gross residential acreage (net of open space and parks) in the northern portion of the site together with completion of the commercial infrastructure improvements within the commercial area east of the Boeing Enclave. Phase 3 includes development of the commercial infrastructure located to the west of the Boeing Enclave. It is expected that the residential development within this phase will be the located within the westernmost area of the site proposed for residential uses. Finally, Phase 4 will include development of the commercial infrastructure within the Boeing Enclave. Refer to Appendix D for additional information

regarding the estimated construction schedule including the various stages of construction activities (e.g., demolition, site preparation, building construction) for each of the four phases of project development.

As discussed in detail in Section IV, Overview of Environmental Setting, a soil and groundwater remediation program is presently being implemented at the project site. To implement this remediation program existing development is currently in the process of being removed in accordance with separate permits that have been approved by the City of Long Beach. Portions of the Boeing Enclave may be demolished as part of the ongoing remediation program, however, the extent of the demolition necessary is currently not known. Accordingly, in order to provide a conservative environmental review, the demolition of the entire Boeing Enclave will be considered as a part of the project for purposes of air quality impacts.

The total amount of construction, the duration of construction and the intensity of construction activity could have a substantial effect upon the amount of construction emissions, concentrations and the resulting impacts occurring at any one time. As such, the emission forecasts provided reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction is occurring in a relatively intensive manner. Based on the conservative assumption that the project could be completed under a slightly compressed schedule with buildout as early as 2017, the preliminary construction schedule was analyzed to determine if any phases of construction (e.g., demolition, site preparation, and construction) for each component of the project could occur. This potential for overlap of phases of construction and the emissions associated with each of these scenarios is presented in Table 9 on page 244.

As presented in Table 9, maximum construction-related daily emissions will exceed SCAQMD significance thresholds for CO, PM_{10}, NO_X, and ROC. Thus, emissions of these pollutants will result in significant short-term regional air quality impacts. Daily emissions of SO_X will be considered adverse, but less than significant, since the levels of these emissions will fall below the SCAQMD significance thresholds. In addition, average construction-related daily emissions were calculated and they are presented in Appendix D of this EIR. On average, maximum construction-related daily emissions will decrease by 13 percent for ROC, 35 percent for NO_X, 32 percent for CO, and 0.3 percent for PM_{10}. However, average daily construction-related emissions for these pollutants will still exceed SCAQMD significance thresholds.

Table 9

PROJECT-RELATED MAXIMUM DAILY REGIONAL CONSTRUCTION EMISSIONS

	Estimated Emissions				
Maximum Daily Emissions	**CO**	**NO_X**	**PM_{10}**	**ROC**	**SO_X**
Phase 1[a]	525	545	242	69	<1
Phase 2[b]	1,082	786	239	310	<1
Phase 3[c]	1,036	727	186	307	<1
Phase 4[d]	562	406	310	67	<1
Worst-Case Daily Emissions (lbs/day)	1,082	786	310	310	<1
SCAQMD Daily Threshold (lbs/day)	550	100	150	75	150
Lbs/Day Over (Under)	532	686	160	235	(149)
Significant?	Yes	Yes	Yes	Yes	No

[a] *Maximum daily emissions during Phase 1 includes Phase 1 Site Preparation.*
[b] *Maximum daily emissions during Phase 2 includes Phase 1 Building Construction and Phase 2 Site Preparation.*
[c] *Maximum daily emissions during Phase 3 includes Phase 2 Building Construction and Phase 3 Site Preparation.*
[d] *Maximum daily emissions during Phase 4 includes Phase 4 Site Preparation.*

Source: PCR Services Corporation, 2004.

(b) Local Construction Impacts

An analysis of localized construction impacts was conducted based on the SCAQMD's recommended Localized Significance Thresholds (LSTs) for PM_{10}, NO_2, and CO. A detailed discussion of the methodology used for this analysis is provided in Appendix D.

(1) PM_{10} Localized Impacts

As shown in Table 9 above, the main source of PM_{10} emissions occurs during the preparation/infrastructure stage where large numbers of diesel powered construction equipment are involved with soil disturbance and soil export (i.e., grading and related activities). During this stage of construction, not only are there combustion emissions from construction equipment, but it is during this stage that fugitive PM_{10} emissions are at their greatest. This condition (concurrent fugitive and equipment emissions) represents the period with the greatest potential for construction impacts with regard to PM_{10}.

A methodology for the assessment of localized PM_{10} from construction activities is not prescribed in the SCAQMD *CEQA Air Quality Handbook*. Accordingly, the impacts of PM_{10} emissions from construction emissions were analyzed using CARB and EPA dispersion models approved by the SCAQMD. The USEPA 1998 Guideline on Air Quality Models specifies the use of the USEPA Industrial Source Complex Short Term (ISCST) model for computing downwind pollutant concentrations from area/volume sources such as construction activity. The emissions established above were input into the ISCST model for analysis of the potential impacts of grading activity on sensitive receptors. The dispersion analysis addresses construction activity occurring during each phase of the project. Once the construction scenarios were established, the impacts on ambient PM_{10} concentrations were evaluated at receptors located in the surrounding community. The ISCST model was run using the SCAQMD mandated 1981 meteorological data from the Long Beach Monitoring Station and provided on the SCAQMD web site (www.aqmd.gov).

Results of the PM_{10} dispersion modeling indicate that development of the project could cause an exceedance of the 10.4 $\mu g/m^3$ PM_{10} incremental threshold. As shown in Table 10 on page 246, construction-related PM_{10} concentrations at the receptor with the highest potential for air quality impacts (i.e., residential uses north of the project site along Carson Street) will be approximately 39 and 37 $\mu g/m^3$ PM_{10} for Phase 1 and Phase 2 site preparation, respectively. No offsite sensitive land uses will be significantly impacted during Phase 3 and Phase 4 activities. Dispersion modeling isopleths which show the geographic distribution of these impacts are provided in Appendix D. Generally, without mitigation measures, Phase 1 impacts will extend some 800 meters to the north northeast of Phase 1 development. Phase 2 impacts will extend some 700 meters north of Phase 2 development.

Potential localized PM_{10} impacts will be limited to site preparation activities during Phase 1 and Phase 2. These ISC modeled potential impacts are based on a set of conservative assumptions that incorporate worst-case 1981 SCAQMD mandated meteorological conditions and maximum daily PM_{10} emissions occurring every day throughout the entire modeled year. Therefore, if site preparation activities during Phase 1 occurred for the entire year, although they are expected to occur only for 86 days, at the maximum rate of activity, the model predicts that one day out of 365 days an off-site PM_{10} concentration could be as high as 37 $\mu g/m^3$.

Similarly, if site preparation activities during Phase 2 occurred for the entire year, although they are expected to occur only for 84 days, at the maximum rate of activity, the model predicts that one day out of 365 days an off-site PM_{10} concentration could be as high as 39 $\mu g/m^3$.

Table 10

LOCAL AIR QUALITY CONSTRUCTION IMPACTS

Pollutant	Maximum Increase in Ambient Concentrations for Off-Site Sensitive Receptors During Project Development [a]			
	Phase 1	Phase 2	Phase 3	Phase 4
PM_{10} (24-hour)				
Maximum Concentration Increase (µg/m^3)	36.8	39.3	7.0	5.0
Threshold (µg/m^3)	10.4	10.4	10.4	10.4
Over/(Under)	26.4	28.9	(3.4)	(5.4)
Adverse Concentration	Yes	Yes	No	No
NO_2 (1-hour)				
Maximum Concentration Increase (µg/m^3)	110	32	32	28
Threshold (µg/m^3)	207	207	207	207
Over/(Under)	(97)	(175)	(175)	(179)
Adverse Concentration	No	No	No	No
CO (1-Hour)				
Maximum Concentration Increase (µg/m^3)	565	218	218	196
Threshold (µg/m^3)	11,500	11,500	11,500	11,500
Over/(Under)	(10,935)	(11,282)	(11,282)	(11,304)
Adverse Concentration	No	No	No	No
CO (8-Hour)				
Maximum Concentration Increase (µg/m^3)	211	74	74	39
Threshold (µg/m^3)	3,674	3,674	3,674	3,674
Over/(Under)	(3,463)	(3,600)	(3,600)	(3,635)
Adverse Concentration	No	No	No	No

[a] *Maximum impacted off-site receptor occurs at single-family residential uses north of the project site along Carson Street.*

Source: PCR Services Corporation, 2004.

(2) NO_2 and CO Localized Impacts

Based on the SCAQMD's guidance, an evaluation of localized NO_2 and CO air quality concentrations was conducted. The analysis evaluated whether project-related construction emissions will cause or contribute to an exceedance of the most stringent applicable Federal or State ambient air quality standard based on the future conditions with the project (i.e., adding the project's incremental concentration to the maximum ambient concentrations of that pollutant over the last three years of monitoring data at the relevant monitoring station). As shown in Table 10 above, construction-related emissions of NO_2 and CO will not exceed the relevant ambient air quality standard and as a result, a less-than-significant impact will occur.

(3) Toxic Air Contaminants

The greatest potential for toxic air contaminant (TAC) emissions will be related to diesel particulate emissions associated with heavy equipment operations during grading and excavation activities. According to the SCAQMD's methodology, health effects from carcinogenic air toxics are described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. An assessment of diesel particulate emissions was conducted to assess this potential risk using the same assumptions used for the localized analysis discussed above and incorporation of the diesel particulate trap project feature. As such, this analysis includes all diesel exhaust emissions associated with on-site heavy equipment and haul trucks during the construction period. The results of this analysis yield a maximum offsite individual cancer risk of 3.2 in a million, where the maximum impact occurs north of the project site along Carson Street. Based on the size of the project, a number of delivery trucks and haul trucks will require access to the site on a daily basis. Therefore, a project feature has been included to avoid sensitive land uses (e.g., schools and residences) by accessing the project site from the I-405 along Lakewood Boulevard and Cherry Avenue. As the project will not emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million, project-related toxic emission impacts will not be significant.

Furthermore, as discussed in Section V.E, Hazards and Hazardous Materials, should contaminated soils be found through the implementation of the ACER program during project construction activities, such soils shall be treated in accordance with the requirements of the appropriate regulatory agency. In addition, the Applicant will abide by SCAQMD Rule 1166 Volatile Organic Compound Emissions from Decontamination of Soil. This rule sets requirements to control the emission of Volatile Organic Compounds (VOC) from excavating, grading, and handling, of VOC-contaminated soil. The mitigation measures set forth in Section V.E along with SCAQMD Rule 1166 ensures that the potential for accidental releases of air toxic emissions or acutely hazardous materials will be less than significant from a safety as well as air quality perspective and thus, will not pose a threat to public health and safety.

(4) Odors

Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents. SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings and solvents. Via mandatory compliance

with SCAQMD Rules, no construction activities or materials will create objectionable odors. Therefore, no impact will occur and no mitigation measures will be required.

(2) Operations

Project operational impacts were evaluated for project buildout by 2020. In order to properly analyze operational emissions, it is important to assign appropriate emissions and emission factors to the individual emissions sources. Mobile source emission forecasts are sensitive to the forecast year, as future mobile source emission factors are substantially reduced as cleaner on-road vehicles are introduced into the county-wide vehicle fleet, while older more polluting vehicles retire. Refer to Appendix D for calculation and model worksheets.

(a) Regional Operation Impacts

Air pollutant emissions associated with project occupancy and operation will be generated by the consumption of electricity and natural gas and by miscellaneous sources (among other things, landscape-maintenance equipment, forklifts, consumer and commercial solvent usage, architectural and automotive coatings, restaurant charbroilers, and emergency generators).

Pollutant emissions associated with energy demand (i.e., electricity generation and natural gas consumption) are classified by the SCAQMD as regional stationary source emissions. Electricity is considered an area source since it is produced at various locations within, as well as outside of, the Basin. Since it is not possible to isolate where electricity is produced, these emissions are conservatively considered to occur within the Basin and are regional in nature. Criteria pollutant emissions associated with the production and consumption of energy were calculated using emission factors from the SCAQMD's *CEQA Air Quality Handbook*.

On-site stationary sources will include boilers, charbroilers, and emergency generators. These stationary sources (i.e., boilers) may require permits from the SCAQMD pursuant to Rules 201, 202 and 203. Emission increases related to those sources may be subject to SCAQMD Regulation XIII (New Source Review [NSR]) or Regulation XXX which, among other things, requires that Best Available Control Technology (BACT) be utilized to reduce pollutants and that any increases of criteria air pollutants be offset by achieving equivalent emission reductions at a facility within the Basin.

The project will also include the installation and operation of diesel-fired generators for emergency power generation. Unless a blackout occurs, these generators will be operated for a maximum of one hour per month for routine testing and maintenance purposes. The Applicant will be required to obtain a permit to construct and a permit to operate these standby generators under SCAQMD Rules 201, 202 and 203. Under NSR, the generator will be required to meet BACT requirements to minimize emissions of CO, VOC, NO_X, and PM_{10}. BACT standards for diesel-fired emergency generators specify a maximum allowable emissions rate of 8.5 grams of carbon monoxide per horsepower-hour (hp-hr), 1.0 gram of VOC per hp-hr, 6.9 grams of NO_X per hp-hr, and 0.38 gram of PM_{10} per hp-hr. Sulfur dioxide emissions will be minor since the sulfur content of the diesel fuel will be limited to 0.05 percent by weight under SCAQMD Rule 431.2 (Sulfur Content of Liquid Fuels). Emergency equipment, however, is exempt from modeling and offset requirements (Rule 1304) and does not require a health risk assessment (Rule 1401).

In addition to BACT, NSR typically requires offsets if a new source will emit greater than specified quantities of pollutants after implementation of BACT; however, offsets are not required under SCAQMD Rule 1304 (Exemptions) for equipment used exclusively as emergency standby equipment for nonutility electrical power generation provided that the equipment does not operate more than 200 hours per year.

Emissions for restaurant charbroilers were estimated using data from research conducted for the SCAQMD. Based on this research, the emission factors are 32.67 lbs. PM/1,000 lbs. of meat cooked and 3.94 lbs. VOC/1,000 lbs. of meat cooked. For conservative emissions estimates, it was assumed that VOC is equivalent to ROC and PM is equivalent to PM_{10}. It was also assumed that approximately 2,000 pounds of meat were cooked per day. The emission factors were multiplied by the amount of meat cooked per day to obtain emissions in lb/day for ROC and PM_{10}.

Emissions for miscellaneous sources were estimated to account for minor sources of criteria pollutants. Miscellaneous sources include, but are not limited to, consumer/ commercial solvents, landscaping equipment, and delivery unloading equipment. These sources may not individually emit large quantities of criteria pollutants but when combined emit quantitative amounts of criteria pollutants. Miscellaneous sources were conservatively calculated as 20 percent of the total project operations emissions.

The project could also include an optional component allowing for the continuation of a limited amount of aviation-related uses on the PacifiCenter site. The aviation-related uses could be located along the southern property boundary immediately adjacent to the

Airport. The uses will primarily serve as an amenity to businesses at the project site and will include hanger space for corporate jets and line maintenance "A" checks.[76] The aviation-related uses (e.g., ground support equipment, auxiliary power units, etc.) for the project will generate 9.3 lbs/day of CO, 0.6 lb/day of ROC, 2.6 lb/day of NO_X, 0.4 lb/day of PM_{10}, and 0.8 lb/day of SO_X. These emissions have been incorporated into the regional operational emissions for the project.

As shown in Table 11 on page 251, regional emissions resulting from the project will exceed the SCAQMD thresholds for NO_X, CO, PM_{10}, and ROC, and impacts associated with these pollutants will be significant. Emissions of SO_X will not exceed the SCAQMD threshold under this scenario and will be less than significant.

(b) Concurrent Construction and Operational Activity Impacts

The potential exists that the later stages of project construction could occur concurrently with the occupancy of the earlier stages of development. Therefore, emissions associated with concurrent construction and operation activities were evaluated. It was determined that concurrent emissions will be their greatest in the latter stages of project construction, wherein the project will nearly be built-out, but some construction activities will still be occurring.[77] As summarized in Table 12 on page 252, these combined emissions will exceed SCAQMD daily thresholds for CO, NO_X, PM_{10}, and ROC, but will not exceed the SCAQMD daily threshold for SO_X. Thus, a significant regional air quality impact will occur.

(c) Local Operation Impacts

Project traffic, during the operational phase of the project, will have the potential to create local area impacts. An analysis at selected intersections was performed to determine the potential for the presence or the creation of CO hot spots attributable to the project. The analysis considered traffic associated with buildout of the project, as this represents the highest level of project-related traffic volumes. Local area CO concentrations were projected using the CALINE-4 traffic pollutant dispersion model.

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[76] *Line Maintenance "A" checks are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts, servicing of fluids, inspection of components, hoses, electrical items and aircraft structure. Lighting and a ground power unit are used during these checks.*

[77] *The maximum concurrent construction and operational activity will occur during the latter stages of the Project development assuming the occupancy of approximately 2,500 residential dwelling units, 2,160,000 square feet of office space, 150,000 square feet of retail, and a 400 room hotel and the construction (i.e., building erection) of the Project's last 990,000 square feet of office space.*

Table 11

PROJECT-RELATED OPERATIONAL EMISSIONS
(Pounds per Day)

Emission Source	CO	NO_X	PM_{10}	ROC	SO_X
Future No Project Conditions					
Mobile Sources a	48	5	15	6	<1
Stationary Sources [b]	3	17	<1	<1	1
Area Sources [c]	38	30	2	4	0.0
Aviation-related Sources	0.0	0.0	0.0	0.0	0.0
Miscellaneous Sources [d]	18	11	3	2	<1
Total	107	63	20	12	1
Future With Project Conditions					
Mobile Sources [a]	2,025	227	611	202	3
Stationary Sources [b]	46	255	7	5	20
Area Sources [c]	94	76	26	14	<1
Aviation-related Sources [d]	9	3	<1	<1	<1
Miscellaneous Sources [e]	436	112	130	44	5
Total	2,610	673	774	265	28
Difference (Net) Emissions	2,503	610	754	253	27
SCAQMD Significance Threshold	550	55	150	55	150
Over (Under)	1,953	555	604	198	(123)

[a] *Mobile source emissions were calculated using the ADT provided in the Traffic Study completed by Crain and Associates. The ADT used to calculate mobile emissions included reductions for internal trips, existing driveway volumes, and transportation/mitigation measures.*
[b] *Stationary sources include electricity and natural gas usage.*
[c] *Area sources include emissions from emergency generators and charbroilers.*
[d] *Potential aviation-related uses will employ several tugs, several service carts and auxiliary power units. These pieces of equipment will only be operated intermittently in support of aircraft operations.*
[e] *Miscellaneous sources include among other things, consumer/commercial solvent usage (e.g., detergents, cleaning compounds, glues, polishes, and floor finishes), delivery and landscaping equipment.*

Source: PCR Services Corporation, 2004.

The analysis of CO impacts followed the protocol recommended by the California Department of Transportation and published in the document entitled, *Transportation Project-Level Carbon Monoxide Protocol*, December 1997. It is also consistent with procedures identified through the SCAQMD's CO modeling protocol, with all four corners of each intersection analyzed to determine whether project development will result in a CO concentration that exceeds federal or state CO standards. As stated in the Protocol, receptor locations for the 1-hour analysis were located 3 meters from each intersection corner and receptor locations for the 8-hour analysis were located 7 meters from each intersection corner.

Table 12

CONCURRENT OPERATION AND CONSTRUCTION EMISSIONS

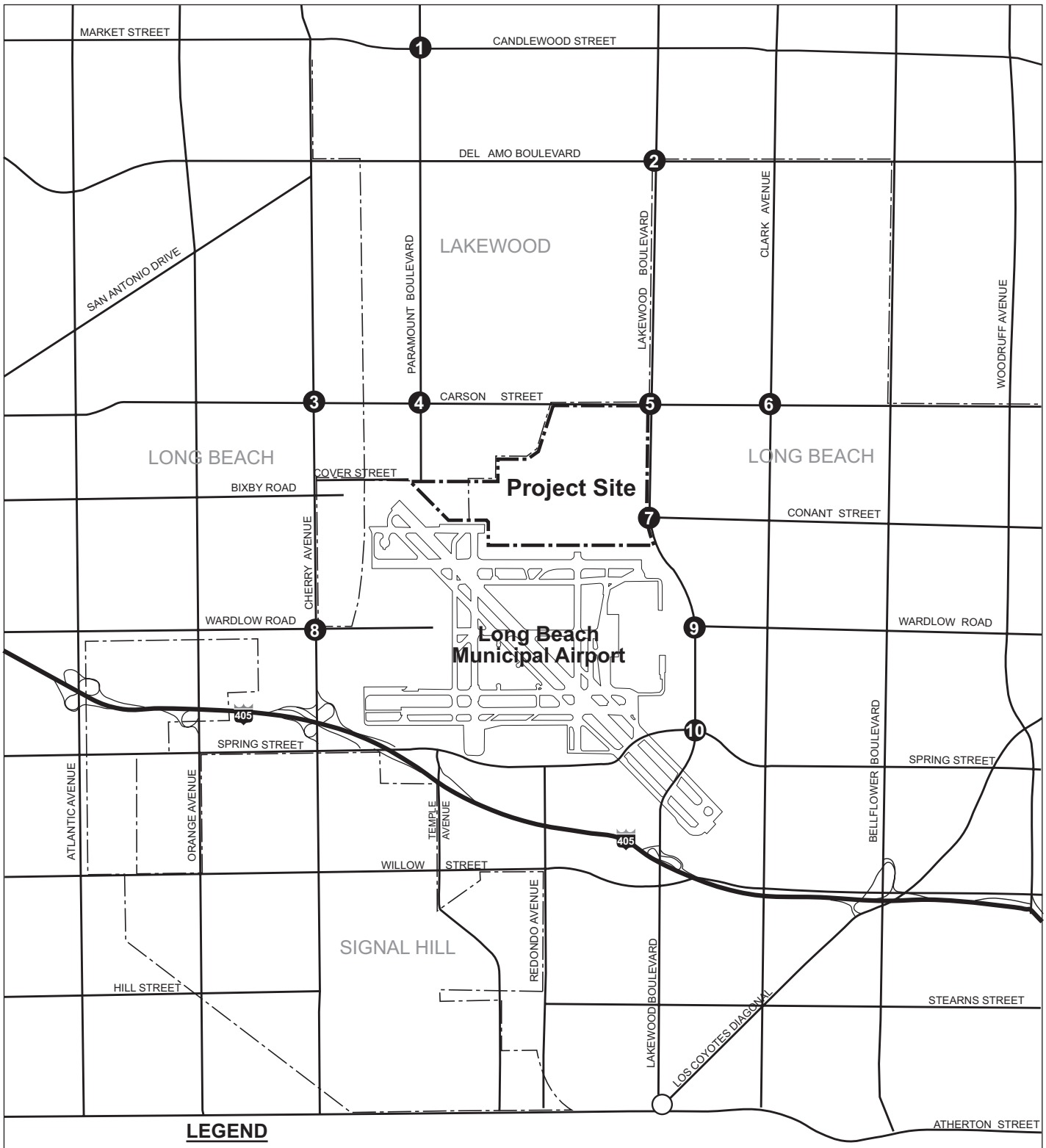
Emission Source	CO	NO_X	PM_{10}	ROC	SO_X
Net Operation Emissions [a]	2,891	651	612	286	23
Construction Emissions [b]	437	297	3	121	0.0
Total	**3,328**	**948**	**615**	**165**	**23**
SCAQMD Construction Significance Threshold	550	100	150	75	150
Over (Under)	2,778	848	465	90	127
Significant?	Yes	Yes	Yes	Yes	No
SCAQMD Operation Significance Threshold	550	55	150	55	150
Over (Under)	2,778	893	465	110	127
Significant?	Yes	Yes	Yes	Yes	No

[a] *The estimated emissions represent Year 2017 operational activities.*
[b] *The estimated emissions represent the maximum emissions from building construction (i.e., building erection) on a given day during Phase IV construction.*

Source: PCR Services Corporation, 2004.

The following intersections, as shown in Figure 32 on page 253, were selected based on their Level of Service (LOS), the Project's traffic contribution to the intersection, the proximity of project traffic to sensitive receptors, and intersection traffic volumes.

1. Candlewood Street and Paramount Boulevard
2. Del Amo Boulevard and Lakewood Boulevard
3. Carson Street and Cherry Boulevard
4. Carson Street and Paramount Boulevard
5. Carson Street and Lakewood Boulevard
6. Carson Street and Clark Avenue
7. Conant Street and Lakewood Boulevard
8. Wardlow Road and Cherry Avenue
9. Wardlow Road and Lakewood Boulevard



LEGEND

Intersection Locations

1. Candlewood Street and Paramount Boulevard
2. Del Amo Boulevard and Lakewood Boulevard
3. Carson Street and Cherry Boulevard
4. Carson Street and Paramount Boulevard
5. Carson Street and Lakewood Boulevard
6. Carson Street and Clark Avenue
7. Conant Street and Lakewood Boulevard
8. Wardlow Road and Cherry Avenue
9. Wardlow Road and Lakewood Boulevard
10. Spring Street and Lakewood Boulevard

PCR

N

0 0.5 Miles

Source: U.S.G.S. Quadrangle; PCR Services Corporation, 2004

Figure 32
Intersections Analyzed for Local CO Impacts

10. Spring Street and Lakewood Boulevard

The CALINE-4 model generates the results of CO concentrations averaged over a one-hour time period under conservative atmospheric conditions for the area which include low wind speeds and low atmospheric circulation. Eight-hour concentrations were calculated by converting one-hour concentrations to eight-hour equivalents, using the conversion protocol recommended by the SCAQMD. Future CO concentrations are determined by adding the predicted increase in CO concentrations to a future forecasted ambient concentration. 2020 CO ambient concentrations were obtained from the SCAQMD *Air Quality Analysis Guidance Handbook*.[78]

The first step in the evaluation of local area CO impacts was to evaluate baseline traffic conditions in 2020 without implementation of the project. Baseline conditions were identified for the weekday A.M. and P.M. peak hour. The contribution of the project traffic to CO concentrations at the study intersections was calculated and added to the 2020 ambient concentrations to determine whether 2020 CO concentrations will exceed State and Federal CO standards.

The project's CO for A.M. and P.M. peak 1- and 8-hour CO levels are presented in Table 13 on page 255. As shown, the maximum 1- and 8-hour predicted concentrations are not anticipated to result in any exceedances of the State 1-hour CO standards at any of the study intersections. Similarly, 8-hour concentrations at the analyzed intersections will remain below the state standards. Since significant impacts will not occur at the intersections with the highest traffic volumes that are located adjacent to sensitive receptors, no significant impacts are anticipated to occur at any other locations in the study area as the conditions yielding CO hotspots will not be worse than those occurring at the analyzed intersections. Consequently, the sensitive receptors that are included in this analysis will not be significantly affected by CO emissions generated by the net increase in traffic, which will occur under the project. As the project does not cause localized air quality impacts related to mobile sources, emissions will therefore be less than significant for the project.

Potential localized CO, NO_X, PM_{10} impacts from project-related stationary source operational emissions are anticipated to be minimal, since the project does not include any large stationary combustion equipment (e.g., power plants, landfills, concrete batch plants). Potential stationary combustion equipment that may occur within the project site will include emergency generators and equipment used to off-load deliveries in support of

[78] *http://www.aqmd.gov/ceqa/hdbk.html. (CO Concentrations for Hotspot Analysis—Long Beach Monitoring Station.)*

Table 13

WEEKDAY TRAFFIC LOCAL AREA CARBON MONOXIDE DISPERSION ANALYSIS

Intersection	Peak Period[a]	Maximum 1-Hour 2008 Base Concentration[b] (ppm)	Maximum 1-Hour 2008 w/Project Concentration[c] (ppm)	Significant 1-Hour Impact[d]	Maximum 8-Hour 2008 Base Concentration[e] (ppm)	Maximum 8-Hour 2008 w/Project Concentration[f] (ppm)	Significant 8-Hour Impact[d]
Candlewood Street and Paramount Boulevard	A.M.	5.8	5.9	No	4.3	4.3	No
	P.M.	5.9	6.0	No	4.3	4.4	No
Del Amo Boulevard and Lakewood Boulevard	A.M.	6.2	6.4	No	4.5	4.6	No
	P.M.	6.4	6.6	No	4.6	4.7	No
Carson Street and Cherry Avenue	A.M.	6.1	6.2	No	4.5	4.5	No
	P.M.	6.3	6.3	No	4.6	4.6	No
Carson Street and Paramount Boulevard	A.M.	5.9	6.1	No	4.3	4.4	No
	P.M.	6.1	6.3	No	4.5	4.6	No
Carson Street and Lakewood Boulevard	A.M.	6.1	6.3	No	4.5	4.6	No
	P.M.	6.3	6.5	No	4.6	4.7	No
Carson Street and Clark Avenue	A.M.	6.0	6.1	No	4.4	4.5	No
	P.M.	6.3	6.4	No	4.5	4.5	No
Conant Street and Lakewood Boulevard	A.M.	5.8	6.3	No	4.3	4.5	No
	P.M.	5.9	6.4	No	4.3	4.7	No
Wardlow Road and Cherry Avenue	A.M.	6.3	6.4	No	4.5	4.5	No
	P.M.	6.3	6.4	No	4.5	4.5	No
Wardlow Road and Lakewood Boulevard	A.M.	5.9	6.1	No	4.3	4.4	No
	P.M.	5.9	6.2	No	4.4	4.5	No
Spring Street and Lakewood Boulevard	A.M.	6.6	6.7	No	4.7	4.7	No
	P.M.	6.2	6.7	No	4.6	4.8	No

ppm = parts per million.

[a] *Peak hour traffic volumes are based on the Traffic Analysis prepared for the project by Crain & Associates, January 2004.*

[b] *SCAQMD 2020 1-hour ambient background concentration (5.1 ppm) + 2020 Base traffic CO 1-hour contribution.*

[c] *SCAQMD 2020 1-hour ambient background concentration (5.1 ppm) + 2020 w/project traffic CO 1-hour contribution.*

[d] *The most restrictive standard for 1-hour CO concentrations is 20 ppm and for 8-hour concentrations is 9.0 ppm.*

[e] *SCAQMD 2020 8-hour ambient background concentration (3.9 ppm) + 2020 Base traffic CO 8-hour contribution.*

[f] *SCAQMD 2020 8-hour ambient background concentration (3.9 ppm) + 2020 w/project traffic CO 8-hour contribution.*

Source: PCR Services Corporation, 2004.

the project's office, commercial, and retail land uses (e.g., forklift). All on-site stationary sources that have the potential to generate substantial air quality emissions will be subject to SCAQMD Regulation XIII (New Source Review) and as such, will be equipped with best available control technology (BACT). While no stationary sources of the type described above are anticipated to locate within the project site, any new stationary sources will be required to comply with SCAQMD Rule XIII and through air quality modeling demonstrate compliance with the localized significance thresholds. Therefore, project-related stationary source combustion equipment emissions will result in a less-than-significant impact.

(d) Air Toxic Impacts

As the project is completed over time, new residents and employees at the site may be located near new commercial activities that handle hazardous materials, near ongoing industrial activities within the Boeing Enclave and/or near demolition and remediation activities within the Boeing Enclave. A Risk Management Plan (RMP), described in Section V.E, Hazards and Hazardous Materials will be developed by the Applicant for those facilities meeting the applicability threshold to assure that such activities are fully protective of the health and safety of new residents and employees at PacifiCenter.

According to the SCAQMD *CEQA Handbook*, land uses associated with toxic emissions include industrial, manufacturing, and commercial land uses such as gas stations and dry cleaning processing facilities (e.g., use of Perchloroethylene on-site). Such potential toxic emitting land uses are not proposed for development on the project site. However, the continued use of a portion of the project site for aviation-related uses, more specifically the Boeing Enclave operations, will continue to generate hazardous waste streams such as paint sludge and filters, sealant tubes, primer cups and contaminated debris, toner and dry ink, batteries, oil and oil/water mixtures, and jet fuel. These hazardous materials associated with maintenance activities will be used and stored on-site and may have the potential to generate toxic emissions. As a routine part of the ongoing industrial operations in the Boeing Enclave areas, such hazardous materials are subject to a panoply of federal, state and local requirements to assure that all hazardous materials management activities are safe and protective of human health and safety, and the environment.

As part of the project, future commercial businesses that locate on the project site may use hazardous materials that are typically used by such businesses, and will be subject to ongoing federal, state, and local regulations to assure the safe management and disposal of such materials. These types of sources will not be considered a substantial source of potential air toxic emissions.

The project could include accessory warehouse uses up to the permitted amount allowed in the PCC-1 and PCC-2 areas. The SCAQMD's *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions* identifies warehouse distribution centers and truck terminals as potential sources of diesel particulates. The SCAQMD will typically require a health risk assessment for these types of facilities. However, as the project will only include accessory warehouse uses and no warehouse/distribution centers, the potential for locating large numbers of heavy-duty trucks idling for extended periods of time is substantially reduced. Also, a quantitative analysis of potential toxic air contaminants is technically infeasible since potential sources can not be specifically identified on the Project site. In addition, any facility that warrants such an analysis will be required to comply with SCAQMD Rule XIV (New Source Review of Air Toxics). Nevertheless, the project incorporates SCAQMD recommended mitigation measures for reducing mobile source diesel emissions and any potentially significant impacts.[79]

While no stationary sources of the type that could emit significant amounts of air toxics are anticipated to be located within the project site, any new stationary sources will be required to comply with SCAQMD Rule XIV (New Source Review of Air Toxics) and through air dispersion modeling, if necessary, demonstrate that the source will not exceed the maximum individual cancer risk of ten in one million. Potential sources of air toxic emissions associated with project development include, but may not be limited to, diesel particulates from loading docks, delivery trucks, and buses as well as small amounts of toxics from consumer household products (e.g., detergents, cleaning compounds, glues, polishes, floor finishes, cosmetics, perfume, antiperspirants, rubbing alcohol, room fresheners, car wax, paint and lawn care products). These sources are typical within the urban environment and will contribute small amounts of toxic air pollutants to the project vicinity, and will be well below any levels that will result in a significant impact on human health. As such, a less-than-significant impact on human health will occur.

An assessment of potential accidental releases of air toxic emissions or acutely hazardous materials posing a threat to public health and safety was also conducted. As described above, the sources of potential hazardous materials will be well below levels that could result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety and therefore the project will result in no impact.

[79] *SCAQMD Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions, December 2002.*

When considering potential air quality impacts under CEQA, particularly in reference to sensitive receptors, special consideration must be given to the location of sensitive receptors within close proximity of land uses that emit toxic air contaminants (TACs). SCAQMD recommends a health risk assessment (HRA) if it is determined that new sensitive receptors are proposed within one-quarter mile of an existing source of toxic emissions. Therefore, TAC emissions from sources within one-quarter mile of the proposed residential site location were identified, quantified to the extent that such data was reasonably available, and evaluated in a risk assessment. The complete HRA is included in Appendix E of this EIR.

SCAQMD provided a list of potential sources within one-quarter mile of the proposed sensitive receptors (i.e., residential uses) at the project site that have the potential to generate hazardous and acutely hazardous air emissions. A public records request was filed with SCAQMD for all pertinent information regarding each facility's potential to emit hazardous air pollutants. Specifically, requested information for each facility included all operation permits, emissions summaries, and toxic health risk assessments. Based on information provided by SCAQMD, this list was further refined to three potential sources within one-quarter mile of the proposed residential uses and are provided in Table 14 on page 259. Potential SCAQMD sources were excluded from further analysis based on several factors: (1) the recent closure of some sources listed by the SCAQMD; and (2) sources with sufficiently small emission inventories that will not influence the potential health risk (e.g., small quantity generators of hazardous waste). In addition to the identified stationary sources, the Airport is also located within one-quarter mile of the proposed residential site and is included in the HRA.[80] The level to which the Airport was analyzed in the HRA was dictated by the information available from the California Air Resources Board (ARB), SCAQMD, Airport, and the City of Long Beach, and as such, conservative default assumptions were used where data was not readily available.

For carcinogenic exposures, the summation of risk totaled 8.3×10^{-6} (8.3 in a million) for the maximum exposed individual (MEI) within the proposed residential land use. In comparison to the established threshold of ten in one million (1.0×10^{-5}), carcinogenic risks fall within acceptable limits. Four TACs were found to account for 94 percent of the incremental cancer risk and include diesel particulate, hexavalent chromium, 1,3-butadiene, and benzene. The primary source of diesel particulate is associated with ground support equipment at the Airport and accounts for 58 percent of the incremental

[80] *Airport related sources included aircraft activity (landing-takeoff operations), ground support equipment, auxiliary power units, ARB and SCAQMD identified facilities, fuel farms, and vehicular activity (access roadway and parking facilities).*

Table 14

SCAQMD LISTED FACILITES WITHIN ONE-QUARTER MILE OF PROPOSED RESIDENTIAL USES AT THE PROJECT SITE THAT HAVE THE POTENTIAL TO GENERATE HAZARDOUS AND ACUTELY HAZARDOUS AIR EMISSIONS

Facility ID	Name	Address
123731	Super Cleaners	4501 East Carson Street, Suite 102
800038	Douglas Products Division (717 Production, C-17 Production, and Enclave)	3855 Lakewood Boulevard and 2250 Wardlow Road
124074	TESORO West Coast-Mirastar	2770 Carson Street

Source: SCAQMD, Public Records Request, October 24, 2003.

cancer risk and to a lesser extent the Douglas Products Division (717 production, C-17 production and the Boeing Enclave), which accounts for 7 percent of the incremental cancer risk. Sources of hexavalent chromium include aircraft exhaust and a spray booth at the Douglas Products Division, which each account for 8 percent of the incremental cancer risk. The primary source of 1,3-butadiene is aircraft exhaust in taxi/idle mode and accounts for approximately 8 percent of the incremental cancer risk. Benzene emissions from aircraft exhaust accounts for approximately 5 percent of the incremental cancer risk.

As previously discussed, ground support equipment at the Airport will largely be converted to electric or zero emission vehicles by 2010, which will significantly reduce diesel particulate emissions from ground support equipment at the Airport.[81] Therefore, the cancer risk of eight in one million (8.3×10^{-6}) would likely be reduced to three in one million (3.4×10^{-6}) given that diesel particulate emissions from the Airport represent approximately 58 percent of the incremental cancer risk.

For noncarcinogenic chronic exposures hazard indices were calculated for all relevant toxicological endpoints. The maximum summation of risks for a target organ was 0.02 for the MEI within the proposed residential land use. In comparison to the established threshold of 1.0, chronic risks are below the threshold. The main contributor to incremental noncarcinogenic chronic exposure is acrolein, which is found in aircraft exhaust, and accounts for approximately 91 percent of the chronic risk.

For noncarcinogenic acute exposures, hazard indices were calculated for all relevant toxicological endpoints. The maximum summation of risks for a target organ was 0.03 for the MEI within the proposed residential land use. In comparison to the

[81] *SCAQMD, Statement of Principles for the Voluntary South Coast Ground Service Equipment Memorandum of Understanding, November 27, 2002.*

established threshold of 1.0, acute risks are below the threshold. The main contributor to incremental noncarcinogenic acute exposure is acrolein, which is found in aircraft exhaust and from a spray booth operated by the Douglas Products Division, and accounts for approximately 99 percent of the chronic risk.

It should be noted that according to the SCAQMD's MATES-II study, the cancer risk in the project vicinity is approximately 1,000 to 1,200 in one million. Approximately 90 percent of such cancer risk is related to mobile combustion sources (e.g., cars, trucks, trains, ships, aircraft, etc.) associated with the Port of Long Beach, I-405, I-710, I-605, SR-91, Alameda Corridor, and the Long Beach Airport. In addition, the project vicinity cancer risk of 1,000 to 1,200 in one million is approximately 14 to 29 percent lower than the average cancer risk in the Basin of 1,400 per million. Therefore, the health effects from local air quality on new sensitive land uses (i.e., eight in one million) will not likely be substantially different in the Lakewood & Long Beach area. In addition, the incremental health risk impacts from air toxic sources within one-quarter mile of the project site are also substantially below the applicable carcinogenic, chronic, and acute risk exposure significance thresholds and as such impacts on human health from project development will be less than significant.

(e) Odor Impacts

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors. Therefore, the project will not create adverse odors as discussed above and will have no impact related to objectionable odors.

e. Consistency with Adopted Plans and Policies

This section of the analysis examines the consistency of the project with SCAG's RCPG, the SCAQMD's AQMP, and the Cities of Long Beach and Lakewood General Plan Air Quality policies.

(1) SCAQMD Handbook Policy Analysis

In accordance with the procedures established in the SCAQMD *CEQA Air Quality Handbook*, the following criteria are required to be addressed in order to determine the Project's consistency with SCAQMD and SCAG policies:

1. Will the Project result in any of the following:

   - An increase in the frequency or severity of existing air quality violations; or
   - Cause or substantially contribute to new air quality violations; or
   - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

2. Will the Project exceed the growth assumptions utilized in preparing the AQMP?

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for projects such as PacifiCenter include forecasts of project-related emissions in a regional context during construction and project occupancy. These forecasts are provided earlier in this section (regional construction impacts and regional operation impacts). Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of the project's pollutant emissions on localized pollutant concentrations is used as the basis for evaluating project consistency. As discussed in the preceding sections, localized concentrations for PM_{10}, CO, and NO_2 have been projected for the project.

During the project construction period, PM_{10} is the primary pollutant of concern with respect to localized concentrations and ambient air quality. As such, the Project's construction-period PM_{10} emissions were analyzed using the ISC dispersion model to: (1) ascertain potential effects on localized concentrations; and (2) determine if there is a potential for such emissions to cause or affect a violation of the ambient air quality standard for PM_{10}. Results of the PM_{10} dispersion modeling indicate that there is a potential for project-related emissions to cause the ambient PM_{10} concentration to increase by the SCAQMD-recommended significance threshold of 10.4 $\mu g/m^3$, or more, at locations within close proximity of the project site at various times during construction. However, this impact will only occur during construction Phases 1 and 2, and will not have a long-term impact on the regions ability to meet State and Federal air quality standards. In addition, the project will comply with SCAQMD Rule 403 and will implement all feasible mitigation measures for control of PM_{10}. Nonetheless, the project will have a significant temporary impact on PM_{10} emissions.

Project-related CO and NO_2 emissions during construction were also evaluated using the ISC dispersion model to determine if there is a potential for such emissions to cause or affect a violation of respective ambient air quality standards. As demonstrated earlier, results of the CO and NO_2 dispersion modeling indicate that it is unlikely that

emissions during construction will form a new or exacerbate an existing CO or NO_2 "hot spot."

During long-term project operations, CO is the preferred pollutant for assessing local area air quality impacts from motor vehicle operations. Based on methodologies set forth by the SCAQMD, one measure of local area air quality impacts which can indicate whether the project will cause or affect a violation of an air quality standard will be based on the estimated CO concentrations at selected receptor locations located in close proximity to the project site. As indicated earlier, CO emissions were analyzed using the CALINE-4 model. No violations of the state and federal carbon monoxide standards are projected to occur.

The SCAQMD's second criterion for determining project consistency focuses on whether or not the project will exceed the growth assumptions utilized in preparing the AQMP. Determining whether or not a project exceeds growth assumptions reflected in the AQMP involves the evaluation of three criteria: (1) consistency with the population, housing and employment growth projections; (2) project mitigation measures; and (3) appropriate incorporation of AQMP land use planning strategies. The following discussion provides an analysis of each of these three criteria.

- Is the Project consistent with the population, housing and employment growth projections upon which AQMP forecasted emission levels are based?

A project is consistent with the AQMP if it is consistent with the population, housing and employment assumptions which were used in the development of the AQMP. The 2003 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates, in part, the SCAG 2001 Regional Transportation Plan (RTP) socioeconomic forecast projections of regional population, housing and employment growth. The PacifiCenter project site is located within the Gateway Cities sub-region of the SCAG planning area. In the 2001 RTP, SCAG forecasts the following growth assumptions for the Gateway Cities sub-region between the years 2004 and 2020: 172,510 persons; 39,273 households; and 112,586 employment opportunities.

As discussed in the Population, Housing, and Employment sections of this EIR, the proposed project will add 4,784 new residents due to development of 2,500 dwelling units, and add a maximum of 14,195 net new jobs by the year 2020. When compared to the SCAG projections for the Gateway Cities sub-region, the project-related growth will represent 2.8 percent, 6.4 percent, and 12.6 percent of the total growth forecast for population, housing units (households), and employment growth, respectively, between

the years 2004 and 2020. Given the fact that the Gateway Cities sub-region is already largely built-out, such levels of growth are not sufficiently large to call the SCAG growth forecasts into question. As the SCAQMD has incorporated these same projections into the AQMP, it is concluded that the project will be consistent with the AQMP growth projections.

- Does the project implement all feasible air quality mitigation measures?

As discussed below in sub-section 4 (Mitigation Measures) to this Air Quality section, implementation of all feasible mitigation measures is recommended to reduce air quality impacts to the extent feasible. The proposed project will incorporate a wide array of key air pollution control measures identified by the SCAQMD.

- To what extent is project development consistent with the land use policies set forth in the AQMP?

The project will serve to implement a number of City of Long Beach, City of Lakewood, and SCAG land use policies, as discussed in the Land Use and Planning section of this EIR. Based on the analyses presented therein, the project will promote reductions in vehicle trips and the consequent generation of pollutant emissions in the following ways: (a) by providing a mix of uses including commercial office, research and development, retail, hotel and residential uses; (b) by providing employment opportunities near residences and public transit; (c) by encouraging pedestrian and bicycle circulation through the site by establishing a system of walkways and jogging and biking paths, including a bike path that links to a more regional bicycle system through Long Beach; (d) by providing development in proximity to regional corridors and within an area that is well-served by public transportation, including MTA buses and more distantly the Metro Rail Blue Line system; and (e) by providing on-site recreation and open space amenities. In addition, the project includes energy conservation features in new construction that will reduce stationary source emissions, transportation demand management features to reduce vehicle trips and associated emissions, as well as transportation system improvements that are intended to reduce bottlenecks and associated emissions. Furthermore, the project will be required to comply with air quality regulations set forth by the AQMD and will include mitigation measures to reduce air quality emissions. These attributes of the project are also consistent with various policies set forth in the Air Quality Elements of the City of Long Beach and the City of Lakewood General Plans.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of the project on air quality in the Basin. Although the project may

cause an exceedance of the localized PM_{10} significance criteria, this exceedance will be short-term in nature. This impact will only occur during construction Phases 1 and 2, and will not have a long-term impact on the regions ability to meet State and Federal air quality standards. In addition, the project will comply with SCAQMD Rule 403 and will implement all feasible mitigation measures for control of PM_{10}. Also, the project will be consistent with the goals and policies of the AQMP for control of fugitive dust. Therefore, given that the project will be consistent with AQMP strategies to bring the Basin into PM_{10} attainment, the project will be consistent with local air quality plans and policies.

4. CUMULATIVE IMPACTS

The SCAQMD has set forth a methodological framework, discussed below, as well as significance thresholds for the analysis of a project's contribution to cumulative air quality impacts. The SCAQMD's methodology differs from the cumulative impacts methodology employed throughout the remainder of this EIR, in which foreseeable future development within a given service boundary or geographical area is predicted and associated impacts measured. Based on the SCAQMD methodology, cumulative air quality impacts for the project were evaluated in the context of Los Angeles County as a whole for the projected buildout year 2020. However, a site-specific assessment of the project in association with the on-site soil and groundwater remediation program (Related Project No. 44) is also warranted, as the combined activities of these projects have the potential to affect air quality on a local basis.

Aircraft manufacturing, testing, and repair of commercial and military aircraft that has occurred on the project site for nearly 60 years involves the use of a wide range of chemical products including organic solvents, metal processing solutions, petroleum products, and electronic transformer oils. These broad categories of chemicals are considered the primary compounds/constituents that have been detected in soil and groundwater beneath the site. Historical releases of some or all of these primary compounds/constituents have impacted soil and groundwater quality both on- and off-site.

In 1995, the California Regional Water Quality Control Board—Los Angeles Region (LARWQCB) issued Cleanup and Abatement Order (CAO) No. 95-048 to McDonnell Douglas, Boeing's predecessor. The CAO applies to the entire 343-acre C-1 facility.[82] The CAO was revised in December 2000. In response to the original and amended CAO, Boeing has implemented a comprehensive environmental assessment and remediation

[82] *The project site constitutes 261 acres of the C-1 Boeing site that are located west of Lakewood Boulevard.*

program in coordination with LARWQCB. As these remediation efforts are underway and will occur regardless of whether redevelopment of the site occurs, the remediation program is not considered part of the PacifiCenter project. Rather, the remediation program is a related project for CEQA purposes (Related Project No. 44). A summary of the ongoing remediation program is presented in Section V.E, Hazards and Hazardous Materials.

As part of the assessment and remediation program, a human health risk assessment (HHRA) procedure, reviewed and approved by the Office of Environmental Health Hazard Assessment (OEHHA) and LARWQCB, will be used to assess when areas have been remediated to levels that present no significant human health risks for future commercial, light industrial, and residential uses.

The Assessment Confirmation and Expedited Remediation (ACER) program is a component of the comprehensive environmental assessment and remediation program. The ACER program will implement additional monitoring and sampling of shallow soils during the removal of pavement and subsurface structures at the site. Through the implementation of the ACER program, areas of contamination may be identified. If areas of contamination are identified, the areas will be remediated in accordance with the specifications identified in the LARWQCB ACER work plan.

In addition, a Risk Management Plan (RMP) will be developed (as described in Section V.E, Hazards and Hazardous Materials) to assure that the remediation activities are fully protective of the health and safety of new residents and employees at the project site.

Furthermore, the Applicant will abide by SCAQMD Rule 1166 Volatile Organic Compound Emissions from Decontamination of Soil. This Rule sets requirements to control the emission of Volatile Organic Compounds (VOCs) from excavating, grading, and handling VOC–contaminated soil. The mitigation measures set forth in Section V.E, Hazards and Hazardous Materials, along with SCAQMD Rule 1166 ensure that the potential for accidental releases of air toxic emissions or acutely hazardous materials will be less than significant from a safety as well as air quality perspective and thus, will not pose a threat to public health and safety.

As mentioned above, the SCAQMD has established both a methodological framework and significance thresholds for the assessment of a project's contribution to cumulative air quality impacts. Currently, the SCAQMD's approach towards assessing cumulative impacts is based on the fact that the SCAQMD's AQMP forecasts attainment of ambient air quality standards in accordance with the requirements of the CCAA, taking

into account SCAG's forecasted future regional growth. Therefore, if all projects (in this case, in the County) are individually consistent with the growth assumptions upon which the SCAQMD's AQMP are based, then future development will not impede the attainment of ambient air quality standards. Based on the SCAQMD's significance threshold, a project will have a significant cumulative air quality impact if the ratio of daily project vehicle miles traveled to daily countywide vehicle miles traveled exceeds the ratio of daily project employees to daily countywide employees or if it exceeds the ratio of project population to countywide population.

An assessment of the project's cumulative impacts is presented in Table 15 on page 267. The project's growth rate in terms of the number of residents and the number of employees exceeds the project's growth rate in the number of vehicle trips when compared to the regional average assumptions upon which the SCAQMD's AQMP are based. Therefore, fewer mobile emissions will be produced by project residents and employees than those accounted for in emission forecasts in the AQMP. Nevertheless, implementation of the project will result in an increase in emissions which will contribute to region-wide emissions on a cumulative basis and as such, the project's contribution to cumulative air quality impact is concluded to be significant. In such cases, the SCAQMD recommends that all projects, to the extent possible, employ feasible mitigation measures, which has been done with regard to the proposed project.

5. MITIGATION MEASURES

The following air quality mitigation measures set forth a program of air pollution control strategies designed to reduce the project's air quality impacts. In addition, Section V.L, Transportation/Circulation and Parking, of this EIR, includes traffic mitigation measures, such as the Adaptive Traffic Control System (ATCS) that will serve to synchronize traffic signals and a Transportation Demand Management (TDM) program that will include preferred carpool/vanpool parking and matching, thereby reducing mobile source air emissions. In addition to the mitigation measures, the project features presented and evaluated above will further reduce the project's air quality impacts.

(1) Construction

Mitigation Measures provided below implement recommended mitigation measures provided in SCAQMD's *CEQA Air Quality Handbook*, Chapter 11, and are in addition to the requirements of SCAQMD Rule 403 (Fugitive Dust).

Table 15

PROJECT CUMULATIVE AIR QUALITY IMPACTS

Daily Vehicle Miles Traveled for Project Population [a]	92,899
Daily Vehicle Miles Traveled Countywide [b]	239,823,000
Daily Vehicle Miles Traveled Ratio	**0.00038**
Project Population	4,784
Countywide Population [c]	11,759,545
Population Ratio	**0.00041**
Significance Test—Daily Vehicle Miles Traveled Ratio Greater Than Population Ratio	**No**
Daily Vehicle Miles Traveled for Project Employment [a]	404,403
Daily Vehicle Miles Traveled Countywide [b]	239,823,000
Daily Vehicle Miles Traveled Ratio	**0.00169**
Project Employment	14,195
Countywide Employment [c]	5,155,842
Employment Ratio	**0.00275**
Significance Test—Daily Vehicle Miles Traveled Ratio Greater Than Employment Ratio	**No**

[a] *Increase of vehicle miles traveled as a result of the project, Transportation and Circulation, Section V.L. Data obtained from URBEMIS 2002.*
[b] *CARB, Emfac2002, V2.2.*
[c] *Data obtained from SCAG's Regional Transportation Plan, Socioeconomic projections, 2001.*

Source: PCR Services Corporation, 2004.

V.B-1 All land clearing/earth-moving activity areas shall be watered to control dust as necessary to remain visibly moist during active operations.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-2 All construction roads internal to the construction site that have a traffic volume of more than 50 daily trips by construction equipment, or 150 total daily trips for all vehicles, shall be surfaced with base material or decomposed granite.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-3 Streets shall be swept as needed during construction, but not more frequently than hourly, if visible soil material has been carried onto adjacent public paved roads.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-4 Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-5 Water three times daily or non-toxic soil stabilizers shall be applied, according to manufacturers' specifications, as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and unpaved road surfaces.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-6 Traffic speeds on all unpaved roads shall not exceed 15 mph.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-7 All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-8 General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues will have their engines turned off when not in use, to reduce vehicle emissions. Construction activities should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-9 On-site construction equipment staging areas and construction worker parking lots shall be located on either paved surfaces or unpaved surfaces subject to soil stabilization.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-10 To the extent possible, petroleum powered construction activity shall utilize electricity from power poles rather than temporary diesel power generators and/or gasoline power generators.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-11 On-site mobile equipment shall be powered by alternative fuel sources (i.e., methanol, natural gas, propane or butane) as feasible.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-12 All construction equipment used in the project construction shall be stored within the project site (away from adjacent residential areas) to reduce the impact on the street system.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-13 Deliveries related to construction activities that affect traffic flow shall be scheduled during off-peak hours (e.g., 10:00 A.M. and 3:00 P.M.) and coordinated to achieve consolidated truck trips. When traffic flow is impacted by the movement of construction materials and/or equipment, temporary traffic controls shall be provided to improve traffic flow (e.g., flag person).

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-14 All on-site heavy-duty construction equipment shall be equipped with diesel particulate traps as feasible.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.B-15 In compliance with Long Beach Municipal Code and Lakewood Municipal Code requirements, construction activities shall be limited to the following operation schedule: weekdays and federal holidays, 7 A.M. to 7 P.M.; Saturday, 9 A.M. to 6 P.M.; no activities on Sundays within the City of Long Beach; and Sunday, 9 A.M. to 7 P.M. within the City of Lakewood.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

(2) Operation

Emission control measures are specified for three sources of operational emissions: (1) service and support facilities; (2) natural gas consumption and electricity production; (3) building materials, architectural coatings, and cleaning solvents; and (4) warehouse/distribution centers.

(a) Service and Support Facilities (point sources)

V.B-16 All point source facilities shall obtain all required permits from the SCAQMD. The issuance of these permits by the SCAQMD will require the operators of these facilities to implement Best Available Control Technology and other required measures that reduce emissions of criteria air pollutants.

Monitoring Phase: Operation

Enforcement Agency: South Coast Air Quality Management District

Monitoring Agency: South Coast Air Quality Management District

Action Indicating Compliance: Operating permits

V.B-17 Land uses on the project site shall be limited to those that do not emit high levels of potentially toxic contaminants or odors.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of building permits

(b) Natural Gas Consumption and Electricity Production

V.B-18 All residential and non-residential buildings shall meet the California Title 24 Energy Efficiency standards for water heating, space heating and cooling, to the extent feasible.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of building permits

V.B-19 All fixtures used for lighting of exterior common areas shall be regulated by automatic devices to turn off lights when they are not needed.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of building permits

(c) Building Materials and Architectural Coatings

V.B-20 Building materials, architectural coatings and cleaning solvents shall comply with all applicable SCAQMD rules and regulations.

Monitoring Phase: Construction

Enforcement Agency: South Coast Air Quality Management District

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

(d) Warehouse Distribution Uses

The following mitigation measures shall be considered during operation of any accessory warehouse/distribution uses at the project site to ensure that health risk impacts are less than significant.

V.B-21 Re-route truck traffic by restricting truck traffic on certain sensitive routes;

V.B-22 Enforce truck parking restrictions;

V.B-23 Restrict truck idling;

V.B-24 Electrify service equipment at the warehouse;

V.B-25 Provide electrical hook-ups for trucks that need to cool their load;

V.B-26 Electrify auxiliary power units; and

V.B-27 Use low-sulfur diesel fuel with particulate traps, where feasible.

Monitoring Phase: Pre-Construction

Enforcement Agency: South Coast Air Quality Management District

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of building permits

6. SIGNIFICANCE AFTER MITIGATION

As shown in Table 16 on page 276, activities related to construction of the project will still exceed the SCAQMD daily emission thresholds for regional NO_X, CO, PM_{10}, and ROC after implementation of all feasible mitigation measures and incorporation of project features as described above. Therefore, construction of the project will have a significant and unavoidable impact on regional air quality. Construction emissions will not exceed the SCAQMD significance threshold for SO_2, and, thus, impacts are concluded to be less than significant for SO_2.

During the operational phase, the project will result in a significant net increase in regional emissions of CO, ROC, NO_X, and PM_{10} from the operation of both stationary and mobile sources. Mitigation measures and project features identified above will reduce the potential air quality impacts of the project to the degree technically feasible, but emissions will remain above SCAQMD significance thresholds. Therefore, operation of the proposed project will have a significant and unavoidable impact on regional air quality. Operational emissions will not exceed the SCAQMD significance threshold for SO_2, and, thus, impacts are concluded to be less than significant for SO_2.

No significant impacts related to local air toxics, CO, and NO_2 concentrations from construction are forecast to occur for the project. However, local PM_{10} construction concentrations will result in a significant net increase in emissions. As shown in Table 16 on page 276, mitigation measures and project features identified above will reduce the potential air quality impacts of the project to the degree technically feasible, but emissions will remain above the SCAQMD significance threshold. As shown in Table 17 on page 277, Construction-related PM_{10} concentrations at the receptor with the highest potential for air quality impacts (i.e., residential uses north of the project site along Carson Street) will be approximately 18 and 20 $\mu g/m^3$ PM_{10} for Phase 1 and Phase 2 site preparation, respectively. No offsite sensitive land uses will be significantly impacted during Phase 3

Table 16

PROJECT-RELATED REGIONAL CONSTRUCTION EMISSIONS (MITIGATED)

Maximum Daily Emissions	Estimated Emissions				
	CO	NO_X	PM_{10}	ROC	SO_X
Phase 1[a]	525	545	124	69	<1
Phase 2[b]	1082	786	120	310	<1
Phase 3[c]	1036	727	94	307	<1
Phase 4[d]	562	406	157	67	<1
Worst-Case Daily Emissions (lbs/day)	1082	786	120	310	<1
SCAQMD Daily Threshold (lbs/day)	550	100	150	75	150
Lbs/Day Over (Under)	532	686	(30)	235	(149)
Significant?	Yes	Yes	Yes	Yes	No

[a] *Maximum daily emissions during Phase 1 includes Phase 1 Site Preparation.*
[b] *Maximum daily emissions during Phase 2 includes Phase 1 Building Construction and Phase 2 Site Preparation*
[c] *Maximum daily emissions during Phase 3 includes Phase 2 Building Construction and Phase 3 Site Preparation*
[d] *Maximum daily emissions during Phase 4 includes Phase 4 Site Preparation.*

Source: PCR Services Corporation, 2004.

and Phase 4 activities. Dispersion modeling isopleths which show the geographic distribution of these impacts are provided in D. Generally, Phase 1 impacts will extend some 400 meters to the north northeast of Phase 1 development. Phase 2 impacts will extend some 350 meters north of Phase 2 development.

Potential localized PM_{10} impacts will be limited to site preparation activities during Phase 1 and Phase 2. These ISC modeled potential impacts are based on a set of conservative assumptions that incorporate worst-case 1981 SCAQMD mandated meteorological conditions and maximum daily PM_{10} emissions occurring every day throughout the entire modeled year. Therefore, if site preparation activities during Phase 1 occurred for the entire year, although they are expected to occur only for 86 days, at the maximum rate of activity, the model predicts that one day out of 365 days an off-site PM_{10} concentration could be as high as 18 $\mu g/m^3$.

Similarly, if site preparation activities during Phase 2 occurred for the entire year, although they are expected to occur only for 84 days, at the maximum rate of activity, the model predicts that one day out of 365 days an off-site PM_{10} concentration could be as

Table 17

LOCAL AIR QUALITY CONSTRUCTION IMPACTS (MITIGATED)

Pollutant	Maximum Increase in Ambient Concentrations for Off-Site Sensitive Receptors During Project Development [a]			
	Phase 1	Phase 2	Phase 3	Phase 4
PM_{10} (24-hour)	18.1	19.9	3.6	2.5
Maximum Concentration Increase (µg/m^3)	7.7	10.4	10.4	10.4
Threshold (µg/m^3)	26.4	9.5	(6.8)	(7.9)
Over/(Under)	Yes	Yes	No	No
Adverse Concentration				
NO_2 (1-hour)	110	32	32	28
Maximum Concentration Increase (µg/m^3)	207	207	207	207
Threshold (µg/m^3)	(97)	(175)	(175)	(179)
Over/(Under)	No	No	No	No
Adverse Concentration				
CO (1-Hour)	565	218	218	196
Maximum Concentration Increase (µg/m^3)	11,500	11,500	11,500	11,500
Threshold (µg/m^3)	(10,935)	(11,282)	(11,282)	(11,304)
Over/(Under)	No	No	No	No
Adverse Concentration				
CO (8-Hour)	211	74	74	39
Maximum Concentration Increase (µg/m^3)	3,674	3,674	3,674	3,674
Threshold (µg/m^3)	(3,463)	(3,600)	(3,600)	(3,635)
Over/(Under)	No	No	No	No
Adverse Concentration				

[a] *Maximum impacted off-site receptor occurs at single-family residential uses north of the project site along Carson Street.*

Source: PCR Services Corporation, 2004.

high as 20 µg/m^3. In addition, these off-site impacts will be less severe as site preparation activities move from the northern portion of the project site towards the more central and southern portions of the project site.

Local CO concentrations as a result of project-related traffic and emissions of air toxics are not forecast to be significant for the project.

As discussed in Table 15 on page 267, the project's growth rate in terms of the number of residents and the number of employees exceeds the project's growth rate in the number of vehicle trips when compared to the regional average assumptions upon which the SCAQMD's AQMP are based. Therefore, fewer mobile emissions will be produced by project residents and employees than those accounted for in emission forecasts in the

AQMP.[83] Nevertheless, implementation of the project even with incorporation of mitigation measures will result in an increase in emissions which will contribute to region-wide emissions on a cumulative basis and as such, the project's contribution to cumulative air quality impact is concluded to be significant and unavoidable.

Based on the analysis above, the project will meet the criteria specified by the SCAQMD which are used to determine consistency with applicable SCAQMD and SCAG policies. The project will also be consistent with the various policies set forth in the Air Quality Elements of the Cities of Long Beach and Lakewood General Plans. The project will therefore be consistent with adopted air quality plans and policies and a less-than-significant impact will occur.

[83] *Based on the SCAQMD's significance threshold, a project will have a significant cumulative air quality impact if the ratio of daily project vehicle miles traveled to daily countywide vehicle miles traveled exceeds the ratio of daily project employees to daily countywide employees or if it exceeds the ratio of project population to countywide population.*

This section summarizes information regarding cultural resources contained in two technical reports regarding the PacifiCenter project. The first report is entitled "Archaeological Resources Assessment for the Boeing C-1 Facility, Long Beach, California," prepared by Statistical Research, Inc., and is presented in full in Appendix F to this EIR. The second is entitled "Historic Resources Technical Report, PacifiCenter—Long Beach, California," prepared by PCR Services Corporation and Science Applications International Corporation, a complete copy of which is presented in Appendix G to this EIR.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

As recently as January 2003, Boeing facilities on the PacifiCenter site included a total of over five million square feet of floor area, most of which was occupied with manufacturing uses, though large occupancies of office and R&D space also occurred.[84] As previously indicated, a total of 4,651,234 square feet of this area located on approximately 213 acres within the large eastern portion of the PacifiCenter site is permitted for demolition in order to provide for a separate soils and groundwater remediation program mandated by Cleanup and Abatement Order 95-048 issued by the Regional Water Quality Control Board, Los Angeles Region. This Order is evaluated as a related project within this EIR pursuant to CEQA. The Boeing Enclave which comprises the remaining 380,000 square feet of space within the project site is expected to continue to operate as phases of the project are built out. Buildings within the Boeing Enclave will ultimately be demolished, if Boeing determines they are no longer necessary for its operations, as either part of the separate ongoing remediation program or as part of the proposed project. For purposes of providing a conservative analysis, it is assumed that demolition of the Boeing Enclave will occur as part of the proposed project.

[84] *The indicated amount of pre-existing development excludes approximately one million square feet of floor area associated with trailers, modular buildings, and other miscellaneous structures historically present on the project site.*

Although some buildings within a portion of the site have been removed as part of ongoing remediation activities, much of the pre-existing development continues to consist of large corrugated metal industrial buildings and airplane hangars. These low- to mid-rise industrial and R&D buildings are located throughout much of the project site and generally range between 30 to 90 feet in height and from 2,000 up to approximately 500,000 square feet in floor area. In addition, the site included a nine-story former executive office building along Lakewood Boulevard. Nearly all of the remainder of the project site is paved with asphalt or concrete or includes graded areas as a result of recent remediation activities. Surface parking is concentrated within the southeast corner of the site, with primary vehicular access provided off Lakewood Boulevard at Conant Street. Secondary access and surface parking is provided on the west side of the site from Cover Street. In addition, a 48-acre area known as the Boeing Enclave, located within the western portion of the project site adjacent to the Long Beach Airport, is currently used for final testing associated with Boeing's C-17 and 717 aircraft including engine run-up activities.

b. Historic Context

(1) Douglas Aircraft Company

The Douglas Aircraft Company was initially established by Donald W. Douglas (1892-1981) and millionaire sportsman David R. Davis (1894-1972) as the Davis-Douglas Company in July 1920, in Santa Monica. The company's first order was from Davis, who put up $40,000 to build an airplane to make the first-ever nonstop, coast-to-coast flight. Within a few months, the "Cloudster" rolled off the factory line.[85] Although the plane was the first to successfully lift a payload greater than its own weight (9,600 lbs.), it failed to complete its inaugural cross-country trip. Upset, Davis sold his interest in the company to Douglas. Meanwhile, Douglas had already landed his first military contract. Douglas incorporated as The Douglas Company in July 1921, and produced the DT-1 (Douglas Torpedo, First), followed by the DT-2 production version for the Navy.[86]

In 1922, Douglas began production of Douglas World Cruisers, based on the DT-2 design. Two cruisers, the "Chicago" and the "New Orleans," the first planes to fly around the world, propelled Douglas to the forefront of the aviation industry. This accomplishment also provided the basis for the O-2 Observation Biplane, which was produced in 1925 for the Army Air Corps, and later sold as a civilian aircraft. Douglas reincorporated as the

[85] *The Boeing Company, Boeing Historical Archives (Long Beach, CA), 1998.*

[86] *The Boeing Company, "McDonnell-Douglas Company History." http://www.boeing.com/company offices/ history/mdc, 2001.*

Douglas Aircraft Company in 1928 and constructed a new headquarters facility adjacent to the Santa Monica Airport's Clover Field.

The Douglas Aircraft Company survived the stock market crash of 1929 and the ensuing Great Depression largely by producing military aircraft. Douglas developed a prototype amphibian aircraft called the "Sinbad," a luxury "air yacht," in 1930. Although it failed in the civilian market, it led to the successful production in 1931 of the "Dolphin," used throughout the 1930s by the U.S. Army, Navy and Coast Guard, and later, by civilian industrialists. Douglas also produced two gull-winged monoplanes, including an observation aircraft and a bomber. His line of torpedo bombers also evolved, securing steady commissions and national renown. A watershed moment came in 1932, with the prototype DC-1, followed by the production version, the DC-2. With it, Douglas launched into the manufacture of transports for both civilian and military use. But it was the DC-3 that propelled Douglas's company into prominence.

(2) Aviation in Southern California

The German attack on Poland in 1939 made clear to the American aircraft industry the importance of air superiority in combat and that a major defense buildup was needed. In June of 1940, following Germany's invasion of France, President Roosevelt called for a quadrupling of the current U.S. airplane production, which was in turn estimated to triple the need for factory space. Production targets were increased in 1942 and doubled in 1943. As a consequence, government and private industry collaborated in the unprecedented design and implementation of a program for facilities to accommodate increased manufacturing capability. This national defense program became known as the great "Arsenal of Democracy."[87] The government agency responsible for funding industrial development was called the Defense Plant Corporation. Private industry contributed in equal measure, motivated by nationalism as well as significant tax breaks and anticipation of increased wartime profits.[88] Douglas Aircraft Company's Long Beach, California, assembly plant was built in direct response to this wartime initiative, not far from the company's existing plants in Santa Monica and El Segundo.

The concentration of aviation, and later aerospace, facilities in southern California had its origins in the collaboration of government and the private sector. But a number of other circumstances converged to support the growth of the industry in the region.

[87] *Douglas Aircraft Company, Historical Resume—Long Beach Plant, Long Beach, CA, 1950.*

[88] *Albrecht, Donald, World War II and the American Dream: How Wartime Building Changed a Nation (Washington, DC: National Building Museum; Cambridge, MA: The MIT Press), 1995.*

Southern California offered several competitive advantages over the Midwest and East Coast. It offered abundant, affordable open space both for the construction of plants geared to large-scale production and for flight-testing, as well as a climate conducive to year-round production and flight operations. The area's tremendous population growth (pre- as well as postwar) ensured a large workforce to staff the plants. The region was home to a number of educational institutions performing research in support of defense and related fields, such as the California Institute of Technology (Caltech). As southern California's aircraft industry grew, the growth of related support industries, providing machine tools, parts, and electronics, gradually contributed to the establishment of an integrated industry of formerly independent companies.

By 1941, it was reported that southern California was "America's Number 1 Arsenal."[89] Sixty percent of all American-manufactured planes were made within the 150-mile-long region between Burbank and San Diego.[90] That infrastructure, coupled with infrastructure supporting regional oil and gas production, water supply transport, and the presence of vast agricultural acreage, all of national economic significance, was thought to render coastal southern California particularly vulnerable to attack from overseas or even invasion during wartime.[91]

(3) The Douglas Aircraft Company in Long Beach: World War II

Douglas's Long Beach plant, planned as a dedicated defense plant for aircraft assembly, was the first facility of its kind in President Roosevelt's national "Arsenal of Democracy."[92] This plant was conceived, designed and under construction before the United States officially joined World War II in 1941. Douglas employed only 8,000 workers before expanding to Long Beach, but was nonetheless the industry leader for manufacture of civilian aircraft. Douglas accepted responsibility for a major contribution to buildup of the aircraft arsenal.

Groundbreaking for the new Douglas plant in Long Beach took place on November 22, 1940, just one year before the bombing of Pearl Harbor. The plant was planned to occupy a 200-acre parcel adjacent to the Long Beach Municipal Airport. The presence of one of the only airports in the region, together with the abundant open space

[89] *Flying and Popular Aviation Magazine, "Blackout Factory." (New York, NY), June 1941, p. 86.*

[90] *Ibid.*

[91] *Ibid.*

[92] *Douglas Aircraft Company, Historical Resume — Long Beach Plant, 1950.*

surrounding it and the proximity to Douglas's El Segundo plant, played important roles in attracting Douglas to that location.

The Long Beach plant was built for the assembly of attack bombers and military transports, and at its completion was the largest privately owned and operated such plant in the world.[93] It encompassed 10 factory buildings, an office building and a hangar. Operations were decentralized at least in part to disperse workers in separate buildings in the event of bombing. The first phase of construction was the rail line for quick and efficient delivery of aircraft parts from around the country.[94] This rail line extended east from the nearby Union Pacific Railroad track along Cover Street directly into the Douglas plant. Construction of the first 1.4 million square feet took only seven months. Douglas's Long Beach facility went into production on October 17, 1941. Immediate expansion of the factory to double its size commenced the same day. Long Beach Municipal Airport, one of the largest airfields in the country at that time, simultaneously underwent improvements that included a new terminal with tower and camouflaging.

In contrast to many bomber assembly plants and other military bases subsequently built in the South and Midwest, Douglas's Long Beach plant location was believed by the Army to be ill advised. It was perilously close to the coast, amid a known concentration of other aircraft plants in the region, and was thus considered vulnerable to air raids. Accordingly, elaborate precautions were taken at the Army's insistence to disguise the Long Beach facility from aerial view with paint, props and vegetation. The roofs of buildings were designed to simulate the roadways and homes of a suburban neighborhood. The Douglas plant in Santa Monica was even more carefully camouflaged beneath a virtual landscape of canvas houses and false trees.

Due to its sensitive location and its role in achieving air superiority for the U.S., the functional design of the Long Beach plant incorporated a number of defenses against the possibility of air raids. Jointly designed by the Los Angeles based architectural firm of Taylor and Taylor and the Department of the Army engineers, and reportedly modeled on its counterparts in England, it was built as the nation's first sealed, windowless "blackout" facility. Advance press touted it as "invisible." All buildings featured entryways and receiving bays that were only accessible through double, light-concealing "trap" doors (light-proof doors), in anticipation of 24-hour operations. It was also the nation's first fully air-conditioned factory, the "artificial weather" necessary to compensate for the lack of

[93] *Flying and Popular Aviation Magazine, "Blackout Factory." 1941.*

[94] *McDonnell Douglas, McDonnell Douglas 50th Anniversary in Long Beach Commemorative Magazine (Long Beach, CA: Long Beach Business Journal), 1990.*

ventilation.[95] Then-new mercury and fluorescent lights were installed throughout. Duplicate utilities were also installed to insure against potential power loss. The entire facility was publicized as bombproof and featured underground bomb shelters to accommodate 18,000 workers. Additional underground storage for parts and completed airplanes was built.

During wartime, the plant ultimately grew to encompass nearly 2.8 million square feet in 18 buildings occupying approximately 242 acres. With more than 1.4 million square feet of covered floor area, the original 10-factory building plant was the largest ever built by Douglas, nearly equaling the combined area of the Santa Monica and El Segundo factories.

During peak production, the Long Beach plant produced 108 airplanes a week, employing 43,000 workers on a 24-hour schedule.[96] The 43,000 workers accounted for more than a quarter of the 160,000 Douglas workers nationwide and 14 percent of the 300,000 aircraft industry employees in southern California.[97] Of those workers, 22,308 were women. A sweeping national campaign was mounted by the government in 1941 to draw women into the national workforce, especially into jobs of an industrial manufacturing nature, and replace the men who had joined the armed services. Over 7 million women entered the national workforce during the course of World War II, an estimated 2 million of them in industrial jobs at shipyards, aircraft manufacturing plants and other factories. The image of women outfitted in overalls and headscarves and wielding industrial tools became an icon and was popularized in a 1942 song, "Rosie the Riveter," giving rise to the campaign's name.[98] During the years between 1940 and 1945 the percentage of women in the labor force rose 50 percent, from 12 to 18 million.[99] Peak wartime employment company-wide at Douglas was recorded at 160,000 workers.[100] Overall Douglas added 600 employees a week on average in mid-1941.

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[95] *Douglas Aircraft Company, Douglas Airview, vol. VIII, no. 10. (Santa Monica, CA: Department of Industrial and Public Relations Douglas Aircraft Company), 1941.*

[96] *Albrecht, World War II and the American Dream: How Wartime Building Changed a Nation.*

[97] *Historical Society of Southern California, "Donald W. Douglas," http://www.socialhistory.org/biographies/ddouglas.htm, 2000.*

[98] *Rosie the Riveter Trust, http://www.rosietheriveter.org, 2001.*

[99] *Long Beach Journal, McDonnell Douglas-Douglas Aircraft Company: 1st 75 Years (Long Beach, CA: Long Beach Business Journal), 1995.*

[100] *The Boeing Company, A Brief History of the Boeing Company (Seattle, WA: Boeing Company), 1998.*

Between 1942 and 1945, the Douglas Aircraft Company, at its six wartime factories, built 29,385 airplanes, representing 16 percent of all the U.S. airplanes produced, 9,441 of which were produced in Long Beach.[101] Among the notable aircraft produced by Douglas was the C-47 "Skytrain," the best known of the company's transports. Douglas produced more than 10,000 C-47s. It was praised by Eisenhower as one of the four most vital pieces of military equipment in the war effort, together with the jeep, the bazooka, and the nuclear bomb, and played a prominent role in supply transport in the D-Day invasion at Normandy. The plane was later involved in the Korean War and Vietnam. Other aircraft produced at the Long Beach plant included A-20 and A-26 attack bombers, the B-17 bomber (under license from Boeing), and the C-74 "Globemaster," which was built at the end of the war. The Long Beach plant is described by one source as "the incubator of the aerospace industry in southern California."[102]

(4) Douglas and the Modern Military Industrial Complex

Although the end of World War II brought an abrupt end to the wartime production effort, the massive military-industrial base that had been put into place endured and provided a framework for the development of an integrated modern arms industry that supported the Korean War and the deepening Cold War.[103] While orders for military aircraft were canceled and many factories closed, the government was committed to maintaining a permanent defense readiness. Certain factories were designated as vital to national security. Those who did not find buyers were retained as an industrial reserve; others were sold or leased to independent contractors for civilian production, with the requirement that they be available for military production in an emergency.

Douglas reorganized its three southern California plants along customer and product lines. Santa Monica became the center for production of commercial transports and their military derivatives, El Segundo for Naval aircraft, and Long Beach for Air Force production. After World War II, Douglas continued providing military aircraft such as the AD Skyraider attack aircraft; F3D Skyknight naval night fighter; B-26 bomber; and the C-74, C-124, C-47, and C-54 transports. The worsening Cold War situation resulted in more orders for the A3D Skywarrior attack plane, F4D Skyray fighter, C-124 Globemaster II, and new aircraft such as the B-66 Destroyer and the A4D Skyhawk attack plane, among others.

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[101] *The Boeing Company, A Brief History of the Boeing Company, 1998; McDonnell Douglas, McDonnell Douglas 50th Anniversary in Long Beach Commemorative Magazine, 1990.*

[102] *Long Beach Press-Telegram, "Douglas at 75: A Special Report."*

[103] *Albrecht, World War II and the American Dream: How Wartime Building Changed a Nation.*

By the mid-1950s, the world had also entered the jet age. The company eventually entered the jet airliner market. Douglas broke ground in 1956 on a new $20 million facility located on the east side of Lakewood Boulevard, adjacent to the existing Long Beach plant, dedicated for the production of the DC-8. May 1958 saw the maiden flight of the first Douglas commercial jet airliner, the four-engine DC-8, which established world speed, payload, and range records.[104] The introduction of this new commercial aircraft assembly facility allowed for simultaneous military and commercial aircraft production both at the same plant.

Alongside jet engine development, Douglas was one of the earliest aircraft manufacturers to begin missile production. As early as 1941, the company had developed and was testing the ROC-I, an air-to-surface guided missile. Its successor, the ROC-II, followed in 1943. Neither saw use during the war, but their development positioned Douglas as the leader in the field of missile technology.

In 1961, Douglas decided to separate production of commercial aircraft from missile and space operations. The Long Beach facility was turned over to the newly created Aircraft Division, and construction began on a new administrative headquarters, a 9-story administration building and a 3-story engineering and product development structure. During the 1960s, the Aircraft Division went on to produce the DC-9. By the end of the decade, the company found itself with an overabundance of orders to fill. In response to the escalating price of raw materials and the significant expenses associated with the construction of new facilities, Douglas merged with the McDonnell Corporation in 1967, and was renamed the McDonnell Douglas Corporation. The new company introduced the wide-body DC-10 jumbo jet in April 1970.

(5) McDonnell Douglas

The McDonnell Company, founded by James Smith McDonnell (1899-1980) had a reputation as a strictly military contractor. McDonnell had contracted with Boeing and Douglas during World War II, employing approximately 400 people in the manufacture of parts in 1941. McDonnell also pursued development of the jet engine during the war years and garnered a contract to build a fighter jet in 1944. The company's experience in jet engine development allowed it to successfully reposition itself as a builder of jet fighters during the postwar period, a transformation that was complete by 1959. It had also experimented with rocketry as early as 1944, producing glide bombs called Gargoyles,

[104] *The Boeing Company, "Boeing 717 Manufacturing Plant, Long Beach, CA." www.boeing.com/commercial/facilities/longbeachsite.html*

and developed other missiles through 1959, and in 1960 earned a commission from NASA to build the first manned spacecraft, the Mercury. The Mercury was the first spacecraft to go into orbit, and was followed by the Gemini in 1965. McDonnell's merger with Douglas allowed both to remain prominent in the aerospace industry, second only to Boeing.

(6) Boeing

William E. Boeing (1881-1956), while learning to fly under the tutelage of early aviator Glenn L. Martin (founder of the Glenn L. Martin Aircraft Company, now part of Lockheed Martin) in 1915, became convinced of the airplane's future as a means of transportation. With his friend George Westervelt, a Navy engineer, Boeing built a twin float seaplane, the "B & W" (named after Boeing and Westervelt), at his boathouse in Seattle. Westervelt was reassigned to Washington, D.C. before the plane was completed. However, Boeing took the B & W up on its first flight on June 15, 1916. One month later, Boeing incorporated his company as the Pacific Aero Products Company and continued to manufacture B & Ws. The following year Boeing renamed his company the Boeing Airplane Company. World War I offered Boeing a chance for growth with the design and construction of the Model-C Seaplane for the Navy. During the 1920s, Boeing became a leading producer of fighters, beginning with the Boeing Model 15 in 1923. Its Model 40A secured a U.S. Postal contract to deliver mail between San Francisco and Chicago, and Boeing Air Transport (BAT) was created to run the new airline.

Boeing Airplane and Transport Corporation became United Aircraft and Transport Corporation in 1929. The company developed the Model 247 airliner, the foundation of commercial aviation. Forced under anti-trust laws to break up in 1934, the company divided into three entities: United Airlines (air transportation), United Aircraft (manufacturing in the eastern U.S.), and Boeing Airplane Company (manufacturing in western U.S.). Boeing Aircraft turned to design and production of large bombers and passenger planes, developing the prototypes of the B-17 bomber and the Clipper and Stratoliner passenger aircraft. Boeing's success in bomber production continued after the war with the manufacture of the B-47 and B-52 bombers, the KC-97 aerial tanker, and the new technology of jet propulsion. The new prototype was the basis for the KC-135 aerial tanker and the 707-120 passenger aircraft. The 707, and the later 727, the 737, and the 747, went on to dominate passenger aircraft production.

During the 1950s, Boeing's military successes continued with Bomarc missiles and Minuteman intercontinental ballistic missiles. For NASA in the 1960s and 1970s, Boeing built the first stage of the Saturn-V rocket, Lunar Orbiters, the Lunar Roving Vehicle, and the Mariner-10 probe. In 1996, Boeing merged with Rockwell International's aerospace and defense units, and the divisions were renamed Boeing North American, Inc. The

following year, Boeing merged with McDonnell Douglas, thereby becoming the world's largest commercial jetliner manufacturer and NASA's largest contractor.

c. Regulatory Framework

The protection of cultural resources falls within the jurisdiction of several levels of government. Federal laws provide the framework for the protection of cultural resources. However, the states and local jurisdictions must play active roles in the identification and documentation of such resources within their communities.

(1) National Register of Historic Places

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Eligibility is not dependent on whether or not a federal agency has jurisdiction over the property in question. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria:[105]

- That are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A); or
- That are associated with the lives of persons significant in our past (Criterion B); or
- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); or
- That have yielded, or may be likely to yield, information important in prehistory or history (Criterion D).

Unless the property possesses exceptional significance, it must be at least fifty years old to be eligible for National Register listing. In addition to meeting the criteria of significance, a property must have "integrity." Integrity is understood as "the ability of a

[105] *United States Department of the Interior, National Register Bulletin 16, "Guidelines for Completing National Register Forms," (Washington, DC: National Park Service), rev., 1995.*

property to convey its significance."[106] The National Register recognizes seven qualities that, in various combinations, define this concept. These qualities are: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity a property must possess several, and usually most, of these aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.[107]

(2) California Environmental Quality Act

Archaeological resources require impact analysis under CEQA (Public Resources Code Sections 21000 et seq.). As defined in Section 21083.2 of the Public Resources Code a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition, CEQA Section 15064.5 broadens the approach under CEQA by using the term "historical resource" instead of "unique archaeological resource." Under CEQA, a "project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment."[108] This statutory standard involves a two-part inquiry. The first involves a determination of whether the project involves a historical resource. If so, then the second part involves determining whether the project may involve a "substantial adverse change in the significance" of the historical resource. To address these issues, guidelines that implement the 1992 statutory amendments relating to historical resources were adopted in final form on October 26, 1998, with the addition of CEQA Guidelines Section 15064.5.

[106] *United States Department of the Interior, National Register Bulletin 15, "How to Apply the National Register Criteria for Evaluation." (Washington, DC: National Park Service), rev. 1997, p. 44.*

[107] *United States Department of the Interior, National Register Bulletin 15, p. 44.*

[108] *California Public Resources Code Section 21084.1—Added in 1992 by AB 2881.*

The new CEQA Guidelines specify that for purposes of CEQA compliance, the term "historical resources" shall include the following:[109]

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources.
- A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements in section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources.
- The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of §21084.1 of the Public Resources Code and §15064.5 and §15126.4 of the CEQA Guidelines apply. If an archaeological site does not meet the criteria for a historical resource contained in the Guidelines but does meet the definition of a unique archaeological resource in §21083.2 of the Public Resources Code, then the site is to be treated in accordance with the provisions of Public Resources Code §21083.2. The

[109] *State CEQA Guidelines, 14 CCR Section 15064.5(a).*

Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. (CEQA Guidelines §15064.5(c)(4)).

(3) California Register of Historical Resources

The California Register was established to be a comprehensive listing of the State's historic resources, including those of national, State, and local significance. Created by Assembly Bill 2881, signed into law on September 27, 1992, the California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change."[110] The criteria for eligibility for the California Register are based upon National Register Criteria.[111] In order to be listed in the California Register, a resource must meet one or more of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States (Criterion 1);
- It is associated with the lives of persons important to local, California, or national history (Criterion 2);
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values (Criterion 3); or
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (Criterion 4).

Resources eligible for listing in the California Register must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance. It is possible that resources which may not retain sufficient integrity for listing in the National Register may still be eligible for the California Register. Moved or reconstructed buildings, structures, or objects, and resources

[110] *California Public Resources Code Section 5024.1(a).*

[111] *California Public Resources Code Section 5024.1(b).*

achieving significance within the past 50 years may also be considered for listing in the California Register under specific circumstances.

(4) California Office of Historic Preservation Survey

The Office of Historic Preservation (OHP) utilizes a three-digit evaluation code consisting of seven categories to specify National Register eligibility. California properties that are evaluated for historic significance are classified according to these instructions for assignment of a three-digit classification code. The first digit indicates one of the following general evaluation categories:[112]

1. Listed on the National Register of Historic Places
2. Determined eligible for listing in the National Register of Historic Places
3. Appears eligible for the National Register of Historic Places
4. May become eligible for the National Register of Historic Places
5. Not eligible for the National Register of Historic Places, but of local interest
6. None of the above
7. Undetermined

The second digit is a letter code indicating whether the resource is separately eligible (S), eligible as part of a district (D), or both (B). The third digit is a number used to further specify significance and refine the relationship of the property to the National Register. Under this system categories 1 through 4 pertain to various levels of National Register eligibility. However, surveyed resources through level 5 (e.g., properties ineligible for listing in the National Register, but of local interest) may be eligible for inclusion in the California Register. Properties found ineligible for listing in the National Register and which are of no local interest, are given an evaluation rating of 6.

(5) City of Long Beach

The City of Long Beach, through provisions in the Long Beach Municipal Code, established processes to designate and preserve important cultural resources. These provisions (Ordinance) are found in Chapter 2.63 (Cultural Heritage Commission), and

[112] *California Register Regulation—14 CCR, Chapter 11.5, Section 4852(e)(2).*

provide tools for recognizing, preserving, protecting, and using cultural resources located within the City. The Ordinance stipulates obligations required of the Cultural Heritage Commission (CHC), as well as those required of owners of designated city landmarks.

Section 2.63.020(F) states that a "cultural (historic) resource" is any area, district, street, place, building, structure, permanent work of art, natural feature, or other object having a special historical, cultural, archaeological, architectural, community, or aesthetic value. Section 2.63.020(J) also states that a local landmark is any site or improvement, man-made or natural, which has special character or special historical, cultural, architectural, community or aesthetic value as part of the heritage of the City, State, or the United States, and which has been designated as a landmark pursuant to the provisions outlined in Chapter 2.63 of the Municipal Code.

(6) City of Lakewood

The City of Lakewood has no mechanism in place to designate cultural resources.

d. Identification of Cultural Resources

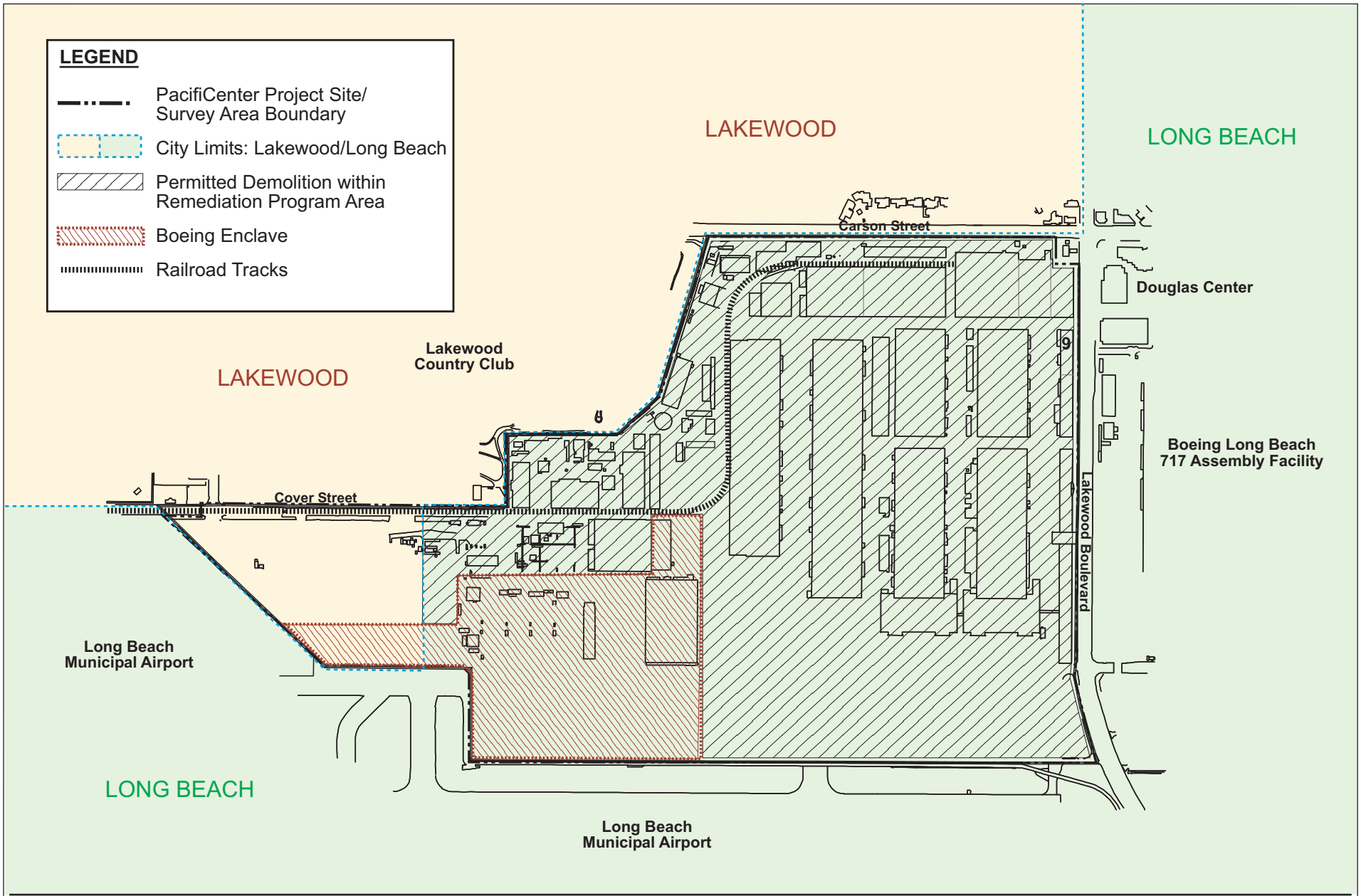
(1) Survey Study Area

The survey study area (study area) for the identification and evaluation of historic resources, archaeological resources, and paleontological resources is defined as the project site, which encompasses the west plant of Boeing Long Beach. Roughly bounded by Lakewood Boulevard and the east Boeing plant on the east, Carson Street on the north, the tarmac of the Long Beach Airport on the south and the Lakewood Country Club and unrelated industrial improvements on the west, the study area reflects the historic boundaries and the inner directed, self-contained character of the facility. The study area is primarily located within the City of Long Beach, with a small corner on the west lying within the boundaries of the City of Lakewood. As shown in Figure 33 on page 294, much of the project site is permitted for demolition in accordance with the mandated remediation program for the project site.

(2) Previously Identified Properties

(a) Archaeological Resources

A records search was initiated at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. No prehistoric archaeological resources



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Source: Boeing Realty Corporation and PCR Services Corporation, 2004

Figure 33
Cultural Resources Survey Study Area

were reported within the study area or a one-mile radius of the project site. Two previous archaeological surveys had been conducted within a one-mile radius of the project site. Both of these were linear surveys adjacent to the project site; one along Lakewood Boulevard to the east and the other along Carson Street to the north. No archaeological resources were identified as a result of either of these surveys.

Beyond contacting SCCIC, the sacred lands file was checked by the Native American Heritage Commission (NAHC). The sacred lands file check did not indicate the presence of Native American cultural resources on or in the immediate vicinity of the project site. The NAHC letter continued to state that the absence of specific site information in the file was not sufficient to conclude that sacred sites do not exist on the project site. Therefore, Native American individuals and organizations identified by the NAHC were contacted to identify potential sacred sites that may be within the project site. Two response letters were received; neither respondent identified any sacred sites within the study area.

(b) Paleontological Resources

The Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County conducted a paleontological records search for the proposed project. [113] This record search identified surficial deposits composed of terrestrial Quaternary Alluvium in the uppermost layers of soils within a one-mile radius of the project site. Since the project site and much of the surrounding vicinity has been previously graded and developed, these deposits do not likely contain significant fossils in the uppermost layers. However, at greater depths, older terrestrial Quaternary deposits that contain significant vertebrate fossils and Plio-Pleistocene marine sediments and fossil vertebrate remains have been identified within a one-mile radius of the project site.

Due to the location of the proposed project within a previously graded and developed area, there are no unique geologic features on the project site or in the immediate project vicinity.

[113] *Natural History Museum of Los Angeles County, Paleontological Records Search for the Boeing PacifiCenter, City of Long Beach, Los Angeles County, One-Mile Radius, Long Beach Quad 7.5', Project Area, October 27, 2002.*

(c) Historic Resources

None of the properties located within the study area have been previously surveyed or evaluated for historical and/or architectural significance. Within a one-mile radius of the project site the California Historical Resources Information System identified one previously surveyed property listed in the California Historic Resources Inventory maintained by OHP. This property is the Lakewood Country Club Clubhouse located at 3101 East Carson Street in Lakewood. The Clubhouse, built in 1933, was identified as potentially eligible for listing in the National Register when more historical and/or architectural research is performed on the property (OHP rating 4S). Though not identified by OHP, according to the City of Long Beach Historic Resources Register, one property within the one-mile radius records search area was identified. The Long Beach Airport Terminal (1941), located approximately one-half mile south of the project site at 4100 East Donald Douglas Drive, was designated a City of Long Beach Cultural Heritage Landmark in 1990. This property stands some distance away from the study area and is separated from it by the airport runways.

(3) Archaeological Resources Sensitivity Map

Currently, the project site is developed with buildings and asphalt parking lots. In addition, as a result of recent demolition activities associated with the mandated remediation program underway for the site, many areas of the site have been graded. After completion of the ongoing remediation program wherein much of the 261-acre project site will be stripped down to such native and disturbed soils as exist beneath the existing improvements. Additionally, some native soil may be removed during remediation activities. Due to the existing structural and pavement improvements, the project site cannot be surveyed by conventional archaeological survey methods by which the natural ground surfaces are methodically transected and observed for surface indications of resources or artifacts. Nonetheless, the absence of archaeological resources on the surface should not be construed to mean that such resources are absent subsurface. The Los Angeles Basin is largely an alluvial deposit and archaeological sites may be buried at sufficient depths that modern development does not disturb them. Archaeologists do find sites with no surface manifestation. These sites are often in good condition, and yield insights into southern California's prehistory.

In lieu of an archaeological inventory survey, a subsurface Archaeological Resources Sensitivity Map was produced as a model of where archaeological resources may be more likely to occur and the extent by which such potential resources may already have been disturbed by modern activities. The map, presented in Figure 34 on page 297, was developed through an examination and interpretation of various archival and

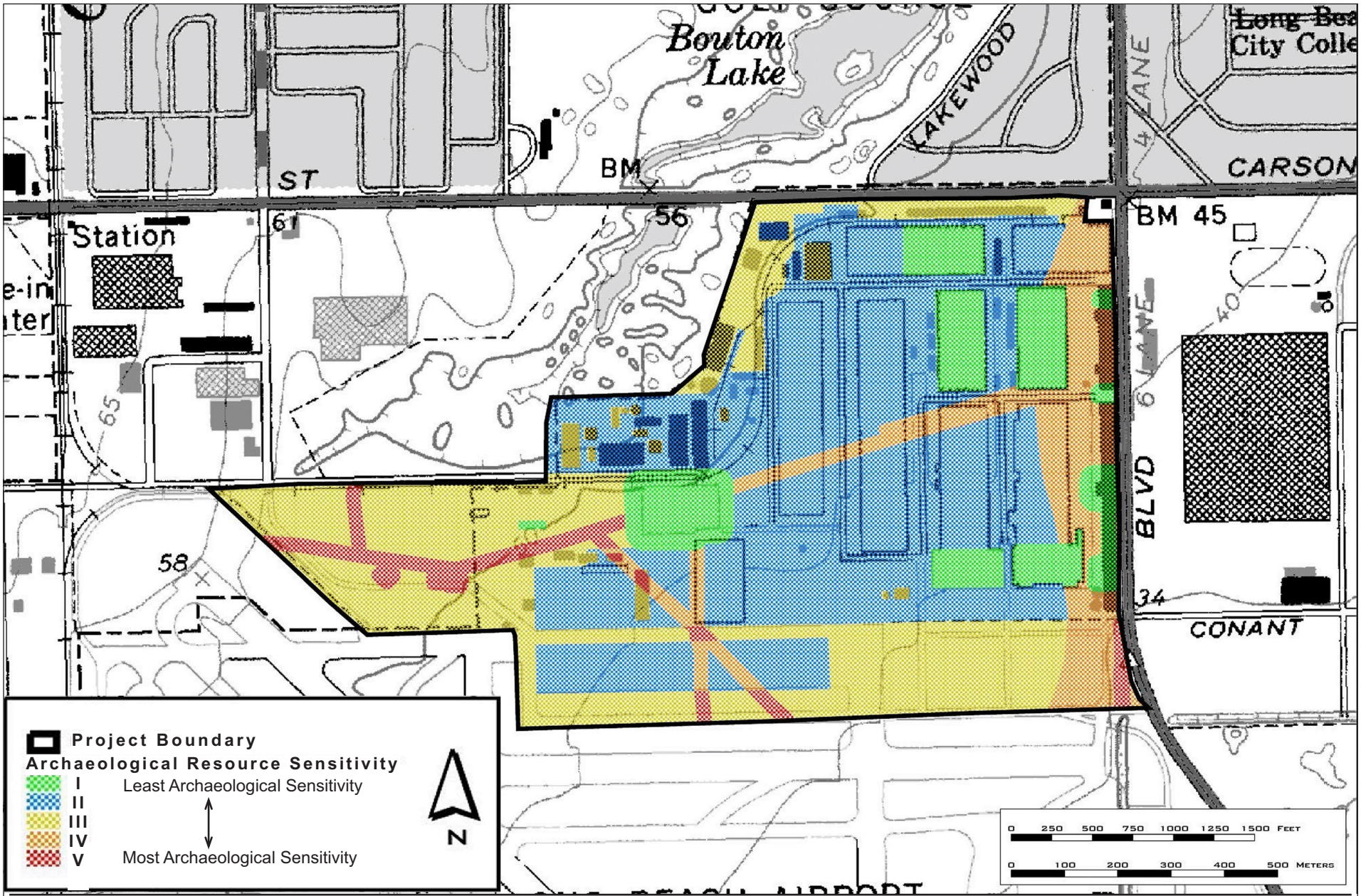

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Figure 34
Archaeological Resources Sensitivity Map

Source: Statistical Research Inc. 2003

geological sources, after which modern ground disturbances such as underground utilities and buildings were integrated into the model.

The development of the Archaeological Resources Sensitivity (ARS) Map began with the assignment of all parts of the survey study area to one of three categories. These categories were derived from geologic (Pleistocene or Holocene alluvium) and archival (features on historic maps) sources. The first category represents locations on the USGS 1925 Quadrangle that reflect portions of the built environment prior to construction of the Douglas Aircraft Company Long Beach plant. This includes six buildings, three road segments, and two probable drainage control features. The historic significance of these features would need to be evaluated should traces be found. However, encountering these precise features is unlikely given the post-1925 disturbance on the site. A more likely occurrence is encountering associated subsurface features, such as trash dumps, privies, or wells. These features might have archaeological significance as they often contain intact refuse that inform on the historical-period residents of the region. Accordingly, these mapped features were assessed as “high” sensitivity. To ensure that all such features were encompassed, a buffer zone of high sensitivity was placed 50 feet around the structures and 25 feet along the road and drainage control.

The second category is defined as the Holocene alluvium. The Holocene alluvium may contain surficial and/or buried prehistoric archaeological deposits. Because these areas were prone to flooding, habitation sites are not expected to be encountered. Special activity sites associated with procuring and processing wetland and riparian resources may be found.

Areas of Pleistocene alluvium are defined as the third category. Elevated and dry, humans favored these surfaces in the past for a range of activities, including habitation and resource procurement. Because these sites are near the surface, they are subject to post-depositional processes. In particular, disturbance associated with historical and modern improvements on the property would impact sites on the Pleistocene alluvium.

After these categories were applied to the study area, the area was evaluated for the presence of modern impacts. Three levels of modern impacts were identified; minor, moderate, and major. Minor impacts are assumed to have taken place across the entire project site. These include ground cover clearing and light grading (i.e., surface preparation for construction of roads, parking lots, taxiways, etc.). Moderate impacts include concrete-slab structures and areas around underground utilities. The impact of utility lines tends to be local, and thus, single or even multiple lines do not generally destroy archaeological sites that are cut by utilities. The intent with the sensitivity map has been to map major utility corridors and clusters, and not to plot each utility line. Major

impacts include buildings with multiple heavy machinery pits, buildings with basements or substantial foundations, and tunnels. The construction of such facilities is presumed to have destroyed, in their entirety, any archaeological resources that may have been in those locations.

The level of modern impact was associated with each of the three categories to create a composite of resource sensitivity. Least sensitive areas are those that have been subject to major impact regardless of the underlying geologic deposit or historical land use (Sensitivity Class I; least likely to contain archaeological deposits). Areas subject to moderate impact on Pleistocene alluvium are placed in Sensitivity Class II. Areas of minor impact on the Pleistocene surface are assigned to Sensitivity Class III. Most archaeological sites that might have been located on Pleistocene soil would probably have been destroyed by historical and modern impacts, leaving the remainder in highly disturbed states. Areas of Holocene alluvium that have had minor or moderate impacts and historical mapped features that have been moderately impacted are designated Sensitivity Class IV. Archaeological sites created on Holocene surfaces might have been spared destruction, because flood deposits buried many prehistorically. Finally, areas of minor impact that cover historical mapped features have been designated as the most likely areas to contain archaeological sites, or Sensitivity Class V.

(4) Buildings and Features Located within Survey Study Area

The Boeing Long Beach west plant occupies an irregularly shaped parcel of approximately 261 acres. Prior to the initiation of demolition activities associated with the remediation program, the project site contained approximately 140 improvements, including 92 numbered permanent buildings, assorted sheds, lean-to's, carports, trailers, and modular buildings, plus freestanding equipment assemblies and features such as railroad tracks, tunnels, and underground bomb shelters.[114] Several of the numbered buildings are in fact small outbuildings and later additions to the primary buildings on the site. The property is enclosed by fences and gates and by the unbroken facades of the buildings that line the Lakewood Boulevard frontage. In order to identify potentially historic improvements, the survey researched and evaluated the 27 primary buildings and two other features in the west plant as indicated in Table 18 on page 300. With the exception of Building 15, most of the oldest buildings are located in the east section of the project site, arranged in five parallel tiers oriented north and south and linked across the north end by an east-west row.

[114] *The Boeing Company, "Douglas Aircraft Company Facilities." Long Beach Structures Map (Long Beach, CA: Boeing Company) 2001.*

Table 18

PROPERTIES SURVEYED WITHIN THE STUDY AREA

Building No.	Description	Year Built	OHP Rating
1	Production Development and Computing	1941	3D
2	Administration Offices and Tooling	1941	3D
3	Machine Shop	1941	3D
4	Tubing and Ducting	1941	3D
5	Processing, Paint, and Sub-Assembly	1941	3D
5A	Processing	1988	6Z1
6	Metal Forming	1941	3D
6A	Fabrication and Warehouse	1942	3D
7	Administrative Offices	1942	3D
8	Cafeteria	1941	3D
9	Administration Offices and Dispensary	1941	3D
10	Warehouse—Paint Storage (not original #10)	1941	6Z1
11	Maintenance and Transportation	1941	3D
12	Assembly	1942	3D
13	Assembly	1942	3D
14	Maintenance Shops	1942	3D
15	Experimental Shop and Sub-Assembly	1942	3D
16	Tooling	1942	3D
17	Administration Offices	1944	3D
18	Administration Offices	1942	3D
18A	Aircraft Division Headquarters Building	1962	5S3
26	Engineering Laboratory	1954	6Z1
28	Reliability Assurance Laboratory	1961	6Z1
32	Engineering Laboratory	1954	6Z1
35	Engineering Offices	1965	6Z1
36	Engineering Offices	1962	6Z1
41/41A	Engineering Development Center	1970	6Z1
Other	Railroad Tracks	1940	3D
Other	Underground Features	1941	3D

Notes:

3D Property appearing eligible for the National Register as a contributor to a fully documented district.

5S3 Property appearing ineligible for the National Register and for local landmark designation, but eligible for special consideration in the local planning process.

6Z1 Property appearing ineligible for the National Register with no potential for any other listing or designation.

Source: PCR Services Corporation; SAIC, 2001

None of the buildings, structures, or objects located within the project site have been previously evaluated for historical and/or architectural significance (See Table 18). However, upon concluding the current survey process for the purposes of CEQA compliance, one historic resource—a grouping of 18 contributing buildings, four

non-contributing buildings, and two other features—was identified as a potential historic district eligible for the National Register of Historic Places, the California Register of Historical Resources, and for local designation as a City of Long Beach historic district. (See Figure 35 on page 302.) As shown in Figure 33, to provide for remediation activities, much of the development within the site is permitted for demolition pursuant to demolition permits issued by the City of Long Beach. With the exception of Building 15 and underground features, all of the contributing buildings and features in the identified potential historic district are located within the area currently permitted for demolition in accordance with the remediation program. Once operations within the Boeing Enclave cease, Building 15 together with other buildings within the Boeing Enclave may be demolished as part of the remediation program or as part of the proposed project.

(a) Potential Historic District

(i) National Register of Historic Places

The potential historic district appears to qualify for listing in the National Register under Criterion A because it is associated with events that have made a significant contribution to the broad patterns of the region's history. Specifically, the grouping of buildings within the district is historically significant for the following reasons:

- The facility made a significant contribution to the development of the aviation industry in southern California.

- Constructed as a critical early step in creating the "Arsenal of Democracy" during World War II, the facility contributed substantially to the war effort and figured prominently in the movement to use women workers ("Rosie the Riveters") on the Home Front.

- Building and operation of the Long Beach aircraft assembly plant was highly influential for the growth and prosperity of the region, especially the cities of Long Beach and Lakewood.

The primary period of significance of the potential historic district is the World War II era, from 1940, when plans for construction of the plant were begun, until the war's conclusion in 1945. The boundaries of the historic district are presented in Figure 35 on page 302 and reflect both historic property lines and the locations of the first generation of buildings on the site. Eighteen buildings and two other features are identified as contributors to the significance of the site, all of which were constructed during the period of significance as part of the World War II defense build-up. The contributors have been

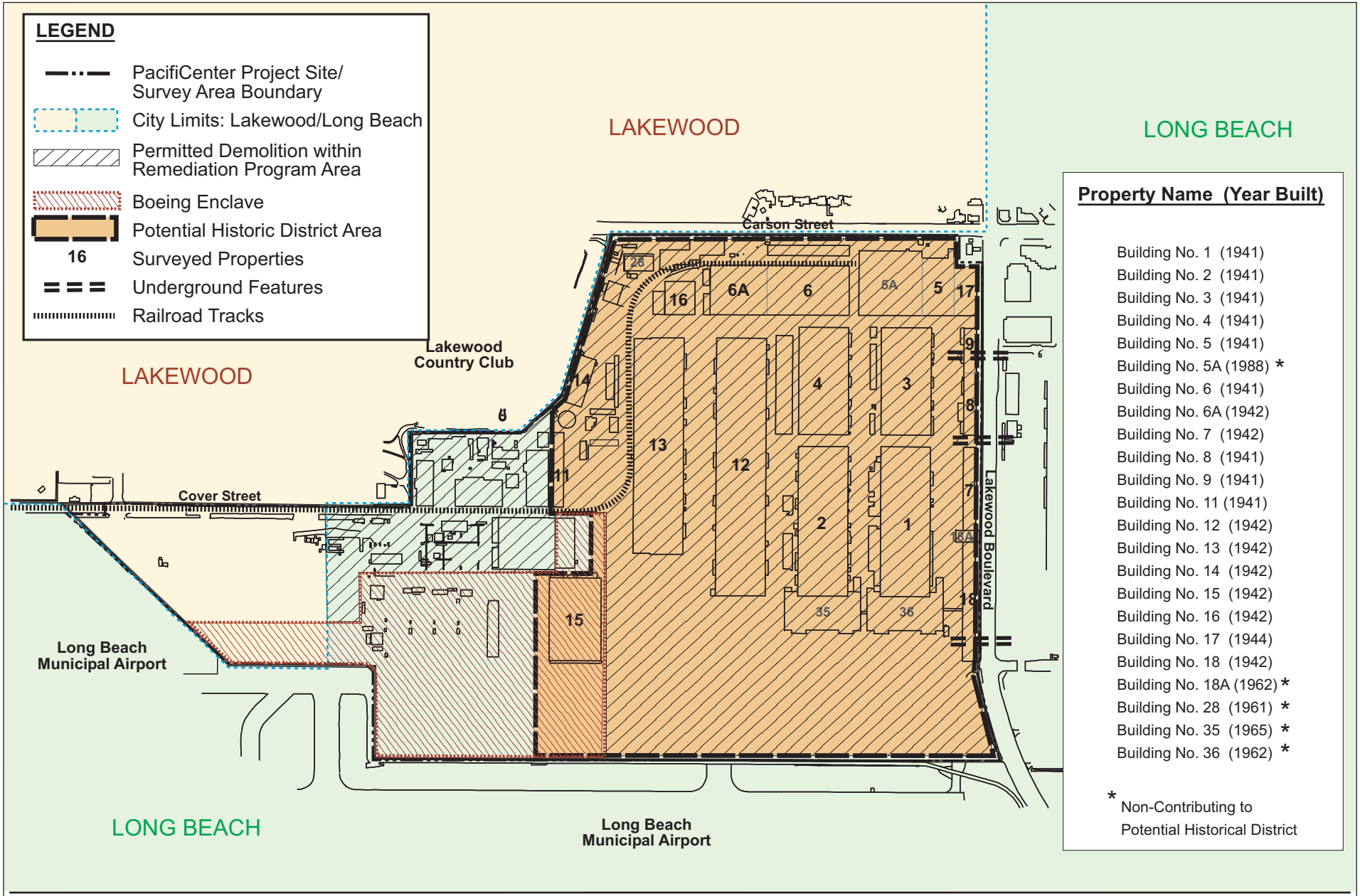

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Figure 35
Potential Historic District

Source: Boeing Realty Corporation and PCR Services Corporation, 2004

assigned a National Register status code of 3D.[115] Four buildings are identified as non-contributors, since their post-war construction precludes them from the same historic associations. Of these post-war era buildings, the Aircraft Division Headquarters Building (Building 18A), the most visible symbol of the plant after 1962, possesses local interest and has been assigned a status code of 5S3 (not eligible for separate listing or designation under an existing local ordinance but is eligible for special consideration in local planning). The remainder of the non-contributing buildings within the defined historic boundary, as well as those located to the west, have been categorized as 6Z1 (found ineligible for listing in the National Register and for designation under a local ordinance). These classifications are summarized in Table 19 on page 304 and are discussed in more detail in Appendix G to this Environmental Impact Report.

The potential District retains integrity of its World War II appearance. The plan and layout of the complex is the same, as can be confirmed from aerial photographs taken then and now. This arrangement of five parallel rows of industrial buildings oriented north-south, linked at the north by a perpendicular row is intact, with the exception of one of the smallest structures, Building 10, moved to a location west of the historic core of the plant in 1969. All of the buildings that were constructed during the period of significance are extant, and with the single exception noted above remain on their original sites. These include ten of the original eleven buildings built in 1941, the seven buildings finished in 1942, and one building from 1944. Construction within the plant after the period of significance has included four principal buildings within the proposed district—buildings 18A, 5A, 35, and 36. All of these buildings are located on or near the perimeter of the proposed district and their construction did not require substantial demolition of historic features. Additional new construction within the proposed district has largely consisted of storage sheds, lean-to's, carports, and freestanding structures and equipment, none of which equals in scale or prominence the contributing buildings.

The exteriors of the buildings contributing to the potential historic district largely retain integrity of materials and design. Corrugated metal cladding, flat roofs, Firguson vertical lift hangar doors and horizontal sliding doors remain the principal building elements. Interiors have been adapted to accommodate changing production lines; however, the building shells—walls, floors, ceilings—and occasionally floor and ceiling machinery tracks are intact. Although the blackout protection provided by the inner doorways has been removed, the buildings are still totally dependent on interior illumination. While the camouflaging set up during the war was removed long ago, the mechanical penthouses, incorporated into the camouflaging scheme, remain in place.

[115] *Office of Historic Preservation, "Appendix 2: National Register Status Codes,"* Instructions for Recording Historical Resources*, 1997. Status code 3D: Contributor to a fully documented historic district.*

Table 19

POTENTIAL HISTORIC DISTRICT

Building No.	Completion Date	Contributor	Status Rating
1	1941	Yes	3D
2	1941	Yes	3D
3	1941	Yes	3D
4	1941	Yes	3D
5	1941	Yes	3D
5A	1988	No	6Z1
6	1941	Yes	3D
6A	1942	Yes	3D
7	1941	Yes	3D
8	1941	Yes	3D
9	1941	Yes	3D
11	1941	Yes	3D
12	1942	Yes	3D
13	1942	Yes	3D
14	1942	Yes	3D
15	1942	Yes	3D
16	1942	Yes	3D
17	1944	Yes	3D
18	1942	Yes	3D
18A	1962	No	5S3
28	1961	No	6Z1
35	1965	No	6Z1
36	1962	No	6Z1
Other Feature	Railroad Tracks	1940	3D
Other Feature	Underground Features	1941	3D

3D Property appearing eligible for the National Register as a contributor to a fully documented district.

5S3 Property appearing ineligible for the National Register and for local landmark designation, but eligible for special consideration in the local planning process.

6Z1 Property appearing ineligible for the National Register with no potential for any other listing or designation.

Source: PCR Services Corporation; SAIC, 2001.

The most notable alteration of a contributing building is the enclosure of the original Lakewood entrance in Building 7; however, all other aspects of the architectural detailing on the Lakewood frontage, including fluted panels and square patterned parapets, are intact.

Character-defining features of the setting of the proposed district similarly retain integrity. These include the railroad tracks, located at the west end of the proposed district, and the three tunnels, which connect the west plant with the east plant (originally the wartime parking area) and their portals. The relationship to the runways of the Long Beach Airport is also intact; the hangar doors of Buildings 12, 13, and 15 still face this open space. And, as previously noted, the private internal streets created by the plan of the complex are also intact.

(ii) California Register of Historical Resources

Because the California Register criteria are modeled closely on National Register criteria, and because resources listed in or determined eligible for listing in the National Register are automatically listed in the California Register, the identified potential historic district appears eligible for listing in the California Register under Criterion 1.

(iii) City of Long Beach

The 18 buildings and two other features contributing to the identified potential historic district also appear eligible for designation as a local landmark district of the City of Long Beach under Criteria A and B:

- It possesses a significant character, interest, or value attributing to the development, heritage or cultural characteristics of the City, the southern California region, the state or the nation. (Criterion A)
- It is the site of a historic event with a significant place in history. (Criterion B)

2. ENVIRONMENTAL IMPACTS

a. Methodology

In order to identify and evaluate cultural resources, a multi-step methodology was utilized. Record searches for previous documentation of identified prehistoric and/or historic resources were conducted, including listing for pre-historic resources at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton and a sacred lands file check for the Native American Heritage Commission, and listings of historic resources in the National Register of Historic Places, determinations of eligibility for National Register listings, the California Historical Resources Inventory database and

the City of Long Beach Register of Historic Resources. The results of the record search by the SCCIC are attached to the technical reports located in the Appendix. Site inspections were made to document existing conditions, identify character-defining features of those properties evaluated as significant, and define the cultural resources study area. Reconnaissance-level surveys of the study area, including a pedestrian survey of the grounds; photography; and background research were then conducted. Additional background and site-specific research was done in order to evaluate historic resources within their historic context. The National Register of Historic Places, California Register of Historical Resources, and the City of Long Beach criteria were employed to assess the significance of cultural resources.

b. Thresholds of Significance

For purposes of this analysis, impacts to archaeological resources will be considered significant if:

- The project will cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15564.5 of the CEQA Guidelines.

In accordance with Section 21083.2 of the CEQA statute, project impacts to archaeological resources are considered significant if project activities could cause the damage to, and/or destruction of, a site that has been identified as archaeologically unique. The CEQA Guidelines also note that if an archaeological resource is identified as neither a unique archeological resource nor a historical resource, the affects of the project on those resources shall not be considered a significant effect on the environment (CEQA Guidelines § 15064.5(c)(4).

For purposes of this analysis, impacts to historic resources will be considered significant if:

- The project will cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines.

According to Section 15064.5(b), a project involves a “substantial adverse change” when one or more of the following occurs:

  - Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

– The significance of a historical resource is materially impaired when a project:

a. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

b. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or[116]

c. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.[117]

For purposes of this analysis, impacts to paleontological resources will be considered significant if:

- The project will directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

c. Analysis of Project Impacts

(1) Archaeological Resources

The archaeological assessment conducted did not determine the existence of any previously identified archaeological resources within the boundaries of the project site. Two previous surveys within one mile of the project site did not identify archaeological resources within those study areas. However, because much of the project site is entirely covered by buildings or surface paving, the property cannot be surveyed by conventional

[116] *State CEQA Guidelines, 14 CCR Section 15064.5(b)(1).*

[117] *State CEQA Guidelines, 14 CCR Section 15064.5(b)(1).*

archaeological survey methods. Moreover, a testing program by which the subsurface could be explored for the presence of unique archaeological resources could not previously be undertaken due to the safety and security precautions associated with the project site as part of a military and civilian aircraft manufacturing facility. Because survey and testing procedures could not be done, it must be concluded that there is at least a potential for previously unknown, buried archaeological resources to lie beneath the site surface. Although the existence of any such resources is entirely unknown, it is determined, for the purposes of conservative conclusion making, that the discovery of such a resource through post-demolition/post-remediation site grading or excavation would be an adverse and potentially significant, though mitigable, impact.

In addition, although it cannot be confirmed at this time, it is expected that the ongoing demolition activities associated with the mandated remediation program will not disturb native soils substantively more than the original construction and paving activities which installed them. Therefore, the existing condition of native soils following demolition and associated pavement removal is not expected to be substantively affected by those activities, except insofar as soil contamination is discovered which requires excavation and export. Impacts on any extant archaeological resources due to those activities would be attributable to the remediation program as a related project, and not to the PacifiCenter proposal as project impacts.

(2) Paleontological Resources

As discussed above, there are surficial deposits composed of terrestrial Quaternary Alluvium in the uppermost layers of soils within a one-mile radius of the project site. In addition, there are older terrestrial Quaternary deposits that contain significant vertebrate fossils and Plio-Pleistocene marine sediments and fossil vertebrate remains within a one-mile radius of the project site. Since the project site has been previously graded and developed, these deposits do not likely contain significant fossils in the uppermost layers. Therefore, shallow excavations on the project site will not likely encounter significant vertebrate fossils. Deeper excavations, however, could encounter significant terrestrial vertebrate fossils Late Pleistocene (Quaternary) age. In addition, if substantial subsurface excavations are conducted that extend into the underlying Plio-Pleistocene marine sediments, significant invertebrate and vertebrate fossils could be uncovered. These potential impacts will be reduced to less than significant levels with implementation of the mitigation measures provided below.

(3) Historic Resources

As previously discussed, the 18 buildings and two other features contributing to a potential historic district appear eligible for listing on the National Register, California Register, and as a City of Long Beach local landmark (3D). For the purposes of CEQA, the district is also considered a historic resource pursuant to Section 15064.5(a)(2)-(3) of the CEQA Guidelines. Activities associated with the potential district significantly contributed to the history of the aviation industry in southern California, the war (World War II) effort and the movement to use women workers on the Home Front, and to the development and growth of Long Beach and Lakewood.

The ongoing demolition activities necessitated by compliance with the mandated remediation program will remove all contributing and non-contributing resources within the potential historic district with the potential exception of Building 15 in the Boeing Enclave, which could be demolished as part of the remediation program or as part of the project. A project will normally result in a significant adverse impact if it impairs the significance of a historic resource through physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings.[118] However, demolition of Building 15 would not be a significant project impact because this structure does not appear individually eligible for the National Register, the California Register or local landmark designation and because upon its demolition, all other resources contributing to the potential district would already have been removed to provide for the remediation program.

(3) Building 18A—Aircraft Division Headquarters Building

Demolition of the nine-story Aircraft Division Headquarters Building is also necessitated by compliance with the mandated remediation program. This property appears ineligible for individual listing on the National Register and California Register and for designation as a City of Long Beach local landmark because it has been extensively modified since it was constructed in 1962. In addition, it is also considered a non-contributor within the potential historic district because it was built after the district's period of significance. The building is, however, eligible for special consideration in the local planning process (5S3). Because this property is not considered a historic resource for the purposes of CEQA under Section 15064.5(a)(2)-(3) of the CEQA Guidelines, its demolition would not pose a significant impact on the environment. Mitigation measures for this property are not required.

[118] *California Resources Code Section 21084.1*

3. CUMULATIVE IMPACTS

The analysis of cumulative impacts on cultural resources involved an evaluation of whether the impacts associated with the proposed project and cumulative development in the area, when taken as a whole, would substantially diminish the number of extant resources within the same or similar context or property type. Specifically, cumulative impacts involve projects affecting nearby resources with the same level or type of designation or evaluation, projects affecting other structures located within the same National Register district, or projects which involve resources that are significant within the same context as resources associated with the PacifiCenter project site.

a. Archaeological Resources

Development of the proposed project, together with other related projects, could contribute to the progressive and irretrievable loss of access to potential archaeological resources. The project's contribution to that loss is difficult to evaluate since the existence and significance of as yet undiscovered artifacts cannot be predicted. Implementation of relevant preservation laws regarding the protection of archaeological resources will reduce the cumulative impact to a less than significant level.

b. Paleontological Resources

Similar to archaeological resources, cumulative development could result in the progressive and irretrievable loss of access to potential paleontological resources, the project's contribution to which cannot be assessed since the existence and significance of as yet undiscovered fossils cannot be predicted. However, implementation of regulations regarding the protection of paleontological resources will reduce cumulative impacts associated with such resources to a less than significant level.

c. Historic Resources

The identified potential historic district on the PacifiCenter project site appears eligible for the National Register, California Register, and local designation. A project or related project will normally result in a significant impact if it impairs the significance of a historic resource through physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings. The demolition of at least 17 of the 18 buildings and features contributing to the identified potential historic district on-site as part of the ongoing mandated soil and groundwater remediation program (Related Project No. 44) will result in a substantial adverse change in the significance of this historical resource.

The site will no longer retain its historic integrity due to the loss of materials, workmanship, feeling, association, design, setting, and location. This change will result in a significant and unavoidable cumulative effect on the environment.

Following demolition throughout much of the project site as part of the remediation program, one structure considered a contributing resource to the potential historic district will remain. Building 15, located within the Boeing Enclave, is subject to the requirements of the remediation program but may potentially be removed as part of the project. To the extent that Building 15 remains and is not removed as part of the remediation program, its removal may occur under the project if operations in the Boeing Enclave cease. Since this building is only historically significant in the context of the historic district (i.e., it would be an isolated, sole remaining element of the identified potential historic district, and it appears ineligible for individual listing in the National Register, California Register, and for local landmark designation), its demolition would not be considered significant as a project impact. This distinction is important as it recognizes the historic value of the collective resources within the identified potential historic district as well as the extent to which the collective resource is reduced due to the remediation program and associated demolition. However, if Building 15 is ultimately removed as part of the project rather than as part of the ongoing remediation program, the project will contribute to a significant, unavoidable cumulative impact on historic resources. Mitigation is recommended.

4. MITIGATION MEASURES

a. Archaeological Resources

CEQA requires that where potential impacts to archaeological resources cannot be avoided, mitigation measures shall be applied. The following mitigation measures are recommended to assure that should any archaeological resources be discovered during either archaeological testing or construction activities, they would not be significantly affected by the implementation of the proposed project.

The proposed mitigation measures are divided into three components. A first measure recommends a professional survey to be conducted once the mandated remediation program and associated demolition activities are completed over the resulting exposed surface. Following this survey, an updated ARS map will be produced to reflect observed conditions. The second measure tests the Archaeological Resources Sensitivity Map through a program of mechanical probing. The last measure prescribes procedures if archaeological resources are discovered during the mechanical probing program. With

these mitigation measures in place, the discovery of any prehistoric and historic archaeological resources, which may exist within the project site following completion of the mandated remediation program and associated demolition is anticipated. In the event contaminated soils are encountered during the implementation of these three components, appropriate measures shall be taken for the cleanup and/or disposal of the soil as set forth in Section IV, Environmental Setting, and V.E., Hazards and Hazardous Materials, including the Risk Management Plan (RMP) and Assessment Confirmation and Expedited Remediation (ACER) Work Plan set forth therein, of this EIR. In addition, the applicant, through the measures set forth in the RMP, will assure that these measures will not interfere with the remedial measures conducted in conformance with Clean-Up and Abatement Order 95-048 by the California Regional Water Quality Control Board—Los Angeles Region. If at any time an archaeological resource is located, the preferred treatment measure will be to avoid the resource. Avoidance of any such discovered resources will be considered feasible and will be implemented as preferred mitigation if the resource is located within a part of the project site designated for open space and which area will not require mass grading in conjunction with surrounding areas. If it is determined that only a portion of the resource will be affected by the project, then mitigation shall be restricted to those parts of the archaeological resource that would be damaged or destroyed.

Pedestrian Survey and Refinement to the ARS Map

V.C-1 The permitted demolition activities associated with the remediation program cover approximately 80 percent of the Boeing C-1 Facility. Once this area has been cleared of buildings and asphalt, an opportunity exists to refine the ARS map. Many of the assumptions regarding modern impacts will either be validated or dismissed. The geology of the facility will also become clearer. Recording this new data is paramount to discovery efforts.

A pedestrian survey shall be conducted across surfaces exposed during the remediation program. The survey team would include a geoarchaeologist and several archaeologists. Documentation of disturbances and geology would be made when relevant. If remediation of soil occurred, there is the potential to evaluate stratigraphic data. All data gathered during the survey would be incorporated into the refined ARS map. If areas within the remediation program can be determined to have less potential to contain archaeological resources, then testing efforts can be focused elsewhere.

Monitoring Phase: After completion of demolition

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Preparation of a refined ARS Map

Testing Program

V.C-2 The recommended testing program involves the systematic placement of mechanical probes across the project site prior to any new construction. Backhoe trenches will be used as the primary method of probing. Trenches will be placed in areas that are clear of utility lines and where the probability of relatively shallow (less than 5 feet) archaeological deposits is indicated by the Archaeological Resources Sensitivity (ARS) Map. Alternate means of mechanical probing will be initiated only if backhoe trenching is deemed ineffective for a particular area. In these instances, continuous cores and/or auger cores will be used.

Table 20 on page 314 contains the percentage of area covered by each Sensitivity Class on the ARS map and the maximum number of probes proposed in the testing program. Only a handful of mechanical probes shall be placed in Sensitivity Class I areas, where the probability of encountering an intact archaeological deposit is quite low. These areas are highly disturbed and the presence of utility lines and other infrastructure dictate a cautious approach. This class accounts for roughly 11 percent of the entire project site. The majority of the project site, 74 percent, is classified as either Sensitivity Class II or III. Subsurface probes placed in these areas will assess the actual impacts from past construction activities and could result in their reclassification into a lower sensitivity class. Placement of the trenches will depend on particular stratigraphic data encountered, but it is expected that no less than one trench for every five acres will be required. This results in a total of roughly 40 trenches. The highest density of subsurface test probes will be placed in Sensitivity Class IV or V areas, where ten trenches will be placed in each class respectively.

Monitoring Phase: Pre-Construction (throughout testing program)

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Table 20

PROPOSED TESTING PROGRAM

Sensitivity Class	Percentage of Project Site	Maximum Number of Probes
I	10.9	5
II and III	74.1	40
IV	11.6	10
V	3.5	10

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of summary report with findings submitted to the cities of Long Beach and Lakewood

Data Recovery Program

V.C-3 If an archaeological resource is found during the mechanical probing program, a determination will be made regarding whether the resource can be avoided by the proposed development. If not, data recovery measures will commence. In this section, data recovery measures are specified for various types of archaeological resources to account for variability in site size, density and character.

Should an archaeological resource be discovered, it will go through a three-phase data recovery program of fieldwork followed by laboratory analysis and reporting. The first phase of fieldwork will involve the definition of the archaeological site boundary and an evaluation of site integrity.

The objective of this phase is the characterization of the archaeological deposit, which will be accomplished through the hand excavation of a small number of test units. The second phase involves the mechanical excavation of the entire deposit area that will be impacted by construction activities. The careful removal of the site will allow archaeologists to recover important scientific information on formation processes and site function and to detect cultural features. The third phase of fieldwork will ensue if features are identified. All features will be hand excavated in their entirety. Fieldwork will be followed by analysis of the recovered materials, the preparation of a technical report, and curation of all project-related materials.

Phase 1: Site Characterization

Should an archaeological resource be encountered, it will be subjected to site boundary definition. This measure entails an assessment of the resource at the time of discovery. Site boundary definition may require the excavation of backhoe trenches to trace out the subsurface extent of the discovered resource. A backhoe will be used to remove fill and to excavate a series of trenches through the site area. The purpose of the trenches is to define the horizontal and vertical extent of the site and to identify any potential subsurface features. A geoarchaeologist will also inspect the resource and the surrounding sediments to determine whether or not it is in situ. If the discovery is determined to be an archaeological resource, then data recovery measures will be enacted.

Archaeological resources can be divided into two broad categories; prehistoric and historic. Examples of archaeological resources are presented along with the projected Phase 1 level of mitigation effort. All examples assume that project-related activities would not allow the resource to be preserved in place and that damage to the entire resource may be expected.

Prehistoric Sites

Prehistoric archaeological resources common to the Los Angeles Basin include habitations, special activity sites, artifact scatters, and isolated features.

Habitations. In the Long Beach area, habitation sites consist of accretional midden deposits. These deposits are often composed of organic remains including vertebrate and invertebrate fauna as well as stone and shell artifacts. Features found in these middens may include hearths, storage pits, piles of fire-affected rock, and burials.

During Phase 1 data recovery of habitation sites, hand excavation of a sample of test units shall occur. In all cases, at least four test units will be excavated, with the maximum number of units not to exceed 10 percent of the area within the archaeological site boundaries. Excavation units will be placed according to trench profiles created during site boundary definition. Test units will be 1-by-1-m in size and excavated stratigraphically where possible. If natural or cultural strata are not evident, units will be excavated in arbitrary 10-cm levels. All materials will be screened through ? -inch mesh hardware cloth and collected separately. Photographs will be taken of selected units, and profiles will

be drawn of each unit. Appropriate paperwork will be filled out during the excavation to accurately track all artifacts, samples, and soil removed from the site. Geoarchaeological documentation will include description of soils and stratigraphy.

Special Activity Sites. Special-activity middens are typically food-processing locales that are rich with marine shell and lithic materials. These sites are less likely to contain features and rarely contain burials. Because of the homogenous nature of these sites, less excavation effort will be necessary to characterize the deposit.

At least two test units at each special-activity site shall be excavated, with the maximum number of test units not to exceed 5 percent of the site's defined area. These units will provide sufficient data to address regional research issues. Excavation will proceed as outlined above.

Artifact Scatters and Isolated Features. Artifact scatters is a category of site that includes numerous functions and manifestations. A flaked stone chipping station or a closely associated set of manos and metates would qualify as an artifact scatter. Artifact scatters are often difficult to identify during trenching or grading activities because their archaeological signature does not necessarily contain a discoloration of the soil. Isolated features are also difficult to identify during trenching and grading. Small hearths and roasting pits, for example, often go undetected because of their small size.

For artifact scatters, a sample of two test units at each site shall be hand excavated, with the maximum number of test units not to exceed 5 percent of the total site area. All isolated features encountered will be excavated in their entirety. Excavation will proceed as outlined above.

Historical-Period Sites

Types of historical-period archaeological resources include trash scatters, wells, privies, foundations, and water control features. Based on early 20th century photos, the project vicinity was used as pasture or grazing land. As such, the remnants of wells, fence lines, watering troughs, and the like that may have been associated with such agrarian activities may be encountered.

In the event that a historical-period feature is encountered, intact portions shall be defined and a sample of associated artifacts from undisturbed

contexts shall be excavated. In the event that features such as privies or wells are encountered, at least half of the undisturbed deposit will be hand excavated according to the methods outlined below (see Phase 3: Feature Excavation). For features that have no associated artifacts, such as fence posts, wall remnants, and water troughs, the feature shall be documented through photographs, notes, and drawings.

Historical-period trash scatters may also occur on the project site. After the area of any encountered trash scatter has been defined, at least two test pits will be manually excavated, with the hand-excavated sample not to exceed 5 percent of the site area.

Phase 2: Mechanical Excavation

Once an archaeological site has been adequately characterized through the hand excavation of test pits, that portion of the site that will be destroyed by construction activities will be mechanically excavated. Using a tracked backhoe or similar equipment fitted with a flat blade, the archaeological deposit will be removed in 10-cm levels. The operation will be monitored by a professional archaeologist. Selected portions of the removed fill will be screened through ? -inch mesh hardware cloth; provenience of the screen material will be set to the site grid and elevation. Features, occupational surfaces, and activity areas will be flagged. Mechanical operations will cease at this point, and hand excavation will ensue (see below). Upon completion of feature excavation, mechanical excavation will resume in an attempt to discover additional features. Mechanical excavations will cease at the base of the archaeological deposit.

Phase 3: Feature Excavation

In the event that archaeological features, such as hearths, roasting pits, or house floors, are discovered, archaeologists will excavate them in their entirety. Smaller features may be bisected and excavated in two halves; larger features may be quartered. Additionally, areas surrounding features will be excavated to ensure that data from related activity areas are collected. In the event that occupational surfaces are identified, the surface will be gridded and excavated in its entirety.

Excavated fill will be screened through ? -inch mesh hardware cloth. Paleobotanical and chronometric samples will be collected from appropriate contexts. All excavated features will be documented thoroughly with photographs, profiles, plan maps, and field notes.

Provisions for the treatment of human remains in the event that they are discovered are detailed below.

Lab Sorting and Analysis

After completion of excavations of an archaeological resource, materials collected will be transported to a qualified archaeological laboratory. Maintaining data integrity and information retrieval are primary goals of laboratory analysis. Toward this end, computerized inventories of artifacts and samples, provenience information, and storage boxes are maintained. Artifacts are generally cleaned and processed to the extent that attributes can be observed and recorded, without damaging the artifacts. Archival-quality storage materials are used for artifacts, photographs, and slides. Following processing and cataloging, materials are rebagged and checked out to the analysts for study.

Analysts will carry out intensive analysis of artifacts and samples recovered during the excavation. This includes lithic, faunal, pollen, phytolith, macrofossil, historical-period artifact, and chronometric analyses.

Report Preparation

A professional report will be issued detailing the findings of archaeological data recovery. The report will consist of a project background, description of field methods, results of archaeological investigations, a geomorphological evaluation, and management recommendations. All artifacts recovered from testing will be identified and analyzed, and appropriate chapters containing this information will also appear in the report. All project-related materials will be curated at a repository meeting the state standards.

Monitoring Phase: Pre-Construction (throughout testing program)

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of summary report with findings to the Cities of Long Beach and Lakewood

Discovery of Native American Remains and Funerary Items

V.C-4 In the event that human bone and associated funerary items are uncovered during the course of the field investigations, the following protocol will be followed per State CEQA Guidelines §15064.5(e):

1. All work in the area will be halted.

2. The Los Angeles County Coroner will be contacted in accordance with Section 7050.5(b) of the California Health and Safety Code.

3. A representative from the coroner's office will come to the site and determine whether the remains are subject to the provisions of Section 27491 of the California Government Code or other related provisions of law concerning investigation of the circumstances, manner, and cause of death, as required by Section 7050.5(b) of the California Health and Safety Code. The coroner will make this determination within two working days of notification.

4. If the coroner determines that the remains are those of a Native American, Section 7050.5(b) of the California Health and Safety Code requires that the coroner contact the Native American Heritage Commission by telephone, at (916) 653-4082, within 24 hours.

5. The Native American Heritage Commission will proceed to contact the most likely descendant (MLD) and will coordinate the final disposition of the remains with the most appropriate local Native American representative, according to the provisions of Section 5097.98 of the California Public Resources Code.

6. Copies of all correspondence regarding the discovery of human remains will be included as a confidential appendix of the data recovery excavation report, to be provided to all parties but not circulated for public review.

Monitoring Phase: Pre-Construction (throughout testing program) and Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: If remains are encountered, preparation of the data recovery excavation report

Accidental Discovery

V.C-5 If archeological resources of any nature should be accidentally encountered during construction activity on the project site, work shall be temporarily suspended in the immediate area of the discovery. In such case, a qualified archaeologist shall be called in to evaluate the find and to determine if it is unique as defined in Public Resources Code Section 21083.2(g). Should the find be determined to be unique, a mitigation plan specifying data recovery shall be defined and implemented. Construction may be reconvened in any area determined by the archaeologist not to adversely affect the unique archeological resources accidentally discovered.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: If remains are encountered, preparation of written report by archaeologist

b. Paleontological Resources

V.C-6 If unknown paleontological resources are discovered during any grading or construction activity, work will stop in the immediate area. Upon such discoveries a qualified paleontologist shall be consulted to determine the discovery's significance and, if necessary, formulate a mitigation plan,

including avoidance alternatives, if feasible, to mitigate impacts. Work can only resume in that area with the approval of the project paleontologist. The paleontologist shall be selected from a list of qualified paleontologists maintained by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County.

Monitoring Phase: Pre-Construction (throughout testing program) and Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: If remains are encountered, preparation of written approval from paleontologist

c. Historic Resources

Although impacts on historic resources attributable to the PacifiCenter Project, itself, would not be significant and do not require mitigation in and of themselves, the Project's impacts do contribute adversely to already significant cumulative impacts caused by the mandated remediation program and do require mitigation. The following mitigation measures are recommended to reduce the PacifiCenter's contribution to significant cumulative impacts to an identified potential historic district on-site, all but two of the contributing structures and features (i.e., Building 15 and underground features) of which will be removed by permitted demolition activities necessitated by compliance with the mandated remediation program:

Recordation

V.C-7 Prior to the demolition of structures and features contributing to the potential historic district in compliance with the mandated remediation program, a Historic American Building Survey (HABS) Level II recordation document shall be prepared. This report shall document the history of each building within the historic district and their physical conditions, both historic and current, through site plans, historic maps and photographs, current photographs, written data, and text. The document shall include:

a. Written text documenting the history and architectural and engineering features of the property. This text should include a contextual history of Douglas Aircraft and its significant role in American aviation and World War II, as well as its history in Long Beach and southern California. Biographical information regarding Donald Douglas and the Taylor Brothers (Edward Cray and Ellis Wing), the principal architects of the facility, should also be included. Published references related to the construction of the facility, the activities of the Douglas Aircraft Company, Long Beach Plant during the district's period of significance, and other bibliographic sources should be included as well.

b. Photographic documentation noting all exterior elevations and primary interior features. Photographs should be large format, black and white, archivally processed, taken by a professional photographer familiar with the recordation of historic buildings, and prepared in a format consistent with HABS guidelines and standards. Views shall include several contextual views, all exterior elevations, detailed views of significant exterior architectural/historical features, and interior views of significant historical/architectural features or spaces (if any).

c. Photographic copies or original prints (per HABS guidelines) of historical photographs should also be included in the HABS document.

d. A sketch floor plan on 8½" x 11" paper shall accompany each building documented.

e. Archival originals of the recordation document shall be submitted to the National Park Service for submission to the Library of Congress.

f. Archival copies of the recordation document shall be submitted to the California Office of Historic Preservation, the City of Long Beach Planning Division (the City's Neighborhood Preservation Officer), City of Long Beach Main Public Library, the Long Beach Heritage, the Historical Society of Long Beach, and the Boeing Company Historical Archives-Cerritos location.

Monitoring Phase: Prior to demolition of structures and features that contribute to the potential historic district

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Completion and submittal of HABS Level II recordation document to named agencies

Educational and Interpretative Programs

V.C-8 To assist the public in understanding the history of the Long Beach facility, an on-site interpretive program display or other photographic and textual representation shall be created and shall be available to the general public. This educational program should include information specific to the facility's contribution to the history of the aviation industry in southern California, the war (World War II) effort and the movement to use women workers on the Home Front (Rosie the Riveter), and in the development and substantial growth of the Long Beach and Lakewood areas. Such interpretive programs may be in the form of commemorative signage and/or plaques; historical photographs; models; and/or published information such as brochures, videos, electronic media, etc. Materials such as those in the interpretive exhibit currently displayed at the Boeing Long Beach facility in the Boeing Realty Company Visitor's Center (Building 1) could be used to satisfy this mitigation measure, incorporated on-site into the overall design of the proposed project, and maintained regularly.

Monitoring Phase: Operation

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Implementation of education program and preparation of bi-annual reports by the Applicant

5. SIGNIFICANCE AFTER MITIGATION

a. Archaeological Resources

Because the project will comply with the proposed mitigation measures, potential impacts to archaeological resources are considered mitigated to below a level of significance.

b. Paleontological Resources

Compliance with the proposed mitigation measure pertaining to paleontological resources will ensure that potential impacts to paleontological resources will be less than significant.

c. Historic Resources

Under CEQA the mitigation measures would reduce but would not eliminate the PacifiCenter project's contribution to significant cumulative impacts to the potential historic resources. Demolition of all but one contributing building within the potential historic district in compliance with the remediation program, a related project, would result in the irretrievable loss of the district thereby resulting in a significant adverse cumulative change to the environment. The process of demolition of 17 of the 18 contributing buildings and two other features that define the potential historic district on the State level is considered a significant impact in accordance with Sections 21098.1 and 5020.1(q) of the Public Resources Code and cannot be mitigated to a less than significant level. Should demolition of Building 15 not be required for the remediation program, the PacifiCenter project impact due to demolition of Building 15, the last remaining contributing structure to the potential historic district following demolition necessitated by the remediation program, would not be a significant project impact since this building does not appear to be eligible for the National Register, the California Register or local landmark designation. This project impact does, however, contribute to an already significant cumulative impact.

The mitigation measures outlined for documentation of the resource and its significant character-defining features are important to assure that information regarding the historic district's contribution to the history of the city, region, and nation is retained. Even with the recommended mitigation measures, cumulative impacts on this historic resource would be considered significant and unavoidable.

This section is based on the Preliminary Geotechnical Investigation and Geologic Hazard Evaluation (Geotechnical Investigation) prepared by Leighton and Associates, Inc. and the Grading Memorandum prepared by Sharma General Engineering Contractors, Inc. for the proposed PacifiCenter project (refer to Appendices H and I of this EIR for copies of these materials).

1. ENVIRONMENTAL SETTING

a. Existing Conditions

(1) Physiography and Topography

The project site lies within the southern portion of the Downey Plain, a relatively flat, alluvial coastal plain within the Los Angeles Basin. The majority of the project site is located in the northern portion of the City of Long Beach, while the remainder of the project site is located in the southwest portion of the City of Lakewood. The Dominguez Hills are located approximately 4 miles west of the project site. In addition, Signal Hill sits approximately 1.75 miles southwest of the site, with elevations reaching approximately 400 feet above mean sea level (amsl). The Los Angeles River, which runs in a north-south direction and drains into the Pacific Ocean, is located 2.5 miles west of the site.

Elevations within the project site range from approximately 54 feet amsl at the western border of the site to a minimum elevation of approximately 34 feet amsl at the southeast end of the site, with a total difference in elevation throughout the site of about 20 feet. As such, the site exhibits a southeast gradient of approximately 0.35 to 0.4 feet per 1,000 feet, which is considered to be relatively flat with little topographic relief.[119]

[119] *Tetra Tech, Inc., Boeing C-1 Long Beach Facility, Phase I ESA Report, February 2000.*

(2) Soils

Quaternary non-marine terrace deposits underlie the entire project site.[120] The natural soil types found on the project site generally consist of interlayered mixtures of sand, silt, and clay to the maximum explored depth of approximately 61.5 feet. Granular materials found on-site are typically medium dense to very dense, and fine-grained soils are generally stiff to hard. However, layers of loose sand and silty sand have been encountered in past borings. Surficial fill materials of varying depths are assumed to exist throughout the site under existing building areas and as backfill for previous excavations and foundations.

The project site contains shallow soils that exhibit low to moderately expansive properties and moderate to highly compressible properties. However, as indicated in the Geotechnical Investigation, the collapse potential of the subsurface soils is estimated to be low.[121]

(a) Soil Corrosivity

Soil corrosion involves the deterioration of reinforced concrete foundations or various types of steel substructures due to a reaction with the surrounding soils. As indicated in the Geotechnical Investigation, the soils on the project site are anticipated to have a low potential for concrete deterioration, but would provide a slightly corrosive environment for buried metals and a corrosive environment for ferrous materials.

(3) Slope Stability

Landslides are typically associated with slope instability or earthquake-induced ground movement that occurs in proximity to steep canyons or hillsides. Based on the relatively flat topography of the site, the potential for landslides to affect the project site is remote. In addition, the California Geological Survey (CGS) within the Department of

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[120] *Patrick Schmidt, Leighton and Associates, personal communication, July 13, 2001.*

[121] *Leighton and Associates, Geotechnical Investigation and Geologic Hazard Evaluation, October 2002.*

Conservation has not identified any areas in the project vicinity containing unstable slopes which may be prone to seismically produced landslides.[122]

(4) Tectonic Setting and Seismicity

(a) Faulting and Ground Shaking

The project site is located in a seismically active region of southern California and, therefore, could be exposed to strong ground motion or ground shaking during a seismic event. As shown in Figure 36 on page 328, several active and potentially active faults are located within southern California. Regional active faults that could produce considerable ground shaking at the site include, but are not limited to, the following: Newport-Inglewood, Palos Verdes, Elysian Park Thrust, and Whittier. Of these faults, the Newport-Inglewood Fault is closest to the project site with surface projections of potential rupture area located 2.5 miles from the site.

Important factors which determine the ground shaking intensity at a given location include: distance from the epicenter; size or magnitude of the earthquake; and local soil, geologic, and hydrologic conditions.[123] In accordance with CGS criteria, Peak Horizontal Ground Accelerations (PHGA) for the site were estimated using probabilistic seismic hazard analysis. As indicated in the Geotechnical Investigation, this analysis suggests a maximum probable earthquake (10 percent probability of exceedance in 50 years) ground acceleration of 0.53 g for the site.[124,125] This value is considered to be within the typical range for the Long Beach area.

Ground rupture is defined as the surface displacement caused by an earthquake. The project site is not located in an Alquist-Priolo Earthquake Fault Zone as defined by the

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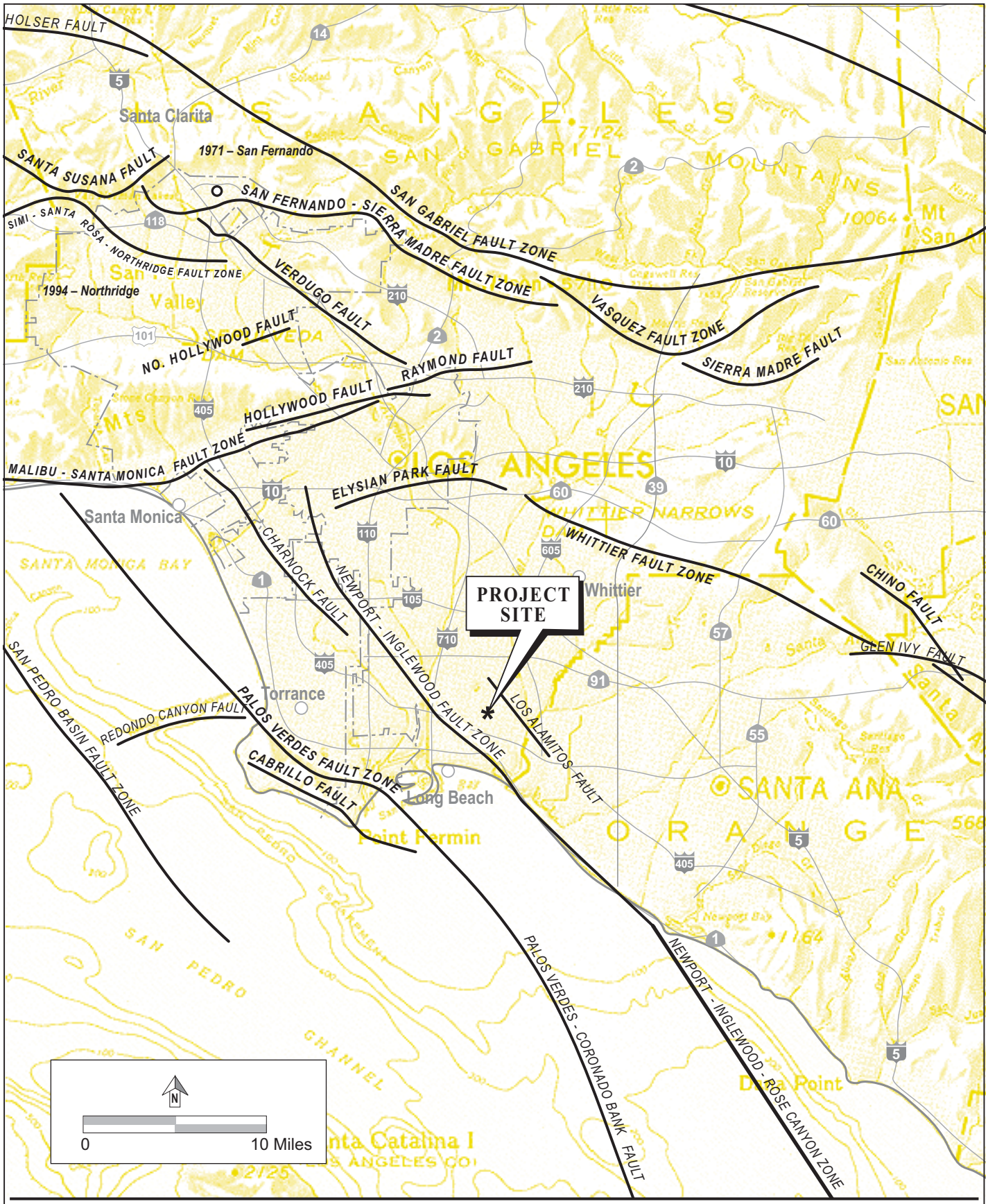
[122] *California Geological Survey, ftp://ftp.consrv.ca.gov/pub/dmg/shezp/evalrpt/zipped/OFR98-19.pdf, December 6, 2002.*

[123] *As discussed in the Geotechnical Investigation, the most probable magnitude of earthquakes that dominate the potential hazard at the site is 6.75 Mw (moment magnitude). The distance to the earthquake that contributes most to the potential hazard at the site (modal distance) is approximately 1.25 miles.*

[124] *g = acceleration due to gravity*

[125] *As discussed in the Geotechnical Investigation, 10 percent probability of exceedance in 50 years ground acceleration is the value typically used for design of structures, such as those proposed for the PacifiCenter project. The upper bound earthquake (10 percent probability of exeedance in 100 years) PHGA was determined to be approximately 0.69 g, which is considered in the design of essential structures, such as hospitals.*



PCR

Figure 36
Major Regional Faults

Source: U.S.G.S 1999 Data 1994 Fault Activity DMG Open-File Report by C. Jennings and PCR Services Corporation, July 2003

CGS. As discussed in the Geotechnical Investigation, the closest Alquist-Priolo Earthquake Fault Zone is associated with the Newport-Inglewood Fault, approximately 2.5 miles southwest of the site.[126] No evidence of known active fault traces have been mapped at the project site. Therefore, the potential for primary ground rupture within the project site during a seismic event is low.

(b) Other Seismic Conditions

Hazards associated with seismic activity other than faulting and ground shaking include the following:

Liquefaction and Seismic Settlement. Liquefaction is a phenomenon in which the structure of saturated soil collapses during strong ground shaking of considerable duration, causing water pressure in the soil to rise sufficiently to make the soil behave like a fluid for a short period of time. As a result, the soil temporarily loses considerable strength and capacity. Liquefaction generally occurs when three conditions exist: shallow groundwater; low density, fine, clean sandy soils; and high density ground motion. The effects of liquefaction on level ground include settlement and bearing capacity failures below structural foundations.

As previously discussed, granular materials found within the project site were typically medium dense to very dense, and fine-grained soils were typically stiff to hard. These soils are not generally susceptible to liquefaction. Although loose granular soils, which are more susceptible to liquefaction, were encountered in some borings during field investigations, the preliminary geotechnical analysis indicates that liquefaction is not generally expected to be an important concern for the site. However, the potential for liquefaction could affect areas within the eastern and western portions of the site, which are located within Liquefaction Hazard Zones as determined by CGS (refer to Figure 37 on page 330). As indicated in the Geotechnical Investigation, in order for liquefaction to significantly affect these areas of the site, existing groundwater levels would need to rise 10 to 20 feet above current groundwater levels. If this were to occur, liquefaction settlement (i.e., when the ground surface settles) could be on the order of one to two inches or less.

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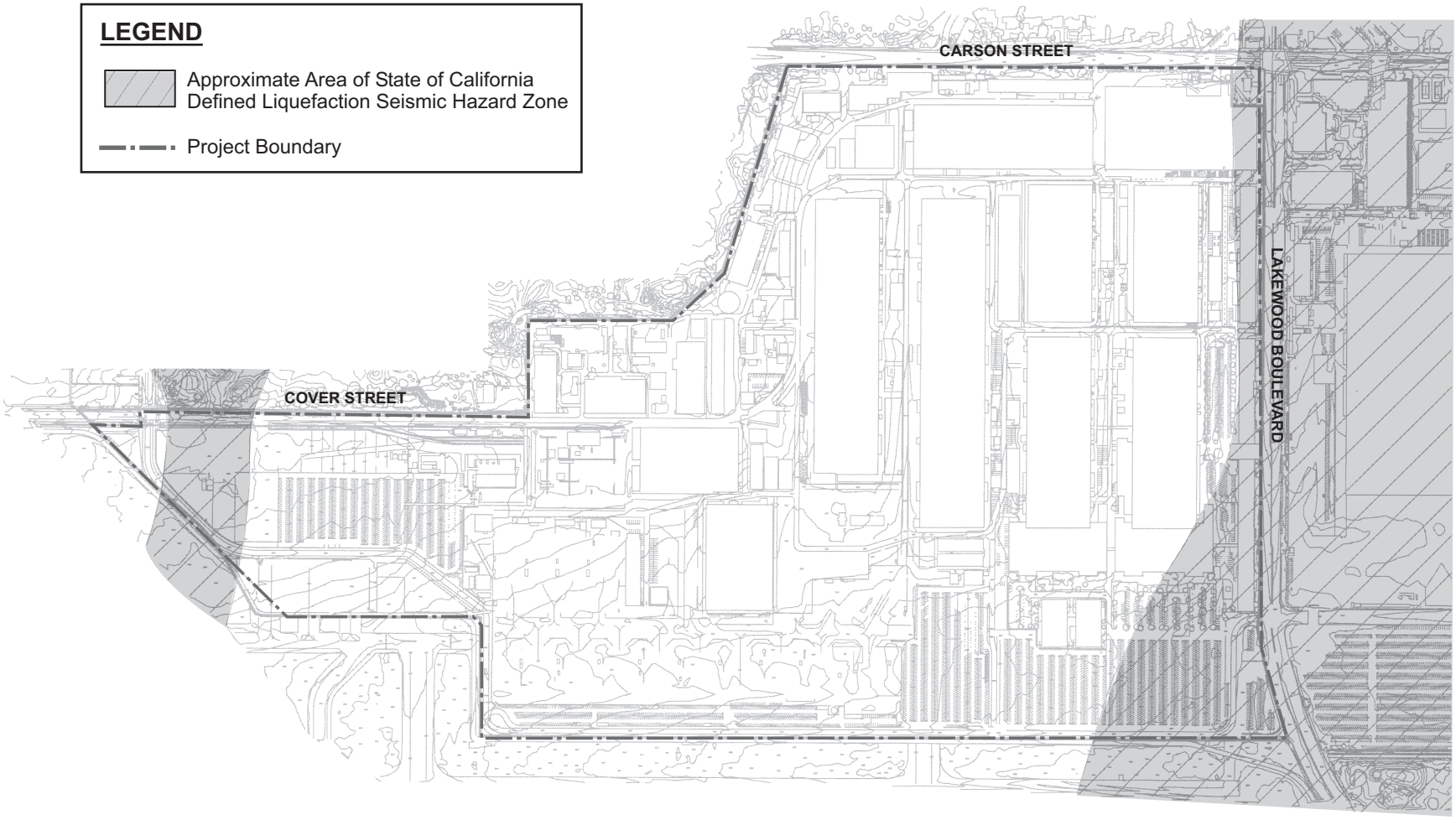
[126] *Alquist-Priolo Earthquake Fault Zones (formerly Special Study Zones) have been established throughout California. These zones identify areas where potential surface rupture along a fault could prove hazardous. The zones identify where special studies are required to characterize hazards to habitable structures*



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0 1000 Feet

Source: Leighton and Associates, 2003

Figure 37
Liquefaction Hazard Zones

Lateral Spreading. Seismically induced lateral spreading is caused by the lateral movement of earth materials due to ground shaking. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. As discussed in the Geotechnical Investigation, due to the types of soils on-site, the potential for lateral spreading is very low.

Seiche and Tsunami. A seiche is the oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, storage tank, or lake, in response to earthquake activity. There are no enclosed bodies of water within the project site that can experience seiches during an earthquake. The closest water body to the site is Bouton Lake, located in the Lakewood Country Club Golf Course, approximately 400 feet north of the site. Given the distance of this body of water from the project site, the potential for seiches at the site is low.

A tsunami is a series of waves of extremely long wavelength (distance between two sucessional waves) and long period (time between two sucessional waves). A tsunami can be generated by any disturbance that displaces a large water mass from its equilibrium position and can be associated with earthquakes, landslides, volcanic eruptions, and nuclear explosions. Tsunamis are typically caused by large shallow earthquakes when tectonic displacement of the sea floor occurs and the overlying water is displaced from its equilibrium position. The project site's distance from the ocean precludes the potential for tsunamis.

Seismically Induced Flooding. Seismically induced flooding occurs when water retention structures or facilities (such as dams or above-ground detention facilities) fail, allowing water to flow downstream unabated at higher-than-normal volumes. The project site is not located within close proximity to any water retention structures or facilities. Therefore, as discussed in the Geotechnical Investigation, the potential for seismically induced flooding to occur is considered low.

(5) Mineral Resources

According to CGS, there are no known mineral resources located within the portion of the project site located within the City of Long Beach, or the portion of the project site located within the City of Lakewood.[127]

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[127] *Russell Miller, Geologist, California Department of Conservation, California Geological Survey (formerly the Division of Mines and Geology), personal communication, June 11, 2001.*

b. Regulatory Framework

(1) California Department of Conservation, California Geological Survey [128]

The CGS provides guidance with regard to seismic hazards. Under CGS's Seismic Hazards Mapping Act, seismic hazard zones are to be identified and mapped to assist local governments in planning and developing purposes. The intent of this publication is to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and other hazards caused by earthquakes. In addition, CGS's *Special Bulletin 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California* provides guidance for the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations.

(2) City of Long Beach

Building and construction within the City of Long Beach are subject to the regulations of the City of Long Beach Municipal Code. Municipal Code Chapter 18.24, Building Codes, adopts and incorporates by reference the California Building Code, Volumes I and II, 2001 edition. This Municipal Code chapter includes amendments and modifications to the California Building Code that are specific to the City of Long Beach. The California Building Code in turn incorporates provisions of the Uniform Building Code (UBC), which contains seismic design criteria and grading standards.

The City of Long Beach adopted the Seismic Safety Element of the General Plan in October 1988. The purpose of this element is to provide a comprehensive analysis of seismic factors in order to reduce the loss of life, injuries, damage to property, and social and economic impacts resulting from future earthquakes. The Seismic Safety Element contains goals and recommendations that provide guidance for development in seismically active areas. Specifically, the Element contains goals such as: (1) reducing public exposure to seismic risks; (2) providing an urban environment which is as safe as possible from seismic risk; and (3) providing the maximum feasible level of seismic safety protection services.[129]

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[128] *The California Geological Survey was formerly known as the Division of Mines and Geology.*

[129] *City of Long Beach, Seismic Safety Element, City of Long Beach General Plan, October 1988, pages 9-10.*

(3) City of Lakewood

The City of Lakewood Municipal Code regulates building and construction within the City of Lakewood. With regard to seismic design criteria, the City of Lakewood follows the Los Angeles County Code, which adopts and amends the 2002 edition of the UBC. In addition, the City of Lakewood defers to Los Angeles County Code, Chapter 70, Excavation and Grading, with regard to regulations governing grading activities. Chapter 70 contains regulations for the control of excavation, grading, earthwork construction, and the control of grading site runoff, including erosion sediments.

The City of Lakewood adopted the Safety Element of the Comprehensive General Plan in November 1996. The Safety Element addresses issues associated with the protection of the public from geological hazards, as well as appraisal of all potential seismic and geologic hazards. The Safety Element contains specific goals and policies, such as: (1) minimizing personal and property damage from earthquakes; and (2) requiring all new development to comply with established seismic safety standards.[130] Consistency with these goals and policies are intended to help minimize impacts associated with seismic and geologic hazards.

2. ENVIRONMENTAL IMPACTS

a. Methodology

An assessment of proposed grading, site design, and existing seismicity conditions was performed to identify potential impacts associated with geology and soils. As indicated above, the analysis is based on the Geotechnical Investigation, which was prepared by Leighton and Associates, Inc. and is included as Appendix H of this EIR. The Geotechnical Investigation was prepared based on review of existing documentation, field investigations (subsurface exploration), and laboratory testing. In addition, the Grading Memorandum prepared by Sharma General Engineering Contractors, Inc., included as Appendix I of this EIR was reviewed in preparation of this analysis.

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[130] *City of Lakewood, City of Lakewood Comprehensive General Plan Policy Document, pages 7-8.*

b. Thresholds of Significance

For the purposes of this analysis, a distinction is made between geotechnical impacts associated with proposed grading and site design activities and impacts related to seismic events. Impacts will be considered significant if:

(1) Grading and Site Design

- Development of the proposed project will result in substantial soil erosion or the loss of topsoil;
- The project will be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse;
- The project will be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- Proposed grading and earthmoving plans are not in accordance with applicable City of Long Beach or City of Lakewood regulations.

(2) Seismicity

- The proposed project will expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking; or
  - Seismic-related ground failure, including liquefaction.

c. Project Features

The PacifiCenter project will be constructed in accordance with State and City regulations and ordinances governing earthwork activities and seismicity. In addition, as part of the project, detailed geotechnical studies will be prepared for each building to be constructed to minimize potential geological impacts as required under the City of Long

Beach and City of Lakewood Municipal Codes. The proposed project will also comply with California Building Code and UBC requirements, which are adopted and amended in the Municipal Codes, to minimize seismic hazards. Furthermore, the project will comply with the CGS *Special Bulletin 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California* (1997). Additionally, grading plans will be designed such that final grades will be compatible with streetscape grades and soil erosion will not flow off-site.

d. Analysis of Project Impacts

(1) Grading and Site Design

As discussed in Section III, Project Description, the PacifiCenter project will provide new R&D, light industrial, office, retail, hotel, housing, aviation-related, and ancillary uses within a site recently developed with over five million square feet of floor area. The Geotechnical Investigation indicates that the project site is suitable for development of the proposed uses.

As a separate approved project, demolition and soil removal will occur within much of the project site prior to the commencement of project construction as part of a soil and groundwater remediation program currently underway per Cleanup and Abatement Order 95-048 (refer to Section IV, Overview of Environmental Setting, for a description of the remediation program). Such activities will involve the grading, removal, and export of contaminated soils identified on the site, and demolition of all existing development. Demolition activities within the Boeing Enclave may also occur at some future date as a result of the mandated remediation program. However, to provide for a conservative analysis, this EIR assumes that demolition of the Boeing Enclave will ultimately be completed as part of the project.

Overall, project grading is estimated to require a total of 319,309 cubic yards of cut and 325,311 cubic yards of fill. Additionally, to compensate for existing soil compaction deficiencies and prepare the site for new development, approximately 1.74 million cubic yards of soil will be overexcavated and recompacted. It is assumed that overexcavation and recompaction will occur to an average depth of 3 feet in the designated commercial areas of the project site and 6 feet within the residential areas. For the purposes of evaluating the environmental impacts of the PacifiCenter project relative to geology and soils, this remedial grading of 1.74 million cubic yards of soil is considered part of the project. Shrinkage on the order of 15 percent was assumed for both cut and fill operations and remedial grading.

Taking soil shrinkage, overexcavation, and recompaction into account, total net import of an estimated 347,015 cubic yards of soil may be necessary throughout the course of project development. However, the precise amount of import required will vary depending on actual shrinkage and the extent to which demolition spoils (from both the Boeing Enclave and the balance of the site) may be used as crushed base material for project street sections. The amount of import will also vary based on the development of individual sites within the project boundaries. Excess soil generated from the grading of individual sites, installation of underground utilities, excavation for foundations, and fine grading may reduce or eliminate the need for the importation of soil (where the excess soil is consistent with the standards set forth in the Risk Management Plan (RMP) as discussed in Section V. E, Hazards and Hazardous Materials, of this EIR). To account for the final development of individual sites, each construction phase will create an area that is lower than the adjacent finished grade to accommodate any excess soil generated during final development of that area. Any importation of soil may therefore be deferred to the end of project construction and could be substantially less than the amount estimated.

Activities associated with the importation of soil will occur in accordance with City of Long Beach and City of Lakewood Public Works Departments' requirements (please see Section V.D.1.b., Regulatory Framework, above) as specified through grading plan review and approval. In addition, if contaminated soil is encountered during earth-moving activities, appropriate measures will be taken for the cleanup and/or disposal of the soil, as set forth in Section V.E, Hazards and Hazardous Materials, of this EIR and the RMP set forth therein.

The overall final grading of the site will be similar to existing conditions and the site will remain relatively flat. Grading activities will result in maximum and minimum final grades of approximately 57 feet and 34 feet, respectively. Since the project site is relatively flat, and grading and construction will comply with California Building Code, UBC, and CGS requirements, project implementation will not cause unstable soil conditions. In addition, as previously indicated, the collapse potential for subsurface soils is estimated to be low. Furthermore, on-site soils that may be compressible or expansive will be overexcavated and compacted in accordance with requirements set forth in the site-specific geotechnical studies required for the project. Therefore, the project will not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. Therefore, impacts associated with unstable soils will be less than significant. Impacts associated with expansive soils will also be less than significant.

Since the project will require substantial grading and filling, erosion could occur on-site. Specifically, grading, excavation, and other earth-moving activities could expose site soils to wind- or water-generated erosion. However, as described in Section V.G, Water Quality, of this EIR, best management practices (BMPs), which will reduce and/or eliminate erosion potential, will be developed as part of the proposed project. Implementation of BMPs will ensure that development of the project will not result in substantial soil erosion or the loss of topsoil. Therefore, erosion-related hazards will be minimized on the site and impacts will be less than significant.

As previously discussed, the Geotechnical Investigation indicates that the on-site soils could provide a corrosive environment for steel components required for building foundations. However, additional testing will be conducted in accordance with the requirements of site-specific, detailed geotechnical studies to be prepared as specific buildings are proposed. Construction techniques required by these detailed geotechnical reports and California Building Code/UBC requirements may include, but will not be limited to, providing a protective coating for below-grade steel components and 3-inch concrete covers on all steel and wire concrete reinforcements.

The Geotechnical Investigation indicates that several foundation construction methods will be potentially suitable for support of the proposed development. In general, it is expected that proposed two- to four-story buildings could be supported by shallow foundation systems on compacted fill soils. It is anticipated that buildings of five or more stories in height will require a deep foundation scheme, such as driven piles, extending 40 to 60 feet below site grade. The actual method of foundation support of proposed buildings will be determined based on structure-specific geotechnical studies that are required to be prepared in accordance with the California Building Code and/or UBC.

Other associated or indirect impacts could occur from the grading of the site. Refer to Section V.B, Air Quality, of this EIR regarding impacts associated with dust. Refer to Sections V.B, Air Quality, and V.G, Water Quality, of this EIR regarding soil erosion. Refer to Section V.E, Hazards and Hazardous Materials, of this document regarding soil and groundwater contamination. In addition, refer to Section V.L, Transportation and Parking, regarding impacts associated with construction traffic.

(2) Seismicity

As previously discussed, no known active or potentially active faults pass directly beneath the project site. In addition, the site is not located in a known fault hazard zone. However, known regional active faults (i.e., the Newport-Inglewood, Palos Verdes, Elysian Park Thrust, and Whittier Faults) could produce substantial ground-shaking at the project

site. Therefore, similar to development throughout southern California, implementation of the proposed project will result in exposure of the on-site residents and employees to a degree of seismic hazard risk. The proposed project will be constructed in accordance with California Building Code, UBC, and Municipal Code requirements. In addition, as previously discussed, the maximum probable earthquake ground acceleration of 0.53 g will be taken into consideration when designing all structures on the project site to minimize potential seismic hazards. Furthermore, geotechnical studies prepared for each building on the project site will be undertaken in accordance with the CGS *Special Bulletin 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California* (1997), which provides guidance for evaluation and mitigation of earthquake-related hazards. Therefore, potential impacts associated with the exposure of people or structures to seismic hazards, including rupture of a known earthquake fault and strong seismic ground shaking, will be reduced to the extent possible and will be less than significant.

As previously discussed, other potential impacts associated with seismic activities that could occur on the site include liquefaction. In general, the site soils are not susceptible to liquefaction. However, as shown on Figure 37 on page 330, the eastern edge and western portions of the site are located within the CGS Liquefaction Seismic Hazard Zone.[131] Potential impacts due to liquefaction could include foundation bearing failure or large foundation settlements, imposition of additional loads on foundations, localized lateral displacement (lateral spreading) or lateral compression, flotation of light structures with basements or underground storage structures, and damage to infrastructure such as streets and utilities. However, the liquefaction potential will be evaluated as part of a detailed geotechnical study for each new building and for any new proposed infrastructure, as required by the California Building Code/UBC. As discussed in the Geotechnical Investigation, the site-specific geotechnical studies may require deep foundations such as driven piles to support buildings of five or more stories. In addition, recommendations for structural design will be included in the site-specific geotechnical studies to accommodate for any potential liquefaction settlement. The geotechnical and liquefaction studies will be carried out in accordance with California Building Code/UBC requirements and CGS *Special Bulletin 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California* (1997). Therefore, impacts associated with liquefaction will be less than significant.

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[131] *As previously discussed, in order for liquefaction to significantly affect these areas of the site, existing groundwater levels would need to rise 10 to 20 feet above current groundwater levels.*

The PacifiCenter project will be consistent with goals and recommendations of the Seismic Safety Element of the Long Beach General Plan by minimizing public exposure to seismic risks and providing an urban environment that is as safe as possible from seismic risk. Project implementation will also be consistent with goals and policies of the Safety Element of the City of Lakewood Comprehensive General Plan by complying with established seismic safety standards. Therefore, the proposed project will not conflict with goals, policies, and recommendations set forth by the City of Long Beach or the City of Lakewood, and no significant impacts will occur.

3. CUMULATIVE IMPACTS

Grading and excavation impacts, including the potential for unstable soils, erosion, and landslides to occur, are typically confined to a project site or a very localized area. As such, the geographic area for the cumulative analysis associated with grading, site design, and seismicity is the Cities of Long Beach and Lakewood, with a focus on related projects located in the immediate project vicinity. As mentioned above and discussed more fully in Section IV, Overview of Environmental Setting, a soil and groundwater remediation program (Related Project No. 44) is presently underway at the project site in accordance with Cleanup and Abatement Order 95-048 issued by the California Regional Water Quality Control Board, Los Angeles Region. To facilitate the effectiveness of this remediation program, many of the existing on-site structures are in the process of being removed. These structures have been approved for demolition under separate permit by the City of Long Beach. Soil removal may be necessary as part of the remediation program, and affected areas will be excavated, backfilled with clean soil, and recompacted. As discussed above, the 1.74 million cubic yards of soil work associated with overexcavation and recompaction prior to project development has been evaluated as part of the project.

The simultaneous development of the PacifiCenter project and nearby projects, including the on-site remediation program (Related Project No. 44) and other cumulative development (Related Project Nos. 6, 12, etc.), will not result in cumulatively significant impacts associated with grading and site design, since each project will comply with the California Building Code, UBC, and Municipal Code requirements for grading; project-specific geotechnical recommendations by certified geologists and geotechnical engineers; and the measures set forth in Section V.E, Hazards and Hazardous Materials, of the EIR and in the RMP. Furthermore, soil overexcavation and recompaction activities will have a beneficial effect on the project by increasing soil stability on-site. Therefore, the project will not contribute to cumulative impacts in the area.

Development of the proposed project and cumulative projects will result in a concentration of people in Los Angeles County being exposed to seismic hazards since seismic events are experienced throughout the region. However, each project will be constructed in accordance with the California Building Code and UBC, which contain seismic design criteria, and local building regulations per the City of Long Beach Municipal Code and the City of Lakewood Municipal Code. In addition, projects will comply with project-specific geotechnical recommendations by certified geologists and geotechnical engineers. Therefore, cumulative seismic impacts in the area surrounding the project site will be less than significant.

4. MITIGATION MEASURES

The following mitigation measures are recommended to ensure that potential geotechnical impacts will be less than significant:

V.D-1 In accordance with the City of Long Beach Municipal Code and the Lakewood Municipal Code, the Applicant shall prepare a geotechnical study specific to each building to be constructed as part of the project as well as to the specific site within the project site proposed to be developed. The geotechnical study shall evaluate seismic hazards, including the potential for liquefaction, to a level of detail sufficient to satisfy the California Department of Conservation, California Geological Survey, the California Building Code, and the UBC.

Monitoring Phase: Pre-construction

Enforcement Agency: City of Long Beach Department of Planning and Building and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Department of Planning and Building and City of Lakewood Community Development Department

Action Indicating Compliance: Approval of Geotechnical Studies

V.D-2 Grading plans shall be designed such that the final grades on-site are compatible with the grades of the adjacent streetscape to prevent soil erosion from flowing off-site.

Monitoring Phase: Pre-construction

Enforcement Agency: City of Long Beach Department of Planning and Building and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Department of Planning and Building and City of Lakewood Community Development Department

Action Indicating Compliance: Grading Plan Approval

5. SIGNIFICANCE AFTER MITIGATION

With implementation of the recommended mitigation measures, significant geotechnical impacts associated with grading, site design, and seismicity will not occur as a result of the proposed project.

This section addresses existing and project related public health and safety issues, including safety issues associated with the adjacent Long Beach Municipal Airport (Airport). This section is based on the Report on Potential Hazards Related to the Long Beach Airport Operations prepared by Walter E. Gillfillan and Associates, the Environmental Assessment and Remediation Program Summary prepared by Haley & Aldrich, Inc., and a Phase I report prepared by Tetra Tech.[132, 133, 134] These supporting documents are provided in Appendices J, K, and L, respectively, of this EIR.[135]

1. ENVIRONMENTAL SETTING

a. Existing Conditions

In order to meet the aircraft production requirements of World War II, the United States of America War Assets Administration purchased the project site and adjacent properties in 1941 and began to construct an aircraft production facility, known as the Long Beach C-1 facility. Aircraft production has been ongoing on the C-1 site since its initial development. In fact, between the 1960s and early 1990s, the production of commercial aviation increased on the C-1 site. To date, the types of on-site operations associated with aircraft production have included office, research and development, manufacturing/processing, assembly/subassembly, material storage/warehousing, testing/ laboratories, and ancillary aviation-related services. Although building demolition associated with the cooperative remediation program is currently underway, many of the buildings that still exist on the project site were constructed more than 50 years ago. Due to the types of historic and current uses at the C-1 site, and the age of the existing

[132] *Report on Potential Hazards Related to the Long Beach Airport Operations prepared by Walter E. Gillfillan and Associates, October 2003.*

[133] *Boeing C-1 Long Beach Facility Phase I ESA Report, February 2000 and Environmental Assessment and Remediation Program Summary, Former C-1 Facility, January 2004.*

[134] *The Phase I report was prepared for the entire 363-acre C-1 Boeing site. The project site constitutes 261 acres of this site that are located west of Lakewood Boulevard.*

[135] *A portion of the Phase I report is provided in Appendix L. The Phase I in its entirety is on file with the Regional Water Quality Control Board.*

buildings, certain potential hazards have been identified that may affect the phased redevelopment of the project site, including asbestos, lead-based paint, underground storage tanks, seismic hazards, remediation of contaminated groundwater and soils, and hazardous material storage, use and transport. In addition, potential aviation related hazards are present in the area due to the proximity of the Airport. This section provides information relative to the existing potential safety hazards.

(1) Hazardous Materials

(a) Asbestos Containing Materials

Asbestos, which is made up of microscopic bundles of fibers, is a naturally occurring mineral. Asbestos has unique qualities, which include its strength, fire resistance, resistance to chemical corrosion, poor conduction of heat, noise, and electricity, and low cost. Asbestos has been widely used in the building industry for a variety of uses, including acoustic and thermal insulation and fireproofing. Asbestos is often found in ceiling and floor tiles, linoleum, and pipes, as well as on structural beams.

Despite its useful qualities, asbestos is associated with lung diseases caused by inhalation of airborne asbestos fibers. Asbestos becomes a hazard if the fibers separate and become airborne. Asbestos contained in existing building materials presents a risk to exposed employees and maintenance workers if the material is disturbed.

(b) Lead-Based Paint

Lead is a naturally occurring element and heavy metal that was widely used as a major ingredient in most interior and exterior oil-based paints prior to 1950. Lead compounds continued to be used as corrosion inhibitors, pigments, and drying agents from the early 1950s to 1972 when the Consumer Products Safety Commission specified limits on lead content in such products. Lead is known to have adverse effects on nearly every system in the human body. While adults can be affected by excessive exposure to lead, the primary concerns are the adverse health effects on children. The most common paths of lead exposure in humans are through ingestion and inhalation. Lead-based paint is of concern both as a source of exposure and as a major contributor to lead in interior dust and exterior soil. Nearly 50 percent of the buildings recently present on the project site were constructed prior to 1972 and, therefore, may contain lead-based paint.

(c) Underground Storage Tanks

In the past it was relatively common to store materials for industrial processes in underground storage tanks (USTs). Approximately 50 USTs have been located on the project site over the years. These USTs have been used to store solvents, jet fuel, unleaded gasoline, waste coolant, waste fuel, waste solvents, and sealant. All of the known USTs have been removed with the exception of two, which are inactive and are located within the portion of the project site that is located in the City of Long Beach and registered with the City of Long Beach. These two USTs were installed in 1989 and have a capacity of approximately 5,000 gallons each. They are double-walled and have active leak detection systems that have been certified by the Long Beach Fire Department. These tanks fully comply with applicable UST requirements including the stringent performance standards established to prevent UST releases and leaks. Currently, they are both empty and not in service. It is possible that other unknown USTs removed from service and closed in-place many years ago may be encountered in the ground during site demolition and grading activities. Should they be encountered, they will be managed and closed in accordance with applicable, current regulations. There are no USTs located on the portion of the project site located in the City of Lakewood.

(d) Handling, Storage, and Transport

As previously discussed, the project site has been used to manufacture aircraft since the 1940s. As such, there are a variety of associated hazardous materials that historically have been used on site and that continue to be used in manufacturing and related activities at the Boeing Enclave today. Currently, routine hazardous waste streams that are produced include paint sludge and filters, sealant tubes, primer cups and contaminated debris, toner and dry ink, batteries, oil and oil/water mixtures, and jet fuel. Demolition debris also includes some materials requiring disposal as hazardous wastes. Hazardous wastes are managed on-site in accordance with applicable local, State and Federal regulations designed to assure that all hazardous materials management activities are safe and protective of human health and safety, and the environment. For example, all drums containing hazardous materials must be properly labeled prior to being stored or transported. In addition, the Long Beach Division of Boeing currently has a labeling system that consists of an “inplant” label that meets all of the Federal and State requirements for the collection of hazardous wastes. Upon shipment for disposal, the “inplant” label is exchanged for a U.S. Environmental Protection Agency (EPA) label that is required for shipment to the disposal company. The drums are also labeled with California Department of Transportation (Caltrans) labels if required for shipment. The Long Beach Division of Boeing currently contracts with private hazardous waste haulers for the disposal of on-site hazardous waste.

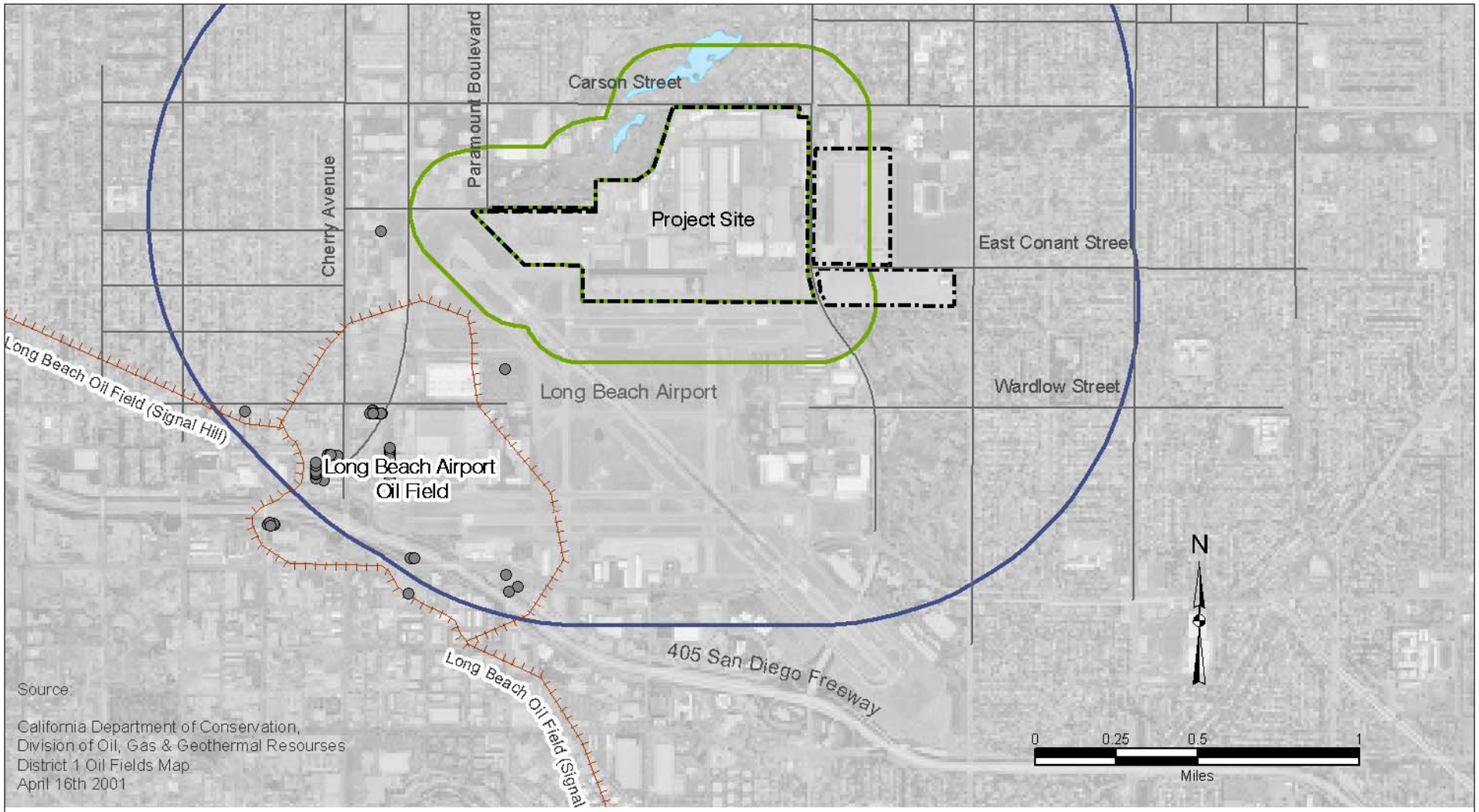
(e) Gas and Oil Wells

The project site is located in an area that has oil resources beneath the earth's surface. Two oil fields are located within the area surrounding the project site. According to State of California, Division of Oil, Gas, and Geothermal Resources' (DOGGR) records, oil wells were constructed in the area beginning in the mid 1950s. Based on oil and gas field maps and a historical database maintained by DOGGR, there are no active or abandoned oil/methane producing wells located on the project site.[136] In addition, the Phase I report indicates that, based on historical aerial photographs, there is no evidence of oil wells on the site. The closest oil fields to the site are the Long Beach Airport Oil Field and the Long Beach Oil Field, which are located approximately 0.2 mile and 0.9 mile, respectively, southwest of the project site.[137] The approximate boundary of the Long Beach Airport Oil Field is shown on Figure 38 on page 346. Within a one-mile radius of the C-1 Boeing facility there are approximately 50 active and abandoned oil wells, which are regulated by DOGGR. The oil wells are located to the southwest of the project site. The closest oil wells are located more than 0.3 mile from the project site's western boundary. Due to the distance of these wells from the project site, they do not pose a hazard to the site.

The potential for the presence of methane in the vicinity of the project site has been raised in public comments to the Notice of Preparation (NOP) for the proposed project. Naturally occurring methane emissions are often associated with oil fields in southern California, as methane and other gases can migrate upward through subsurface rock and soil. Methane can also be generated from many other sources including naturally occurring biological processes in the subsurface such as microbial activity, and its presence is common at varying concentrations in subsurface soil and groundwater. As discussed above, the project site is not located on the Long Beach Airport Oil Field. Rather, at its closest point, the Long Beach Airport Oil Field is located over 0.2 mile away. Therefore, the potential for migration of methane from the Long Beach Airport Oil Field to the project site in quantities sufficient to present a potential hazard at the site is considered minimal.

[136] *California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, District 1 Oil Fields Map, April 16, 2001.*

[137] *The Signal Hill Oil Field is also located in the general vicinity, although it is located farther from the project site than the Long Beach Airport Oil Field and the Long Beach Oil Field.*



LEGEND

- Oil & Gas Well Locations (Long Beach Airport Oil Field)
- Oil Field (Approximate Extents)
- Former C-1 Facility Property Line
- 1,000-Foot Buffer Around PacifiCenter Site
- 1-Mile Buffer Around PacifiCenter Site

PCR

Figure 38
Long Beach Airport Oil Field and Well Locations

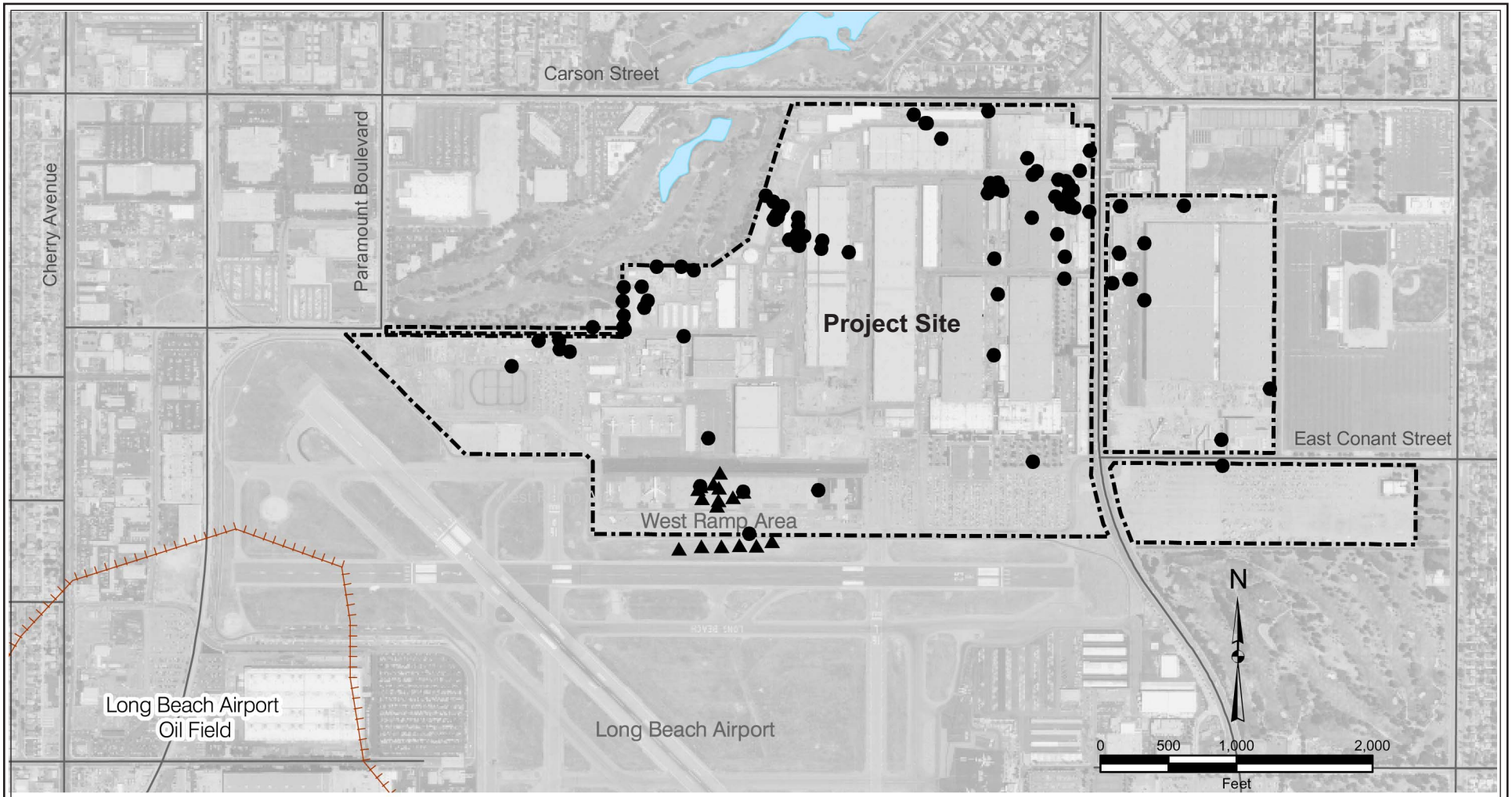
Source: Haley & Aldrich, October 2004

As part of the environmental remediation program underway within the project site, groundwater and soil vapor samples have been inspected, collected, and analyzed from the surface to depths of over 200 feet. Soil gas and groundwater samples from the borings and wells have been analyzed for a variety of chemical compounds, including methane gas. Laboratory analysis for methane was performed on 16 soil vapor samples collected from the "West Ramp" (southwest) area of the project site (as shown in Figure 39 on page 348.) at depths ranging from 20 to 60 feet below grade. The highest concentration of methane detected was 2,300 ppm, which is well below the common regulatory threshold, referred to as the Lower Explosive Limit (LEL) of 11,000 ppm.[138] The average concentration for all 16 samples was approximately 200 ppm. The source of this methane is thought to be from the naturally occurring microbial breakdown of organic chemical contamination present in areas of soil and groundwater beneath the project site. These concentrations are significantly below the lower explosive limit (LEL) and 20 percent of the LEL for methane and therefore do not present a potential methane combustion hazard on the project site.

Laboratory analysis for methane was performed on 120 groundwater samples collected across the project site, as shown in Figure 39. The highest concentration of methane detected in groundwater was 15 milligrams per liter (mg/l). The average methane concentration in groundwater was 0.65 mg/l. It is most likely that the methane detected in groundwater results from naturally occurring microbial breakdown of organic chemical contamination beneath the project site. By confirming the effectiveness natural degradation process for these organic chemicals, this methane occurrence is a favorable indicator for the success of the site's groundwater remediation program and will help augment the overall site clean-up.

The Long Beach Airport Oil Field is not a significant or ongoing source of methane emissions beneath the project site. First, although there is no straightforward way to correlate between methane concentrations dissolved in groundwater and potential combustibility in air, widespread sampling of groundwater across the project site shows only relatively low methane concentrations in groundwater that are more consistent with organic chemical degradation from historic spills rather than naturally occurring methane from oil production areas. Second, methane gas concentrations of concern have not been

[138] *For methane gas to be "explosive" it must be present at a concentration (in air) above its "lower explosive limit" (LEL). The LEL for methane gas in air is approximately 5.5 percent or 55,000 parts per million (ppm) in air. To provide an extra margin of protection, safety authorities typically use one-fifth or 20 percent of the LEL as an action level in evaluating the potential for gas combustion. The 20 percent LEL for methane is approximately 11,000 ppm.*



LEGEND

- ● Methane Sample Locations - Groundwater
- ▲ Methane Sample Locations - Soil Vapor
- Oil Field (Approximate Boundary)
- Former C-1 Facility Property Line

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Source: Haley & Aldrich, October 2004

Figure 39
Groundwater and Soil Vapor Sample Locations That Included Methane Sampling

detected in the shallow surface soils of the site; again, had the oil fields been a substantial source of methane, the gas would have risen to shallow soils or the surface provided that there are no significant barriers to upward migration.

(f) Electromagnetic Fields

Electric and magnetic fields (EMFs) are a basic force of nature, like gravity. EMFs are generated by electricity and are created in nature by such things as lightning and static electricity. Man-made EMFs are found where people use electricity. People are exposed to EMFs from many sources, including high voltage transmission lines carrying electricity from generating plants to communities, and distribution lines that bring electricity into a building. In addition, people are exposed to magnetic fields from wiring in buildings and from all electrical appliances, including TV sets, radios, hair dryers, electric blankets, and electrical tools.

An electric field emanates from electrical transmission lines while magnetic fields are the result of the electric currents flowing through the conductors. Field strength for both electric and magnetic fields falls dramatically with distance from the source. For both electric and magnetic fields, the strength decreases more quickly with distance from "point" sources like appliances than from "line" sources such as power lines. Electric fields can be shielded or weakened by trees, buildings, and even human skin but magnetic fields are not so easily blocked.[139] Research conducted over the last decade has raised much debate over the health effects associated with electric and magnetic fields. However, this research has produced no conclusive evidence of risk to human health.

At the Federal level, in 1992, the Energy Policy Act provided funding for a five-year program regarding EMF Research and Public Information Dissemination (EMF-RAPID). In 1999, the National Institute of Environmental Health Sciences (NIEHS) and National Institutes of Health released the report prepared in response to the Federal legislation. The report, entitled "Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields," concludes, "In summary, the NIEHS believes that there is weak evidence for possible health effects from ELF-EMF[140] exposures, and until stronger evidence changes this opinion, inexpensive and safe reductions in exposure should be

[139] *Short Fact Sheet on EMF, California Electric and Magnetic Fields Program, California Department of Health Services and the Public Health Institute, 1999.*

[140] *ELF-EMF is extremely low frequency electric and magnetic fields.*

encouraged."[141] For example, the report states that "NIEHS suggests that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards."[142] The existing electrical facilities within the project area are described in Section V.M.4, Energy. Under existing conditions, two 66-kV lines located along Carson Street supply the Boost substation, located on a Boeing property immediately east of Lakewood Boulevard, which serves that property and the Boeing Enclave.[143] The two nearest generation plants are located adjacent to each other approximately 7.3 miles from the site and have separate transmission lines that follow opposite sides of the San Gabriel River Channel. The closest high voltage lines are approximately 2.8 miles from the PacifiCenter site. Although no conclusive evidence exists, based on the above information it is unlikely that these sources produce harmful EMFs within the project site due to their distance from the site.[144]

(g) Remediation of Contaminated Soil and Groundwater

As indicated above, aircraft manufacturing, testing, and repair of commercial and military aircraft that has occurred on the project site for nearly 60 years, which involved the use of a wide range of chemical products including organic solvents, metal processing solutions, petroleum products, and electronic transformer oils. These broad categories of chemicals are considered the primary compounds/constituents that have been detected in soil and groundwater beneath the site.

Historical releases of some or all of these primary compounds/constituents have impacted soil and groundwater quality both on- and off-site. In 1995, the California Regional Water Quality Control Board—Los Angeles Region (LARWQCB) issued Cleanup and Abatement Order (CAO) No. 95-048 to McDonnell Douglas, Boeing's predecessor. The CAO applies to the entire 343-acre C-1 facility.[145] The CAO was revised in December

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[141] *NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields, Prepared in Response to the 1992 Energy Policy Act (PL 102-486, Section 2118), 1999, page 38.*

[142] *Ibid.*

[143] *The 66-kV Carson Street lines previously supplied the Turbo and Stress substations, located on-site, which served the site in the past. As part of demolition activities presently occurring within the project site as part of the soil and groundwater remediation program, the Turbo and Stress substations are in the process of being removed.*

[144] *Ibid.*

[145] *As indicated above, the 261-acre project site is a part of the former C-1 facility. As the site is subject to a CAO by the SWRCB/RWQCB, the site falls within the list of hazardous sites within Section 65962.5 of the Government Code. However, the project site is not designated as a Border Zone Property pursuant to DTSC.*

2000. In response to the original and amended CAO, Boeing has implemented a comprehensive environmental assessment and remediation program in coordination with LARWQCB. As these remediation efforts are underway and will occur regardless of whether redevelopment of the site occurs, the remediation program is not considered part of the PacifiCenter project. Rather, the remediation program is a related project for CEQA purposes. A summary of the ongoing remediation program is presented below; further and more detailed information about the program and site conditions is presented in Appendices J, K, and L. As discussed in more detail below, regulatory approval for "No Further Action" (NFA) and closure for soils in Environmental Investigation Areas (EIAs) that comprise a total land area of 204 acres (representing approximately 80 percent of the site) has been received from the LARWQCB.[146] Regulatory approval of NFA for the three remaining EIAs is expected shortly.

The primary compounds/constituents used on-site can be grouped into four broad categories: (1) organic solvents; (2) metal processing solutions; (3) petroleum products; and (4) electronic transformer oils.[147] The organic solvents are known as volatile organic compounds (VOCs), which tend to evaporate or volatilize at room temperature. Organic solvents were used for cleaning and degreasing aircraft parts, and included trichloroethylene (TCE), tetrachloroethylene (PCE), methylene chloride (MeCl), and 1,1,1-trichloroethane (TCA). Metal processing solutions are used in metal plating, anodizing, and etching processes, and can contain or form hexavalent chromium and other metals. The petroleum products include gasoline, diesel, jet fuel, petroleum distillates, oils, and greases. These fuels include VOCs such as benzene, ethylbenzene, toluene, and xylenes, and in more recent products, methyl tertiary butyl ether, a clean-air gasoline additive.[148] Gasoline and diesel were used to fuel vehicles and equipment at the facility. Petroleum distillates were used to clean various parts and equipment. Oils and greases were used as lubricants for equipment and machining processes. Older transformers may have contained oils formulated specially for electrical applications that contained polychlorinated biphenyls (PCBs).[149]

Release of these primary compounds/constituents occurred on the C-1 site as spills and leaks from various equipment including, for example, storage tanks, vessels, buried

[146] *It should be noted that several smaller "carve-out" areas have been created in several of the closed EIAs. Further investigation and remediation will be conducted in these smaller areas contained within 5 EIAs until soil clean-up goals are reached. Upon completion of this work to the satisfaction of the LARWQCB, closure and NFA will be requested for soil in these remaining carve-out areas.*

[147] *Environmental Assessment and Remediation Program Summary, Former C-1 Facility, January 2004.*

[148] *Ibid.*

[149] *Ibid.*

piping, chemical storage pads, wash down areas and painting booths.[150] When chemicals are spilled on the ground they migrate down through the soil under the forces of capillary tension and gravity. If and when the chemicals reach the groundwater they can:

- Partially dissolve and migrate in solution with the groundwater, which is known as "dissolved phase";
- Float on top of the water table if they are lighter-than-water, such as jet fuel and gasoline, forming "light non aqueous phase liquids," referred to as LNAPLs; or
- Sink below the water table if they are heavier-than-water, such as trichloroethylene, and form "dense non-aqueous phase liquids," referred to as DNAPLs.

It is possible for these chemicals to move from their original point of release to affect surrounding soils and groundwater. The dissolved phase impacted areas are referred to as "plumes."

The presence of chemicals in plumes at the site prompted the comprehensive assessment and remediation program to be undertaken. Due to the size of the facility and the accelerated remediation schedule, the assessment program was separated into a soil assessment program and a groundwater assessment program that were undertaken simultaneously. In addition, the C-1 facility was divided into 18 separate EIAs, which are shown in Figure 40 on page 353. Fifteen of these EIAs are located within the project site boundaries.

Soil borings were conducted on site, the locations of which are provided in Figure 41 on page 354. The soils that extend from the surface to the first water table (approximately 30 to 40 feet below grade) tend to be well consolidated, fine grained sands and silts. Based upon the Phase II Soil Assessment sampling conducted, the following broad groupings of chemicals were most frequently detected at the site:

- Halogenated Volatile Organic Compounds (VOCs);
- Petroleum Hyrdrocarbons; and
- Hexavalent Chromium.

[150] *Ibid.*

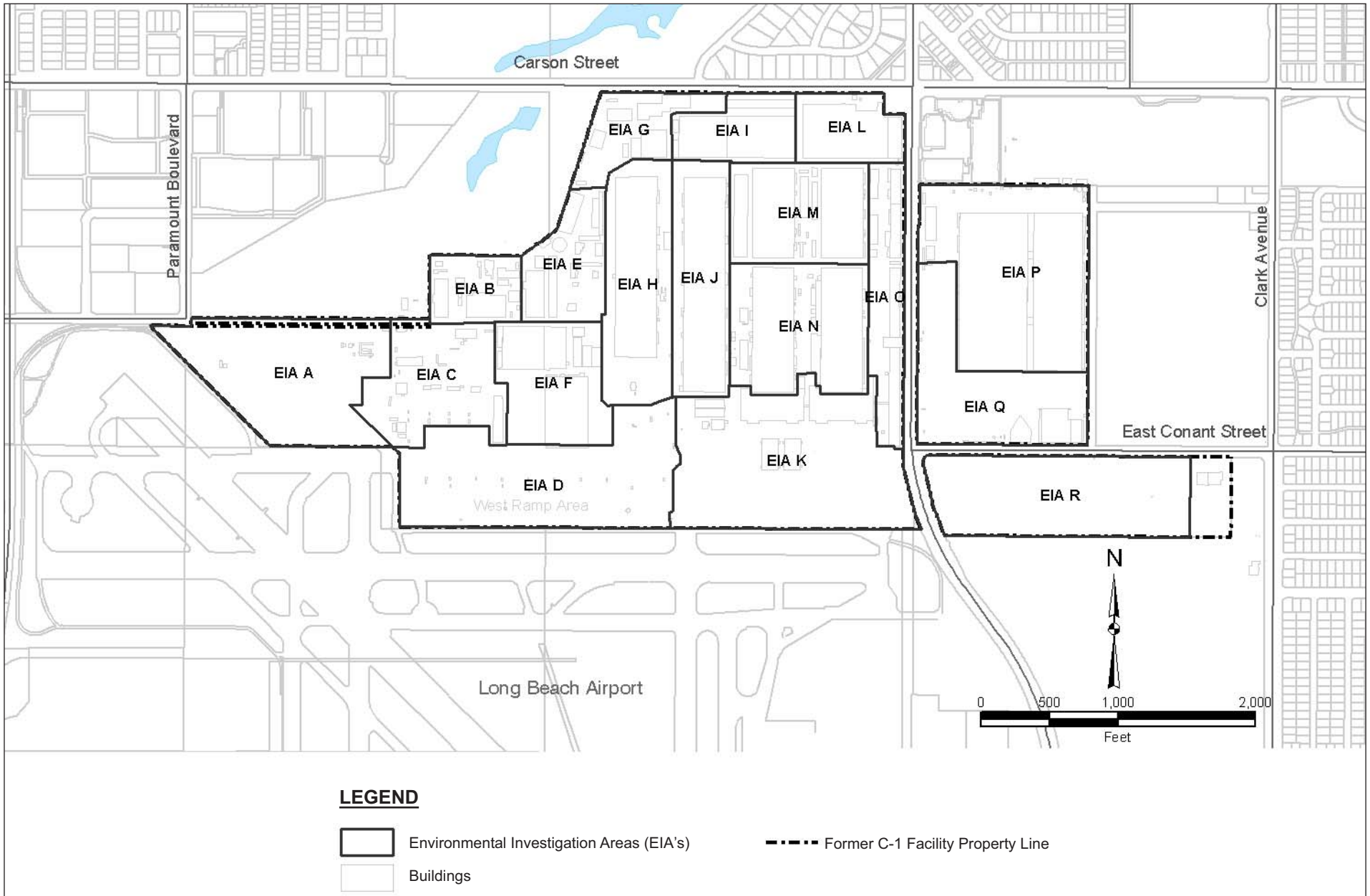

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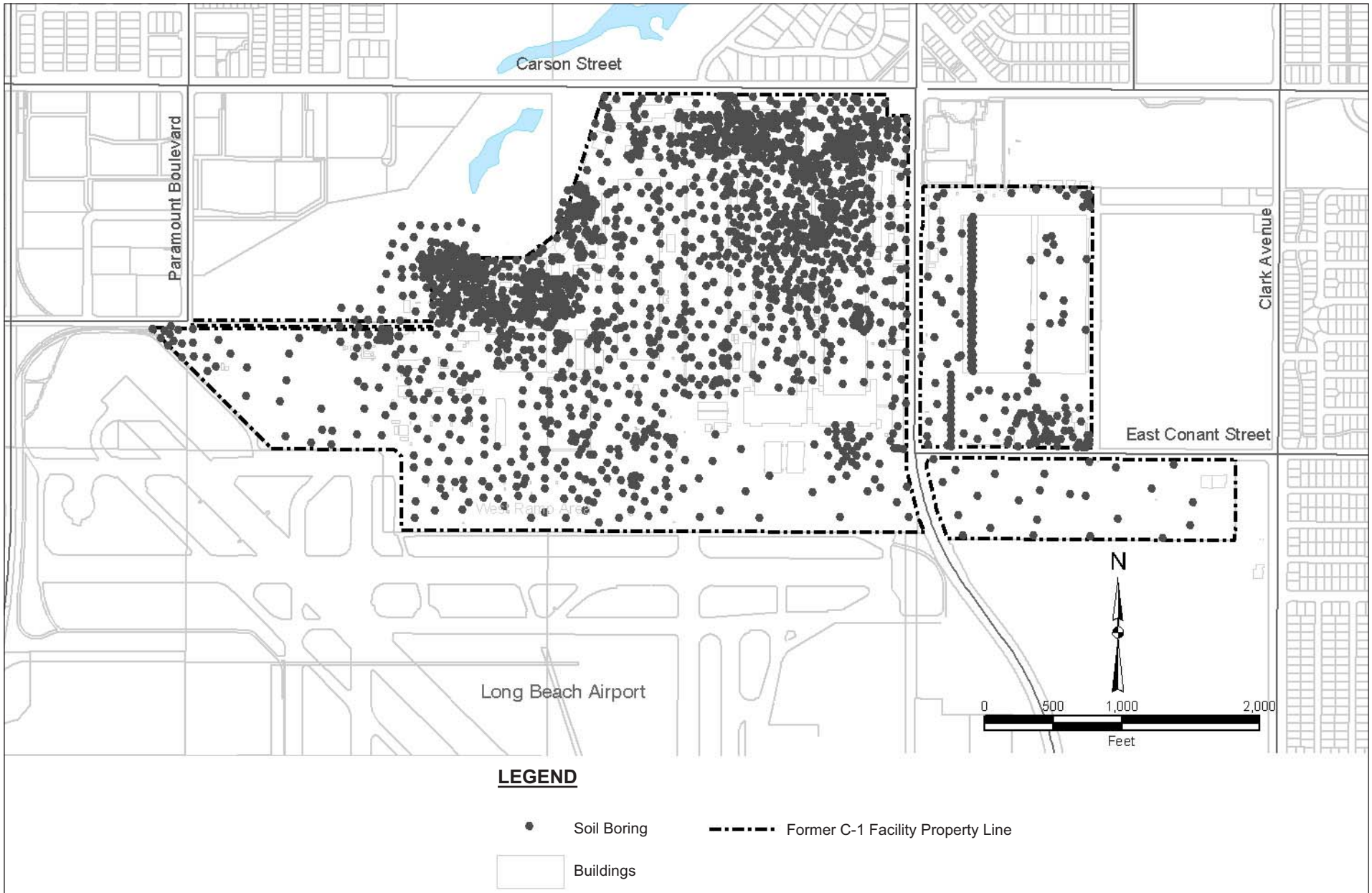
Figure 40
Environmental Investigation Areas

Source: Haley & Aldrich, 2004



LEGEND

- Soil Boring
- Former C-1 Facility Property Line
- Buildings

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Figure 41
Soil Boring Locations

Source: Haley & Aldrich, 2004

The approximate locations of soil impacted by these chemicals are presented in Figure 7 of the Remediation Program Summary.

In addition to soil contamination, impacts to groundwater from chemical use on-site have occurred. A site-wide Groundwater Assessment and Monitoring (SWGA) program has been conducted on the project site. The results of the SWGA are being used to design the groundwater cleanup program. Figure 8 of the Remediation Program Summary (Appendix K of this EIR) shows the approximate location of the approximately 180 groundwater monitoring wells present at the site as of January 2004. Deeper sediments and groundwater have been investigated by drilling and sampling to depths of approximately 300 feet below grade as part of the SWGA.

As described in Section V.G, Water Quality, of this EIR, the shallow water bearing zones beneath the site include the Bellflower aquitard (divided into three hydrogeologic units: shallow, middle, and deep), the "Deeper Sand," the Artesia aquifer, the Gauge Aquitard, the Gage Aquifer, and the Deep Aquifer system.[151] Groundwater flow direction in the Bellflower aquitards' three units as well as the Deeper Sand, are generally southerly. Groundwater flow directions in the Artesia and Gage aquifer's are generally to the east and northeast, but can vary seasonably.

As shown on Figure 15 of the Remediation Program Summary (Appendix K of this EIR), based on the SWGA results, the detection of VOCs (light blue areas) relating primarily to organic solvents indicates that the source of groundwater impact to the Bellflower aquitard appears to be located in the areas in or near Buildings 1, 2, 3, 5, 6, 10, 14, 36, and 85 and the WRA and Western Triangle areas. The detection of hexavalent chromium (green areas) indicates that the source of groundwater impact to the Bellflower aquitard appears to be located in Buildings 5, Building 6 north and the AQ. Petroleum hydrocarbons (dark blue areas) are found primarily in the WRA, in a small area to the east of Building 11 (Former Fueling Facility area), and west of Building 10. There is a dissolved phase petroleum hydrocarbon carbon plume around the fringe of jet fuel (LNAPL) floating on the water table at the WRA. Some of the VOC and jet fuel groundwater impacts have migrated offsite to the south and west of the property.

A deeper aquifer confirmation program was initiated in April 2001. This confirmation program included collection of groundwater samples on the southeast side of the facility from the Artesia Aquifer and on the southwest side of the facility from the Gage

[151] *An aquitard is defined as sediment that is composed of fine grains (e.g., clays and silts). An aquifer is defined as sediment that is composed primarily of middle to coarse grains (e.g., sands and gravels).*

Aquifer. Analysis of groundwater samples collected in October 2001 did not detect the presence of TPH, hexavalent chromium, or levels of VOCs above their respective drinking water Maximum Contaminant Levels (MCLs). This would indicate that groundwater impacts are confined to the more shallow water bearing zones beneath the site from which no nearby groundwater supply is drawn (Hargis 2002a). More recent results from groundwater sampling in October 2003 confirm that this situation remains unchanged.

As part of the assessment and remediation program, a human health risk assessment (HHRA) procedure, reviewed and approved by the Office of Environmental Health Hazard Assessment (OEHHA) and LARWQCB, will be used to assess when areas have been remediated to levels that present no significant human health risks for future commercial, light industrial, and residential uses. A Risk Assessment Workplan (RAWP), which outlines the processes, calculations, and supporting data that will be used to conduct the HHRAs was prepared for the site. The RAWP was reviewed by OEHHA and the California Regional Water Quality Control Board and approved on October 1, 2002**.** Human health risk assessments for the property will: (1) identify Compounds of Potential Concern (COPCs); (2) identify potential routes of exposure and potential receptors of such exposure; (3) estimate the carcinogenic and non-carcinogenic risks for each receptor; and (4) compare the calculated levels of risk to the maximum allowable risk level for the site. Receptors that will be evaluated in the HHRAs include: (1) receptors during cleanup activities including the on-site construction workers and off-site workers and residents; and (2) receptors after redevelopment of the property including on-site workers, on-site residents (child and adult, including day care centers), on-site gardeners, and off-site employees and residents.

Remediation efforts are overseen by LARWQCB and have either been completed, are underway, or are in advanced preparatory stages in 14 areas of the site. The status of soil and groundwater remediation in the 14 areas is summarized in Section 3.4 of the Environmental Assessment and Remediation Program Summary provided in Appendix K. In addition, as indicated above, of the 15 EIAs that comprise the site, regulatory approval for "No Further Action" (NFA) and closure for soils in 12 of the EIAs has been received from the Los Angeles Regional Water Quality Control Board (LARWQCB). These EIAs comprise a total land area of 204 acres, representing approximately 80 percent of the site.[152] Regulatory approval of NFA for the 3 remaining EIAs is expected shortly. The LARWQCB is reviewing and confirming continued assessment and remediation work that

[152] *It should be noted that several smaller "carve-out" areas have been created in several of the closed EIAs. Further investigation and remediation will be conducted in these smaller areas contained within 5 EIAs until soil clean-up goals are reached. Upon completion of this work to the satisfaction of the LARWQCB, closure and NFA will be requested for soil in these remaining carve-out areas.*

is being conducted during demolition in these and the remaining EIAs as the work progresses.

There are various types of remedial technologies for soil and groundwater that can be implemented either independently of each other or in combination based on the type of impact. Based on Phase II soil assessments conducted on the project site, the following four technologies may be suitable for shallow soil (approximately 0 to 12 feet below grade) remediation program: (1) engineered vapor/infiltration migration barriers; (2) excavation with off-site and/or ex-situ treatment; (3) soil vapor extraction; and (4) in situ remediation.[153] With regard to groundwater, the remediation program addresses cleanup of groundwater in two subcategories: (1) source areas, including the deeper soils (greater than 12 feet in depth) that can impact groundwater quality, as well as LNAPL and/or high concentrations of primary compounds/constituents in the groundwater source areas; or (2) dissolved phase plumes, including primary compounds/constituents dissolved in groundwater down gradient of the groundwater source areas.[154] Based on the results of groundwater assessment and on-site pilot testing, the following six technologies are appropriate for source area or dissolved phased plume groundwater remediation: (1) dual-phase extraction; (2) in situ chemical treatment; (3) in situ chemical reduction; (4) hydraulic containment using pump and treat technology; (5) enhanced in-situ bioremediation using naturally occurring and/or bioaugmented microorganisms present in the subsurface; and (6) monitored natural attenuation. Please refer to the Environmental Assessment and Remediation Program Summary contained in Appendix K for a detailed discussion regarding these remediation technologies.

The Assessment Confirmation and Expedited Remediation (ACER) program is a component of the comprehensive environmental assessment and remediation program. The ACER program will implement additional monitoring and sampling of shallow soils during the removal of pavement and subsurface structures at the site. Through the implementation of the ACER, areas of contamination may be identified. If areas of contamination are identified, the areas will be remediated in accordance with the specifications identified in the LARWQCB ACER work plan.

The northeast corner of the project site, which is currently not under Boeing ownership, was previously used as a gas station. A two-story ranch house was located on the parcel sometime after 1935. By 1947, a service station was constructed and

[153] *Ibid.*

[154] *Ibid.*

continued operating until nearly two years ago.[155] The City of Long Beach has acquired the gas station property and a portion of the property will be used for transportation improvements at the corner of Carson Street and Lakewood Boulevard. The previous owner, under agreement with the City, will remediate any contamination on the property and will remain responsible for long-term remediation. As with other remediation efforts, any contamination will be remediated to levels that present no significant human health risk for future uses, in accordance with the appropriate regulatory agency.

(2) Airport Safety

As discussed in Section III, Project Description, of this EIR, the project site is located to the north of the Long Beach Municipal Airport (Airport). As with any development in close proximity to a commercial service airport, the potential exists for the creation of safety hazards. Airport safety hazards are typically associated with building heights as well as the proximity of development to runways. A brief description of the Airport is provided below.

The Long Beach Airport, which comprises approximately 1,166 acres, is designated as a non-hub airport (i.e., serving less than 0.05 percent of the total nation-wide enplanements) with 350,603 operations (landings and takeoffs) in 2002. The airport serves a large number of private non-commercial aircraft and is one of the nation's busiest airports in terms of general aviation activity, in which 93 percent of the annual operations are general aviation.[156, 157] The remaining seven percent of the operations are as follows: five percent of the operations is by air carrier, two percent is by commuter carrier, and less than one percent is by industrial.[158, 159] In 2002, the airport handled approximately 58,600 tons of air cargo. In addition, between August 2001 and 2003, the number of passengers has increased from 600,000 annual passengers to almost 3,000,000 annual passengers. The Airport includes scheduled flights operated by America West, American,

[155] *Tetra Tech, Inc., Boeing C-1 Long Beach Facility, Phase I ESA Report, February 2000.*

[156] *Long Beach Airport, LGB Monthly Airport Activity Report, December 2002.*

[157] *General aviation is defined as activity other than operation by air carrier, commuter carrier, industrial operations, charter operations, and public aircraft (i.e., private non-commercial aircraft).*

[158] *Long Beach Airport, LGB Monthly Airport Activity Report, December 2002.*

[159] *Air carrier is defined as a scheduled carrier operating aircraft having a certified maximum takeoff weight of 75,000 pounds or more, transporting passengers or cargo. Commuter carrier is defined as a scheduled carrier operating aircraft having a certified maximum takeoff weight of less than 75,000 pounds, transporting passengers or cargo. Industrial operation refers to aircraft over 75,000 pounds for purposes of production, testing, remanufacturing, or delivery by or under the control of a manufacturer based at the Long Beach Airport.*

Airborne Express, Federal Express, Horizon, Jet Blue Airways, and United Parcel Service.[160]

As discussed in more detail in Section V.I, Noise, the Airport has five runways, ranging in total length from 4,267 feet to 10,000 feet.[161] (Refer to Table 21 on page 360, for characteristics of each runway). There are two sets of parallel runways aligned in an east-west (7L/25R and 7R/25L) and north-south (16L/34R and 16R/34L) direction forming a rectangle, and an additional 10,000-foot-long runway (Number 12/30) that is aligned in a northwest-southeast direction splitting the two sets of runways. All of the runways are used for general aviation. Runway 12/30 is used for commercial flights as well as general aviation. In addition, Runway 12/30 is the only runway that is active between the hours of 10:00 P.M. to 7:00 A.M.[162] Runway 7L/25R is used as the back-up runway for commercial flights, but is typically used for such flights only during rare circumstances (e.g., during repaving of Runway 12/30).

Based on general aviation flight track data provided by the City of Long Beach Airport Bureau, the predominant east/west (7L/25R and 7R/25L) runway flight pattern results in over flights north of Carson Street. The north/south (16L/34R and 16R/34L) runway flight pattern is not used as often as the east/west flight pattern, but would result in general aviation overflights across the project site.[163] As indicated by Table 21, based on recent data from the Airport, runways 16L and 16R are each typically used approximately 7 and 0.5 percent of the time, respectively, and runways 34R and 34L are each used 0.5 percent of the time.

With regard to aircraft accidents from aircraft using the Airport, the National Transportation Safety Board (NTSB) records indicate that there were 119 incidents (with no fatalities or injuries) that occurred within an approximate 21-year timeframe from July 1981 to December 2002.[164, 165] In addition 56 accidents (with seven fatalities, three serious

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[160] *Long Beach Airport, LGB Monthly Airport Activity Report, August 2003.*

[161] *Measured end to end of pavement. There is a short piece of pavement at the south and north ends of Runway 16/34 that is not counted as pavement or as a stopway probably because of an east-west taxiway at the end.*

[162] *Except in case of emergency or air traffic direction, all aircraft Operations between the hours of 10:00 P.M. and 7:00 A.M. are limited to runways 30 and 12. In addition, all airline operations must be scheduled between 7 A.M. and 10 P.M. Airline operations between 10 P.M. and 11 P.M. are allowed if the delays are caused by weather, air traffic, or mechanical issues.*

[163] *The north-south runway configuration is used less frequently due to the short runway length, limitation for only visual operations, and curfew after 10:00 P.M.*

[164] *National Transportation Safety Board database, www.ntsb.gov, accessed December 2003.*

Table 21

LONG BEACH MUNICIPAL AIRPORT RUNWAY CHARACTERISTICS

Orientation	Runway Number	Runway Usage (%)	Length (feet)	Width (feet)	Use
East-West	7R/25L	7R (2.5%) 25L (25.0%)	5,420	150	General Aviation
East-West	7L/25R	7L (2.5%) 25R (25.0%)	6,192	150	General Aviation and airline alternate for Runway 12/30
North-South	16R/34L	16R (7.0%) 34L (0.5%)	4,470	75	General Aviation
North-South	16L/34R	16L (7.0%) 34R (0.5%)	4,267	75	General Aviation
Northwest-Southeast	12/30	12 (6.0%) 30 (24.0%)	10,000	200	General Aviation and Commercial

Source: www.airnav.com/airport/KLGB, 2003 and US Department of Transportation, FAA, personal correspondence, November 24, 2003.

injuries and six minor injuries) occurred during this same period.[166] Forty-five of these accidents occurred on the airport property and the remaining eleven accidents occurred off the airport property. Based on the NTSB data, none of the accidents occurred within the PacifiCenter site. In addition, based on information from the Airport, none of the fatalities occurred within the Airport property.

The Airport has prepared an Airport Layout Plan, which illustrates, among other things, the airport property boundaries, airport facilities, runways, taxiways, helipads, adjacent land uses, buildings on the airport property, building restriction lines, and runway protection zones (RPZs). This Airport Layout Plan has most recently been reviewed and approved by the FAA on April 5, 2000 and revalidated by the FAA on September 5, 2002.

Components illustrated on the Airport Layout Plan that affect the PacifiCenter development include four (4) RPZs and a "Building Restriction Line." These components

[165] *An incident is defined by the NTSB as an occurrence other than an accident associated with the operation of an aircraft which affects or could affect the safety of operations.*

[166] *The NTSB defines an aircraft "accident" as an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.*

are illustrated in Figure 42 on page 362. The RPZ at the end of Runway 12 extends partially onto the very western portion of the PacifiCenter site that is located within the City of Lakewood. In addition, the majority of the RPZ at the end of Runway 16R is located within the southwestern portion of the site. The Runway 16L RPZ is located in the south-central portion of the PacifiCenter site. Finally, a very small portion of the Runway 25R RPZ is located at the very southeastern portion of the project site and is contained within the Building Restriction Line.

As discussed in detail below, the project site is also located within portions of the six safety compatibility zones as identified in Caltrans' California Land Use Planning Handbook. This Handbook provides compatibility planning guidance and does not constitute formal state policy or regulation. The zones in which the project is located include the Runway Protection Zone, Inner Safety Zone, Inner Turning Zone, Outer Safety Zone, Sideline Safety Zone, and Traffic Pattern Zone.

b. Regulatory Framework

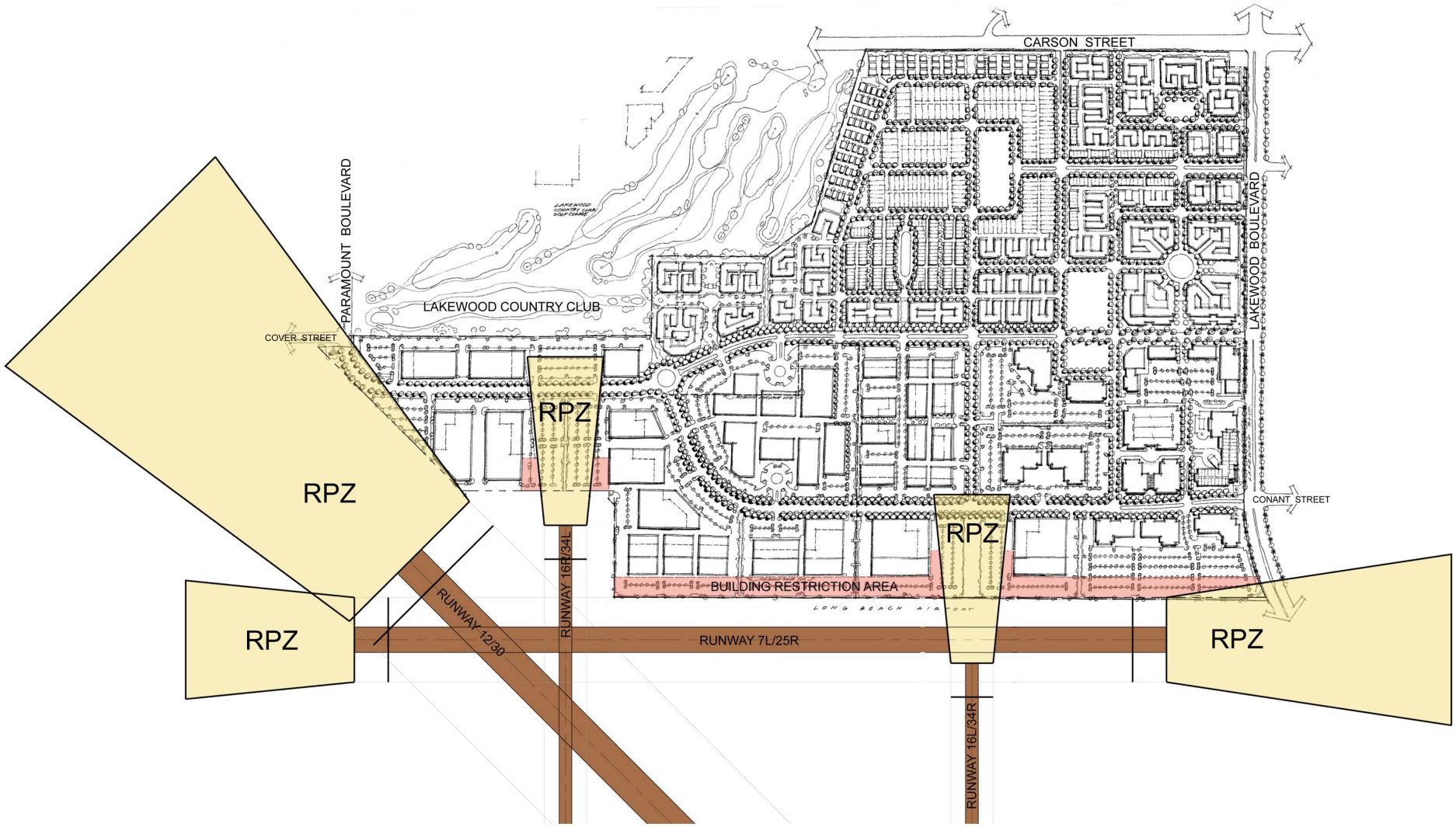
(1) Hazardous Materials

(a) Asbestos Containing Materials

In California, any facility that is known to contain asbestos is required to have a written asbestos management plan and removal of asbestos containing materials must be conducted in accordance with the requirements of the South Coast Air Quality Management District (SCAQMD) Rule 1403. Rule 1403 regulations require: (1) a survey of the facility prior to issuance of a permit by SCAQMD; (2) notification of the SCAQMD prior to construction activity; (3) removal in accordance with prescribed procedures; (4) placement of collected asbestos in leak-tight containers or wrapping; and (5) proper disposal.

(b) Lead-Based Paint

The California Occupational Safety and Health Administration (OSHA) has established limits of exposure to lead contained in dusts and fumes. Specifically, California Code of Regulations (CCR) Title 8, Section 1532.1 provides for exposure limits, exposure monitoring, and respiratory protection, and mandates good working practices by workers exposed to lead.



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Scale Not Provided

Source: MVE Architects, October 2003

Figure 42
Relevant Airport Layout Plan Components in Project Vicinity

(c) Underground Storage Tanks

The storage of hazardous materials in underground storage tanks is regulated by the State of California Water Resources Control Board (SWRCB), which has delegated authority to the Regional Water Quality Control Board (RWQCB) and typically on the local level to the Fire Department. The Long Beach Fire Department regulates underground storage tanks on the project site. USTs used for unleaded gasoline are also subject to South Coast Air Quality Management District (SCAQMD) Rule 461 "Gasoline Transfer and Dispensing."

(d) Handling, Storage, and Transport

The handling and storage of hazardous materials on the project site are subject to a variety of Federal, State, and local regulations. At the local level, Long Beach Fire Department inspectors monitor the storage of hazardous materials for compliance with the local requirements. Within the City of Lakewood, the County of Los Angeles Fire Department monitors such activities. Businesses which store more than threshold quantities of hazardous materials as defined in Chapter 6.95 of the California Health and Safety Code are required to file an Accidental Risk Prevention Program with the appropriate fire department, which contains information such as emergency contacts, phone numbers, facility information, chemical inventory, and hazardous materials handling and storage locations. In addition, employees and employees of contractors that handle hazardous wastes, or are potentially exposed to hazardous wastes, are required under Federal Occupational Safety and Health Administration (OSHA) (29 C.F.R. § 1910.120) and California OSHA regulations to be trained and certified to handle hazardous waste and materials.

(e) Gas and Oil Wells

As discussed above, active and abandoned oil wells in the vicinity of the proposed project are regulated by the State of California, Division of Oil, Gas, and Geothermal Resources (DOGGR).

(f) Electromagnetic Fields

Electro-magnetic fields, or EMFs, are regulated by the Federal Communications Commission (FCC). In 1996, the FCC adopted new guidelines and procedures for

evaluating environmental effects of radiofrequency emissions, which encompass the OSHA guidance on radiofrequency emissions.[167]

(2) Airport Safety

Development in close proximity to an airport must comply with all relevant Federal, State, and local safety regulations to ensure that no potential hazards are created. These regulations and guidelines address the safety of aircraft in flight as well as the safety of people on the ground. Any development of land in the immediate vicinity of the Airport must be compatible with airport operations. The primary safety concerns are associated with the construction of buildings or other structures that exceed height restrictions or that are located in an RPZ, since such buildings or structures may present a hazard to aircraft operations. [168]

In this regard, FAR Part 77, Objects Affecting Navigable Airspace, establishes minimum standards to ensure air safety by regulating the construction or alteration of buildings or structures that may affect airport operations.[169] The FAA requires that Form 7460-1, Notice of Proposed Construction or Alteration, be filed with the FAA regional office prior to construction or alteration of an object that may interfere with the navigable airspace. Additionally, since Part 77 represents minimum height standards, States and local governments often develop additional secondary guidelines unrelated to height restrictions to increase the level of safety associated with a particular development. State and local governments tend to address secondary safety concerns, such as bird strikes and lights that may be indistinguishable from airport lighting or that may interfere with pilots' vision.

In addition, there are instances when the owner of a public airport may permit access to the public landing area by independent operators offering an aeronautical activity or by aircraft based on land adjacent to, but not a part of, the airport property. This type of arrangement is commonly called a "through-the-fence" operation. Through-the-fence operations include businesses or individuals that have access to the airport infrastructure from outside airport property, or that utilize airport property to conduct a business but do not rent business space at the airport. More common types of through-

[167] *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, OET Bulletin 65, Edition 97-01, August 1997, Federal Communications Commission Office of Engineering and Technology.*

[168] *See FAA Advisory Circular 150/5300-13 (Sept. 30, 2000).*

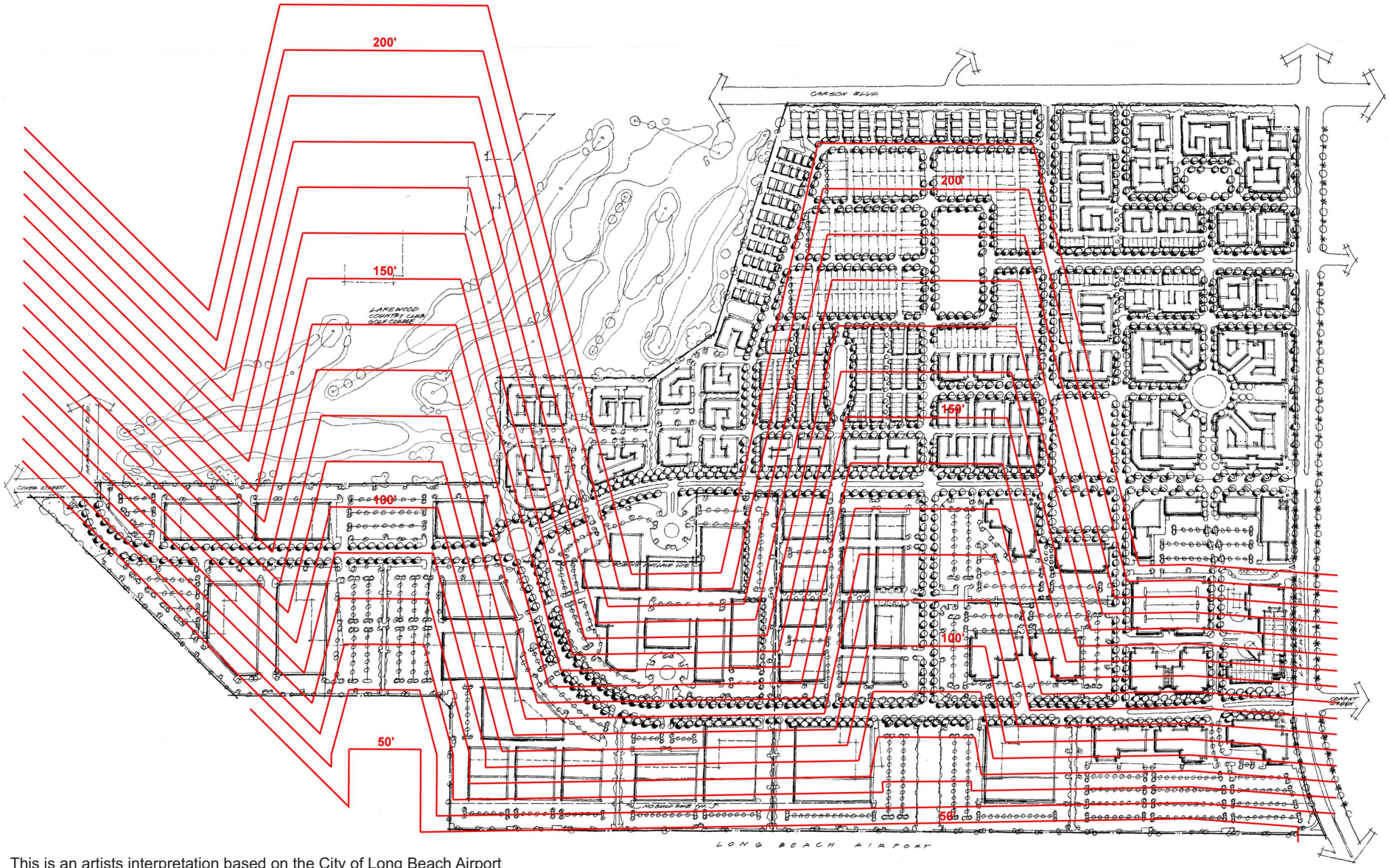
[169] *14 C.F.R. Part 77 (2001).*

the-fence agreements are for freelance flight instruction, aircraft maintenance, and aircraft hangars. Such through-the-fence agreements between an airport proprietor and a through-the fence operator are typically reviewed and approved by the Airport with Airport consultation with the FAA.

The Los Angeles County Regional Planning Commission is the designated Airport Land Use Commission (ALUC) for airports within Los Angeles County in accordance with Title 21 of the California Public Utilities Code. The Regional Planning Commission has the responsibility for coordinating the airport planning of public agencies within the County. The primary goal of the ALUC is to protect the public health, safety, and welfare by ensuring orderly expansion of airports and development of lands in the vicinity of airports through the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public use airports. The ALUC achieves this goal through the publication of the Los Angeles County Comprehensive Airport Land Use Plan (ALUP) and other guidance. The ALUP has been based on guidelines, recommendations, regulations and/or policies of the FAA, Caltrans—Division of Aeronautics, and municipalities from within the County. The ALUP provides for the orderly expansion of the area surrounding the Airport. It is also intended to provide for the adoption of land use measures that will minimize the public's exposure to excessive noise and safety hazards. The ALUC has established provisions for safety, noise, and building heights within areas adjacent to the airport.[170] With regard to safety, the ALUP includes the observance of the RPZs discussed above, in the City of Long Beach Airport Layout Plan. The ALUP also establishes standards for determining whether obstructions cause substantial adverse effect on air navigation. Specifically, the County of Los Angeles ALUP has adopted the FAR Part 77 criteria, which place restrictions on the height and mass of structures at specified distances from the airport runways. As such, these FAR Part 77 height restrictions have been used in the Long Beach Airport Runway Approach Zones Standards for Determining Obstructions to Air Navigation, which is used with regard to development on and adjacent to the Airport. These restrictions are illustrated in Figure 43 on page 366.

The ALUP provides policies to promote land use compatibility and limit noise and other safety conflicts in areas surrounding airports. The ALUP also sets forth seven safety policies to assist a sponsor in its development of a project in close proximity to an airport. These policies include:

[170] *Refer to Section V.I, Noise, of this Draft EIR for an analysis of aviation-related noise.*



This is an artists interpretation based on the City of Long Beach Airport "Runway Approach Zones Standards for determining obstructions to Air Navigation - As per part 77 of the FAR" (Drawing No. D-416G)

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Scale Not Provided

Source: MVE Architects, October 2003

Figure 43
Illustration of FAA Height Contours and Section Key Plan

- **S-1.** Establish "runway protection zones" contiguous to the ends of each runway. These runway protection zones shall be identical to the FAA's runway protection zones (called clear zones).

- **S-2.** Prohibit above ground storage of more than 100 gallons of flammable liquids or toxic materials on any one net acre in a designated RPZ. It is recommended that these materials be stored underground.

- **S-3.** Prohibit, within a RPZ, any use that would direct a steady or flashing light of red, white, green, or amber colors associated with airport operations toward aircraft engaged in an initial straight forward climb following take-off or toward an aircraft engaged in a final approach toward landing at an airport.

- **S-4.** Prohibit, within a designated RPZ, the erection or growth of objects that rise above an approach surface unless supported by evidence that it does not create a safety hazard and is approved by the FAA.

- **S-5.** Prohibit uses that would attract large concentrations of birds, emit smoke, or which may otherwise affect safe air navigation.

- **S-6.** Prohibit uses that would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

- **S-7.** Comply with the height restriction standards and procedures set forth in FAR Part 77.

Caltrans Division of Aeronautics is responsible for funding, licensing, and permitting programs for airports and helicopters in California. The Caltrans *Airport Land Use Planning Handbook* (hereafter referred to as the Caltrans Handbook) provides compatibility planning guidance to airport land use commissions, their staff and consultants, the counties and cities having jurisdiction over airport area land uses, and airport proprietors. Since neither the FAA nor the County provides specific guidelines for land use compatibility assessments with respect to the safety of people on the ground beyond the establishment of Runway Protection Zones, the guidelines presented in the Caltrans Handbook are generally considered a "starting point" for a local determination process. The Caltrans Handbook does not constitute formal state policy or regulation but rather, is intended to provide basic guidance in establishing noise and safety compatibility criteria. The recommended guidelines address various safety concerns (e.g., bird strikes, light, and glare) and include the establishment of various land use compatibility zones to assist decision-makers in assessing areas of increased hazards based on the flight paths of aircraft.

An understanding of the overall premises used by Caltrans in developing their land use compatibility guidelines for safety is important. Using National Transportation Safety Board statistics for aircraft accidents, the probability of an accident occurring, location of accident sites and the risks and consequences to people in the aircraft and on the ground were identified. Data for a twenty-year record of aircraft accidents, nation-wide was investigated. Of particular interest, were those accidents involving people and structures on the ground. The focus is on the risk exposure for various land uses derived from this accident data. Some of the elements are summarized as follows:

- Probability—Probability of an aircraft accident occurring is very low. The probability of an aircraft accident that involves people and structures on the ground is extremely low - however, it is not zero.

- Location—Most accident sites occur within the confines of the airport. Off-airport accident sites are concentrated near the runway ends and extended runway centerlines for both arriving and departing aircraft.

- Risk Exposure—The evaluation of risk and land use compatibility is relatively easy in the higher exposure areas near the runway ends. Further out from the runway ends, judgment is applied that considers the types of aircraft involved, night operations, instrument operations, flight training, etc. Included in this determination is the consideration of the relative risk exposure inherent in all other public health, safety and welfare decisions that range from traffic signals, to fire hazards, hand railings and employee safety. Safety is a term that is judged by the level of risk that is acceptable in conducting the public's business and activities.

- Consequences—This is an important element in considering acceptable risk to the public and includes the likely property damage, injuries and fatalities that could occur should an accident happen. It is in this element that differences appear when considering various land uses. The risk for schools offers a different level of consideration than for industrial plants. As a matter of public policy, more stringent criteria are generally applied when considering the safety of children in a school environment. Similar differences are apparent in the Caltrans land use criteria between residential and office land uses. These differences are reflected in, not only the recommendation of acceptability, but also in the suggested land coverage and human occupancy factors.

The compatibility zones established by Caltrans and a qualitative description of the land use characteristics that are considered acceptable or unacceptable within each of the zones is provided below. As discussed in Appendix J, these zones are not precise lines and descriptions that delineate "safe or unsafe" conditions.

- Zone 1: Runway Protection Zone
  - Airport ownership of property encouraged
  - Prohibit all new structures
  - Prohibit residential land uses
  - Avoid nonresidential uses except if very low intensity in character and confined to the sides and outer end of the area
- Zone 2: Inner Approach/Departure Zone
  - Prohibit residential uses except on large, agricultural parcels
  - Limit nonresidential uses to activities which attract few people (uses such as shopping centers, most eating establishments, theaters, meeting halls, multi-story office buildings, and labor-intensive manufacturing plants unacceptable)
  - Prohibit children's schools, day care centers, hospitals, nursing homes
  - Prohibit hazardous uses (e.g., aboveground bulk fuel storage).
- Zone 3: Inner Turning Zone
  - Limit residential uses to very low densities (if not deemed unacceptable because of noise)
  - Avoid nonresidential uses having moderate or higher usage intensities (e.g., major shopping centers, fast food restaurants, theaters, meeting halls, buildings with more than three aboveground habitable floors are generally unacceptable)
  - Prohibit children's schools, large day care centers, hospitals, and nursing homes
  - Avoid hazardous uses (e.g., aboveground bulk fuel storage)

- Zone 4: Outer Approach/Departure Zone
  - In undeveloped areas, limit residential uses to very low densities (if not deemed unacceptable because of noise); if alternative uses are impractical, allow higher densities as infill in urban areas;
  - Limit nonresidential uses as in Zone 3
  - Prohibit children's schools, large day care centers, hospitals, and nursing homes
- Zone 5: Sideline Zone
  - Avoid residential uses unless airport related (noise usually also a factor)
  - Allow all common aviation-related activities provided that height-limit criteria are met
  - Limit other nonresidential uses similar to Zone 3, but with slightly higher usage intensities
  - Prohibit children's schools, large day care centers, hospitals, and nursing homes
- Zone 6: Traffic Pattern Zone
  - Allow residential uses
  - Allow most nonresidential uses; prohibit outdoor stadiums and similar uses with very high intensities
  - Avoid children's schools, large day care centers, hospitals, and nursing homes

(3) City of Long Beach

The City of Long Beach Health Department reviews plans for and inspects restaurants, hazardous waste generating facilities, and multi-family housing.

(a) Public Safety Element

The City of Long Beach Public Safety Element (1975) contains a recommendation that "above ground fuel storage facilities should not be located in close proximity to the flight pattern at the Long Beach Airport."[171]

2. ENVIRONMENTAL IMPACTS

a. Methodology

This evaluation of hazards and hazardous materials is based on existing reports and data regarding existing and past facilities, operations, infrastructure, and environmental conditions within the project site. In particular, the Phase I report prepared by Tetra Tech includes a comprehensive summary of the site history and information pertaining to USTs and other related hazards (refer to Appendix L). In addition, the Environmental Assessment and Remediation Program Summary prepared by Haley & Aldrich, Inc. also documented historical use of the project site and summarizes current characterization and corrective efforts (refer to Appendix K). A Report on Potential Hazards Related to the Long Beach Airport Operations was prepared by Walter E. Gillfillan and Associates (refer to Appendix J) and is based on documents such as FAR Part 77, the ALUP, the City of Long Beach Noise Ordinance, data from the City of Long Beach, and guidelines within the Caltrans Handbook. Based on these sources and a review of existing and proposed uses on the project site, an evaluation was performed to identify hazards that could exist as a result of project implementation.

b. Thresholds of Significance

For purposes of this analysis, impacts associated with health and safety hazards and the use of hazardous materials would be considered significant if the project will:

(1) Hazardous Materials

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

[171] *City of Long Beach Public Safety Element, 1975, Recommendation 37, page 132.*

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment; or

(2) Airport Safety

- Result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.

c. Project Features

As part of implementation of the project, the Applicant will be required to comply with the various regulations described above, which pertain to the use, handling, storage, and transport of hazardous materials (e.g., removal of asbestos-containing materials and lead-based paint and underground storage tanks).

No buildings are proposed within the "Building Restriction Line" or RPZs designated by the Airport Layout Plan. Rather, on-site uses located within the RPZs and Building Restriction Lines are limited to open space and/or surface parking of automobiles, as shown in Figure 42 on page 362. In addition, due to the proximity of the Airport, maximum building heights above Mean Sea Level (MSL) for properties within the PacifiCenter have been established to comply with FAA requirements. As illustrated in the site sections provided in Figure 12 on page 131 of Section III, Project Description, the proposed PacifiCenter buildings, landscaping, and other vertical features have been designed to comply with these height restrictions. Furthermore, in accordance with FAA requirements, the Design Guidelines for the project will indicate that height is defined as the maximum height of any building element (e.g., parapets, spires, mechanical penthouses, stair enclosures, elevator overrides, antennas, and railings) for those height zones closest to the Airport.

Consistent with the policies within the County ALUP, the following project features are also incorporated into the proposed project:

- Above-ground storage of flammable liquids or toxic materials in a designated RPZ shall be avoided to the extent feasible. In the event that such storage would be necessary within a designated RPZ, the quantity shall be less than 100 gallons of flammable liquids or toxic materials on any one net acre;

- Uses that may direct a steady or flashing light of red, white, green, or amber colors toward aircraft engaged in takeoff or landing within a RPZ shall not be permitted;

- The erection or growth of objects that rise above an approach surface within the RPZ of Runway 16L and 16R shall be restricted, unless supported by evidence that it does not create a safety hazard as determined by the FAA;

- Any uses that would attract large concentrations of birds, emit smoke, or that may otherwise affect safe air navigation shall be avoided; and

- Uses that could generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation shall be avoided.

d. Analysis of Project Impacts

(1) Hazardous Materials

(a) Asbestos Containing Materials

As discussed in Section III, Project Description, buildings on the project site are being demolished as part of the ongoing remediation of these former industrial areas. Given the age of some of these buildings, building materials containing asbestos are assumed to be present in all buildings, and safe handling of such materials is required to prevent adverse impacts to the proposed PacifiCenter redevelopment program. In accordance with SCAQMD Rule 1403 and federal regulations applicable to asbestos demolition activities, pre-demolition building surveys must be performed to identifiable regulated asbestos-containing building materials (ACBM) and such materials must generally be removed prior to building demolition by certified asbestos containment contractors. Applicable legal requirements relating to ACBM removal and related building demolition activities also include advance notices to regulatory oversight agencies, extensive training for workers, and detailed requirements relating to the ongoing

containment, management and disposal of the ACBM.[172] Compliance with these legal requirements for this ongoing ACBM abatement and related demolition work will continue to assure that Boeing employees elsewhere in the facility, and members of the public living or visiting nearby, will not be exposed to any airborne asbestos hazard.

(b) Lead-Based Paint

As with ACBM, lead-based paint was commonly used in older buildings. Exposure to lead at harmful levels can cause adverse health impacts. The ongoing demolition of buildings containing lead-based paints is subject to a comprehensive set of California regulatory requirements that are designed to assure the safe handling and disposal of these materials. Demolition workers are at greatest risk of adverse health exposures and are protected pursuant to requirements set forth in CCR Title 8, Section 1532.1 (described above), which provides for exposure limits, exposure monitoring, and respiratory protection and mandates good working practices by workers exposed to lead. As part of compliance with these requirements, Boeing requires bidding contractors to provide evidence of certified training for lead-related construction work. Lead-contaminated debris and other wastes must also be managed and disposed of in accordance with applicable provisions of the California Health and Safety Code. Compliance with these legal requirements for ongoing lead-based paint abatement and related demolition work will continue to assure that Boeing employees elsewhere in the facility, workers and occupants of the redeveloped PacifiCenter project, and members of the public living or visiting nearby, will not be exposed to any hazards associated with lead-based paint debris and materials.

(c) Underground Storage Tanks

Both of the USTs that remain on site will be removed either prior to or in conjunction with the demolition work for the former industrial areas of the project site. These USTs as well as any previously unidentified USTs that may be encountered during the ACER program will be removed in accordance with applicable Federal, State, and local Long Beach Fire Department regulatory requirements discussed above. Therefore, no significant impacts associated with USTs will occur as a result of the project.

[172] *The abatement of asbestos containing materials is not required unless it is creating an airborne hazard or is being disturbed in such a manner that it is emitting an airborne hazard as a result of the disturbance.*

(d) Handling, Storage, Transport and Disposal of Hazardous Materials

The continued use of the Boeing Enclave for aviation-related uses will continue to involve the storage, transportation, and use of hazardous materials, and the handling of related hazardous wastes such as paint sludge and filters, sealant tubes, primer cups and contaminated debris, toner and dry ink, batteries, oil and oil/water mixtures, and jet fuel. As a routine part of the ongoing industrial operations in the Boeing Enclave areas, use, storage and disposal of such hazardous materials will continue to be subject to various federal, state, and local requirements that will assure that all hazardous materials management activities are safe and protective of human health and safety, and the environment.

The ongoing remediation program at the former industrial areas of the facility, including demolition of structures and remediation of soils and groundwater contaminated by historic releases of hazardous materials, may also result in the management and disposal of demolition debris and contaminated media, and may also expose demolition, remediation, and other construction workers to potential hazards from such hazardous materials. In addition, construction workers may be exposed to potential hazards as infrastructure is replaced and new infrastructure to serve the redevelopment project is installed. Federal and state workplace protection standards apply to such activities to assure worker safety.

As part of the project, future commercial businesses that locate on the PacifiCenter may use hazardous materials that are typically used by such businesses, and will be subject to ongoing federal, state, and local regulations to assure the safe management of such materials. Should the uses at any of the on-site businesses warrant, necessary hazardous materials permits, such permits will be obtained and renewed, as appropriate, by the business owner. In addition, should it be determined that hazardous waste will be generated by any of the businesses that will be located on the project site, a U.S. EPA Identification Number will be obtained.

The use of household hazardous materials will occur on the project site and will be limited to small quantities of everyday household cleaners, automotive products, and other materials that are typical of residential uses. The use of such materials will not create a hazard on or near the project site. Furthermore, household hazardous waste generated

on the project site will be properly disposed of through the regularly scheduled Household Hazardous Waste Collection Program administered by the County of Los Angeles.[173]

Finally, as the PacifiCenter project is completed over time, new residents and employees at the PacifiCenter project may be located near new commercial activities that handle hazardous materials, near ongoing industrial activities within the Boeing Enclave, and near the remaining phases of the ongoing demolition and remediation activities in the former industrial areas of the project site that are slated for development as part of the project. The RMP will be developed by the Applicant to assure that such hazards are fully protective of the health and safety of new residents and employees at PacifiCenter. Furthermore, all hazardous waste may be generated on the project site will be managed in accordance with California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (CCR, Title 22, Division 4.5).

(e) Gas and Oil Wells

As discussed above and shown on Figure 38 and Figure 39 on pages 346 and 348, respectively, the closest oil field to the project is the Long Beach Airport Oil Field located approximately 0.2 mile southwest of the site and the nearest oil well is located over 0.3 mile southwest of the site. Due to this distance, the Long Beach Airport Oil Field and oil wells in the vicinity of the project will not pose a hazard to the project site. Also due to this distance, the potential for migration of methane from the Long Beach Airport Oil Field to the project site in quantities sufficient to present a potential hazard at the site is considered minimal. The results of methane gas sampling and analysis conducted at the project site confirm this conclusion. Furthermore, soil gas and groundwater samples taken from beneath the site have found concentrations of methane that are significantly below the Lower Explosive Level (LEL) and 20 percent of the LEL for methane and thus, do not pose a hazard associated with potential methane combustion. As such, the gas and oil wells adjacent to the project site do not present a significant impact to the project.

(f) Electromagnetic Fields

As discussed above, various sources of EMFs will be introduced at the site, including appliances, wiring of buildings, and electrical transmission lines, including transmission lines associated with a potential substation on-site. However, as discussed

[173] *This program is held on a regular basis at Veterans Stadium, which is less than one mile from the project site.*

above, in 1999 the National Institute of Environmental Health Sciences (NIEHS) and National Institutes of Health released the report prepared in response to the 1992 Federal Energy Policy Act. As indicated above, the report concludes that "there is weak evidence for possible health effects from ELF-EMF exposures, and until stronger evidence changes this opinion, inexpensive and safe reductions in exposure should be encouraged."[174] An example provided in the report regarding the steps to be taken include that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards.[175] Therefore, while appliances, wiring of buildings, and electrical distribution lines could expose people to EMFs, the potential impact would be considered less than significant.

(g) Contaminated Soil and Groundwater

As described above, in coordination with LARWQCB, Boeing is implementing an ongoing comprehensive environmental assessment and remediation program to clean up historic chemical releases to soil and groundwater from former industrial activities on the project site. This remediation program is mandated by Order of the LARWQCB and must be completed independent of the ultimate redevelopment of the project site. Former industrial buildings and ancillary structures are being demolished and shallow soils are being remediated, where necessary, in project areas in accordance with the LARWQCB requirements.[176] This component of site remediation program is being completed in phases that have been identified in the ACER program approved as part of the ongoing remediation work required under the LARWQCB Order (refer to in Figure 40 on page 353). Based on the results of assessment and remediation activities conducted to date, the LARWQCB has approved closure of 12 of the EIAs. The LARWQCB is reviewing and confirming the completion of the ACER program in these and the remaining EIAs as the work progresses. LARWQCB verification of the completion of the required components of remediation work shall also be required, as described below, before the Applicant obtains permits to construct new buildings as part of the project.

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[174] *NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields, Prepared in Response to the 1992 Energy Policy Act (PL 102-486, Section 2118), 1999, page 38.*

[175] *Ibid.*

[176] *Twelve feet below grade is considered by Cal/EPA to be a reasonable maximum depth at which a residential receptor could be potentially exposed to impacted soil and groundwater by dermal (skin) contact. The depth is derived from the average maximum excavation depth to install a typical residential swimming pool. Contamination located below this depth is more typically remediated by in-situ clean up methods rather than by excavation.*

It is anticipated that potential groundwater remediation efforts, including, for example, the extraction and treatment of groundwater that has been adversely impacted by historic chemical releases, will occur over a longer period of time due to the geologic and technical constraints associated with groundwater remediation programs. In situ remediation efforts for impacted soils below 12 feet, including, for example, soil vapor extraction, will likewise occur over a longer period of time due to similar constraints. This ongoing activity will necessitate the installation of subsurface and limited surface cleanup equipment and structures. This cleanup related equipment will not affect or be accessible to new residents or employees at PacifiCenter. As described below, the RMP shall also include measures to assure the ongoing protection of future residents and employees at PacifiCenter in relation to these longer-term remediation efforts.

(2) Airport Safety

As discussed above, development in close proximity to an airport must consider all relevant Federal, State, and local safety regulations with regard to potential airport safety hazards. The project's compliance such applicable regulations is discussed below. Also provided below is consideration of the Caltrans Handbook.

PacifiCenter has been designed in conformance with the FAA safety regulations as set forth in FAR Part 77, and also in accordance with Los Angeles County ALUP safety regulations as follows:

1. PacifiCenter buildings comply with FAA height and RPZ restrictions.

   Height zones proposed as part of the project are presented in Figure 14 on page 135 in Section III, Project Description. As evidenced by the various site sections presented in Figure 12 on page 131 of Section III, Project Description, all of the buildings or structures built within the proposed height zones will comply with the height restrictions set forth in the Long Beach Airport Runway Approach Zones Standards for Determining Obstruction to Air Navigation as per FAR Part 77 , which is illustrated in Figure 43 on page 366.

2. PacifiCenter also complies with the ALUP safety policies.

   As indicated by Figure 42 on page 362, the project adheres to the restrictions associated with the RPZ at the end of Runways 16L and 16R and provides for unobstructed passage of landing aircraft through the above airspace. Due to the critical nature of this area, no structure will be built within this zone. As such, the project will assist in implementing the ALUP safety policy regarding

RPZs. In addition, the following previously described project features will also implement the safety policies set forth in the ALUP: restriction of above-ground storage tanks of flammable liquids or toxic materials in RPZs; restriction of lighting within an RPZ; restriction of erection or growth of objects within Runways 16L, 16R, 12, and 25R's RPZ; restriction of uses that may affect safe air navigation; and avoidance of uses that will generate electrical interference.

As discussed above, Part 77 provides that Applicant's must submit a FAA Form 7460-1 to the Administrator. The FAA will not "approve" the proposed project. Rather, the FAA will provide a written "finding" to the applicant that the project is one of three options: (1) not a problem with respect to air navigation; (2) is an obstruction, but not a hazard to air navigation; or (3) is a hazard to air navigation. This finding is advisory to the applicant and to local zoning jurisdictions. In addition, the FAA will review the proposed project to be certain that it does not create: *(i)* electromagnetic interference with air navigation facilities; nor *(ii)* lighting effects; nor *(iii)* smoke that would interfere with aircraft in flight.

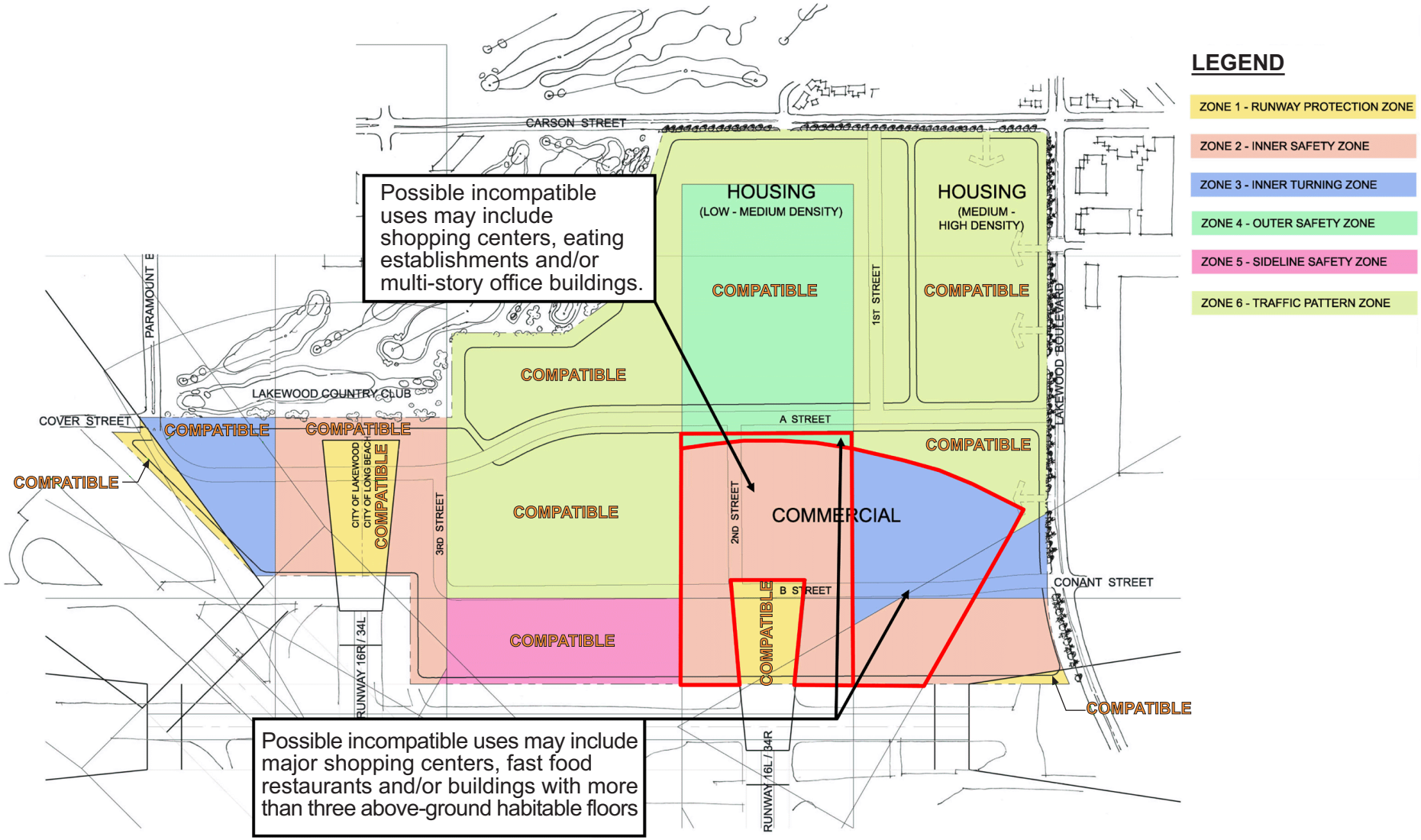
As discussed in the Report on Potential Hazards Related to the Long Beach Airport Operations presented in Appendix J, compliance with the provisions of Part 77 dealing with height or with interference factors does not guarantee absolute safety for aircraft in flight, but it does provide a uniform application of reasonable levels of risk exposure that are commensurate with other aspects of aviation activity. With respect to safety to persons on the ground, neither the FAA nor the County provides specific guidelines for land use compatibility beyond the RPZ. Thus, to evaluate potential safety impacts to persons on the ground, the Caltrans Handbook was used as the primary reference as it provides the most up-to-date, comprehensive source for compatibility assessment. As discussed above, the Caltrans Handbook guidance is based in part upon nation-wide data over a twenty-year period. The Caltrans guidelines serve as a "starting point" for a local determination process.

The Caltrans Handbook identifies factors that should be considered in land use determinations. Among these and others that are relevant to the Long Beach Airport are:

- Airports/runways with airline activity vs. those with general aviation activity;
- Runways used both day and night;
- Preferential runway usage;
- Aircraft operation levels;

- Types of aircraft;
- Runway length/pavement strength;
- Left/right hand traffic patterns; traffic pattern size and altitude;
- Visual vs. instrument runways;
- Dispersion of air traffic on multiple runways by aircraft type; and
- Special usage such as training, helicopter operations, business jet centers, aircraft manufacturing.

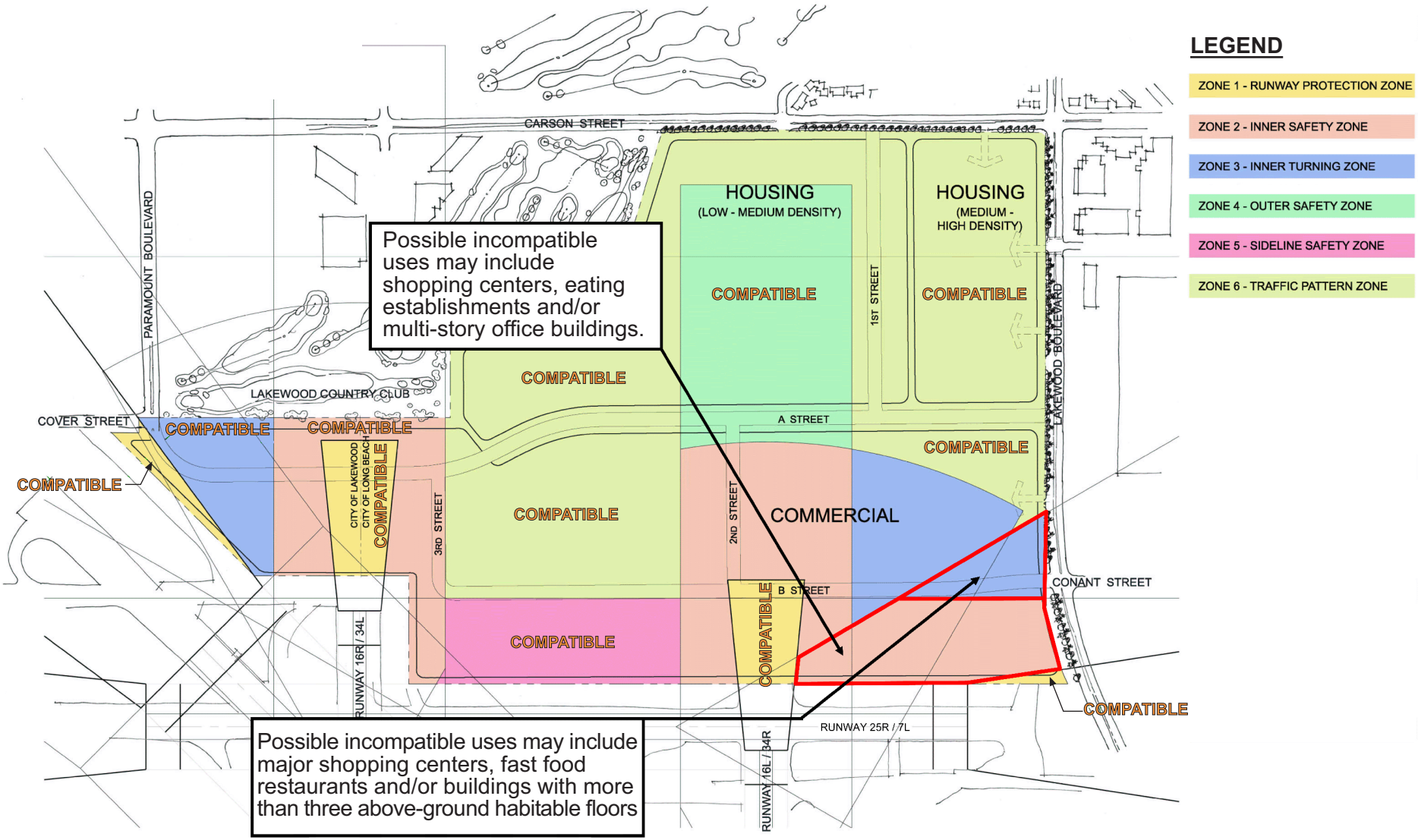
As discussed in Appendix J, there are only two of the five runways (i.e., Runways 16L/34R and 25R/7L) at the Long Beach Airport where aircraft operations might impact the proposed project. Several of the Caltrans Handbook operating factors listed above that reduce the risk of exposure are exhibited within these runways. For instance, Runway 16L/34R is limited to smaller aircraft weighing less than 12,500 pounds; night operations are not permitted; Runway 16L is used infrequently for landings and Runway 34R is seldom used for takeoffs; 16L/34R is used for Visual Flight Rules only; and the traffic pattern altitude is 1,000 feet above ground level which allows a opportunity to reach the airport in the event of an engine failure. Runway 25R/7L also has a 1,000 foot traffic pattern altitude.All of the residential uses proposed as part of the PacifiCenter project would be compatible with the safety zone guidelines within the Caltrans Handbook, as discussed in detail in Appendix J. However, based on the guidelines within the Handbook, which are not specific to the Long Beach Airport, certain commercial areas of the PacifiCenter project would place possible incompatible uses in portions of some of the safety zones associated with Runway 16L/34R and Runway 25R/7L. Figure 44 on page 381 and Figure 45 on page 382 illustrate these areas. As shown in Figure 44, the proposed project may place possible incompatible uses, including shopping centers, eating establishments, and/or multi-story office buildings, in a portion of the Inner Safety Zone for Runway 16L/34R. In addition, the project may place possible incompatible uses, including major shopping centers, fast food restaurant, and/or buildings with more than three above-ground habitable floors, in a portion of the Inner Turning Zone near Lakewood Boulevard and Conant Street and within a narrow portion of the Outer Safety Zone immediately south of A Street west of First Street. With regard to Runway 25R/7L, as shown in Figure 45, based on the Caltrans Handbook Guidelines, the proposed project may place possible incompatible uses in the portion of the Inner Safety Zone of this runway in the southeast portion of the project site. In addition, the proposed project may place possible incompatible uses in a portion of the Inner Turning Zone within a small triangular area near the intersection of Lakewood Boulevard and Conant Street.



Source: Walter E. Gillfillan and Associates, 2003

PCR

Figure 44
Compatibility Associated with Runway 16L/34R



PCR

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0 800 Feet

Source: Walter E. Gillfillan and Associates, 2003

Figure 45
Compatibility Associated with Runway 25R/7L

Aside from the areas identified above and shown in Figure 44 and Figure 45 on pages 381 and 382, all of the proposed uses on the project site, including residential, office, hotel, and retail, represent an acceptable form of development pursuant to the Caltrans Handbook guidelines. As discussed in Appendix J, when offering the human occupancy criteria, the Caltrans Handbook recognizes there can be variations in occupancy within the large zones. The Handbook provides for concentrations that may occur by allowing a doubling of the density in the Inner Safety Zone and the Inner Turning Zone for any 1-acre area. Similarly, an increase in overall density of 1.5 factor is provided when a "risk-reduction building design" is used. These two factors can be additive to a 3 times increase in any one acre. This provision in the Handbook criteria allows the specific siting of structures and activities within the PacifiCenter to limit the consequences of an accident, should one occur.

Based on the above, the proposed PacifiCenter project complies with all the relevant FAA and ALUP regulations. However, without mitigation measures, the proposed project may place possible incompatible uses in some of the safety zones identified as guidelines in the Caltrans Handbook. As discussed in Appendix J, when accounting for several factors including the current and future operations of the Airport, and with implementation of the mitigation measures provided below, the project will not result in a significant impact associated with the risk exposure to aircraft operations that will cause a safety hazard for people residing or working in the PacifiCenter project area. In addition, as indicated above, based on NTSB data, there are no known accidents that have occurred within the PacifiCenter site within the last twenty years.

(3) City of Long Beach

The project would result in an increase in plan check and inspection of restaurants, multi-family housing and hazardous waste generating facilities by the City of Long Beach Health Department staff. However, health services fees paid by a developer at the time of submittal of an application for plan check would be sufficient to fund the Health Department expenditures associated with staffing for project induced demand with regard to plan check and inspections. Therefore, no significant impact would occur with regard to Health Department resources.

The project would comply with the City of Long Beach Public Safety Element recommendation regarding above ground fuel storage facilities within close proximity to the fight pattern at the Long Beach Airport through the incorporation of the project features regarding such storage. As indicated above, above ground storage of flammable liquids or toxic materials in a designated RPZ shall be avoided to the extent feasible. In the event that such storage would be necessary within a designated RPZ, the quantity shall be less

than 100 gallons of flammable liquids or toxic materials on any one net acre in accordance with FAA regulations.

(4) Conclusions

Based on the above, during construction and operation of the PacifiCenter project, hazardous materials will be used, handled, stored, and disposed of in accordance with applicable government regulations and standards. Therefore, the project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Although the site is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (as a site that is subject to a CAO by the LARWQCB), it will not create a significant health hazard because, soil and groundwater contamination at the site are being remediated in compliance with the CAO and will remain subject to the ongoing oversight of the LARWQCB. In addition, with the implementation of the previously described project features and the mitigation measures provided below, construction and operation of the PacifiCenter project will not result in the exposure of people to existing and proposed sources of potential health and safety hazards. Finally, with implementation of mitigation measures, the project will not result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.

3. CUMULATIVE IMPACTS

As indicated above, the project area is the site of the former Boeing C-1 facility and contains areas of contaminated soil and groundwater. As a separate program pursuant to an order issued by LARWQCB, Boeing is implementing a comprehensive environmental assessment and remediation program for the project site (Related Project No. 44), which includes the dismantling and demolition of some and potentially all of the site's buildings and facilities, as well as the remediation of soil and groundwater. These efforts are being coordinated with LARWQCB in compliance with applicable regulations and will occur regardless of whether the PacifiCenter project goes forward. The demolition and remediation activities will improve the conditions of the area surrounding the project site with respect to hazards and hazardous materials.

There are several existing and former industrial and institutional facilities within one mile of the project site that could also have potentially impacted the site in the past. For a description thereof, refer to the Phase I Report included as Appendix L of this EIR. Most of the facilities that pose a potential threat are listed in the applicable databases as leaking UST sites. Two service stations have posed a potential impact on the site: a TOSCO service station and a Standard Oil Service Station, both located on Lakewood Boulevard. The TOSCO service station no longer exists and the property has been acquired by the City of Long Beach. The property, which is located at the corner of Lakewood Boulevard and Carson Street is being remediated by the previous property owner, who remains responsible for such remediation. Disposition of this property to Boeing Realty Corporation or other development entity may be completed as part of the project. As with other remediation efforts, any contamination will be remediated to levels that present no significant human health risk for future uses, in accordance with the appropriate regulatory agency. Records relating to the second site show that eight USTs have been removed from the site, with no indication of soil or groundwater contamination, and the Long Beach Fire Department granted closure of the site. There are also several other sites in the area that have had chemical releases that have impacted the groundwater and could have impacted the PacifiCenter site. To the extent that these off-site properties could have impacted the PacifiCenter site, the separate and ongoing on-site remediation program is designed to address and remedy these off-site sources of potential hazards or hazardous materials.

The remediation program is the only ongoing or future planned significant remediation project in the immediate vicinity of the project site that will involve the handling of significant quantities of hazardous wastes and materials. Regardless, any future development in the vicinity, including nearby related projects (Related Project Nos. 6, 12, 77, 82, 85, 86, etc.), will also be subject to a wide range of Federal, State, and local regulations pertaining to hazards and hazardous materials, which will assure that there will be no adverse impacts from such projects to the PacifiCenter site.

Moreover, development of the PacifiCenter project, including implementation of the project features and mitigation measures proposed as part of the project, will not add incrementally to a cumulative impact relative to hazards and hazardous materials. The ongoing remediation program required by the CAO will result in a substantial net benefit to soil and groundwater quality, and the RMP (discussed below) will further ensure the health and safety of the site's future residents and employees during the phased redevelopment and remediation of the site. As such, cumulatively significant impacts associated with hazards and hazardous materials will not result from implementation of the project.

As it relates to airport safety issues, the proposed Airport improvements (Related Project No. 77), which involve 43,000 square feet of building improvements, and a 4,000-space parking garage, can be reasonably expected to provide the same level of safety as exists currently in accordance with FAA safety regulations, the Los Angeles County ALUP, and Caltrans Handbook guidance. As discussed above, PacifiCenter has been designed in conformance with relevant FAA and ALUP regulations. Additionally, as discussed in Appendix J, when accounting for current and future operations at the Airport (which is projected to accommodate projected growth to 3.8 million annual passengers based on the September 2003 Notice of Preparation regarding the Long Beach Airport Terminal Area Improvements), and with implementation of the project mitigation measures provided below, a significant impact associated with the risk of exposure to aircraft operations causing a safety hazard for people residing or working in the PacifiCenter project area will not occur. Cumulative safety impacts will be less than significant.

4. MITIGATION MEASURES

Completion of the ongoing remediation (including demolition) work required under the LARWQCB Order will assure the protection of human health and safety and the environment in relation to soil and groundwater that was historically impacted by primary compounds/constituents.

As part of the project, prior to the construction of new buildings at the site, the Applicant shall also develop and implement a Risk Management Plan (RMP) to assure that the phased completion of ongoing remediation work and the phased completion of proposed redevelopment will continue to be fully protective of human health and safety, and the environment. The mitigation measures in this section set forth the required contents of the RMP. With implementation of this RMP program, project impacts related to soil and groundwater conditions will be reduced to a less-than-significant level.

V.E-1 Prior to constructing new buildings in an Environmental Investigation Area (EIA), obtain LARWQCB confirmation that the required demolition and soil remediation work has been completed as required by the ACER program, and that the EIA is suitable for redevelopment (LARWQCB Completion Notice).

Monitoring Phase: Pre-Construction

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: Regional Water Quality Control Board

Action Indicating Compliance: Confirmation provided with Approval of Plans

V.E.-2 Complete a Risk Management Plan (RMP), to remain in place and effective during the construction of new buildings and after project development, until the site has been remediated as required by the CAO, that includes the following:

- Develop and record all required environmental disclosures, covenants and restrictions relating to historical impacts to soil and groundwater, including residual conditions or restrictions that may remain in place in some areas during or after full implementation of the LARWQCB Order.

- Develop and implement a consolidated Health and Safety Plan (HSP) for redevelopment construction workers that includes all required elements to assure worker protection in relation to soil and groundwater conditions on the project site. Provide the RMP, including this HSP, to construction contractors and sub-contractors and require compliance with the HSP in all construction contracts that include work scopes likely to require contact with subsurface soils or groundwater.

- On EIAs for which there has been no LARWQCB Completion Notice as of the commencement of redevelopment construction activities, limit access with adequate fencing or other barriers to protect new residents and employees at PacifiCenter. Identify and implement risk management measures within EIAs that are adjacent to or may otherwise affect completed redevelopment areas, including a routine inspection program to assure that such measures are being implemented.

- On EIAs for which groundwater or deeper-soil remediation work is planned or ongoing as of the commencement of constructing new buildings, identify and implement risk management measures for the management of impacted soils and groundwater, and for the installation and operation of remediation equipment and processes, that are fully protective of the health and safety of the public and PacifiCenter residents and employees, including a routine inspection program to assure that such measures are being implemented. At

minimum, such measures shall include compliance with all applicable federal, state and local laws and regulations.

- Identify and implement risk management measures for managing demolition debris, including debris containing asbestos materials or lead-based paints, to assure are fully protective of the health and safety of the public and PacifiCenter residents and employees, including a routine inspection program to assure that such measures are being implemented. At minimum, such measures shall include compliance with all applicable federal, state and local laws and regulations.

- Identify and implement accident prevention and control measures for demolition and remediation activities, and for ongoing operations within the Boeing Enclave, that are protective of the health and safety of the public and PacifiCenter residents and employees, including a routine inspection program to assure that such measures are being implemented. At minimum, such measures shall include compliance with all applicable federal, state and local laws and regulations.

- Identify and implement standards for imported soils and compaction materials to assure that such fill materials are fully protective of human health and the environment, and require contractors responsible for imported fill to meet these standards.

- Identify and implement project design features that may be used to minimize impacts to ongoing or planned remediation work in project area groundwater or soils, including, for example: (a) landscaping features that will not require excessive quantities of water thereby avoiding interference with groundwater areas requiring remediation; (b) building features that may minimize the potential for migration of soil vapors into occupied indoor areas; and (c) land plan elements that are consistent with planned longer-term remediation efforts.

Monitoring Phase: Pre-Construction

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: Regional Water Quality Control Board

Action Indicating Compliance: Approval of Plans

In addition to the project features presented and evaluated in this section, the following mitigation measures are recommended to reduced project impacts relative to hazards to less-than-significant levels:

V.E-3 In accordance with FAA requirements, prior to commencement of construction of any building, the construction sponsor shall file Form 7460-1, Notice of Proposed Construction or Alteration, with the appropriate regional FAA office for airspace review.

Monitoring Phase: Pre-Construction

Enforcement Agency: Federal Aviation Administration

Monitoring Agency: City of Long Beach Department of Planning and Building and City of Lakewood Department of Community Development

Action Indicating Compliance: Issuance of building permits

V.E-4 Prior to execution of a "through-the-fence" agreement for a proposed aviation-related use, the proposal shall be submitted to the Airport for review and approval and the Airport will consult with the FAA.

Monitoring Phase: Pre-Construction

Enforcement Agency: Long Beach Airport

Monitoring Agency: City of Long Beach Department of Planning and Building and City of Lakewood Department of Community Development

Action Indicating Compliance: Approval of a "through-the-fence" Agreement"

V.E-5 No building(s) shall be constructed in the Runway Protection Zones (RPZs) designated by the Airport Layout Plan.

Monitoring Phase: Pre-Construction

Enforcement Agency: Airport Land Use Commission

Monitoring Agency: City of Long Beach Department of Planning and Building and City of Lakewood Department of Community Development

Action Indicating Compliance: Approval of Plans

V.E-6 The following measures shall be implemented to reduce the risk of exposure to airport-related hazards associated with aircraft operations on Runway 16L/34R:

- Provide street alignment and landscaping along the extended runway centerline;
- Locate automobile parking, in the commercial areas, adjacent to the extended runway centerline so as to reduce the building coverage in that area;
- Utilize construction that would limit small aircraft penetration in the Inner Safety Zone and Inner Turning Zones;
- Avoid concentrations of people near extended runway centerline and runway end by locating elements such as streets, setbacks, parking, and landscaping, near extended runway centerline and runway end;
- Avoid concentrations of people that are not shielded by structure from aircraft penetration in the Inner Safety and Inner Turning zones by locating primarily buildings within the Inner Safety and Inner Turning zones rather than developing areas where people would congregate (i.e., amphitheaters, band stands); and
- Comply with the Federal Aviation Regulations, Part 77 height limits.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Department of Planning and Building

Monitoring Agency: City of Long Beach Department of Planning and Building

Action Indicating Compliance: Approval of Plans

V.E-7 The following measures shall be implemented to reduce the risk of exposure to airport-related hazards associated with aircraft operations on Runway 25R/7L:

- Provide street alignment and automobile parking to reduce land coverage in areas nearest the runway operating areas;

- Utilize construction that would limit small aircraft penetration in the Inner Safety Zone and Inner Turning Zone;
- Avoid concentrations of people that are not shielded by structure from aircraft penetration in the Inner Safety Zone and Inner Turning Zones, by locating primarily buildings within the Inner Safety and Inner Turning zones rather than developing areas where people would congregate (i.e., amphitheaters, band stands); and
- Comply with the Federal Aviation Regulations, Part 77 height limits.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Department of Planning and Building

Monitoring Agency: City of Long Beach Department of Planning and Building

Action Indicating Compliance: Approval of Plans

5. SIGNIFICANCE AFTER MITIGATION

With implementation of the project features and the recommended mitigation measures, impacts relative to hazards and hazardous materials will be less than significant.

This section is based on the Drainage Master Plan Study prepared by Kimley-Horn and Associates, Inc. dated December 2003, which is included as Appendix M of this EIR.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

The PacifiCenter site is located in an area of relatively flat topography that maintains an average grade of approximately 0.4 percent. The site is predominantly industrial in nature, with impervious surfaces constituting much of the site. Until recently, impervious surfaces comprised approximately 98 percent of the site. As demolition activities associated with the remediation program have begun within portions of the site, additional pervious surfaces are being created. Recent and existing impervious surfaces include buildings, internal streets, and parking areas. Pervious surfaces consist of landscaped areas primarily located on the northern, eastern, and southeastern perimeters of the site as well as areas in which buildings have recently been removed. There are no water bodies on the PacifiCenter site. The area surrounding the project site contains a mix of uses, including residential and commercial, that consist largely of impervious surfaces. Landscaped areas and open space associated with the Lakewood Country Club and Skylinks Golf Courses are the only predominantly pervious surfaces in the project vicinity.

Subsurface materials encountered on the site consist primarily of interlayered mixtures of sand, silt, and clay to the maximum explored depth of approximately 61.5 feet. Granular materials have varied percolation capabilities and are typically medium dense to very dense, and the fine-grained soils are typically stiff to hard. Layers of loose and silty sand were also encountered in previous borings associated with the separate remediation program. Groundwater was encountered at depths of 37 to 45 feet below the ground surface (bgs) in the deeper borings. However, based on available information, it is expected that groundwater levels fluctuate throughout the site.

The average annual precipitation on the PacifiCenter site is 12 inches. A 50-year, 24-hour storm event yields approximately 6.5 inches of rainfall and a 10-year, 24-hour storm event yields approximately 5.8 inches.[177] Most of the surface runoff from the PacifiCenter site is generated on-site, with almost no surface flow entering the site from other areas. On-site runoff flows from at-grade surfaces to storm drains or from the roofs of the existing buildings through roof down-drains that connect to the storm drain system. Concentrated off-site drainage from the Lakewood Country Club and a portion of the residential area located to the north of the project site enters the on-site storm drain system at the project boundary. This is the only off-site drainage that is conveyed through the site, and since this flow is isolated in a culvert, it does not impact the surface runoff on the project site.

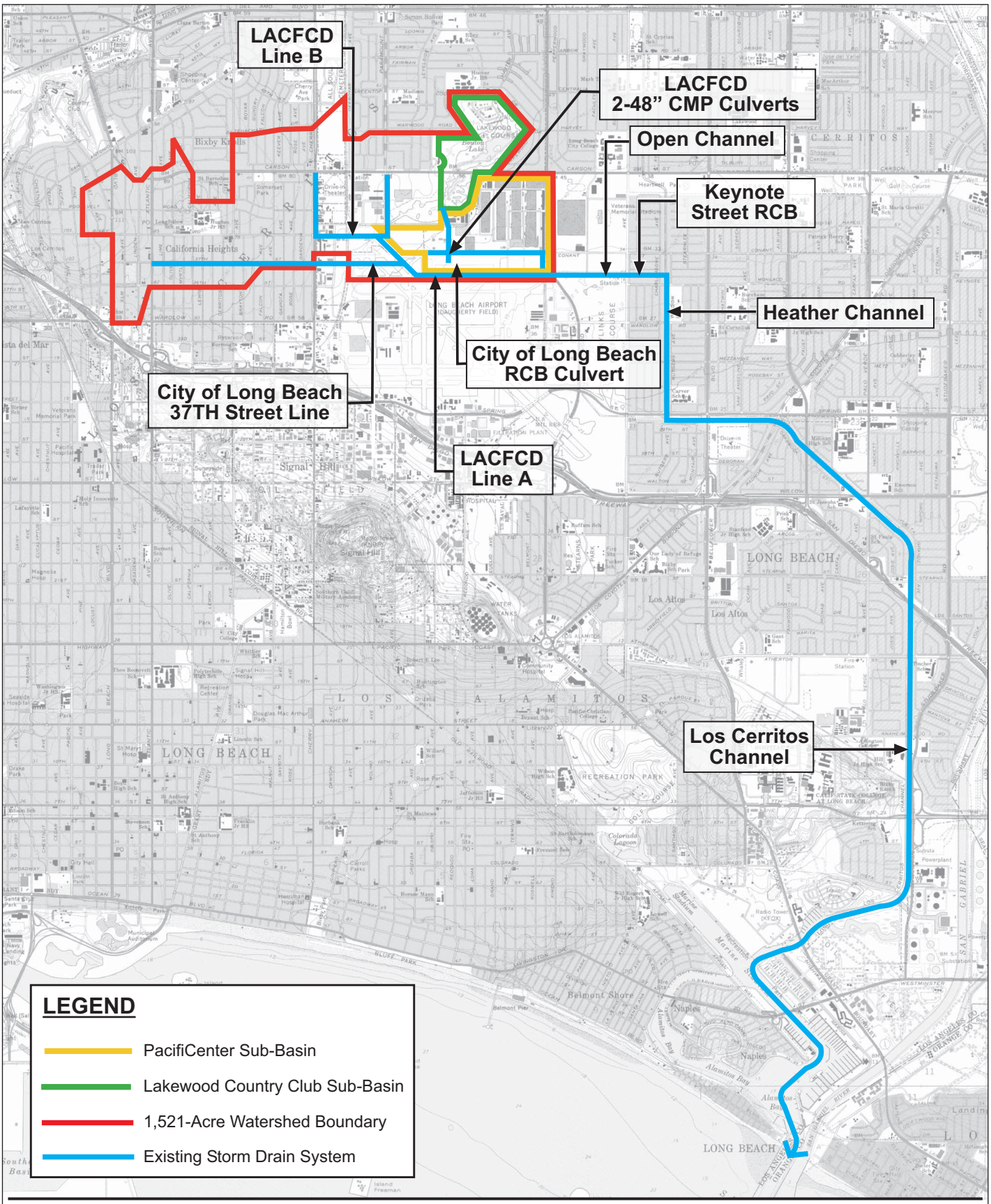
The PacifiCenter site lies at the downstream end of a watershed consisting of approximately 2.4 square miles (1,521 acres). This watershed is divided into three sub-basins consisting of: (1) the 261-acre PacifiCenter site; (2) the 257-acre Lakewood Country Club site and surrounding area; and (3) the remaining 1,003 acres located to the north and west of the project site. Runoff from the 1,003-acre sub-basin bypasses the PacifiCenter site. The watershed and sub-basin boundaries are illustrated in Figure 46 on page 394. This watershed is almost completely built out, with a large percentage consisting of impervious surfaces. The primary exception is the Lakewood Country Club Golf Course. The sub-basin that includes this golf course is comprised of approximately 73 acres of residential area, with an assumed impervious area of approximately 70 percent. The remaining 184 acres are assumed to be approximately 10 percent impervious.

The existing storm drain system that serves the 1,521-acre watershed is also illustrated in Figure 46. This watershed is primarily served by the Los Angeles County Flood Control District (LACFCD)-owned “Line A” and “Line B” and the City of Long Beach line that follows 37th Street, as depicted in Figure 46. The watershed sub-basin comprised of the 261-acre project site is served by three major drainage facilities, as described below:

- **LACFCD Corrugated Metal Pipe (CMP) Drains:**[178] These two 48-inch culverts, which were constructed in 1937, drain the Lakewood Country Club

[177] *Los Angeles County Department of Public Works, Hydrology Manual, December 1991.*

[178] *LACFCD does not require that the existing capacity of LACFCD-owned facilities be analyzed if runoff associated with the proposed condition would be less than runoff associated with the existing condition and the outlet points are the same. The project meets both criteria, so the capacity of drains owned by LACFCD are not deemed to be relevant to this analysis.*



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0 1 Miles

Source: U.S.G.S, Quadrangle; Kimley-Horn & Associates, Inc;
PCR Services Corporation, 2003

Figure 46
Watershed Areas and
Existing Storm Drain System

sub-basin, which includes a portion of the residential area north of the project site. These drains initially run diagonally from the northwestern boundary of the project site, and continue in a north-south direction until they discharge to the City of Long Beach Reinforced Concrete Box (RCB) drain described below.

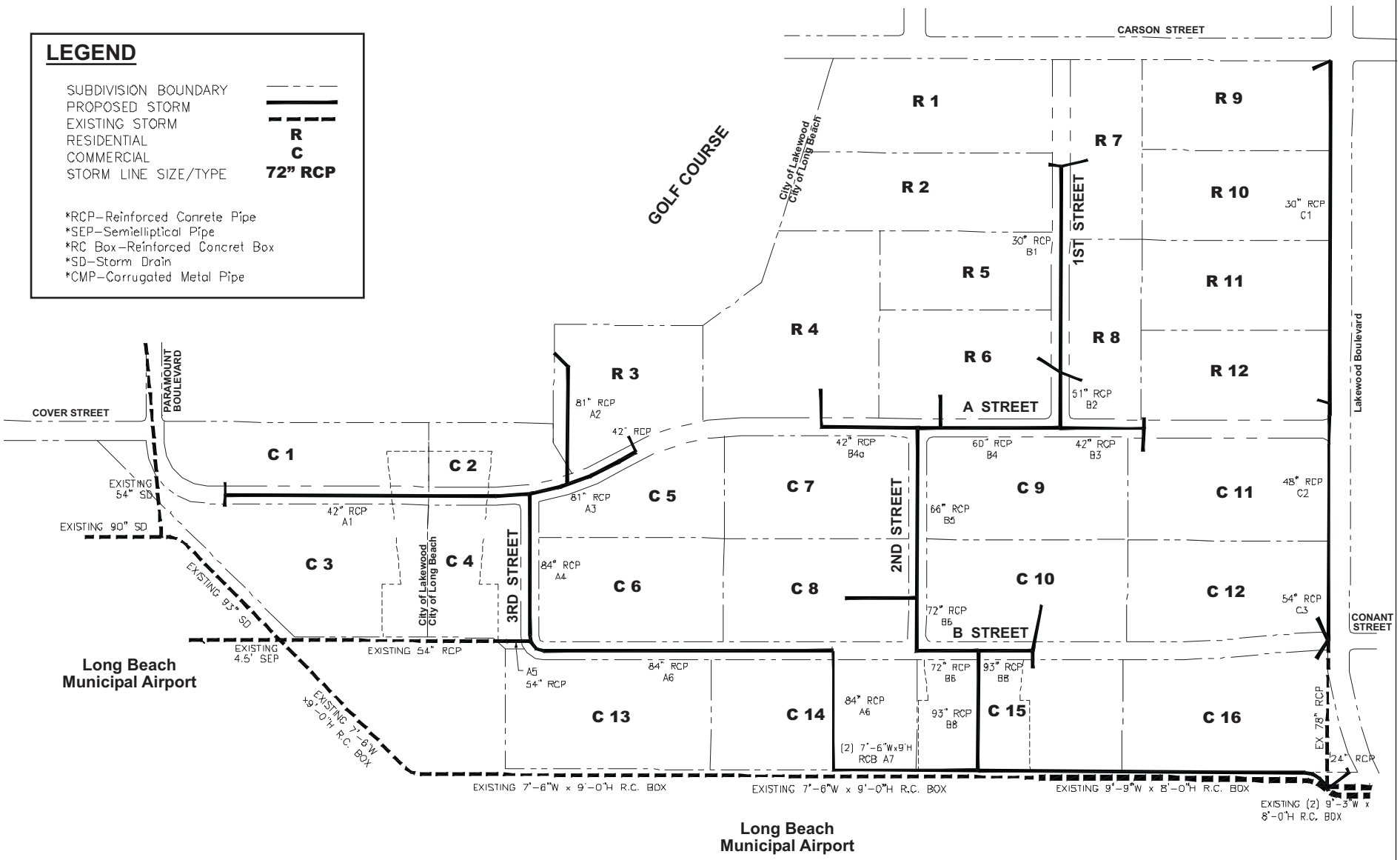
- **City of Long Beach RCB Drain:** This drain, which runs in an east-west direction along the extension of Conant Street near the southern boundary of the project site, consists of an RCB that is 7 feet wide and 4.5 feet deep. The line serves the 261-acre PacifiCenter site, the 257-acre Golf Course sub-basin (via LACFCD's double 48-inch culverts), and an additional 13-acre off-site area comprised of a portion of the Airport property and adjacent streets. Built in the 1940s, the system was designed using different hydraulic methodologies and criteria than are used today. As such, the flow rates for this drain vary between studies and range from 263 cubic feet per second (cfs) to 542 cfs.[179] This drain discharges into a larger RCB culvert owned by LACFCD (Line A), described below. Under baseline conditions, the Long Beach line does not have sufficient capacity for larger event storm flows, and excess surface runoff flows onto the airport property to the south, then flows easterly to Lakewood Boulevard.

- **LACFCD RCB Drain (Line A):** This drain was built in 1960 and is located along the southern boundary of the project site. This drain is 9 feet wide and 7.5 feet deep, increasing to 9.75 feet by 8 feet near Lakewood Boulevard, and intercepts flow from the project site (via the City's 7-foot by 4.5-foot RCB drain) as well as from the rest of the 1,521-acre watershed. Surface flows from the southernmost portion of the project site drain directly to Line A.

The on-site storm drain system point of discharge is located at the southeast corner of the site, where flows discharge into LACFCD-owned, double 9.25-foot by 8-foot RCB culverts located under Lakewood Boulevard, as shown in Figure 47 on page 396. The hydraulic capacity of these culverts is 900 cfs and the peak 10-year flow is 910.3 cfs, resulting in a 10.3 cfs deficit.[180] Of this peak flow at Lakewood Boulevard, 673.6 cfs comes from 1,068 acres that drain directly into the LACFCD RCB culvert (Line A), and 236.7 cfs

[179] *The City of Long Beach RCB Drain was originally designed for a capacity of 263 cfs. The calculated maximum hydraulic capacity of the drain is 280 cfs. The 1991 Long Beach Storm Drain Master Plan calculated a 10-year flow of 388 cfs using standard Rational Method hydraulic analysis. The 10-year flow rates calculated for this analysis by Kimley-Horn and Associates, Inc., using LACFCD methodologies, was 542 cfs.*

[180] *The peak flow calculation is from the 1964 Drainage Study, which is the most recent and comprehensive hydrologic study available for the watershed.*



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Scale Not Provided

Source: Kimley-Horn and Associates Inc., 2003

Figure 47
Existing and Proposed Storm Drain Systems

comes from the City of Long Beach RCB culvert that drains the project site and the Lakewood Golf Course. These double culverts thus intercept flow from the entire watershed, including the project site and areas in Lakewood and Long Beach to the north, west, and northwest of the project site. As these culverts cross under Lakewood Boulevard, they discharge into an open channel that flows east into a RCB culvert in Keynote Street. This culvert discharges into the Heather Channel, which is a concrete rectangular channel. The Heather Channel discharges into Los Cerritos Channel, which flows into Long Beach Marina, Alamitos Bay, and San Pedro Bay.

The 531-acre hydrologic basin, including the project site, the Lakewood Country Club sub-basin, and an additional 13-acre off-site area, currently generates approximately 613 cfs during a 10-year storm event, 704 cfs during a 25-year storm event, and 792 cfs during a 50-year storm event. The 261-acre project site generates approximately 542 cfs during a 10-year storm event, 616 cfs during a 25-year storm event, and 704 cfs during a 50-year storm event. Based on these flow volumes and considering that only approximately 237 cfs of runoff drains from the Long Beach RCB culvert to the LACFCD double culverts under Lakewood Boulevard, under baseline conditions the excess runoff that cannot be accommodated by the double culverts flows over land to the Airport property to the south, then easterly to Lakewood Boulevard. For a 10-year storm event, approximately 376 cfs of stormwater flows onto the Airport property; the amount of excess runoff flowing over land is greater for 25-year and 50-year storms.

A small portion of the 100-year floodplain currently extends west across Lakewood Boulevard into the PacifiCenter site, as shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). However, a Conditional Letter of Map Revision (CLOMR) is currently being prepared which will remove this portion of the project site from the map.[181] The CLOMR is a standard procedure for removing areas from FEMA maps that are incorrectly shown as part of the 100-year floodplain. As in this case, such errors are typically caused by topographic mapping that is not detailed enough to accurately show the floodplain limits relative to the existing ground elevations.

b. Regulatory Framework

The City of Long Beach and the City of Lakewood both refer to the Los Angeles County Department of Public Works (LACDPW) Hydrology and Hydraulic Design Manuals for storm drain planning and design calculations. The LACDPW requires that a storm drain conveyance system is designed for a 25-year storm event and that the combined

[181] *As of January 2004, the status of the CLOMR is still pending.*

capacity of the storm drain and street flow is able to convey a 50-year storm event. In areas with a sump condition, the conveyance system shall be designed for a 50-year storm event. All drainage improvements in the project vicinity are subject to review and approval by LACDPW and the Public Works Department of either the City of Long Beach or the City of Lakewood, as appropriate.

The National Flood Insurance Act of 1968 established the National Flood Insurance Program, which is based on the minimal requirements for floodplain management in the Code of Federal Regulations 44, Sections 59-77. The Federal Regulations are designed to minimize flood damage within Special Flood Hazard Areas. Based on the current FIRM from FEMA, a small portion of the project site is located within a 100-year floodplain. However, as previously mentioned, the process to have this area removed from the map is currently underway.

A National Pollutant Discharge Elimination System (NPDES) permit is required within new construction areas. The City of Long Beach addresses NPDES requirements in Chapter 18.95 of the Long Beach Municipal Code. Although most of this Ordinance pertains to water quality issues, requirements relating to peak runoff rates and the design of impervious surface parking areas are included. In addition, erosion control plans must be submitted to the City of Long Beach for approval before construction is initiated. For a more detailed discussion of NPDES requirements and erosion control plans, refer to Section V.G., Water Quality, of this EIR.

2. ENVIRONMENTAL IMPACTS

a. Methodology

The LACFCD models "TC" and "MORA" were used for the hydrologic analyses.[182] A hydrologic model for both the existing and proposed conditions of the 261-acre PacifiCenter sub-basin, the 257-acre Lakewood Country Club sub-basin, and the adjacent 13-acre off-site area (together comprising a 531-acre watershed) was prepared using this methodology for 10-, 25-, and 50-year storm events. The analysis of the Lakewood Country Club sub-basin was prepared in order to identify flows that pass through the site to the existing City of Long Beach RCB culvert that will be replaced with implementation of

[182] *"TC" calculates the time of concentration for a specified storm event for the watershed. The time of concentration of a sub-area is the total travel time of the flow from the sub-area over the longest time-path of the sub-area. "MORA" calculates a runoff rate for the watershed. Refer to the Drainage Master Plan Study in Appendix L for further discussion of these models.*

the project. Hydraulic analyses were also performed for the existing on-site RCB culverts to confirm their hydraulic capacity.

In addition, the PacifiCenter site was analyzed as an independent watershed basin since very little off-site surface flow enters the site. For analysis of baseline conditions, the site was divided into 12 sub-basins ranging in size from 9 acres to 38 acres, based on the layout of the current storm drain system. Under project conditions, 23 major sub-basins ranging in size from 3 acres to 32 acres were identified within the project site. These major sub-basins were further divided into smaller basins to reflect the flow going into each major new storm drain on the site. The 10-, 25-, and 50-year storm events were then calculated using the LACFCD model.

Potential impacts to the storm drain system were analyzed by comparing the calculated runoff resulting from project implementation to the calculated drainage flow capacity of the proposed storm drain system during 10-, 25-, and 50-year storm events. Potential off-site flooding impacts were analyzed by comparing the project's potential incremental contribution to downstream flows to the overall capacity of the channel.

b. Thresholds of Significance

For purposes of this analysis, hydrology impacts will be considered significant if the project will:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or

- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.

c. Project Features

The proposed project will involve improvements to the existing on-site drainage system, as well as construction of new drainage facilities to support the project, as shown in Figure 47 on page 396. The following Project Features will be implemented as part of project development:

- Portions of the existing Long Beach 7-foot by 4.5-foot RCB culvert located in the Conant Street extension will be replaced. This line's current location is not compatible with the alignment of the proposed on-site street network and its existing vertical alignment will interfere with proposed sewer line improvements within the site. Insofar as the existing uses within the 48-acre Boeing Enclave area of the site remain in operation, the upper 1,200-foot reach of the RCB will remain in place and will continue to drain the western portion of the project site, including the project area within the City of Lakewood. The easternmost 3,900 feet of the culvert will be removed and replaced with a new RCB culvert of varying dimensions at the southern edge of the site, parallel to the existing LACFCD Line A. The proposed RCB line will be designed to convey a 25-year storm flow from the improved site. Additional flows from a greater storm event will be conveyed over land to the airport property to the south, then easterly to Lakewood Boulevard, as occurs under existing conditions.[183]

- A new transition structure immediately upstream from the existing double 9.25-foot by 8-foot RCB culverts under Lakewood Boulevard will join the new RCB culvert along the southern site boundary and the existing LACFCD Line A.

  The existing double 48-inch CMP storm drain lines that extend from the Lakewood Country Club Golf Course southerly to the existing 7-foot by 4.5-foot RCB will be removed and replaced with a new 81-inch reinforced concrete pipe (RCP), as shown in Figure 47. This new drain will extend southerly from the

[183] *The LACFCD will allow only 237 cfs to discharge from the proposed RCB line into the double 9.25-foot by 8-foot RCB culverts under Lakewood Boulevard. Refer to the analysis below for further discussion.*

existing point of connection at the Country Club boundary and connect to the new RCB line along the southern site boundary.

- New public (RCP) storm drains will be constructed within north-south utility corridors throughout the site in order to convey storm flows to the proposed RCB line along the southern site boundary.

- A new storm drain will be constructed along the eastern boundary of the site to drain the Lakewood Boulevard frontage. This storm drain will be located in a dedicated easement parallel to Lakewood Boulevard and will connect into the proposed RCB along the southern site boundary.

- In an effort to minimize the potential impact of street flooding within the PacifiCenter site, all new on-site storm drains, with the exception of the RCB drain along the southern site boundary, will be sized to convey a 25-year storm event, with the street right-of-ways accommodating a 50-year storm event.[184] Please refer to Table 22 on page 402 for a summary of the major facilities of the proposed on-site storm drain system.[185]

- Typical drainage improvements, such as catch basins, roof drains, and surface parking drains, will also be constructed. Such improvements will be designed in accordance with standard engineering practices.

d. Analysis of Project Impacts

Implementation of the PacifiCenter project will create a mixed-use environment with increased green space in the form of recreational areas, parks, and landscaped setbacks, parkways, and medians. The new landscaped areas will decrease the amount of impervious surface area on the PacifiCenter site. The project will include the dedication of approximately 51 acres to parks, green space, and outdoor landscaped areas. This represents an increase of 47 acres of pervious surfaces on the site, which will allow for percolation of surface water, thereby reducing runoff rates when compared with recent conditions on the project site prior to the initiation of demolition activities associated with the remediation program in January 2003 within a portion of the site. As such, the project will result in a decrease in the amount of stormwater runoff generated from the site when compared with historic site conditions. The amount of runoff originating from the site

[184] *Except in a sump condition, in which case drain(s) will be designed to convey a 50-year storm event.*

[185] *The locations and sizes of the proposed drainage facilities are preliminary and may vary somewhat with future modifications to the project such as street layout, grading, or land use.*

Table 22

PROPOSED STORM DRAIN SYSTEM [a]

Storm Drain	Size [b] (Dia. or WxD)	Length (ft)	Slope (ft/ft)	Capacity (cfs)
Line A1	42”	1,460	0.002	29
Line A2	81”	600	0.005	258
Line A3	81”	600	0.004	273
Line A4	84”	660	0.009	300
Line A5	54”	140	0.004	47
Line A6	84”	1,540	0.003	335
Line B1	30”	1,000	0.009	19
Line B2	51”	500	0.006	81
Line B3	42”	500	0.006	41
Line B4	60”	650	0.006	120
Line B5	66”	780	0.008	148
Line B6	72”	860	0.006	203
Line B7	51”	460	0.007	70
Line B8	93”	540	0.007	562
Line C1	30”	1,680	0.005	14
Line C2	48”	1,060	0.005	45
Line C3	54”	180	0.009	89
Double RCB A7	7’6” x 9’	3,000	0.001	626

[a] *Refer to Figure 47 for an illustration of the proposed storm drain system.*

[b] *The precise locations and sizes of the proposed drainage facilities are preliminary and may vary somewhat with future modifications to the project such as street layout, grading, or land use.*

Dia. or WxD = diameter or width x depth
ft = feet
ft/ft = feet/feet (slope = rise ÷ run)
cfs = cubic feet per second

Source: Kimley Horn and Associates, Inc., December 2003.

during a 10-year storm event prior to initiation of demolition activities was approximately 542 cfs. With implementation of the proposed project, flows associated with a 10-year storm event will be approximately 403 cfs. The result is a net reduction of 139 cfs in stormwater runoff. This reduction, in turn, will result in a decrease in the amount of stormwater runoff that is generated from the entire 531-acre hydrologic basin, which includes the project site and the Lakewood Country Club sub-basin. Currently, flows during a 10-year storm event for this area total approximately 613 cfs. With project

implementation, flows associated with a 10-year storm event will be 454 cfs, resulting in a net reduction of 159 cfs in stormwater runoff. This decrease in runoff will also reduce the potential for off-site flood hazards. Refer to Table 23 on page 404 for a summary of the peak flows from the PacifiCenter site and the larger 531-acre hydrologic basin during 10-, 25-, and 50-year storm events under recent and proposed conditions, and the associated runoff reductions that will occur with implementation of the project.

As discussed above, the existing double 9.25-foot by 8-foot RCB culverts located under Lakewood Boulevard have a hydraulic capacity of 900 cfs. However, the LACFCD has specified that discharges to these facilities from the proposed RCB line along the southern site boundary should be restricted to 237 cfs. With estimated runoff flows of 454 cfs associated with the 531-acre hydrologic basin, as indicated in Table 23, an excess 217 cfs cannot be accommodated by the double culverts. This excess runoff will flow over land to the Airport property to the south, then easterly to Lakewood Boulevard, as occurs under baseline conditions. The amount of excess runoff flowing over land will be greater for 25-year and 50-year storm events. When compared with recent conditions on the project site prior to initiation of demolition activities in association with the remediation program within a portion of the site, a net reduction in the amount of site-generated surface runoff flowing onto the adjacent Airport property will occur, as approximately 376 cfs of stormwater flows onto the Airport during a 10-year storm event under baseline conditions. Thus, when compared with recent site conditions, implementation of the project will result in a benefit in terms of storm drain capacity. Nonetheless, the generation of project-related surface water flows that exceed the capacity of the double RCB culverts under Lakewood Boulevard during a 10-year storm event is considered a significant impact.

In addition to the decrease in the overall amount of stormwater runoff, the project will replace the existing runoff that is associated with industrial uses with runoff associated with a variety of less intensive mixed uses. Please refer to Section V.G., Water Quality, of this EIR for a discussion of issues associated with the quality of runoff. As indicated above, a small portion of the 100-year floodplain currently extends west across Lakewood Boulevard into the PacifiCenter site, as shown on the FEMA Flood Insurance Rate Map. However, a Conditional Letter of Map Revision is currently being prepared, which will remove this portion of the project site from the map. In addition, the project site is not located in an area susceptible to inundation from dam failure. Thus, impacts associated with a 100-year floodplain or dam failure will be less than significant.

The project will install and improve a number of culverts, transition structures, and storm drains (see Subsection 2.c. above). In the event contaminated soils are encountered during the installation and improvement of these features, appropriate

Table 23

RECENT AND PROPOSED PEAK FLOW CONDITIONS

Storm Event (Year)	Recent Condition (cfs)	Proposed Condition (cfs)	Reduction (cfs)	Percent Decrease
531-Acre Hydrologic Basin				
10	613	454	159	26%
25	704	535	169	24%
30	792	626	166	21%
261-Acre PacifiCenter Site				
10	542	403	139	26%
25	616	457	159	26%
30	704	529	175	25%

Source: Kimley-Horn and Associates, Inc., December 2003.

measures shall be taken for the cleanup and/or disposal of the soil as set forth in Section V.E, Hazards and Hazardous Materials, of this EIR, including the Risk Management Plan (RMP) set forth therein. In addition, the applicant, through the measures set forth in the RMP, will assure that the installation of these features will remain protective of the health and safety of future residents of the PacifiCenter project and not interfere with the remedial measures conducted in conformance with Clean-Up and Abatement Order 95-048 by the California Regional Water Quality Control Board – Los Angeles Region. As the installation of these drainage facilities will be incorporated as part of the project, potential impacts associated with the installation, such as those related to grading and hazardous materials, are discussed throughout this EIR. Therefore, while the project will result in the construction of new stormwater drainage facilities, the construction of such facilities will not cause significant environmental effects.

As previously discussed, the FIRM prepared by FEMA currently indicates that a portion of the project site is located within the 100-year floodplain. However, it has been determined that this mapping is incorrect and, as a result, a CLOMR is currently being prepared to remove this portion of the project site from the map. Therefore, no significant impacts associated with the placement of housing or structures within a 100-year flood hazard area will occur.

In summary, improvements to the existing storm drain system, as proposed under the project, will result in a beneficial impact as such improvements will replace the aging, deficient system that currently serves the project site. The on-site drainage facilities will be integrated with the overall drainage system serving the entire watershed and will not

impede downstream flow capacities. Additionally, the project will not substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that would result in substantial erosion or siltation on- or off-site or in flooding on- or off-site. The decrease in the amount of runoff originating from the project site due to the increase in pervious surfaces will result in a beneficial impact. However, since the downstream double RCB culverts are not adequate for project storm flows, the project will contribute runoff water that will exceed the capacity of existing or planned stormwater drainage systems and thus, a significant hydrology impact will occur.

3. CUMULATIVE IMPACTS

The geographic area for the cumulative analysis of hydrologic impacts is defined as the 1,521-acre watershed in which the project site is located. The watershed and its sub-basin boundaries are illustrated in Figure 46 on page 394. The area that encompasses this watershed is nearly completely built out. As discussed above, with the exception of the Lakewood Country Club golf course, the sub-basins comprising the watershed range from approximately 10 percent imperviousness to approximately 70 percent imperviousness (within the residential areas north and west of the project site). Approximately seven related projects (Related Project Nos. 6, 12, 44, 50, 57, 61, and 75) are located within the watershed. No land use changes that will substantially increase the amount of impervious surface are expected, as any changes in land uses associated with the related projects will consist of redevelopment of previously developed sites.

Evaluation of the PacifiCenter project in conjunction with the ongoing on-site soil and groundwater remediation program (Related Project No. 44) indicates that while the remediation activities will ultimately result in the removal of a substantial amount of impervious surfaces, the project will nonetheless result in a decrease in impervious surface area relative to baseline (pre-remediation) conditions. Although the project will decrease the amount of runoff originating from the PacifiCenter site, site-generated runoff will continue to exceed the capacity of the double RCB culverts under Lakewood Boulevard, and a significant project impact will occur. Any of the related projects located within the 1,521-acre watershed could also generate stormwater flows that contribute to the capacity shortage of the double RCB culverts. As such, implementation of the proposed project in combination with the related projects will result in a significant cumulative impact.

4. MITIGATION MEASURES

Based on the analysis provided above, development of the proposed project will result in significant hydrology impacts. Thus, the following mitigation measures will be required:

V.F-1 On-site drainage system improvements shall be completed in accordance with the requirements of the City of Long Beach Department of Public Works and the City of Lakewood Department of Public Works and shall be coordinated with PacifiCenter development and on-site street improvements.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Approval of Plans/Issuance of building permits

V.F-2 All new on-site storm drains, with the exception of the RCB drain along the southern site boundary, shall be sized to convey a 25-year storm event with the street right-of-ways accommodating a 50-year storm event.[186]

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Approval of Plans/issuance of building permits

[186] *Except in a sump condition, in which drain(s) will be designed to convey a 50-year storm event.*

5. SIGNIFICANCE AFTER MITIGATION

As discussed above, although the project will result in a net reduction in flows in the area, the existing double RCB culverts under Lakewood Boulevard are not adequate for the storm flows generated from the project site, as is the case with existing flows to these RCBs. Given the size and length of these facilities, measures to mitigate the capacity shortage are infeasible. Therefore, a significant and unavoidable impact relative to hydrology will occur.

This section is based on the Surface Water Quality Study prepared by Kimley-Horn and Associates, Inc. and the Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility provided by Hargis + Associates, both of which are included in Appendices N and O of this EIR, respectively. This section addresses surface water quality and groundwater resources in the project area. Issues associated with existing groundwater contamination in the project vicinity are discussed in Section V.E, Hazards and Hazardous Materials, of this EIR. In addition, refer to Section V.F., Hydrology, of this EIR for further discussion of drainage issues.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

(1) Surface Water Resources

The PacifiCenter site is located within the Los Angeles-San Gabriel Hydrologic Unit, as determined by the California Regional Water Quality Control Board (RWQCB) for planning purposes. This hydrologic unit covers most of Los Angeles County and drains a 1,608-square mile area. The Los Angeles River, San Gabriel River, and Ballona Creek are the major drainage systems in this area.[187] The Los Angeles and San Gabriel Rivers are located approximately 2.5 miles west and 3 miles east from the project site, respectively. Both rivers run in a north-south direction and drain into the Pacific Ocean.

There are no surface water bodies or wetlands located on the project site.[188] The primary surface water bodies in the vicinity are lakes associated with the Lakewood

[187] *California Regional Water Quality Control Board, Los Angeles Region (4), Water Quality Control Plan, Los Angeles Region, June 1994.*

[188] *According to the U.S. Department of the Interior Fish and Wildlife Service National Wetlands Inventory, wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.*

Country Club and wetlands within flood control channels.[189] Although none of these surface water bodies have significant domestic or industrial value, they have been included in the U.S. Department of the Interior Fish and Wildlife Service (DOI-FWS) National Wetlands Inventory. Located approximately 400 feet north, Bouton Lake and two other sites within the Lakewood Golf Course are the closest surface water bodies to the project site.[190]

(a) Surface Water Quality

Surface water quality can be affected by a number of variables, which include land use, hydrology, meteorology, geology, and soils. Land uses may affect surface water quality based on the associated activities. As an example, office buildings generate small amounts of exterior pollutants, and surface parking lots have deposits of oil, gasoline, and other pollutants. These pollutants could be washed away by runoff. Meteorology may affect surface water quality through the quantity and intensity of storm events, which determine to what extent pollutants are washed away by runoff. Geology and soils may affect surface water quality in that they determine infiltration and runoff velocity. The more infiltration of runoff into the soil, and slower the runoff velocity, the less ability the runoff has to carry sediments and pollutants.

The project site is located within the Los Angeles River Watershed. Since the watershed is highly urbanized, urban runoff and illegal dumping are major contributors to impaired water quality in the Los Angeles River and tributaries.[191] Primary sources of storm water pollution in urban areas typically include automobiles and activities associated with automobile use, housekeeping and landscaping practices, industrial activities, construction, non-storm water connections to the drainage system, and accidental spills. Common pollutant sources and the pollutants that are generated from these sources are listed in Table 24 on page 410. Pollutant concentrations in urban runoff are extremely variable, and are dependent on source strength, storm intensity, runoff volume, and elapsed time since the previous storm event.

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[189] *Lakes within the nearby golf courses are designated as wetlands of the Palustrine System on the U.S. Department of the Interior Fish and Wildlife Service National Wetlands Inventory. The Palustrine System contains most of the shallow freshwater wetlands in the United States.*

[190] *Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility, Hargis + Associates, Inc., May 2003.*

[191] *California Regional Water Quality Control Board, Los Angeles Region (4), Water Quality Control Plan, Los Angeles Region, June 1994.*

Table 24

COMMON SOURCES OF POLLUTANTS IN URBAN RUNOFF

Pollutant	Automobile/ Atmospheric Deposit	Urban Housekeeping/ Landscaping Practices	Industrial Activities	Construction Activities	Non-Storm Water Connections	Accidental Spills
Sediments	X	X	X	X		
Nutrients	X	X	X	X	X	X
Bacteria and Viruses		X		X	X	X
Oxygen Demanding Substances		X	X	X	X	X
Oil and Grease	X	X	X	X	X	X
Anti-Freeze	X	X		X	X	X
Hydraulic Fluids	X	X	X	X	X	X
Cleaners and Solvents	X	X		X	X	X
Heavy Metals	X	X	X	X	X	X
Chromium	X	X	X			
Copper	X	X	X			
Lead	X	X	X			
Zinc	X	X	X			
Iron	X		X			
Cadmium	X		X			
Nickel	X		X			
Manganese	X		X			
Paint		X		X	X	X
Wood Preservatives		X		X	X	X
Fuels	X		X	X	X	X
PCBs	X				X	X
Pesticides	X	X	X	X	X	X
Herbicides	X		X	X	X	X
Floatables [a]		X	X	X		X

[a] *Floatables in storm water are pollutants that contain significant amounts of heavy metals, pesticides, and bacteria.*

Source: Kimley-Horn and Associates, Inc., December 2003.

As shown in Figure 46 on page 394 (Section V.F., Hydrology), the project site is located within and downstream of a 1,521-acre (2.4-square mile) watershed, which is

within the southern portion of the Los Angeles River Watershed. The 1,521-acre watershed is primarily developed with impervious surfaces, with the exception of the Lakewood Country Club Golf Course, which drains through the storm drain system through the project site. Potential sources of storm water pollution in the 1,521-acre watershed are consistent with the various sources identified in Table 24 on page 410.

A 531-acre sub-basin is contained within the eastern portion of the 1,521-acre watershed and encompasses the 261-acre project site, the 257-acre Lakewood Country Club Golf Course, and an additional 13 acres, including a portion of the Long Beach Airport and the adjacent streets of Carson Street and Lakewood Boulevard, as shown in Figure 46 on page 394 (Section V.F., Hydrology). The water quality of the runoff in this sub-basin is influenced primarily by activities within the golf course, paved surfaces within the project site, and a small area of residential uses to the north of Carson Street. Potential sources of storm water pollution for the 531-acre sub-basin would be primarily consistent with the industrial activities and urban housekeeping/landscaping practices identified in Table 24 on page 410.

Runoff from the PacifiCenter site itself consists primarily of surface runoff generated on-site, with almost no surface flows entering the site. Storm water runoff flows off the project site to the existing local storm drain system and is eventually discharged into the Long Beach Marina, Alamitos Bay, and the San Pedro Bay. Runoff from the project site is currently regulated under both a General Industrial Storm Water Permit and a National Pollution Discharge Elimination System (NPDES) Waste Discharge Permit (Permit Number 6116, issued on October 27, 1999). (A more detailed discussion of the General NPDES Permit for Industrial Activities is provided below). As part of this permit, a Storm Water Pollution Prevention Plan (SWPPP) outlining the project site's rainstorm response procedures has been prepared and filed with the Los Angeles Regional Water Quality Control Board (LARWQCB). Existing on-site industrial pollutants that could potentially enter the drainage system include fuel, solvents, coatings, and hazardous wastes that are stored temporarily in Building 47 prior to being shipped to disposal sites; fuel, solvents, coatings, hydraulic fluids, oils, grease from the flight ramp, ramp storage, wash rack, and structural test area; and sediments, nutrients, bacteria, oxygen demanding substances, oil and grease, heavy metals, pesticides and floatables from the Lakewood Country Club.

To reduce the risk of water quality impacts, and in accordance with the permits described above, the project site currently has an extensive system that is designed to intercept spills and contaminants before they enter the storm drain system. This system has been operational since 1999 and will continue to operate within the Boeing Enclave through project implementation until such time that operations within the Boeing Enclave may cease. As part of this on-site storm water response system, a series of capture pans

or manually operated inlet valves are located on each on-site catch basin to eliminate the possibility of pollutants discharging into the storm drain to the downstream storm drain system. In addition to the capture pans, the on-site storm water response system includes valves, pH sensors (to measure chemical changes in storm water), hydrocarbon sensors (to measure heavy metal presence in storm water), silt trenches and clarifiers located throughout the site.

As described in Section IV, Environmental Setting, and Section IV.E, Hazards, in accordance with an order from the LARWQCB, a soil and groundwater remediation program is underway for the project site. To provide for these remediation activities, including necessary demolition and grading activities, a SWPPP has been prepared in accordance with the State General NPDES Permit for Discharge of Water Associated with Construction Activity (discussed in more detail below). This SWPPP outlines in detail how the storm water pollution program will be implemented, identifies the individuals responsible for its implementation, and summarizes the pollution control practices and monitoring to be conducted at the site.

(2) Groundwater Resources

The PacifiCenter project site is located within the Los Angeles Coastal Plain, which is underlain by the Central Groundwater Basin. Underlying the project site and vicinity are sediments within the Central Groundwater Basin that extend to depths greater than 1,250 feet below ground surfaces forming a sequence of aquitards and aquifers.[192]

There are two types of systems within the Central Groundwater Basin, the shallow aquifer system associated with the Lakewood Formation and the deep aquifer system associated with the San Pedro formation. The shallow aquifer system includes the Artesia and Gage aquifers, which are not currently used as a water supply. The deep aquifer system includes the underlying Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside aquifers, which are used for beneficial water supply purposes.

The hydrostratigraphic units of interest include the Bellflower aquitard, a deeper sand on the western portion of the project site, the Artesia aquifer on the eastern portion of the project site, the Gage aquifer, which is the first laterally continuous aquifer underlying

[192] *Aquitards are hydrogeologic units that are composed primarily of silt and clay sediments, and aquifers consist mostly of fine to coarse sand and gravel. Typically, the groundwater flows are slower and smaller amounts of groundwater are contained in aquitards than those of aquifers due to greater displacement by the smaller particle sizes of the sediments.*

the project site, and the deep aquifer system. The depth intervals of the aquifers and aquitards vary beneath the project site, as shown in Table 25 on page 414.

The hydrostratigraphic units of interest are briefly described as follows:[193]

- Bellflower Aquitard: This is where groundwater is first encountered beneath the project site. The Bellflower aquitard comprises the upper unit of the Lakewood Formation and is a mixture composed primarily of low permeability silts and clays, with lenses and layers of fine sand. The Bellflower aquitard is known to have relatively low hydraulic conductivities due to the predominant fine-grained nature of this unit. There are relatively coarse and fine zones within this aquitard.

- Deeper Sand: This is a zone located on the western portion of the project site. The deeper sand zone underlies a silt/clay stratum near the base of the Bellflower aquitard. It is unclear whether the deeper sand is part of this aquitard or a zone underlying the aquitard. Moving to the east beneath the center of the project site, the deeper sand zone appears to transition into a finer grained zone.

- Artesia Aquifer: The Artesia aquifer is a relatively sandy zone underlying the Bellflower aquitard on the eastern portion of the project site near Lakewood Boulevard. The Artesia aquifer gains thickness to the east of the project site. This aquifer is part of the shallow aquifer system, which is not currently used for water supply purposes in the vicinity of the project site.

- Unnamed Aquitard: This aquitard underlies the deeper sand on the western portion of the project site, the finer sediments in the center of the project site, and the Artesia aquifer on the eastern portion of the project site.

- Gage Aquifer: The Gage aquifer, which underlies the unnamed aquitard, is the first laterally continuous aquifer beneath the project site. The Gage aquifer is located at the base of the Lakewood Formation and is the lowest aquifer within the shallow aquifer system. Similar to the Artesia aquifer, the Gage Aquifer is not currently used for water supply purposes in the vicinity of the project site.

[193] *Ibid.*

Table 25

GENERAL CHARACTERIZATION OF THE AQUIFERS AND AQUITARDS BENEATH THE PROJECT SITE

Hydrogeologic Unit	Depth Below Ground Surface (feet)	
	East Side	West Side
Shallow Bellflower Aquitard	0 – 50	0 – 10
Middle Bellflower Aquitard	65 – 80	40 – 45
Deep Bellflower Aquitard	85 – 120	45 – 55
Deeper Sand	80 – 95	Does not appear to be present
Artesia Aquifer (shallow aquifer system)	125 – 164	Does not appear to be present
Unnamed Aquitard	164 – 201	110 – 136
Gage Aquifer (shallow aquifer system)	201 – 277	136 – 206
Unnamed Aquitard	277 – 290	206 – 250
Deep Aquifer System (aquifers and aquitards)	290 – 1,000+	250 – 1,000+

Source: Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility, Hargis + Associates, Inc., May 2003.

- Deep Aquifer System: Underlying the Gage aquifer is another aquitard, which, in turn, is underlain by the deeper aquifer system that is used for water supply in the vicinity of the project site. The uppermost aquifers in the deep aquifer system are in the San Pedro Formation.

Water supply wells in the project vicinity do not currently produce groundwater from the Bellflower aquitard, Artesia aquifer, or Gage aquifer due to low yields of groundwater available for municipal supply purposes. Groundwater production in the project vicinity is primarily from the deep regional aquifer system, which occurs below the Gage aquifer and includes the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside aquifers. The PacifiCenter site does not contain any water-supply wells; however, there are 10 active water supply wells within a one-mile radius of the project site. Currently, construction of two aquifer storage and recovery wells in the project vicinity is underway.[194]

Natural recharge of the shallow and semi-perched aquifers by percolation from the ground surface occurs throughout the Los Angeles Coastal Plain and by underflow from the recharge areas. However, such natural recharge has steadily decreased regionally as a result of urbanization and industrialization over the years, as well as channeling of the Los Angeles and San Gabriel Rivers. Artificial recharge programs have been developed to compensate for the loss of natural recharge areas and the heavy use of groundwater.[195]

[194] *Ibid.*

[195] *Tetra Tech, Inc., Boeing C-1 Long Beach Facility, Phase I ESA Report, February 2000.*

Historically, prior to the initiation of the remediation program, the PacifiCenter site was mostly developed and recharge occurred primarily on an estimated four acres of pervious landscaped surfaces. However, as part of the ongoing remediation program, buildings and paved areas have started to be removed, leaving a larger area of vacant land with pervious surfaces.

(a) Groundwater Quality

The general quality of groundwater within the Los Angeles Coastal Plain has been substantially degraded from background levels. The groundwater in the surrounding area has experienced seawater intrusion, which is currently under control in most areas. Groundwater in the lower aquifers of this basin is generally of good quality. However, the quality of groundwater in parts of the upper aquifers is degraded by organic and inorganic pollutants from a variety of sources, such as leaking tanks, leaking sewer lines, and illegal discharges.[196]

Specifically, as further discussed in Section V.E, Hazards and Hazardous Material, the groundwater in the Bellflower aquitard has been impacted by historic chemical releases associated with the former aircraft production efforts on the site. These releases do not extend beyond the Bellflower aquitard and confirmation sampling has confirmed that the remaining aquifers (deeper) have not been impacted. Pursuant to LARWQCB Order 95-048, Boeing is implementing a comprehensive and ongoing remediation program designed to remediate impacted groundwater using a variety of methods. In addition, a Risk Management Plan shall be developed by the Applicant to ensure the long term health and safety of employees and residents at PacifiCenter as it relates to impacted soil and groundwater.

b. Regulatory Framework

The following discussions present the regulatory and permitting processes that have been established to control the quality of water runoff from urban construction sites and summarize the applicable federal, state, regional, local, and other water quality regulatory requirements.

[196] *California Regional Water Quality Control Board, Los Angeles Region (4), Water Quality Control Plan, Los Angeles Region, June 1994.*

(1) Clean Water Act

In 1972, the Federal Water Pollution Control Act, also referred to as the Clean Water Act, was amended to provide that the discharge of pollutants to waters of the United States (e.g., rivers, streams, ponds, lakes, and ditches) from any point source is unlawful, unless a National Pollution Discharge Elimination System (NPDES) permit authorizes the discharge. In the state of California, the NPDES permit program is administered and implemented by the State Water Resource Control Board (SWRCB), in conjunction with its nine Regional Water Quality Control Boards (RWQCB).

The Clean Water Act was amended in 1987 requiring the United States Environmental Protection Agency (USEPA) to create specific requirements for storm water discharges. In response to the 1987 amendments to the Clean Water Act, Phase I of the USEPA NPDES Program required NPDES permits for: (1) Municipal Separate Storm Sewer Systems generally serving, or located in, incorporated cities with 100,000 or more people (referred to as MS4 permits or municipal permits); (2) eleven specific categories of industrial activity (including landfills); and (3) construction activity that disturbs more than five acres or greater of land. As of March 2003, Phase II of the NPDES Program extends the requirements for NPDES permits to numerous small municipal separate storm sewer systems, construction sites of one to five acres, and industrial facilities owned or operated by small municipal separate storm sewer systems, which were previously exempted from storm water permitting.

Section 402 (p) of the Clean Water Act mandates that the municipal permits must: (1) effectively prohibit the discharges of non-storm water to the Municipal Separate Storm Sewer Systems except under certain provisions; and (2) require controls to reduce pollutants in discharges from the Municipal Separate Storm Sewer Systems to the maximum extent practicable (MEP), including Best Management Practices (BMPs), control techniques, and system, design, and engineering methods.

(2) Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969, California Water Code § 13000 *et seq.,* established the principal State program for water quality control and authorizes the State Water Resources Control Board (SWRCB) to implement the provisions of the federal Clean Water Act. The Act divides the State into nine RWQCB areas. The PacifiCenter project site is located in Region 4, the Los Angeles RWQCB (LARWQCB) area. Each RWQCB implements and enforces provisions of the Porter-Cologne Act and the Clean Water Act subject to policy guidance and review by the SWRCB.

One of the functions of the RWQCB is to prepare and periodically update a Basin Plan. Each Basin Plan establishes the following: beneficial uses of water designated for each water body to be protected; water quality objectives for surface water and groundwater; and actions necessary to maintain these standards in order to control non-point and point sources of pollution in State waters. The "Water Quality Control Plan, Los Angeles Region," or "Basin Plan" in which the project site is located was approved in June 1994. Permits issued to control pollution (i.e., waste discharge requirements and NPDES permits) must implement Basin Plan requirements.

(3) Applicable National Pollutant Discharge Elimination System (NPDES) Permits

Pursuant to the regulatory program set forth above, the LARWQCB has jurisdiction over the following NPDES permits and other regulatory programs as it relates to the project and project site.

(a) Statewide General Construction Storm Water Permit

The General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ) is an NPDES permit that regulates dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Program (SWPPP). The SWPPP is required to list Best Management Practices (BMPs) to protect storm water runoff quality. Additionally, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the project site discharges directly to a water body listed on the Section 303(d) list[197] for sediment.

[197] *Section 303(d) of the Clean Water Act requires identification and listing of water-quality limited or "impaired" waterbodies where water quality standards and/or receiving water beneficial uses are not met. See U.S. Environmental Protection Agency, Clean Water Act, Impaired and Threatened Waters (Section 303(d)) Lists, June 5, 2003.*

(b) Industrial Storm Water Program

The Industrial Storm Water General Permit Order 97-03-DWQ (General Industrial Permit) is an NPDES permit that regulates discharges associated with ten broad categories of industrial activities. The General Industrial Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable and best conventional pollutant control technology. The General Industrial Permit also requires the development of a SWPPP and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce storm water pollution are described. The General Industrial Permit requires that an annual report be submitted each July 1.

(c) Municipal Permits and SUSMP Requirements

As indicated above, in accordance with the Clean Water Act, NPDES permits are also required for storm water discharges from municipal separate storm sewer systems (referred to as MS4 permits or municipal permits). The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The storm water management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

A municipal storm water NPDES permit has been issued to Los Angeles County and 85 cities within the County including the City of Lakewood. As described below, the City of Long Beach has been issued its own NPDES permit (NPDES Permit No. 99-060; CAS004003/CI 8052) by the LARWQCB. Under more recent regulations adopted by the LARWQCB and set forth in these municipal NPDES permits, the LARWQCB set forth a Standard Urban Storm Water Mitigation Plan (SUSMP) that was developed to address storm water pollution from new development and redevelopment by the private sector. Jurisdictions in Los Angeles County are required to adopt the requirements set forth in the SUSMP into their own SUSMP. Implementation of a SUSMP is required during the operational life of the project to ensure that storm water pollution is addressed by incorporating BMPs in the design phase of development. This requirement provides for water quality design standards to ensure that storm water runoff is managed for water quality concerns in addition to flood protection and that pollutants carried by storm water are retained and not delivered to waterways. Project applicants for specified projects are

required to select source control and treatment control BMPs from the list approved by the LARWQCB and included in the SUSMP. In combination, these treatment control BMPs must be sufficiently designed and constructed to treat, infiltrate, or filter the first 0.75-inch of storm water runoff from a storm event.[198] The SUSMP provisions that are applicable to all land use categories include: (1) reducing peak storm water runoff discharge rates; (2) conserving natural areas; (3) minimizing storm water pollutants of concern; (4) protecting slopes and channels; (5) providing storm drain stenciling and signage; (6) properly designing outdoor material storage areas; (7) providing proof of ongoing BMP maintenance; and (8) designing standards for structural or treatment control BMPs.

City of Long Beach

The LARWQCB has issued the City of Long Beach its own NPDES permit (NPDES Permit No. 99-060; CAS004003/CI 8052). As part of its Report of Waste Discharge (ROWD) submitted for its NPDES permit, the City of Long Beach included among other programs, a storm water management program. In accordance with the objectives of the federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, the Long Beach Storm Water Management Program (LBSWMP) contains several elements, practices and activities aimed at reducing or eliminating pollutants in storm water to the maximum extent practicable (MEP). Among these programs is a development planning and construction program. In accordance with this program as well as the requirements of the SUSMP mandated by the RWQCB, Chapter 18.95 of the Long Beach Municipal Code includes several requirements relating to development planning and construction. Included in these requirements are source control BMPs for projects such as gasoline stations and hillside projects. Additional requirements include treatment control BMPs and requirements regarding erosion control, peak runoff, and BMP maintenance for projects that include 10 or more home subdivisions, 100,000-square foot or more square foot commercial developments and projects located adjacent to or directly discharging to environmentally sensitive areas. Post-construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system are also required for these specific projects. In addition, in accordance Chapter 18.95 of the Long Beach Municipal Code, construction projects are required to prepare a SWPPP that will incorporate construction site BMPs.

[198] *The requirement to treat, infiltrate or filter the first 0.75-inch of storm water is designed to capture the first flush runoff, which is generally associated with the highest pollutant concentrations but not pollutant load.*

City of Lakewood

As described above, the City of Lakewood applies the NPDES and SUSMP requirements of the County of Los Angeles to all new facilities being constructed within the City of Lakewood. Within the City of Lakewood, projects that fall into one of seven categories are identified in the Los Angeles County Permit as requiring SUSMP. These categories include:

- Single-family hillside residences;
- 100,000-square foot or more commercial developments;
- Automotive repair shops;
- Retail gasoline outlets;
- Restaurants;
- Home subdivisions with 10 to 99 units; and
- Home subdivisions with 100 or more housing units.

In 2002, the City of Lakewood adopted Ordinance 2002-7 related to the SUSMP requirements set forth by the LARWQCB. This ordinance amended the Municipal Code to include essential definitions, impose conditions on development approvals to require the implementation of BMPs and storm water construction measures, define violations, allow inspections, and enable enforcement.

2. ENVIRONMENTAL IMPACTS

a. Methodology

As indicated above, this analysis is based on the Surface Water Quality Study prepared by Kimley-Horn and Associates, Inc. and the Overview of Regional Groundwater and Surface Water Conditions in the Vicinity of Boeing Realty Corporation's Former C-1 Facility provided by Hargis + Associates, both of which are included in Appendices N and O of this EIR, respectively. The Overview of Regional Groundwater Quality was prepared based on information from the California Department of Water Resources, the California EPA, and data developed during the groundwater assessment conducted at the project site. The Surface Water Quality Study was prepared based on the review of documents and files from the LARWQCB, Boeing's Safety Health and Environmental Affairs Division, the USEPA, the Los Angeles County Flood Control District, and the Cities of Lakewood

and Long Beach Public Works Departments. The documents reviewed for this Study included NPDES permits on file at the LARWCQB, monitoring reports submitted to the LARWQCB by Boeing in compliance with NPDES permits, Basin Plans, surface water maps, regional and local soil contaminant distribution maps, and conceptual plans of the PacifiCenter project with proposed transportation improvements and surface drainage modifications.

To identify potential project impacts to surface water and groundwater quality, potential contaminant sources proposed as part of the project were also identified. Existing applicable regulations and proposed project features were identified that specifically address the potential contaminant sources. Where existing regulations did not adequately address potential contaminant sources, those sources were analyzed to determine the potential impact on the surface water and groundwater quality of the receiving bodies.

b. Thresholds of Significance

For the purposes of this analysis, surface water quality and groundwater quality impacts will be considered significant if:

(1) Surface Water

- Development of the proposed project degrades the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or development of the proposed project violates waste discharge requirements;

- Activities associated with the proposed project impair the beneficial uses of the receiving waters;

(2) Groundwater

- Development of the proposed project degrades the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies; or

- Development of the proposed project substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there

would be a net deficit in aquifer volume or a lowing of the local groundwater table level.

c. Project Features

The following project features are proposed as part of the project and supplement the Project Description presented in Chapter III of the EIR:

(1) Construction

- The proposed project will comply with NPDES regulations that will include the following:

  – As part of the project's mass grading and backbone infrastructure construction, a NPDES permit will be secured and a SWPPP will be developed and implemented during the construction period, as required by the permit. The SWPPP will include BMPs to reduce pollutant loading to storm water runoffs. Such BMPs may include but are not limited to silt fences, straw bale barriers, check dams, sand bag berms at catch basin inlets, hydroseeding and temporary sediment basins. Once the PacifiCenter mass grading and infrastructure is constructed, much of the graded site may remain vacant for a period of time. During that time frame, the erosion control features of the SWPPP will be maintained on those areas that are not developed.

  – The various separate development sites within the PacifiCenter will also be required to secure a separate NPDES construction permit and prepare a site specific SWPPP as they are developed. BMPs within the SWPPP may include but are not limited to check dams, straw bale barriers, inlet sediment traps, gravel and wire mesh filters for curb inlets, gravel and wire mesh filters for drop inlets, sand bag berms at catch basins, temporary drains and swales, silt fences and stabilized construction entrances and exits.

  – The PacifiCenter project would be required to implement erosion control measures during post-rough grading, including, but not limited to hydroseeding, Guar Soil Binders, straw mulch, geotextiles, plastic covers and erosion control blankets/mats, wood mulching, silt fencing desilting basins, sandbag barriers, storm drain inlet protection, and stabilized construction entrances and exits. The PacifiCenter project would maintain the erosion control measures until the individual developer purchases a

development site. Once a parcel is transferred to a specific developer, maintenance of the erosion control measures for that parcel will also be transferred to the developer.

– The proposed project will comply with the requirements of the short-term NPDES permits for discharge of groundwater to the storm drain during construction dewatering activities, if such dewatering is required.

(2) Operation

- In accordance with the Standard Urban Storm Water Mitigation Plan (SUSMP) requirements described above, the proposed project will include the following:

  – The storm water system will be designed to treat potential pollutants and runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system.

  – Project-wide BMPs will be implemented that may include, but are not limited to, catch basin filters, prohibitive stenciling, and biofilters.

  – Individual development permanent BMPs may include, but are not limited to, catch basin filters, biofilters, prohibitive stenciling at on-site catch basins, grass pavers, and oil/water separators at on-site parking areas.

  – The project will comply with requirements regarding outdoor trash and storage areas and storm drain stenciling.

- In addtion, the following will also be implemented as part of the project:

  – The proposed project will include landscaped areas to reduce the amount of impervious surface area on the project site;

  – The storm treatment system facilities within the public right-of-way and dedicated open space will be constructed as part of the project-wide infrastructure development.

d. Analysis of Project Impacts

(1) Construction

Surface Water

During project construction, the Boeing storm water system will be dismantled as the PacifiCenter implements NPDES requirements consistent with the new uses of the project site. All areas will be continuously protected during construction. However, the Boeing storm water system will be maintained for the Boeing Enclave facility as long as that area is functioning as an aircraft manufacturing facility. Consequently, this will require the relocation of some of the monitoring equipment and isolation valves that are currently installed in the existing reinforced concrete box and other facilities.

Grading activities associated with project construction will temporarily increase the amount of suspended solids from surface flows derived from the project site during a storm event due to erosion of exposed soil. In addition, due to on-site watering activities utilized to reduce airborne dust (please refer to Section V.B., Air Quality, of this EIR), construction could contribute marginally to increased sediment loading of surface runoff during dry weather conditions. As indicated above, NPDES permits will be obtained during construction as part of the mass grading and backbone infrastructure, and as part of the specific development site construction activities. These permits will require that SWPPPs be developed and implemented. As described above, BMPs and erosion control measures will be included in the SWPPP. With implementation of NPDES and local regulations, proposed construction activities will not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or impair the beneficial uses of the receiving waters. In addition, construction of the project will not result in a violation of any water quality standards or waste discharge requirements and will not otherwise substantially degrade water quality. Therefore, construction-related impacts to surface water quality will be less than significant.

During excavation and grading of the PacifiCenter site, contaminated soils could be exposed and/or disturbed. If contaminated soil is encountered during earth-moving activities, appropriate measures will be taken for the cleanup and/or disposal of the soil as set forth in Section V.E, Hazard and Hazardous Materials, of this EIR.

Groundwater

Construction activities on the PacifiCenter site could require excavation of up to 20 feet below ground surface during removal of existing foundations and during pile driving activities. Implementation of these construction activities could involve dewatering. In compliance with storm water regulations, a short-term NDPES permit will be obtained to ensure that any needed groundwater treatment will be completed prior to discharging the groundwater to the storm drain. Further, construction activities (including any associated dewatering) would be conducted in a manner that does not conflict with the separate and ongoing soil and groundwater remediation program and is consistent with the Risk Management Plan (RMP) that is designed to protect the health and safety of employees and residents of the project site. See Section V.E, Hazards and Hazardous Materials, for further information. Therefore, construction activities associated with the project will not degrade the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies. In addition, these short-term activities will not substantially deplete groundwater supplies or interfere with groundwater recharge. As such, groundwater impacts during construction of the project will be less than significant.

(2) Operation

Surface Water

Operation of the proposed project will produce pollutants typically associated with urban uses, such as oil and grease, metals, fertilizers, pesticides, dirt from landscaped areas, and litter. Pollutants in this runoff have the potential to infiltrate pervious surfaces and affect groundwater quality. In addition, the Boeing Enclave facility will continue to operate for a number of years as the PacifiCenter is developed and will continue to generate fuel, solvents, coatings, hydraulic fluids and oils. As indicated above, this facility will continue to operate under the storm water monitoring program developed for its current NPDES wastewater discharge permit number 6116. The operation of the PacifiCenter project will not interfere with those requirements.

The proposed project will include landscaped areas that will significantly reduce the amount of impervious surface areas on the project site. Prior to recent demolition activities associated with remediation, the 261-acre site included approximately four acres of landscaping and 257 acres of paved surfaces. (After completion of demolition activities associated with the remediation program, much of the site will be comprised of bare disturbed land). The proposed project will include approximately 51 acres of open space and landscaped areas. This reduction in impervious area, relative to long-term historic conditions, will reduce peak storm water runoff discharge rates. Specifically, as discussed

in Section V.F., Hydrology, of this EIR, the 10-year storm event flow from the 261-acre project site prior to remediation was approximately 542 cubic feet per second (cfs). Relative to long-term operations on the site, implementation of the proposed project will reduce this 10-year storm event flow to 403 cfs, which will represent a net reduction of 139 cfs or 26 percent in storm water runoff. This decrease in runoff will reduce the proposed project's contribution of surface water runoff discharge to existing or planned storm water drainage systems or of additional sources of polluted runoff.

In addition, the constituents in the project's post-development runoff will be significantly less than recent and historic (i.e., pre-remediation) conditions due to the reduction in the industrial use of the PacifiCenter site and proposed enhanced storm water treatment system. As previously discussed, the Applicant and subsequent property owners will be required to comply with SUSMP requirements during the operational life of the project. Such requirements will include source control BMPs, treatment control BMPs, requirements regarding erosion control peak runoff, and BMP maintenance. As part of these requirements, post-construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system will also be implemented. Therefore, runoff contaminants generated by the operation of the PacifiCenter project will not violate any water quality standards or waste discharge requirements, impair the quality of receiving surface waters, impair the beneficial uses of the receiving waters, or otherwise substantially degrade water quality. Thus, impacts to surface water quality associated with operation of the project will be less than significant.

Groundwater

As indicated above, the proposed project will reduce polluted runoff in the area through the reduction of uses with the potential to generate larger amounts of pollutants as well as the introduction of a storm water treatment system that will incorporate SUSMP requirements. This reduction in pollutants will also reduce the associated potential from groundwater contamination through percolation. As such, operation of the proposed project will not degrade the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or impair the quality of receiving surface waters or groundwater.

Implementation of the PacifiCenter project will generate a demand for water that will include the use of existing City groundwater supplies, potentially including groundwater from the 10 active municipal groundwater wells located within a one-mile radius of the project site. However, as described in detail in Section V.M.1, Water, of this EIR, the City of Long Beach Water Department has prepared a water supply assessment for the project

that demonstrates that adequate water supplies exist to serve the project. In addition, project components will not involve the installation of groundwater production wells. Moreover, the reduction in impervious area when compared with historic and recent site conditions, described above, will increase the groundwater recharge potential from storm water infiltration. As such, the operation of the PacifiCenter project will not substantially deplete groundwater resources or interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level, and impacts would be less than significant.

3. CUMULATIVE IMPACTS

The geographic area for the cumulative analysis for surface water quality is defined as the 1,521-acre watershed area, as shown in Figure 46 on page 394 in Section V.F, Hydrology. Approximately seven related projects (Related Project Nos. 6, 12, 44, 50, 57, 61, and 75) are located within this watershed. As the watershed is almost entirely built out, new development will generally consist of the redevelopment of previously developed sites and will not substantially alter the runoff and pollutant loading characteristics of existing development. As with the proposed project, any future projects will be subject to NPDES permit requirements and LARWQCB regulations, and evaluated individually to determine appropriate measures to avoid impacts to surface water quality. With incorporation of the project features and compliance with all applicable federal, State, regional, and local regulations related to surface water quality that are described above, the PacifiCenter project will not contribute to cumulative surface water quality impacts.

For groundwater quality, the geographic area for the cumulative analysis is defined as the Central Groundwater Basin. This basin is primarily developed, and new development that may occur within the basin will not substantially alter the runoff and pollutant loading characteristics of existing development. In addition, groundwater remediation efforts, such as the ongoing soil and groundwater remediation program (Related Project No. 44) at the PacifiCenter site, that are planned or underway throughout the Basin will ultimately have a beneficial impact on groundwater quality by improving and enhancing water quality in order to achieve conformance with LARWQCB's requirements Further, as discussed in Section V.E, Hazards and Hazardous Materials, the PacifiCenter project's Risk Management Plan (RMP) will ensure the health and safety of the project's employees and residents, and will be designed to complement the ongoing remediation program.

Based on the above, implementation of the PacifiCenter project will not result in cumulatively significant impacts to groundwater resources since each new project will be

subject to federal, State, and local regulations applicable to groundwater, including the NPDES permit requirements and the LARWQCB regulations. Future projects will be evaluated individually to determine appropriate measures to avoid impacts to groundwater quality. With the incorporation of the project features and adherence to all applicable regulations associated with groundwater quality, the PacifiCenter project will not contribute to cumulative groundwater quality impacts.

4. MITIGATION MEASURES

The following mitigation measures are provided to ensure that construction and operation of the PacifiCenter project would comply with applicable water quality regulations:

V.G-1 In accordance with the federal NPDES program, construction of the PacifiCenter project shall comply with NPDES permit requirements for water discharged during mass grading and backbone infrastructure construction activities. As part of these requirements, a SWPPP and monitoring plan shall be developed and implemented that shall identify appropriate BMPs to reduce and/or to eliminate pollutant loadings to storm water runoff.

Monitoring Phase: Pre-Construction

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Approval of Plans

V.G-2 The various separate development sites within the PacifiCenter property shall be required to secure a separate NPDES construction permit and prepare a site-specific SWPPP as they are developed. Each individual development shall provide storm water controls prior to issuance of a building permit by the appropriate department of the Cities of Long Beach and Lakewood. Development on sites that are greater than one acre shall file an approved SWPPP plan with the respective City and the LARWQCB.

Monitoring Phase: Pre-Construction

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Approval of Plans

V.G-3 In accordance with RWQCB requirements and local regulations, a Standard Urban Storm Water Mitigation Plan (SUSMP) (or separate SUSMPs) shall be developed and implemented during the operational life of the project. The SUSMP requirements shall include post construction structural or treatment control BMPs designed to mitigate (infiltrate or treat) the volume of runoff produced from a 0.75-inch storm event prior to its discharge to a storm water conveyance system. Part of the SUSMP requirements to be implemented shall include provisions for storm drain stenciling and signage[199], the proper designation of outdoor material storage areas, and provisions for proof of ongoing BMP maintenance. For facilities located within the public right-of-way, a maintenance agreement between the applicant and the appropriate City shall be developed, and Covenants, Conditions, and Restrictions (CC&Rs) shall be developed for private water quality controls.

Monitoring Phase: Pre-Operation

Enforcement Agency: Regional Water Quality Control Board

Monitoring Agency: City of Long Beach Department of Public Works and City of Lakewood Department of Public Works

Action Indicating Compliance: Issuance of Certificates of Occupancy

5. SIGNIFICANCE AFTER MITIGATION

Implementation of the mitigation measures listed above will ensure the project will not degrade the surface water quality of receiving waters to levels below standards considered acceptable by the LARWQCB or other regulatory agencies, impair the beneficial uses of the receiving waters, violate any water quality standards or waste discharge requirements, degrade the groundwater quality to levels below standards considered acceptable by the LARWQCB or other regulatory agencies or substantially depletes groundwater supplies, or interfere substantially with groundwater recharge.

[199] *With regard stenciling, the City of Long Beach requires that the contractor/developer use the City's Standard Plan Non 636, "Catch Basin Stencil."*

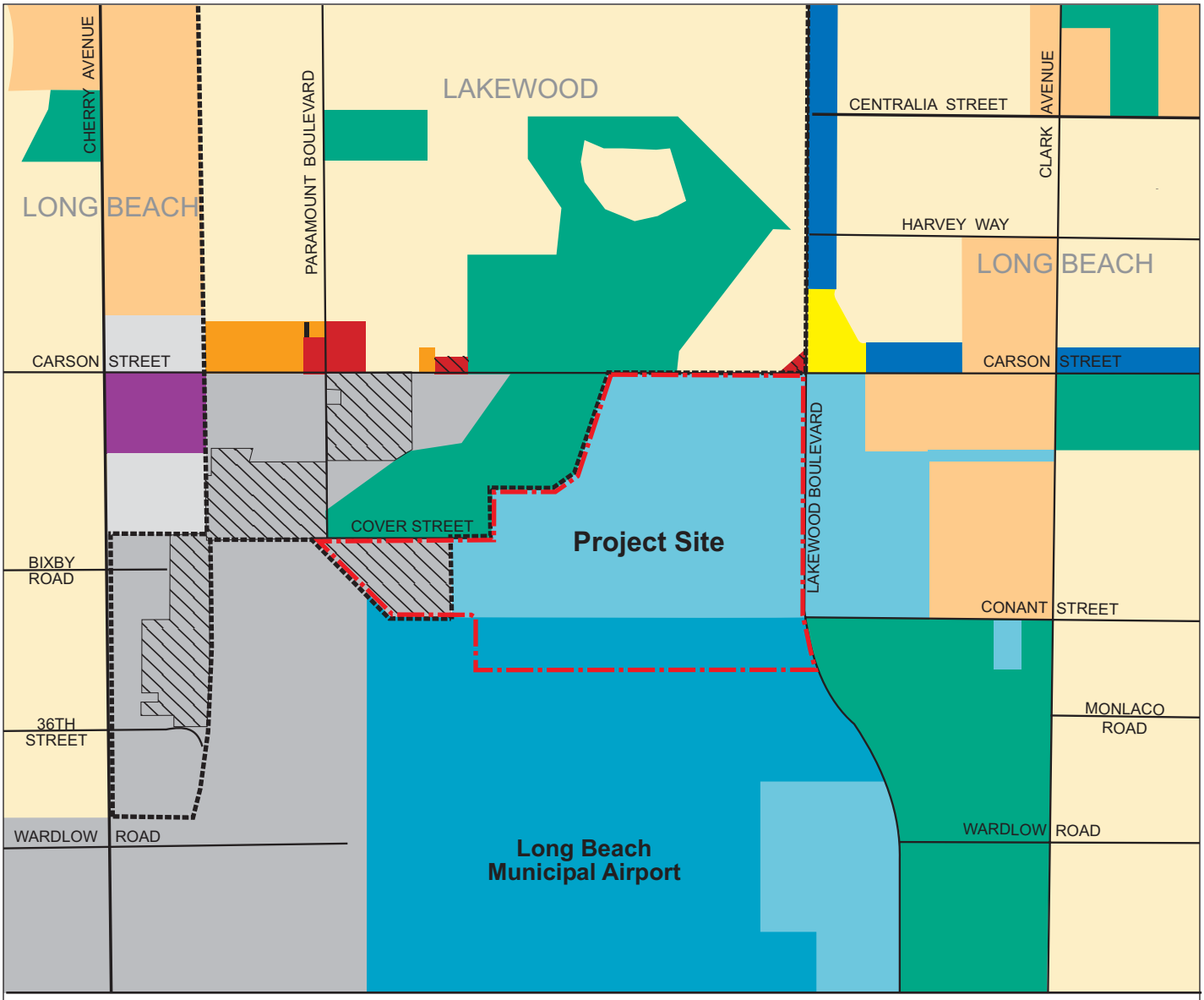
The purpose of this section is to identify relevant local and regional land use policies and determine if the project is consistent with such policies, to address consistency with zoning and land use designations for the project, and to determine if the proposed uses are compatible with surrounding uses. Given the proximity of the Long Beach Airport, airport-related land use issues are summarized in this section. However, please also refer to Section V.E, Hazards and Hazardous Materials, and Section V.I, Noise, for detailed discussions regarding project compatibility with the adjacent Airport as it relates to hazards and noise, respectively.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

Project Site Land Use Designations, Zoning, and Existing Uses

Approximately 238 acres of the project site are located within the jurisdiction of the City of Long Beach, while the remaining approximately 23 acres are located within the jurisdiction of the City of Lakewood. The majority of the portion of the project site located within the City of Long Beach is designated in the General Plan Land Use Map as Land Use District (LUD) No. 7 (Mixed-Use), while the southernmost portion of the project site south of the extension of Conant Street is designated LUD No. 12 (Harbor/Airport), as shown in Figure 48 on page 431. As illustrated in Figure 49 on page 432, the 238 acres within the City of Long Beach are zoned PD-19 (Douglas Aircraft Planned Development Ordinance). Within the City of Lakewood, the project site is located within the boundaries of the Lakewood Redevelopment Plan for Redevelopment Project Area III (hereafter referred to as the Redevelopment Area III Plan). The site is within Subarea 1d of the Redevelopment Area III Plan. In addition, this 23-acre portion of the site is designated in the Lakewood General Plan Land Use Map as Industrial, as shown in Figure 48 on page 431, and is zoned M-2 (Heavy Manufacturing), as shown in Figure 49 on page 432. Descriptions of these land use designations and zoning for the site are provided in more detail below.



LEGEND

City Boundary

Project Boundary

City of Long Beach

General Plan Land Use District:

- 1 Single Family
- 2 Mixed Style Homes
- 7 Mixed use
- 8A Traditional Retail Strip Commercial
- 8N Shopping Nodes
- 9R Restricted Industry
- 9G General Industry
- 10 Institutional & School
- 11 Open Space and Parks
- 12 Harbor/Airport

City of Lakewood

General Plan Land Use Designation:

- Commercial
- Industrial
- Low Density residential
- Medium/High Density residential
- Open Space
- Public/Quasi-Public
- Redevelopment Project Area III

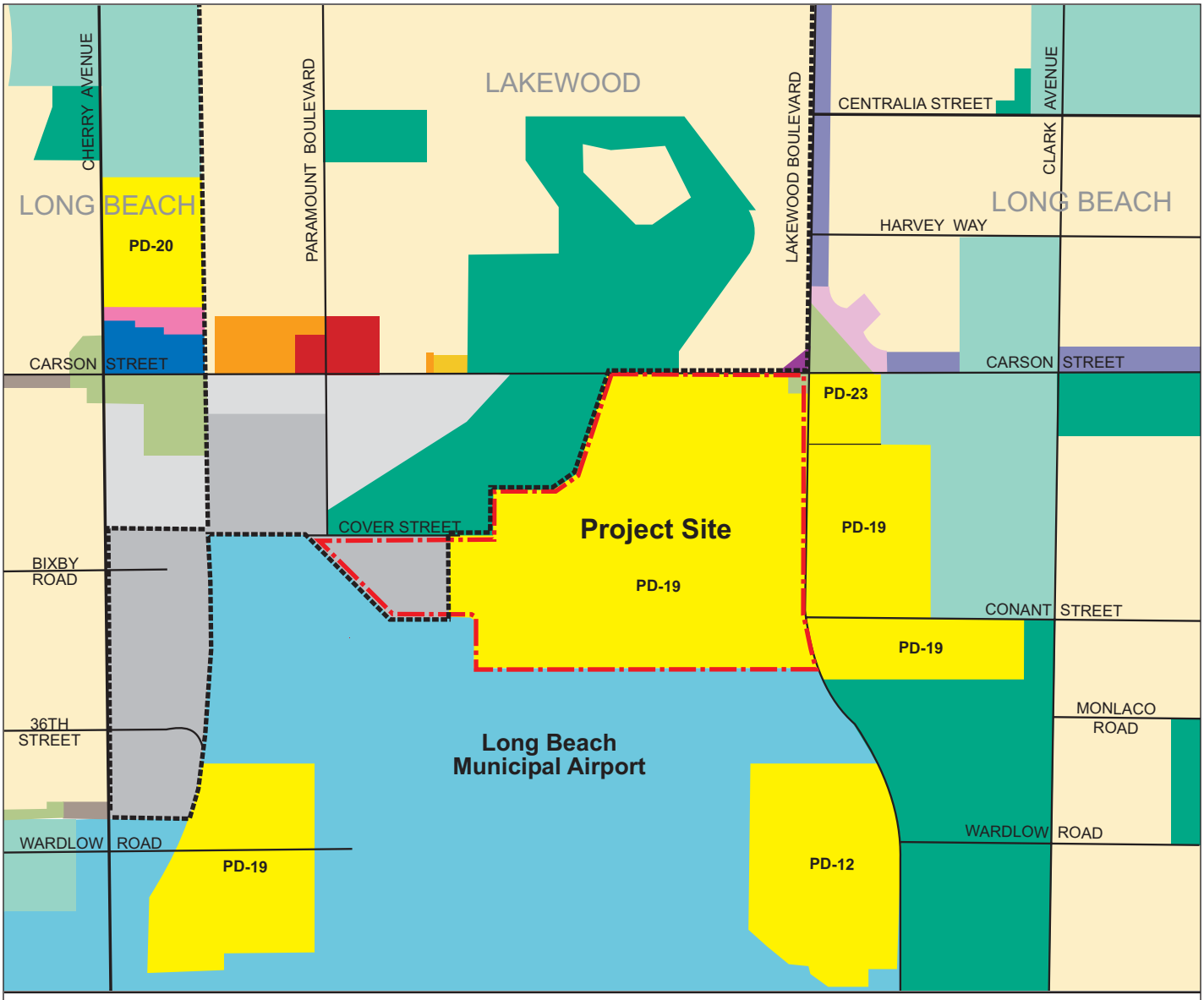
PCR

N

0 0.5 MILES

Source: PCR Services Corporation, 2004

Figure 48
Existing General Plan Land Use Map



LEGEND

City Boundary

Project Boundary

City of Long Beach

R-1-N	Single-Family Residential, standard lot
R-3-4	Low-Density Multi-family Residential
R-4-N	Medium-density Multiple Residential
CS	Commercial Storage
CCA	Community Commercial Automobile-Oriented
CCP	Community Commercial Pedestrian-Oriented
CHW	Regional Highway Commercial
IL	Light Industrial
IG	General Industrial
I	Institutional
P	Park
PD	Planned Development

City of Lakewood

R-1	Single Family/Planned Development Residential
MFR	Multiple Family/Planned Development Residential
C-1	Neighborhood Commercial
C-3	Intermediate Commercial
C-4	General Commercial
M-1	Light Manufacturing
M-2	Heavy Manufacturing
O-S	Open Space

PCR

N

0 0.5 MILES

Source: PCR Services Corporation, 2004

Figure 49
Existing Zoning Map

Although analyzed as part of the project, a small portion (less than one-half acre) of the PacifiCenter site located on the southwest corner of Lakewood Boulevard and Carson Street is not currently under Boeing ownership. This property, which is zoned CCA (Community Commercial Automobile-Oriented) and was previously used as a service station, is now owned by the City of Long Beach. Disposition of this property to Boeing Realty Corporation or another development entity may be completed as part of the project.[200]

Until recently, more than five million square feet of permitted useable floor area was occupied on-site, including office, manufacturing, assembly, research and development (R&D), warehouse, and mechanical space. However, in recent years the occupancy of the site has dropped dramatically as a result of the decline in the aerospace industry.[201] In addition, demolition activities are currently underway in conjunction with a mandated soil and groundwater remediation program (refer to Section IV, Overview of Environmental Setting, for further discussion) and will result in the removal of much of the on-site development. The majority of the buildings on the project site include, or recently included, large corrugated metal industrial buildings and airplane hangers, as indicated in the aerial photograph provided in Figure 3 on page 109 in Section III, Project Description. These low- to mid-rise industrial and R&D buildings generally range between 30 to 90 feet in height and from 2,000 to approximately 500,000 square feet in floor area. In addition, a nine-story executive office building is located adjacent to Lakewood Boulevard. Demolition activities associated with the ongoing remediation program have resulted in areas of the site that only contain disturbed soil. With the exception of these areas in which the demolition and remediation activities are underway, the remainder of the project site is paved with asphalt or concrete. Parking on the site is currently provided in surface lots in various locations throughout the project site. With the combination of the large building footprints and surface parking, much of the site is impervious with minimal amounts of landscaping.

The remaining occupied area of the site is generally located within the western 48-acre portion of the site immediately adjacent to the Airport, which is referred to as the

[200] *In addition, an approximately 0.8-acre piece of land in the northwestern portion of the site located within both the City of Long Beach and City of Lakewood is owned by the Union Pacific Railroad. The Applicant is in the process of acquiring this property. The portion of the 0.8 acre within the City of Long Beach is zoned PD-19 and the portion within the City of Lakewood is zoned M-2.*

[201] *At the time of the NOP (November 2002) the existing, occupied, on–site floor area was approximately 537,000 square feet. When accounting for demolition activities currently underway in conjunction with the mandated soil and groundwater remediation program, occupied square footage remaining in the Enclave will include: approximately 160,670 sq. ft. of manufacturing uses; 144,835 sq. ft. of office; 25,000 sq. ft. of R&D, 11,048 sq. ft. of warehouse, and 37,950 sq. ft. of mechanical, for a total of 379,503 square feet.*

Boeing Enclave. With the exception of 4.5 acres that do not include any occupied structures, the Boeing Enclave is located in the City of Long Beach. This area is used for aviation-related uses, including: an engine run-up/aircraft testing area adjacent to the Airport in the southwest corner of the site; final aircraft preparation; ground support; receiving, and delivery operations; customer operations, aircraft testing, commercial flight, and avionic testing and development; flight dispatch operations; aircraft fueling; security operations; and maintenance operations for buildings and equipment. In addition, within approximately 11 acres of the 23-acre portion of the site in the City of Lakewood is an interim use as a storage facility for RVs, boats, trailers, and shipping containers.[202] Existing uses within the project site comply with the General Plan designations and the zoning for the site established by the Cities of Long Beach and Lakewood.[203]

Boeing will be relocating their transportation and salvage sales operations facilities, which are currently located on Cherry Avenue in the City of Lakewood, to a new location within the western portion of the PacifiCenter site as an interim use. These facilities will occupy approximately nine acres, of which up to approximately four acres will be located in the City of Lakewood and up to approximately five acres will be located within the City of Long Beach. Approximately 2.5 acres of these uses will be located within the Boeing Enclave. These Boeing operations support the C-17 and 717 aircraft manufacturing programs, and as such are ancillary uses. These interim uses are proposed to remain on the site until the land is ready for development or until Boeing secures alternative locations for these operations. These uses comply with the General Plan designations and the zoning for the site established by the Cities of Long Beach and Lakewood.

Primary vehicular access to the project site is provided off Lakewood Boulevard at Conant Street, with secondary access provided on the west side of the site from Cover Street. In addition to Lakewood Boulevard, a designated regional corridor, and Carson Street, a major arterial, other major roadways in the area surrounding the project site include Spring Street to the south and Cherry Avenue to the west, both of which are classified as major arterials.[204] Paramount Boulevard, a major arterial for most of its length, also provides north-south access within the project vicinity. The project site is within close proximity to the I-405, I-605, SR-91, and I-710 Freeways. Please refer to

[202] *The 11 acres are all outside of the Boeing Enclave.*

[203] *The City of Lakewood approved a Conditional Use Permit (CUP) in February 2002 for the storage facility. The CUP is valid for five years. The lease on the land between Boeing and the operator can be cancelled with 30-day notice.*

[204] *Transportation Element of the Long Beach General Plan, City of Long Beach Department of Planning and Building, December 1991.*

Section V.L, Transportation/Circulation and Parking, for a more detailed discussion regarding the circulation network.

Surrounding Uses and Zoning

As shown in Figure 3 on page 109 in Section III, Project Description, the project site is surrounded by a variety of land uses, including aviation, office, retail, industrial, recreation, residential, and educational uses. The most prevalent land use in the immediate area is the Long Beach Airport (Airport), which is located to the south and west of the site. The Airport is zoned IG (General Industrial) and occupies approximately 1,166 acres, of which 685 acres are devoted to aircraft operations, 12 acres to the terminal complex, 152 acres to aviation-related leases, and 317 acres serve as buffer.[205] The Airport is designated as a non-hub airport (i.e., serving less than 0.05 percent of the total nation-wide enplanements), with 350,603 annual operations (landings and takeoffs) in 2002. The Airport serves a large number of private non-commercial aircraft and is one of the nation's busiest airports in terms of general aviation activity, with 93 percent of annual operations constituting general aviation.[206, 207] The remaining seven percent of the Airport's annual operations are as follows: 5 percent of the operations are by air carrier, 2 percent are by commuter carrier, and less than 1 percent constitutes industrial operations.[208, 209] In 2002, the airport handled approximately 58,600 tons of air cargo. In addition, between August 2001 and 2003, the number of passengers increased from 600,000 annual passengers to almost 3,000,000 annual passengers. The Airport has five runways, ranging in total length from 4,267 feet to 10,000 feet.[210] There are two sets of parallel runways aligned in an east-west (7L/25R and 7R/25L) and north-south (16L/34R and

[205] *The buffer area includes land east of the airport that is now in use as Skylinks Golf Course and areas along Lakewood Boulevard and south of Spring Street, which are occupied by the Airport Business Park, Kilroy Airport Center, and the Water Treatment Plant.*

[206] *Long Beach Airport, LGB Monthly Airport Activity Report, December 2002.*

[207] *General aviation is defined as activity other than operation by air carrier, commuter carrier, industrial operations, charter operations, and public aircraft (i.e., private non-commercial aircraft).*

[208] *Long Beach Airport, LGB Monthly Airport Activity Report, December 2002.*

[209] *Air carrier is defined as a scheduled carrier operating aircraft having a certified maximum takeoff weight of 75,000 pounds or more and transporting passengers or cargo. Commuter carrier is defined as a scheduled carrier operating aircraft having a certified maximum takeoff weight of less than 75,000 pounds and transporting passengers or cargo. Industrial operation refers to aircraft over 75,000 pounds for purposes of production, testing, remanufacturing, or delivery by or under the control of a manufacturer based at the Long Beach Airport.*

[210] *Measured end to end of pavement. There is a short piece of pavement at the south and north ends of Runway 16/34 that is not counted as pavement or as a stopway probably because of an east-west taxiway at the end.*

16R/34L) direction forming a rectangle, and an additional 10,000-foot runway (Number 12/30) that is aligned in a northwest-southeast direction splitting the two sets of runways. All of the runways are used for general aviation. Runway 12/30 is used for commercial flights as well as general aviation. Runway 7L/25R is used as the back-up runway for commercial flights, but is typically used only during rare circumstances (e.g., during repaving of Runway 12/30). Please refer to Section V.E, Hazards and Hazardous Materials, and V.I, Noise, for a supplemental description of the Airport.

The area to the east of the project site along Lakewood Boulevard is zoned PD-19 with a small area of PD-23 (Douglas Center) at the southeast corner of Carson Street and Lakewood Boulevard (see Figure 49). This area is occupied by Boeing's 717 assembly facility and office complex.[211] Directly east and northeast of the 717 assembly facility is Long Beach City College, which is zoned I (Institutional). Veteran Memorial Stadium, which is part of the College, is located directly east of the 717 facility, while the Liberal Arts Campus of the College is located north of Carson Street. South of Veteran Memorial Stadium and the 717 facility is Alteon Training, LLC (an independent operation), with a small park to the east, as well as the Skylinks Golf Course. As indicated by the aerial photograph provided in Figure 3 on page 109 in Section III, Project Description, this golf course provides an open space area and serves as a buffer between the residential area further to the east and the Airport.

The area northeast of the project site is primarily zoned R-1-N (Single-family Residential, standard lot), with CCA (Community Commercial Automobile-Oriented) and CCP (Community Commercial Pedestrian-Oriented) at the corners and greater residential density, primarily R-3-4 (Low-density Multi-family Residential), along the arterials. This area primarily consists of single-family residences. Some commercial land uses, such as a flower shop, restaurant, and bar, are located within a triangular area bounded by Lakewood Boulevard, Carson Street, and Norse Way.

The area within the City of Long Beach to the west of the project site also has a mix of zoning including IL (Light Industrial), CCA, CHW (Regional Highway Commercial), CS (Commercial Storage), R-1-N, P (Park), and PD-20 (Planned Development). The surrounding uses to the west of the site include the Lakewood Country Club Golf Course and existing commercial development immediately west of the Club.

[211] *The project site was historically connected to these Boeing facilities by underground pedestrian and vehicular tunnels, a pedestrian overpass, as well as by surface crossing of Lakewood Boulevard at Conant Street. However, the tunnels and pedestrian overpass have been closed.*

In terms of zoning within the City of Lakewood, as indicated in Figure 49 on page 432, the area immediately north of the western portion of the project site (i.e., the Lakewood Country Club Golf Course) is zoned O-S (Open Space). Immediately south of Carson Street and to the south and southwest of the Lakewood Country Club Golf Course are areas that are zoned M-1 (Light Industrial) and M-2, respectively. To the immediate north of the eastern portion of the project site (on the north side of Carson Street) is an area that is zoned R-1-15000 (Single Family). This area is referred to as the Lakewood Country Club Estates. The area north of the Lakewood Country Club is zoned R-1 and R-1-7500. In addition, there are small areas along the north side of Carson Street that are zoned C-1 (Neighborhood Commercial), C-4 (General Commercial), and MFR (Multi-Family Residential).

b. Existing Regulatory Setting

Development activity within the Cities of Long Beach and Lakewood is subject to the land use regulations set forth in the General Plan and Zoning Ordinances of both Cities. The General Plans for both jurisdictions consist of several individual documents, including the Land Use, Transportation (City of Long Beach) or Circulation (City of Lakewood), Air Quality, Noise, Housing, Open Space, Conservation, and Safety Elements (the Elements).[212] In general, the Elements provide an inventory of existing resources or conditions, specify goals and policies intended to direct and manage new development, and suggest implementation strategies for the attainment of specified objectives. The Land Use Element is discussed in this section, and other General Plan Elements are addressed in the appropriate environmental analysis sections in this EIR (i.e., Section V.A., Aesthetics; Section V.B, Air Quality; Section V.I, Noise; Section V.J, Employment, Housing and Population; V.K.1, Police Protection; and Section V.L, Transportation/ Circulation and Parking). However, amendments to General Plan Elements and city ordinances that are proposed as part of the project are presented in this Section.

The City of Long Beach Land Use Element, which indicates that the concept of managed growth is its underlying goal, contains general goals and objectives, several of which are applicable to the proposed PacifiCenter project.[213] Specifically, the Land Use Element contains 15 broad goals excerpted from Long Beach 2000: The Strategic Plan. The Strategic Plan 2010 recently superceded the 2000 Strategic Plan and the City has

[212] *In addition, the City of Long Beach has Scenic Routes and Seismic Safety Elements, as well as a Bicycle Master Plan. The General Plan for the City of Lakewood also contains Recreation and Community Service and Economic Development Elements.*

[213] *Land Use Element of the Long Beach General Plan, revised and reprinted April 1997.*

stated its intent to update the Land Use Element to address the goals of the Strategic Plan 2010. The Strategic Plan 2010 represents the views of residents, task forces and City staff and covers a variety of topics, including neighborhoods, education and youth, safety, business growth, work force development, and the environment. The Strategic Plan specifies goals for, and is intended to serve as a guide to addressing, each of these topics.

The City of Lakewood Land Use Element also contains general goals and objectives, several of which are applicable to the portion of the site within the City of Lakewood. In addition, the Lakewood Redevelopment Plan for Redevelopment Project Area III also influences land use decisions and promotes revitalization of the redevelopment area. The relevant goals and objectives established by the Cities of Long Beach and Lakewood are discussed in more detail below in the analysis of project impacts.

Development within close proximity to an airport raises distinct land use issues. Relevant to development of the project site is the Airport Layout Plan prepared by the Airport, which illustrates the airport property boundaries, airport facilities, runways, taxiways, helipads, adjacent land uses, buildings on the airport property, building restriction lines, and runway protection zones (RPZs) based on Federal Aviation Administration's (FAA) Federal Aviation Regulations (FAR) Part 77. See Figure 42 on page 362, V.E., Hazards and Hazardous Materials, for the components illustrated on the Airport Layout Plan that affect the project site. Also relevant to development of the project site is the adopted Los Angeles County Airport Comprehensive Airport Land Use Plan (ALUP) for the Long Beach Airport, which was prepared based on guidelines, recommendations, regulations and/or policies of the FAA, California Department of Transportation, Division of Aeronautics, and municipalities from within the County. The analysis of project impacts below provides a more detailed discussion of aviation-related regulations applicable to the project.

There are also a number of regional plans that regulate development within the area surrounding the project site. Projects within the County of Los Angeles fall under the Metropolitan Transportation Authority (MTA) Congestion Management Program (CMP), which addresses regional traffic congestion issues. The project site is also located within the planning area of the Southern California Association of Governments (SCAG), which has established regional planning programs in its Regional Comprehensive Plan and Guide (RCPG). Additionally, the proposed project is located within the South Coast Air Basin and is therefore regulated by the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP). Finally, both the City of Long Beach and the City of Lakewood are members of the Gateway Cities Council of Governments (COG). The COG advocates for its members at the regional, state, and federal levels on

issues of importance, such as transportation planning and funding, economic development, and air quality. The COG does not have regional authority. The relevant policies established by SCAG are discussed in more detail below in the analysis of project impacts. A summary of the project's consistency with the AQMP and CMP is also provided below. Refer to Section V.B, Air Quality and V.L, Transportation and Circulation for a detailed discussion of the project's consistency with the AQMP and CMP, respectively.

2. ENVIRONMENTAL IMPACTS

a. Methodology

The evaluation of land use impacts addresses the consistency of the proposed project with adopted plans, policies and ordinances and the compatibility of the project with surrounding uses in the project vicinity. The determination of consistency with applicable land use policies and ordinances is based upon a review of the previously identified planning documents that regulate land use or guide land use decisions pertaining to the project site.

b. Thresholds of Significance

For the purposes of this analysis, a land use impact will be considered significant if the proposed project will result in:

- Conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- Non-conformance with the applicable goals, objectives, and requirements of the City of Long Beach General Plan, Strategic Plan 2010, or Zoning Ordinance, or the City of Lakewood General Plan, Redevelopment Area III Plan, or Zoning Ordinance; or
- Substantial conflicts with surrounding land uses due to an incompatible interface between such uses and the physical and/or operational characteristics of the proposed uses.

c. Project Features

As discussed below under the analysis of project impacts, the proposed project will not be fully consistent with the PD-19 zoning of the site and portions of the General Plan. Therefore, to provide for the project, a new Planned Development Zone is proposed along with amendments to the land use designations for the site.

Proposed Planned Development Zone

The project proposes development standards including standards regarding the types and distribution of land uses, building setbacks, and building heights. These standards will be incorporated into a new Planned Development Zone for the project as well as within the Design Guidelines for the project site. As described in Section III, Project Description, the project will include two general land use categories: Commercial and Housing. Approximately 101 acres of the site will be occupied by Housing and parks/open space located within the northern portion of the site, and approximately 160 acres will be occupied by Commercial uses within the southern portion of the site. The project will contain a maximum of 2,500 residential units. The 62-acre western portion of the Housing area, extending from the Lakewood Country Club golf course to 1st Street, will contain low- to medium-density housing with an approximate average of 16 units per gross acre net of parks and open space and a range of approximately 5 to 25 units per gross acre. Housing in the 39-acre eastern portion of the Housing area, from east of 1st Street to Lakewood Boulevard, will be medium- to high-density with an approximate average of 45 units per gross acre and a range of 14 to 70 units per gross acre.

The Commercial area located within the southern portion of the project site will be developed with up to 3.3 million square feet of office, R&D, light industrial, retail, and aviation-related development and up to 400 hotel rooms. Additionally, a retail overlay zone will be established along a segment of the interface between the Commercial and Housing areas within the eastern portion of the site (i.e., along A Street between Lakewood Boulevard and 1st Street). The overlay zone will allow ground floor retail uses with upper story multi-family residential units in the Housing area and ground floor retail uses with upper story commercial uses in the Commercial area, as well as stand-alone retail uses. Although retail uses are generally contemplated near the southwest corner of A Street and Lakewood Boulevard, retail uses may occur elsewhere within the Commercial area in the southern portion of the site. As discussed in Section III, Project Description, the project will also include an optional component of aviation-related uses along the southern portion of the site immediately adjacent to the Airport. Such aviation uses will primarily serve as an amenity to businesses at the project site and may include

hanger space for corporate jets and line maintenance "A" checks.[214] The general location of these proposed land uses is presented in the Land Use Diagram provided in Figure 4 on page 117 in Section III, Project Description. In addition, a 66-kV substation with a maximum footprint of approximately 305 feet by 230 feet is also proposed within either the Commercial or Housing areas of the site as shown in Figure 8 on page 124, Section III, Project Description. The location of this substation, which is expected to be constructed in approximately 2009, will be determined based on further input from Southern California Edison. The substation will serve the project site as well as other off-site areas. If located in the residential portion of the project site or fronting A Street in the commercial area, the substation will be a low profile structure (equipment will be approximately 12 feet in height). If the substation is located in the commercial area not fronting on A Street, the equipment will be approximately 20 feet in height. In either scenario, the substation will have underground feed lines and will include an 8-foot masonry wall located at the building setback line with landscaping between the right-of-way and the wall. Such landscaping will include trees, shrubs, and ground cover.

Figure 7 on page 121, in Section III, Project Description provides a conceptual land use distribution map indicating how land uses may be developed in accordance with the new Planned Development District. As indicated in Figure 7 on page 121, within the low- to medium-density Housing area of the site, single-family detached units, townhomes, condominiums and townhome/flat combinations may be developed. Within the medium- to high-density Housing area of the site, condominiums, apartments, townhomes, and townhome/flat combinations may be developed. Figure 7 on page 121 also indicates that within the Commercial area located in the City of Long Beach, development will be guided by three zoning areas. Approximately 51 acres of the commercial area, located immediately west of Lakewood Boulevard, will be zoned PacifiCenter Commercial-1 ("PCC-1"). Allowable land uses in this zone will generally include office, research and development, some light industrial uses, aviation-related uses south of Conant Street, hotel and retail. Approximately 42 acres of the commercial planning area will be zoned PacifiCenter Commercial-2 ("PCC-2") and will allow all light industrial uses and aviation-related uses in addition to each of the commercial land uses described above for the PCC-1 zone. Warehouse uses will be allowed only as an accessory use in the PCC-1 and PCC-2 zones. Retail uses will be allowed in both the PCC-1 and PCC-2 zones. Approximately 43.5 acres of the commercial planning area (the Enclave) will be zoned PacifiCenter Commercial-3 ("PCC-3") and will allow equivalent uses to those permitted in PD-19 (i.e., aviation-related uses) to continue. As uses within the Enclave are removed,

[214] *Line Maintenance "A" checks are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts, servicing of fluids, and inspection of components, hoses, electrical items and aircraft structure. Lighting and a ground power unit are used during these checks.*

the area will be developed with uses that are allowed in the PCC-2 zone. In addition, development within the 23-acre portion of the site in the City of Lakewood will continue to be regulated by the M-2 Zone. As indicated by Figure 7 on page 121, some of the acreage within the PCC areas of the City of Long Beach or the M-2 area of the City of Lakewood may be reduced by dedicating and zoning these areas for parks and open space areas. A Conditional Use Permit (CUP) may be required for a park to be located within the City of Lakewood in the M-2 zone.

As shown in Figure 14 on page 135 in Section III, Project Description, seven height zones are proposed as part of the project and will be incorporated into the new Planned Development District. Within these height zones, building heights can range from 14 to 120 feet above proposed grades.[215] All height zones will comply with FAA height requirements. As indicated in Figure 14 on page 135, the Housing land use category contains three height zones. The low- to medium-density area will have a maximum building height that ranges from 35 feet along Carson Street (Height Zone 6) to a maximum of 45 feet further south of Carson Street (Height Zone 4). The medium- to high-density Housing area will range from a maximum height of 35 feet along the first 100 feet south of Carson Street (Height Zone 6) to 75 feet further to the south (Height Zone 5). The Commercial land use category, which contains four different height zones, will allow overall building heights ranging from a maximum of 14 to 120 feet in height. The height zone along Lakewood Boulevard within the Commercial area north of B Street (Height Zone 3) will allow maximum heights ranging from 90 up to 120 feet. In the central area of the site primarily between A Street and B Street, Height Zone 2 will allow maximum building heights ranging from 43 to 90 feet. Height Zone 1 immediately adjacent to the airport within the southernmost portion of the Commercial area will allow building heights ranging from 22 to 65 feet. Height Zone 1A within the Commercial area south of the Lakewood Country Club will allow maximum building heights of 14 to 55 feet.

The proposed Planned Development Zone (PD-32) will also include minimum setbacks for the primary streets within and adjacent to the project site as well as for the area adjacent to the Lakewood Country Club, as illustrated in Figure 19 on page 142 in Section III, Project Description. The established setbacks along the project's periphery include:

- A 28-foot setback from the property line along Carson Street (excluding the 12-foot right-of-way).

[215] *The proposed maximum building heights are measured from curb elevation to the top of a parapet or to the midpoint of a pitched roof, except within the City of Lakewood. Project buildings located within the City of Lakewood will be limited to four stories and 55 feet, measured to the ceiling of the uppermost story.*

- A 26-foot setback from the property line along Lakewood Boulevard (excluding the 14-foot right-of-way).
- A 20-foot setback from the property line adjacent to the Lakewood Country Club.
- A minimum 20-foot setback along the limited portions of the Airport edge on the southern and southwestern boundaries of the project site that are not part of the Long Beach Airport Layout Plan Building Restriction Zone. The no-build zone, which is greater than 20 feet in width, extends along most of the southern portion of the project site.

Setbacks have also been established for several of the internal streets, as follows:

- A 2-foot setback from the property line (excluding the 10-foot right-of-way) along A Street between Lakewood Boulevard and 1st Street for street-oriented retail uses.
- A 10-foot setback from the property line (excluding the 11-foot right-of-way) along 1st Street.
- An 18-foot setback from the property line (excluding the 11-foot right-of-way) along other internal collector roadways, including 2nd and 3rd Streets, except for those street segments that abut Building Restriction Zones, where adjacent development is not permitted.[216,217]

Proposed General Plan Amendments and Development Agreement

The following presents the General Plan text and graphic amendments to the Land Use Element that are proposed as part of the project, with proposed text changes in italics, proposed deletions shown in double strikeout text, and proposed additions indicated in bold text:

[216] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than 30 feet, in accordance with the Design Guidelines to be implemented as part of the project.*

[217] *If A Street in the western portion of the site is located adjacent to the Golf Course, the minimum building setback will be 5 feet from the property line (excluding the 11-foot right-of-way).*

1) Amend the discussion regarding the Long Beach Airport Activity Center (page 207 of the Land Use Element) to reflect the decline and changes in the aerospace manufacturing industry. In addition, amend the policies for the Long Beach Airport Activity Center to allow a greater mix of uses, as follows:

This complex center combines employment, commercial office, ***research and development, hotels, retail, residential, light industrial,*** *manufacturing, and recreational uses, as well as commercial and private flying activities* ***and the potential for other aviation-related uses.*** *The largest land user is the Airport* ***while The Boeing Company is a large employer in the area. In recent years, some of the area owned by The Boeing Company has become available for redevelopment. Such redevelopment should provide a mix of uses that supports the existing uses in the vicinity and contributes to the positive identification and the economic health of the City.*** ~~*itself, but the dominant land use is McDonnell Douglas Corporation. It is not only the largest employer in the City, but also is the largest traffic generator. During peak hours, all streets in and around this center are crowded. Nearby office developments help satisfy the demands of McDonnell Douglas for working space, and contribute as well to the employment base and to the traffic demands. Some visitor serving uses, particularly hotels, have developed or are on line. The immediate area near the terminal has not reached its economic potential. Conflicts exist between the manufacturing/commercial uses and the nearby residential neighborhoods, especially along Clark Avenue.*~~ *Because of the great spaces between the many parts of this center,* ~~*only auto*~~ *circulation is* ***primarily by automobile.*** ~~*feasible.*~~ ***However, any redevelopment within the center should provide opportunities for people to live, work and shop within close proximity so as to reduce the demand on the transportation infrastructure in the area. In addition, the provision of the use of alternative modes of transportation will result in a reduction in trips generated in the area.***~~*The presence of the San Diego Freeway, and its elevation above grade, provide a good advertising opportunity for the future.*~~

POLICIES

Continue to expand high tech, research and development uses, hotels, restaurants, and offices. Retain airport orientation ***and related uses*** *as much as possible.* ***As opportunities for redevelopment of the area arise, allow residential uses provided such uses are designed to be compatible with and enhance other existing uses within and***

surrounding the center. *Do not permit local retail or services into the center, or regional shopping uses without solving the mixed traffic problems which would result. Require architectural and design compatibility with the newer structures. Emphasize visual compatibility, good design, landscaping, traffic generation and management.*

2) Amend the Long Beach Airport Activity Center graphic (page 208 of the Land Use Element) to identify the project site as a separate area (Area A), and to revise the description of Area A as follows:

Area A: Planned Development Ordinance-32 (office, research and development, retail, hotel, light industrial, aviation-related, residential, and ancillary uses).

3) Amend the Long Beach Airport Activity Center graphic (page 208 of the Land Use Element) to identify the remaining portions that were previously Area A to Area D and expand the boundary to the south on the east side of Lakewood Boulevard,

4) Amend the text of LUD No. 7 (page 66 of the Land Use Element) to clarify that residential uses may be appropriate with industrial development depending on the size and layout of the site and the orientation of the uses relative to one another, as follows:

*However, this is not to preclude the assignment of this district designation to areas which have as their base industrial/manufacturing/ warehousing uses. In these cases, the appropriate accompanying land uses include offices, visitor-serving uses, retail and restaurants, and services, all for the purpose of supporting the working population within the district complex. Along major thoroughfares in this district, large scale wholesale and retail uses may be appropriate, as permitted by the respective planned development ordinances~~.~~**;** ~~Residential~~ **residential** uses are not permitted in these cases.* ***However, residential uses may be permitted within the Planned Development District 32 boundaries depending upon the size and layout of the site and the orientation of the uses relative to one another.***

5) Amend the Land Use map to change the LUD 12 designation in the southern portion of the site to LUD 7.

The project also includes amendments to the Noise Element of the General Plan to modify maps regarding the Airport Adjacent Land Use and Industrial Land Use to reflect

the PacifiCenter project. In addition, the project includes an amendment to the Noise Ordinance with regard to the District designation. Finally, General Plan text amendments to the Transportation Element regarding the Airport Activity Center to reflect the PacifiCenter project as well as amendments to the Bicycle Master Plan are also proposed. These proposed amendments are presented below:

6) Amend Figure 16, page 70 of the Noise Element to revise the industrial land use designation on the project site to mixed use. In addition, amend Figure 20, page 87 of the Noise Element to remove the designation of industrial land use from the site.

7) Amend the Noise District Map in Section 8.80.160 of the Municipal Code to indicate the northern portion of the site as District 1 rather than District 4.

8) Amend the text of the Transportation Element (page 70, third full paragraph) to revise the discussion regarding the Airport Activity Center as follows:

> *Another fast growing area is at the Airport activity center. It is anticipated that over one million square feet of additional commercial floor space, 800 more motel rooms and over 700 residential units will be developed in this area. This additional growth will generate an additional 12,000 vehicular trips.* ***In addition, the PacifiCenter project will add up to 400 hotel rooms, 2,500 residential units, and 3.3 million square feet of non-residential floor space.***

9) Amend the Proposed Bicycle Facilities—Short-Term map (Figure 8, page 51) to reflect the proposed bikeways.

A Development Agreement will also be included for the project. Government Code Section 65864 ". . . declares that: the lack of certainty in the approval of development projects can result in a waste of resources, escalate the cost of housing and other development to the consumer, and discourage investment in and commitment to comprehensive planning which would make maximum efficient utilization of resources at the least economic cost to the public." A Development Agreement is typically used for larger projects that develop over time to provide some certainty for the City and Applicant with regard to development standards, implementation of infrastructure, and payment of fees. Consistent with the proposed Planned Development-32 District, the Development Agreement, which will have a 20-year term, will address the maximum amount of development permitted on-site, the general types of uses permitted, the general locations of uses within the Commercial area, the maximum amount of retail uses permitted, the

maximum density of residential units, residential product types, the proportion of residential units that will be for-sale and rental, and appropriate transportation improvements. Among other provisions, the Development Agreement will also include requirements regarding open space and parks, infrastructure phasing, development impact fees, including affordable housing fees, and a commitment to public art. The Development Agreement will provide for implementation of off-site mitigation measures for traffic impacts rather than the payment of fees. In addition, the Development Agreement will provide fixed fees for Parks and Sewer Impact fees. Conversely, plan check fees will not be fixed under the terms of the Development Agreement. In addition, the Development Agreement will stipulate that the project will not be subject to any City impact fees implemented subsequent to approval of the Development Agreement.

d. Analysis of Project Impacts Relative to Regulatory Compliance

(1) City of Long Beach

(a) Consistency with the City of Long Beach General Plan

Consistency with Relevant General Plan Policies

The following discussion provides an analysis of the PacifiCenter project's consistency with the applicable goals and objectives set forth in the Land Use Element of the City of Long Beach General Plan. The adopted Land Use Element contains a presentation of operational objectives relevant to the proposed project. A description of each of these Land Use objectives is followed by a discussion of the project's consistency with such objectives.

- Managed Growth:[218] The Land Use Element recognizes that quality of life is multi-faceted and complex. The lifestyle provided in Long Beach is balanced between the ". . . friendliness and tranquility of small town life and the excitement and opportunity of a big city economy." The Land Use Element states that preservation of that lifestyle can occur through a ". . . sensitive and restrained distribution of land uses and densities throughout the City." The Element also recognizes that richness can be added to a community through the mix of old and new structures, which helps establish a sense of place with which people can identify. In addition, quality of life includes arts and culture.

[218] *City of Long Beach Land Use Element, 1997, pages 19-21.*

The Element states that arts and culture can flourish by encouraging active street level uses, pleasant pedestrian routes, and special activities combining public art and permanent cultural facilities. Furthermore, the Element recognizes that to achieve the increase in needed housing ". . . new housing must be concentrated around Downtown and the other economic activity nodes of the City, and along some of the principal streets which connect them."

Project Consistency with Objective: The project includes a land use mix and distribution of land uses and densities that are intended to revitalize the project site and create areas of activity, consistent with this objective. The development of housing on the project site will comply with this operational objective of locating new housing at economic activity nodes and along principal streets within the City. Specifically, the project will result in the creation of active streetscapes through the placement of different uses within close proximity on the site. For example, the provision of retail uses with office or residential uses within the retail overlay zone will create a pedestrian-oriented streetscape with visible economic activity on the project site.

- Economic Development:[219] This Land Use objective states that Long Beach will pursue economic development which focuses upon international trade, while maintaining and expanding its historic economic strengths in aerospace, biomedicine, and tourism. This objective indicates the primary reasons for fostering such economic development are to create employment opportunities for residents and a tax base for the City. A need to balance environmental quality with such growth is also specified by this objective. The discussion in the Land Use Element recognizes that reduced home-to-work travel will have regional environmental benefits from reduced air pollution, freeway congestion, and energy consumption.

Project Consistency with Objective: The proposed project will comply with the City's Economic Development objective by introducing new research and development, office, light industrial, retail, and hotel uses that will create additional jobs and City revenue, thereby contributing to the economic well-being of Long Beach. Please refer to Section V.J.1, Employment, for a more detailed discussion. In addition, increased property values resulting from development of the residential uses will increase City revenues. The project may also incorporate aviation-related uses, which are specified by this objective of the Land Use Element and residential next to commercial reduces home-to-work travel with associated regional environmental benefits.

[219] *Ibid, pages 21-22.*

- New Housing Construction:[220] Within this Land Use objective, Long Beach encourages the development of 24,000 new housing units through the Year 2000, with emphasis on filling the gaps which exist or are anticipated in certain sectors of the City's housing market. (Refer to Section V.J.2, Housing, for a more detailed discussion regarding applicable housing policies.)

Project Consistency with Objective: The proposed project will comply with the City's New Housing Construction objective by providing up to 2,500 new residential units, thereby increasing and improving the City's housing stock. Please refer to Section V.J.2, Housing, for a more detailed discussion.

- Facilities Maintenance:[221] This Land Use objective indicates that Long Beach will maintain its physical facilities and public rights-of-way at a high level of functional and aesthetic quality, manifesting the pride of the citizens in their City and ensuring that future generations need not bear the burden of deferred maintenance. A link between land use type and intensity and the provision of services, such as open space, water, and solid waste disposal, is recognized by this objective.

Project Consistency with Objective: The PacifiCenter project will be designed as a master planned community, with adequate public facilities and infrastructure provided to meet the needs of on-site employees, residents, and visitors. The project will include improvements to the on-site circulation system (i.e., automobile, bicycle, and pedestrian) and the domestic water, sewer, storm drain, electricity, and natural gas systems, in addition to a new reclaimed water system and new recycling programs. Numerous passive and active recreational and open space facilities (e.g., park space, sports facilities, courtyards, etc.) will be provided on-site, and landscaping will be provided along the primary pedestrian walkways, within certain roadway medians, within building setbacks, and at the entrances to the site. The project will include Design Guidelines to ensure that proposed facilities are functionally and visually compatible with surrounding development. All utility lines for water, gas, sewer, electricity, and certain communications will be installed underground. With the provision of the proposed Project Features and associated Design Guidelines, the project will comply with the City's Facilities Maintenance objective.

[220] *Ibid, pages 22-23.*

[221] *Ibid, page 23.*

- Functional Transportation:[222] This Land Use objective specifies that Long Beach will maintain or improve the current ability to move people and goods to and from development centers while preserving and protecting residential neighborhoods. A need to coordinate land use and transportation planning is recognized by this objective. Implementation of this objective can occur by locating "sufficient employment in the city in proximity to residential areas" and by supporting transit ridership "by locating sufficient employment and residential densities along transit routes." (Please refer to Section V.L, Transportation/ Circulation and Parking, for a more detailed discussion regarding the City's policies on functional transportation.)

Project Consistency with Objective: The project will implement this objective by locating employment opportunities within proximity to residential areas, without encroaching upon on- or off-site residential communities. As the project site is located adjacent to several transit routes, project implementation will provide opportunities for both workers and residents to use public transit. In addition, the project also includes bike lane improvements that will connect the area to the existing bike trail system. Such improvements will include new Class I bike lane improvements along Carson Street between Lakewood Boulevard and 1st Street and other Class II bike lanes. Please refer to Section V.L, Transportation/Circulation and Parking, for a more detailed discussion.

Consistency with Land Use Designations

In addition to the goals and objectives discussed above, the City of Long Beach Land Use Element includes the following primary components: Forecasts, Urban Design, Neighborhood, Activity Center, and Traffic Corridors components. Components relevant to implementation of the proposed project include the Urban Design and Activity Center components. Relevant land use designations and associated policies are described below, followed by a discussion of project consistency with each of the designations.

Airport Activity Center: The Land Use Element identifies the project site as part of the Airport Employment/Activity Center. An activity center is defined as a place where concentrations of human activities are found. Activity centers provide identification, character, interest, vitality, and economic health to the City by affording opportunities for employment, shopping, recreation, and social interaction. Central to this concept is the need for Activity Centers to fulfill their purpose in a manner that is harmonious in terms of land use, traffic, and architecture. The Airport Employment/Activity Center is recognized

[222] *Ibid, page 24.*

as a location that "combines employment, commercial office, manufacturing, and recreational uses, as well as commercial and private flying activities."[223] The Urban Design Analysis contained in the Land Use Element recognizes that the heights and masses of buildings in such centers and the tendency toward a greater variety of uses will make these centers more important from an urban design perspective. The analysis also indicates that some of the City's activity centers, including the Airport, would benefit from the addition of one or more tall structures. In addition, the discussion in the Land Use Element regarding Activity Centers states that ". . . integration into the life of the communities surrounding them is of great importance, and will be particularly challenging at the airport, where existing and probably future uses can have negative effects on their environs."[224] The more detailed policy for the land use designation Airport Activity Center follows:

> "Continue to expand high tech, research and development uses, hotels, restaurants, and offices. Retain airport orientation as much as possible. Do not permit local retail or services into the center, or regional shopping uses without solving the mixed traffic problems which would result. Require architectural and design compatibility with the newer structures. Emphasize visual compatibility, good design, landscaping, traffic generation and management."[225]

Project Consistency with Airport Activity Center Designation/Policy: As currently adopted, the project will not comply with the Airport Activity Center because of the proposed mix of uses. However, the project proposes the following amendment to the Airport Activity Center:[226]

> *This complex center combines employment, commercial office,* ***research and development, hotels, retail, residential, light industrial,*** *manufacturing, and recreational uses, as well as commercial and private flying activities* ***and the potential for other aviation-related uses.*** *The largest land user is the Airport* ***while The Boeing Company is a large employer in the area. In recent years, some of the area owned by The Boeing Company has become available for redevelopment. Such***

[223] *City of Long Beach, Land Use Element, page 207.*

[224] *City of Long Beach Land Use Element, 1997, page 44.*

[225] *City of Long Beach Land Use Element, 1997, page 207.*

[226] *As indicated in the Project Features section, the proposed General Plan text amendments provide the text in italics with proposed deletions shown in ~~double strikeout~~ text and proposed additions indicated in* ***bold*** *text.*

redevelopment should provide a mix of uses that supports the existing uses in the vicinity and contributes to the positive identification and the economic health of the City. ~~*itself, but the dominant land use is McDonnell Douglas Corporation. It is not only the largest employer in the City, but also is the largest traffic generator. During peak hours, all streets in and around this center are crowded. Nearby office developments help satisfy the demands of McDonnell Douglas for working space, and contribute as well to the employment base and to the traffic demands. Some visitor serving uses, particularly hotels, have developed or are on line. The immediate area near the terminal has not reached its economic potential. Conflicts exist between the manufacturing/commercial uses and the nearby residential neighborhoods, especially along Clark Avenue.*~~ *Because of the great spaces between the many parts of this center,* ~~*only auto*~~ *circulation is* ***primarily by automobile.*** ~~*feasible.*~~ ***However, any redevelopment within the center should provide opportunities for people to live, work and shop within close proximity so as to reduce the demand on the transportation infrastructure in the area. In addition, the provision of the use of alternative modes of transportation will result in a reduction in trips generated in the area.***~~*The presence of the San Diego Freeway, and its elevation above grade, provide a good advertising opportunity for the future.*~~

POLICIES

Continue to expand high tech, research and development uses, hotels, restaurants, and offices. Retain airport orientation ***and related uses*** *as much as possible.* ***As opportunities for redevelopment of the area arise, allow residential uses provided such uses are designed to be compatible with and enhance other existing uses within and surrounding the center.*** *Do not permit local retail or services into the center, or regional shopping uses without solving the mixed traffic problems which would result. Require architectural and design compatibility with the newer structures. Emphasize visual compatibility, good design, landscaping, traffic generation and management.*

The proposed project will comply with the amended, detailed policy for the Airport Activity Center by developing a mix of R&D, office, light industrial, and hotel uses on the site, thereby concentrating a variety of human activities. The project will be designed as a master planned community and will include Design Guidelines to ensure that proposed facilities are functionally and visually compatible with surrounding development and that

sufficient landscape amenities are provided. The project site could also retain an airport orientation given the project option to provide aviation-related uses along the southern portion of the site, which will clearly link the adjacent on-site uses to the Airport. The proposed retail uses will not conflict with the policy in that traffic conditions in and around the site are considerably different today given the decline of the aerospace industry. The proposed mix of uses within the master-planned site, including retail, along with the circulation improvements proposed as part of the project will serve to minimize traffic congestion within the area. Please refer to Section V.L, Transportation/Circulation and Parking, for a detailed traffic analysis. In conflict with the current Airport Activity Center designation, the project includes up to 2,500 dwelling units. However, with the proposed amendment residential uses will be allowed. With the proposed amendments, the project will fully comply with the policy for the Airport Activity Center. In addition, with regard to urban design, the proposed project will allow for the introduction of taller buildings into the Airport Activity Center, creating visual variety and interest.

In addition, the project proposes amendments to the Airport Activity Center map (page 208) of the Land Use Element. The revisions will establish the project site as a separate area (Area A) with the description of the land uses that will be allowed by the PD-32 ordinance. The proposed amendments will also identify the remaining portions that were previously designated Area A as Area D and expand the boundary to the south on the east side of Lakewood Boulevard. A description of Area D will designate the area as General Industrial, which will reflect the activities that currently occur at these locations. With these amendments to the Airport Activity Center Map, the project will comply with the designations.

Generalized Concept Plan: The Land Use Element also provides a Generalized Concept Plan, which presents some of the fundamental policies of the Land Use Element. This Generalized Concept Plan identifies the project site as a Major Employment Center that, as a fundamental policy of the Land Element, should be maintained or enhanced.

Project Consistency with Generalized Concept Plan: The PacifiCenter project will be developed as a regional employment center that will revitalize and redevelop an underutilized property. The project will thus promote the site as a Major Employment Center, as set forth by the Land Use Element. The mix of uses developed on-site will provide substantial employment opportunities requiring varied skill sets, which will complement the residential element of the project site. Additionally, the residential component of the project will help to enhance the employment opportunities by providing new, high-quality housing in close proximity to the employment center. Refer to Section V.J.1, Employment, for further discussion of employment issues.

Land Use District No. 7: The Land Use Element designates the majority of the Long Beach portion of the project site (north of the extension of Conant Street) as LUD No. 7 (Mixed Use District), as illustrated in Figure 48. Within the Element, LUD No. 7 provides for a combination of land uses, including the following: ". . . employment centers, such as retail, offices, medical facilities, higher density residences; visitor-serving facilities; personal and professional services; or recreational facilities." The LUD No. 7 text indicates that the district is not intended for uses ". . . which may have a detrimental effect on the ambiance, environment, or social well-being of the area. . . Examples of these uses are industrial and manufacturing uses, warehousing activities, and outside storage." The LUD No. 7 text also states that in cases where there is a base of industrial/manufacturing/ warehousing uses, ". . . the appropriate accompanying land uses include offices, visitor-serving uses, retail and restaurants, and services, all for the purpose of supporting the working population within the district complex." The LUD No. 7 text provides that "along major thoroughfares in this district, large scale wholesale and retail uses may be appropriate, as permitted by the respective planned development ordinances. Residential uses are not permitted in these cases."

Project Consistency with LUD No. 7 Designation: The proposed project is not consistent with the LUD No. 7 designation as currently adopted since the designation does not provide for residential uses along with industrial uses. Therefore, the project proposes the following amendments to the LUD No. 7:[227]

> *However, this is not to preclude the assignment of this district designation to areas which have as their base industrial/manufacturing/ warehousing uses. In these cases, the appropriate accompanying land uses include offices, visitor-serving uses, retail and restaurants, and services, all for the purpose of supporting the working population within the district complex. Along major thoroughfares in this district, large scale wholesale and retail uses may be appropriate, as permitted by the respective planned development ordinances~~.~~**;** ~~Residential~~ **residential** uses are not permitted in these cases.* ***However, residential uses may be permitted within the Planned Development District 32 boundaries depending upon the size and layout of the site and the orientation of the uses relative to one another.***

[227] *As indicated in the Project Features section, the proposed General Plan text amendments provide the text in italics with proposed deletions shown in ~~double strikeout~~ text and proposed additions indicated in **bold** text.*

With the proposed text amendment above, the project is consistent with the LUD No. 7 land use designation since the project is a mixed-use development that includes a wide range of commercial uses along with residential uses. The overall land use types on the site will be geographically separate (but connected through the circulation system and architectural design standards outlined in the Design Guidelines), with non-residential uses located in the southern portion of the site and residential uses in the northern portion. The project will thus provide a blend of uses within close proximity to one another, as desired by the land use designation. The types and geographic distribution of the proposed uses will provide opportunities for users of the site to walk to and easily access a range of uses. In particular, the residential uses will be located in close proximity to retail goods and services as well as employment and recreational opportunities. The proximity of such uses to one another will implement the intent of the Land Use Element to simplify and shorten the transaction of goods and services.

As stated in the LUD No. 7 text, mixed-use development can strengthen the urban structure of the City. The densities and intensities of uses proposed on the site are within the range of intensities that are typically found in urban settings. Through appropriate site planning, building orientation, and design of the project components, the project will create a distinct visual identity within this area of the City of Long Beach. Furthermore, as discussed in Section V.A, Aesthetics, the project will include Design Guidelines to ensure that proposed facilities are functionally and visually compatible with surrounding development, and the project elements to be introduced will improve the site's overall aesthetic character and general ambiance.

In general, the proposed uses are permitted in LUD No. 7. However, the text for LUD No. 7 does not provide for the exact mix and diversity of uses proposed as part of the project. Therefore, as indicated above in the Project Features, the project includes a proposed text amendment to the LUD No. 7 land use designation to clarify that residential uses may be appropriate in combination with industrial/manufacturing/warehousing uses. Given that the proposed residential uses will be separated from the non-residential uses by streets, setbacks, and landscaping which will serve as buffers, the project's mix of uses in the site layout and orientation proposed will not result in a conflict between the residential and non-residential uses. As discussed in Section V.I, Noise, limitations regarding the development of residential uses in the vicinity of Boeing Enclave operations (i.e., where light industrial uses will be primarily concentrated) will be implemented as mitigation as part of the project. With the proposed text amendment, the PacifiCenter project will be fully consistent with the LUD No. 7 land use designation.

With regard to the project's residential component, LUD No. 7 refers residential densities to LUD Nos. 3B, 4, 5, and 6, which are moderate and high-density residential districts allowing between 30 and 249 dwelling units per acre. Ultimately the LUD No. 7 residential density is established by the applicable Planned Development ordinance, as the LUD No. 7 text indicates that "specific densities are named in the planned development ordinance for each district." The ordinance that currently applies to the project site does not allow residential uses; however, as discussed below, the project includes the creation of a new Planned Development Zone. (See the discussion under Consistency with the City of Long Beach Zoning Ordinance, below, regarding the existing and proposed Planned Development ordinance for the site.) The new ordinance will include limitations regarding residential density, and such limitations will not exceed an average of 16 units per gross acre within the low- to medium-density Housing area within the western portion of the site and an average of 45 units per gross acre in the medium- to high-density Housing area within the eastern portion of the site. Therefore, the proposed residential densities will be consistent with the range suggested in the Land Use Element for LUD No. 7.

Land Use District No. 12: As illustrated in Figure 48, the southern portion of the site is designated as LUD No. 12 (Harbor/Airport District). LUD No. 12 is limited to two specific areas within the City, the Long Beach Harbor and the Long Beach Airport, both publicly owned areas. The Land Use Element recognizes that because of their size and single-function use, these areas shape the City's land use structure, socio-economic health, and the human environment. According to the Land Use Element, the land use composition within the Airport District is formulated by a master plan for the Long Beach Airport. The Element also indicates that the specific plans for land uses within the Airport boundary are to support and promote the Airport.

Project Consistency with LUD No. 12 Designation: The project site is not a part of the master plan for the Airport and is not publicly owned land. Therefore, to provide for the proposed commercial uses, the portion of the privately owned project site that is currently designated LUD No. 12 will be amended to LUD No. 7. In addition, as indicated above, some aviation-related uses will continue to be permitted within the southern portion of the commercial area in accordance with the new Planned Development District. This change will not affect existing or future operations within the Long Beach Airport. With the proposed amendment, the PacifiCenter project's potential conflict with the LUD No. 12 land use designation will be eliminated.

Consistency with Other General Plan Elements and Ordinances

Noise Element and Noise Ordinance

The project site is shown in the Noise Element as an industrial land use. Therefore, the project is not consistent with the maps in the Noise Element. However, the project includes an amendment to the maps in the Noise Element to provide for the proposed mixed-use project. With the proposed amendment the project will be consistent with the Noise Element.

The project site is shown in the Noise Ordinance as District 4, which is predominantly industrial with other land use types present. Therefore, the project is not consistent with the current district. However, the project includes an amendment to the map to designate the northern portion of the site as District 1, which is predominantly residential with other land use types present. With the proposed amendment , the project will be consistent with the Noise Ordinance. See Section V.I., Noise, for a detailed noise analysis.

Transportation Element and Bicycle Master Plan

The Transportation Element includes a discussion regarding the Airport activity center. As indicated above, the Land Use Element designates the site as part of the Airport Employment/Activity Center. As currently adopted, the project will not comply with the Airport Activity discussion in the Transportation Element. However, the project proposes the following amendment to the discussion regarding Airport activity center:

> *Another fast growing area is at the Airport activity center. It is anticipated that over one million square feet of additional commercial floor space, 800 more motel rooms and over 700 residential units will be developed in this area. This additional growth will generate an additional 12,000 vehicular trips.* ***In addition, the PacifiCenter project will add up to 400 hotel rooms, 2,500 residential units, and 3.3 million square feet of non-residential floor space.***

With the proposed amendment, the project will be consistent with the Transportation Element.

The City's Bicycle Master Plan indicates the future bikeways in the City. The City of Long Beach plans to make a number of near- and long-term improvements to its bikeway

system, to increase the connectivity and safety of the existing bikeway network. The project includes bicycle routes that will be incorporated into the internal circulation system. The Long Beach Bicycle Master Plan will be adhered to, as the project will improve the existing bikeway system. The project will include a revision to the Bicycle Master Plan to reflect the bike lane improvements that will be implemented as part of the project. Generally, Class I bike lane improvements will be provided along a portion of Carson Street, and Class II bike lane improvements will be provided within the site that will connect with the Carson Street bike lane as well as with Paramount Boulevard. However, while the project will not implement the bikeways as indicated in the Plan, the project will be consistent with the intent of the Bicycle Master Plan concept. Section V.L, Transportation/Circulation and Parking, includes an analysis of the project's proposed bikeways. The analysis concludes that the project will not result in a significant impact to the bicycle circulation system. Therefore, with the proposed amendment to reflect the bike lanes that will be implemented as part of the project, the project will be consistent with the Bicycle Master Plan.

(b) Consistency with the City of Long Beach Strategic Plan 2010

As discussed above, the Strategic Plan 2010 is a broad policy document that addresses neighborhoods, education and youth, safety, business growth, work force development, and the environment. The following discussion provides an analysis of the PacifiCenter project's consistency with the applicable goals and action steps in the City's recently adopted Strategic Plan.

Neighborhood Development—Goal N5: Improve the quality and availability of neighborhood housing by addressing declining home ownership, neighborhood stability and increasing overcrowding.

IV. N5.2 Increase the percentage of home ownership relative to the entire housing stock from 46 percent to more than 50 percent. Support housing assistance programs that stimulate and encourage home ownership. Improve or expand programs to upgrade or replace substandard rentals.

IV. N5.3 Review and revise Long Beach's land use plan to allow for appropriate and feasible housing densities, including increased densities—with appropriate development standards and design guidelines—in the downtown and along major and minor arterials with access to public transportation.

Project Consistency with Goals/Action Steps: The PacifiCenter project will be consistent with Neighborhood Development, Goal N5 of the City of Long Beach Strategic Plan 2010 and the associated action steps by providing homeownership opportunities within more than 60 percent of the proposed units, by developing residential units in accordance with specific development standards and design guidelines, and by providing increased housing densities along major transit corridors, including Lakewood Boulevard and Carson Street.

Business Growth and Workforce Development—Goal B3: Create a balance between business growth and neighborhood needs.

V. B3.4 Expand Long Beach Airport business opportunities, but only within existing noise compatibility ordinances.

V. B3.10 Develop a neighborhood plan citywide for business development to ensure quality of life in the neighborhoods.

Project Consistency with Goals/Action Steps: The project will comply with Business Growth and Workforce Development, Goal B3 and the associated action steps since the proposed project will balance business growth and neighborhood needs within the City by constructing new housing units while increasing job opportunities. The project will be designed as a master planned community that will provide a live, work, and play environment and create identifiable neighborhoods. The project will also include community amenities such as passive and active open space areas, including parks and recreational facilities, that will serve the needs of on-site residents and several of which will be available to the general public. In addition, the project will expand airport business opportunities by locating light industrial, R&D, and aviation-related uses within close proximity of the Airport. All of the proposed uses will be located in compliance with existing noise compatibility ordinances.

Based on the above, the PacifiCenter project and the proposed mix and intensity of uses will be consistent with the applicable goals and action steps in the City's recently adopted Strategic Plan 2010.

(c) Consistency with the City of Long Beach Zoning Ordinance

As indicated in Figure 49 on page 432, the majority of the 238-acre portion of the project site within the City of Long Beach is currently zoned PD-19 (Douglas Aircraft Planned Development District). The PD-19 zoning district was established in 1986 by

Ordinance No. C-6255 and amended in 1991 by Ordinance No. C-6915. Ordinance C-6915 establishes the guidelines for the use and development of the properties that are designated PD-19. There are two areas within the City of Long Beach that are zoned PD-19: (1) the project site and Boeing's 717 assembly facility to the east of Lakewood Boulevard; and (2) an area southwest of the project site, south of 36 Street and east of the railroad right-of-way (the Boeing C-17 Assembly Facility).

The standards set forth in the PD-19 ordinance are summarized in Table 26 on pages 461 through 464. The project as proposed could not be developed within the existing PD-19 zone since retail, hotel, and residential uses are not permitted. However, as described in the Project Features above, the project will include an amendment to the Long Beach Zoning Ordinance to create a new Planned Development District for the 238 acres of the PacifiCenter project site located in the City of Long Beach. Table 26 provides a summary and comparison of the existing PD-19 ordinance with the general content of the new Planned Development ordinance. The intent of the new ordinance is to establish development standards for the use and development of the project site as proposed. As described in the discussion of Project Features above, the new Planned Development ordinance will specify the permitted uses and their general location for each of the land use categories proposed, as well as the permitted development intensity, maximum height zones, and general development standards.

Division I of Chapter 21.25 of the Long Beach Zoning Ordinance addresses such zone changes and amendments to the zoning regulations. Specifically, Section 21.25.106 provides three findings that must be made for zone changes and amendments to the Ordinance. The two applicable findings are as follows:[228]

A. The proposed change will not adversely affect the character, livability or appropriate development of the surrounding area; and

B. The proposed change is consistent with the goals, objectives and provisions of the General Plan.

The proposed creation of the new Planned Development (PD) District and the amendment of the zoning for the site is specific to the proposed project. In addition, the project includes the amendment of the PD-19 ordinance to remove reference to the project site. The proposed PD District and zone amendment from PD-19 to PD-32 is consistent

[228] *The third finding is "If the proposed change is a rezoning of an existing mobile home park. . . ." This finding is not applicable since there is not an existing mobile home park on the site.*

Table 26

COMPARISON OF DEVELOPMENT STANDARDS IN THE ADOPTED PD-19 ORDINANCE AND THE PROPOSED GENERAL CONTENT OF THE PD-32 ORDINANCE

Development Standard	PD-19 Ordinance (Douglass Aircraft Planned Development District) [a]	General Content of PD-32 Ordinance
Uses	Office; research and development; aircraft manufacturing; and fixed base operations	Housing Area: Single and multi-family housing including single-family detached units, townhomes, townhome/flat combinations, apartments, and condominiums. Certain retail uses also permitted by right within specified areas. The PD will also specify other uses that will be permitted with a Conditional Use Permit (CUP), Administrative Use Permit (AUP), etc. Commercial Area: PCC-1: Allowable land uses will include office, research and development, some light industrial uses, aviation-related uses south of B Street, hotel, and retail. PCC-2: Allowable land uses will include light industrial uses, aviation-related uses south of B Street, in addition to each of the commercial land uses described above for the PCC-1 zone. PCC-3: Allowable land uses will include current on-going aviation-related uses, consistent with PD-19. As uses within the Enclave are removed, the area will be developed with uses allowed in PCC-2. Warehouse uses will be allowed as an accessory use only in the PCC-1 and PCC-2 zones. Other uses will be permitted with a CUP, AUP, etc. and will be specified by the PD. A 66 kV electrical substation may also be located within the site.

Table 26 (Continued)

COMPARISON OF DEVELOPMENT STANDARDS IN THE ADOPTED PD-19 ORDINANCE AND THE PROPOSED PD-19A ORDINANCE

Development Standard	PD-19 Ordinance (Douglass Aircraft Planned Development District) [a]	General Content of PD-32 Ordinance
Intensity of Development	Based on trip cap; new development limited to no more than 1,014 additional vehicles trips to and from the site in the P.M. peak hour between 4:00 P.M. and 6:00 P.M.[b]	Housing Area: Maximum of 2,500 residential units. Commercial Area: 3,300,000 square feet of non-residential floor area including a maximum of 150,000 square feet of retail floor area; plus a maximum of 400 hotel rooms, including ancillary uses.
Building Height	Based on building location; generally, height is limited to that needed to meet production demands; all building heights must be in compliance with the Federal Aviation Administration (FAA) Part 77. For structures along Carson Street, building height must be below an imaginary plane extending from the top of the ten-foot high wall[c] near the southern boundary of the Lakewood Country Club Estates area on the north side of Carson Street to the top of the nearest of the existing 45 foot high structures on the property facing Carson Street. If a tall building is constructed adjacent to public rights-of-way, the building(s) shall be designed so as to not be visually imposing on adjacent properties; such buildings are to be designed to enhance visual character through the use of building materials, facade treatments, finishes, and landscaping.	By height zone—In accordance with FAA Part 77 height requirements, with reduced heights immediately south of Carson Street and north of the Airport: Zone 1: 22-65 feet Zone 1A: 14-55 feet Zone 2: 43-90 feet Zone 3: 90-120 feet Zone 4: 45 feet Zone 5: 75 feet Zone 6: 35 feet

Table 26 (Continued)

COMPARISON OF DEVELOPMENT STANDARDS IN THE ADOPTED PD-19 ORDINANCE AND THE PROPOSED PD-19A ORDINANCE

Development Standard	PD-19 Ordinance (Douglass Aircraft Planned Development District) [a]	General Content of PD-32 Ordinance
Setbacks	Setbacks for the IG (General Industrial) Zone apply:[d] 10 feet for yards fronting on minor arterial or greater streets 0 feet for yards fronting on local or collector streets 45 feet if adjacent to a residential district 0 feet if adjacent to property in a nonresidential district.	In accordance with a proposed Site Plan: Setbacks along the site periphery: • 28 feet from the property line along Carson Street. • 26 feet from the property line along Lakewood Boulevard. • 20 feet from property line along the limited portions of the Airport edge on the southern and southwestern boundaries of the site that are not part of the Airport Layout Plan Building Restriction Zone. • 20 feet from property line along the boundary adjacent to the Lakewood Country Club. Setbacks along internal streets: • 2 feet from the property line along A Street between Lakewood Boulevard and 1st Street for street-oriented retail uses. • 18 feet from the property line along 1st Street. • 18 feet from the property line along other internal collector roadways, including 2nd and 3rd Streets, except for those street segments that abut Building Restriction Zones, where adjacent development is not permitted.[e]
Building Materials and Lighting		Glass with over 25 percent reflectivity shall be prohibited in all buildings on the site. All lighting shall comply with all applicable Airport Land Use Plan Safety Policies and FAA regulations. Night lighting will be shielded and directed away from residential uses; rooftop lighting will be limited to security lighting.

Table 26 (Continued)

COMPARISON OF DEVELOPMENT STANDARDS IN THE ADOPTED PD-19 ORDINANCE AND THE PROPOSED PD-19A ORDINANCE

Development Standard	PD-19 Ordinance (Douglass Aircraft Planned Development District) [a]	General Content of PD-32 Ordinance
Screening		Enclave will be screened with landscaping as shown in Figure 25 of this EIR.
Review	Site Plan review either by the Planning and Building Department or by the Planning Commission required for new development to assure high quality design and site planning.	Site Plan review either by the Site Plan Review Committee or by the Planning Commission required for new development to assure high quality design and site planning.
Modifications	No deviation is permitted unless it is found to be consistent with the intent of the Master Plan for the site, which was adopted by the City Planning Commission on March 30, 1989.	Building sizes may be changed, building locations redistributed, or the mix of uses adjusted to meet changing user demand in accordance with the limitations above. However, architectural, landscaping, and overall design character of the site shall remain in substantial conformance with the Design Guidelines.

[a] *The PD-19 zoning district was established in 1986 by Ordinance No. C-6255 and amended in 1991 by Ordinance No. C-6915.*

[b] *The Ordinance allows for an increase in development through the transfer of trips. Trips may be transferred between the Airport Area Planned Development Plans, which include PD-19 (Douglas Aircraft), PD-23 (Douglas Center), PD-12 (Long Beach Airport Terminal Area), PD-13 (Atlantic Aviation), PD-18 (Kilroy Airport Center), PD-9 (Airport Business Park), PD-15 (Long Beach Business Park), PD-27 (Willow Street Center), and PD-28 (Pacific Theaters).*

[c] *While the PD-19 ordinance indicates that the wall is 10 feet in height, the wall measures nine feet.*

[d] *The PD-19 Ordinance refers to the MG (General Manufacturing) Zone for setbacks. However, the MG Zone was eliminated as part of the Citywide revisions to the industrial districts. Therefore, the IG (General Industrial) setbacks now apply.*

[e] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than 30 feet, in accordance with the Design Guidelines.*

Source: PCR Services Corporation, October 2004.

with these findings in that the project will not adversely affect the character, livability or appropriate development of the surrounding area. The project will create an activity center with a mix of uses, which will have a unique identity that will contribute to the overall urban fabric of the City of Long Beach. In addition, the project will provide parks and open space areas on a site that currently has limited open space areas. As discussed in more detail below, the proposed project is compatible with the surrounding area in terms of uses and density of development. The residential component of the project has been located in the northern portion of the site, across Carson Street from existing single-family residences. The least dense and most restrictive building heights of the proposed residential development will be located along Carson Street. South of this area in the interior of the site, the development density and heights of structures will increase. The intensity of the project's commercial development is also compatible with surrounding commercial development and the adjacent Airport. In addition, as discussed above, the project is generally consistent with the City's General Plan and Strategic Plan. Planned development ordinances provide the implementation mechanism for development of property within LUD No. 7. The proposed PD District will specify the development standards, including the residential density that will be allowed on the site. The creation of the ordinance and the amendment from PD-19 to a new PD District does not conflict with the vision and policies of the General Plan. The LUD No. 7 text provides for mixed-use development and allows for the uses that are proposed as part of the project. With the proposed General Plan text amendments, which will serve to update the Land Use Element and clarify uses that are allowed on-site in LUD No. 7, the project will be consistent with the goals, objectives, and provisions of the General Plan.

In addition to the proposed ordinance, a Development Agreement is proposed as part of the project. The purpose of the Development Agreement is, among other things, to ensure the City that infrastructure and other improvements associated with the project are implemented and to ensure the Applicant that the project can be fully developed as proposed regardless of future changes that may occur in the City's policies and regulations. Chapter 21.29 of the Long Beach Zoning Ordinance provides for the use of a Development Agreement in accordance with Section 65864 of the California Government Code. Section 21.29.040A provides mandatory contents of a development agreement and requires that the agreement:

1. Specify the duration of the agreement;
2. Specify the permitted uses of the property;
3. Specify the density or intensity of use;
4. Set forth the maximum height and size of proposed buildings; and

5. Set forth provisions, if any, for reservation or dedication of land for public purposes.

As indicated in the Project Features described above, the Development Agreement will specify the types of uses that will be permitted in the project, as well as provide the maximum density for residential development and the intensity of commercial development. In addition, the Development Agreement will provide the building heights and the square footages allowed. Finally, the Development Agreement will address infrastructure improvements, including the provision of parks, as well as the payment of impact fees. Therefore, the proposed Development Agreement will comply with these mandatory content requirements. The Development Agreement will provide a vested right to develop the property in accordance with the project approvals and the land use regulations in effect at the time of the approval of the Development Agreement by the City of Long Beach. The Development Agreement is expected to be reviewed by the City of Long Beach Planning Commission and City Council at a public hearing at the time the EIR is reviewed.

Section 21.37.060 of the Long Beach Ordinance requires site plan review for all development proposals within a PD district. As the project is implemented, Site Plan Review will be required for individual projects prior to issuance of a building permit. The review will be conducted by the Site Plan Review Committee or the Planning Commission. Section 21.25.506 of the City's Ordinance provides five findings that must be made for development projects in the Site Plan Review process. These findings are as follows:

1. The design is harmonious, consistent and complete within itself and is compatible in design, character and scale, with neighboring structures and the community in which it is located;

2. The design conforms to any applicable special design guideline or specific plan requirements, such as the Design Guidelines for R-3 and R-4 Multi-family Development, the Downtown Design Guidelines, PD guidelines, or the General Plan;

3. The design will not remove significant mature trees or street trees, unless no alternative design is possible;

4. There is an essential nexus between the public improvement requirements established by this Ordinance and the likely impacts of the proposed development; and

5. The project conforms to all requirements set forth in Chapter 21.64 (Transportation Demand Management), which requirements are summarized in Table 25-1.[229]

The project is designed as a master planned community. The findings will be required for each development project. However, generally, the project will comply with the findings since the project will incorporate Design Guidelines, which will serve to ensure compatible design, character, and scale within the project site. In addition, the proposed uses will be located on the site so as to create internal functional compatibility. For example, the commercial uses will be located in the southern portion of the site, with the residential uses in the northern portion of the site. Along the interface of these two land use areas, the streets, setbacks, and landscaping, as well as the proposed retail overlay zone, will provide a buffer between the two areas. In addition, because of the distribution of uses, the project will be compatible with the surrounding off-site areas. The proposed residential uses will be located nearest to the existing residential uses north of the site, and more intense commercial and light industrial uses will be located closer to the Airport to the south. As discussed below, the project also includes features and mitigation measures that will be implemented to ensure the internal compatibility of uses. The project will also contribute to the community as a whole by creating an activity center in accordance with the City's General Plan designation of the site. While the project will result in the removal of some of the limited ornamental landscaping, new landscaping will be installed that will far exceed the amount of landscaping that currently exists on the site. In addition, as previously discussed, substantial infrastructure improvements, park and open space improvements, and other public improvements will be implemented as part of the project. In addition, the project will comply with all requirements of the City's Transportation Demand Management regulation set forth in Chapter 21.64 of the Municipal Code.

As the project is implemented, Site Plan Review will be required prior to issuance of a building permit. The review will be conducted by the Site Plan Review Committee or the Planning Commission.

With the adoption of the proposed Planned Development-32 ordinance and the rezoning of the site from PD-19 to PD-32 Zone, the project will comply with the City of Long Beach Zoning Ordinance.

[229] *Please refer to Section 21.25.506 of the Long Beach Municipal Code for the referenced Table and Section V.L, Transportation/Circulation and Parking, for the TDM analysis, as this relates to transportation rather than land use.*

The project also includes a proposed vesting tentative map to subdivide the project site. The proposed subdivision of land will create parcels within the City of Long Beach that will be consistent with the requirements of the City of Long Beach Municipal Code and the Subdivision Map Act with regard to parcel dimensions, size, and orientation.

(2) City of Lakewood

(a) Consistency with the City of Lakewood General Plan

Consistency with Relevant General Plan Goals and Policies

The City of Lakewood Land Use Element indicates that as of 1994, the City is 99.5 percent developed, including the 23 acres of the project site within the City of Lakewood. The City encompasses approximately 6,108 acres within 9.5 square miles. While Lakewood has a mix of land uses within its boundaries, Lakewood's predominant land use is residential. The City of Lakewood Land Use Element contains general goals and policies regarding the spatial distribution of land uses and intensities. An analysis of the project's consistency with relevant goals and policies is provided below.

Goal 5: Encourage industrial and commercial projects in underutilized areas which will make a positive contribution toward the jobs-housing balance, abating local and regional traffic congestion.

Policies:

5.1 Encourage the development of industrial and commercial uses at the appropriate underutilized sites to provide job opportunities for the local labor force.

5.2 In accordance with the City's zoning ordinance, ensure compatibility when industrial and commercial uses become situated near existing residential areas, or other low intensity uses.

Project Consistency with Goal/Policies: The project will be consistent with Goal 5 and Policies 5.1 and 5.2 since the project will: (1) increase research and development, light industrial, and office uses within the City of Lakewood, thereby increasing job opportunities; and (2) make a positive contribution towards the City's jobs-housing balance. The City of Lakewood is primarily a residential community and with regards to

the jobs-housing balance is housing rich and jobs poor. The project will create employment opportunities and a tax base for the City of Lakewood. In addition, the project as a whole will provide the opportunity to reduce local and regional traffic congestion by locating employment, housing, and retail services within close proximity to one another. As discussed below, proposed development within the City of Lakewood portion of the site will be consistent with the existing zoning and land use designation of this portion of the site. Residential uses will be located within the northern portion of the site (in the City of Long Beach) and will be buffered from future on-site uses within the City of Lakewood by proposed streets, landscaping, and other commercial development within the Long Beach portion of the site. Thus, proposed development within the City of Lakewood will be compatible with future residential uses within the project site.

Goal 6: Physical improvements within the City shall be attractive and relate well with the surrounding setting and landscape. Less pleasing aspects of development shall be tempered with appropriate physical and/or landscape designs.

Policy:

6.1 Temper the less pleasing aspects of development, such as commercial signs, above ground storage tanks, parking lots, large expanses of plain or stucco walls, roof-mounted equipment, etc.

Project Consistency with Goal/Policy**:** The project will comply with Goal 6 of the Land Use Element of the Lakewood General Plan since the project includes Design Guidelines that will result in physical improvements that will improve the site's aesthetic character and relate to the surrounding setting. In accordance with the Design Guidelines, all utility lines for water, gas, sewer, electricity, and communications will be installed underground, and service areas and parking structures will be screened from view through the incorporation of architectural elements and landscaping. Within the City of Long Beach portion of the site, the proposed Commercial land use category, which will allow R&D, light industrial, and office uses, will be compatible with the surrounding development, including the Lakewood Country Club to the north of the project site and the Airport to the south and southwest of the project site.

Goal 7: To encourage all residents and property owners to contribute to the visual quality of the City by making improvements to and maintaining their property at the highest standard that creates pride and a sense of identity.

Project Consistency with Goal: The project will also comply with Goal 7 of the Land Use Element since implementation of the Design Guidelines will result in development that is visually compatible with the surrounding project area, resulting in a quality development that contributes to a sense of identity for the City of Lakewood. Refer to Section V.A, Aesthetics, for further discussion of the beneficial visual impacts resulting from project implementation.

Consistency with Land Use Designation

Industrial Land Use: The 23-acre portion of the project site located within the City of Lakewood is designated in the Lakewood General Plan as Industrial. In 1995 Lakewood had a total of approximately 93 acres of industrial land, located primarily in the southwestern portion of the City, south of Carson Street and including the 23-acre portion of the site within the City of Lakewood. The Lakewood General Plan indicates that the maximum height for industrial designated land is four stories or 55 feet in height.

Project Consistency with Industrial Land Use Designation: The proposed R&D, light industrial, and office uses on the 23-acre portion of the project site within the City of Lakewood will comply with the Industrial land use designation on this portion of the site. A Conditional Use Permit may be required If a park is located within the City of Lakewood. As shown in Figure 14 on page 135 in Section III, Project Description, the Commercial land use area located within the City of Lakewood will be developed with buildings that will range in height from 14 to 55 feet in height. Buildings will be a maximum of four stories or 55 feet in compliance with the Zoning Ordinance, which provides the more restrictive limit.

(b) Consistency with the City of Lakewood Zoning Ordinance

The 23-acre portion of the project site located within the City of Lakewood is currently zoned M-2 (Heavy Manufacturing). Uses allowed in the M-2 district include those allowed in M-1 (Light Manufacturing), as well as the manufacture of abrasives, butane service station, and large collection and processing facilities, provided a set of standards are met. Building height in the M-2 is limited to four stories or 55 feet, whichever is less, measured to the ceiling of the uppermost floor. The area within 50 feet of any property in a residential zone cannot be used for M-2 uses, but rather is limited to off-street parking or access to the M-2 property. Front and rear yard setbacks are required when the M-2 property abuts a residential zone. No side yard setbacks are required in the M-2 district. Part 18 of the Lakewood Zoning Ordinance requires Development Review Board approval prior to project implementation.

The proposed R&D, industrial, and office uses will comply with the M-2 zoning on the 23-acre Lakewood portion of the project site. As indicated above, the proposed building height within Lakewood will be 14 to 55 feet. In accordance with the M-2 development parameters (Section 9302.10 of the Lakewood Municipal Code), the building height will not exceed 55 feet as measured from the average level of the highest and lowest points of the lot covered by the building to the ceiling of the uppermost story.

The project will require review by the Lakewood Development Review Board for future development projects on the 23-acre portion of the site within the City of Lakewood. The Development Review Board will use the project's Design Guidelines, which will incorporate many of the Project Features presented in the various sections throughout this EIR, as the basis of its evaluation.

The project also includes a proposed subdivision map to subdivide the project site. The proposed subdivision of land will create industrial parcels within the City of Lakewood that will be consistent with the requirements of the Lakewood Code and the Subdivision Map Act with regard to parcel dimensions, size, and orientation.

(c) Consistency with the City of Lakewood Redevelopment Plan for Redevelopment Project III

Redevelopment Area III Plan Objectives/Goals: As shown on Figure 48 on page 431, the portion of the project site within the City of Lakewood is located within the boundaries of the Lakewood Redevelopment Plan for Redevelopment Project Area III. Specifically, the site is located within Subarea 1d of Redevelopment Area III. The overriding objective of the Redevelopment Area III Plan is to eliminate or alleviate blighting conditions by providing needed public improvements, assistance for the development and rehabilitation of existing properties, low- and moderate-income housing, and other activities authorized by the California Community Redevelopment Law. To achieve this overall objective, redevelopment goals of the project area include: (1) to eliminate blighting conditions and prevent the acceleration of blight; (2) to provide for the comprehensive planning, redesign, reconstruction and/or rehabilitation of the area to facilitate higher and better utilization of the land; (3) to promote redevelopment that is consistent with the General Plan and Municipal Code; (4) to provide for adequately sized parcels and public improvements to encourage construction by private enterprise; (5) to engage commercial and industrial property owners in cooperative endeavors; and (6) to secure brokerage and development firms in identification of development opportunities. An analysis of the project's consistency with these objectives is provided below.

Project Consistency with Objectives/Goals: The proposed project will support the primary Redevelopment Area III Plan objective of eliminating conditions of blight and deterioration in the Redevelopment Project Area by redeveloping industrial properties and providing for upgraded services and infrastructure. Specifically, the project will: (1) facilitate the expansion of existing businesses in the area; (2) preserve the area's existing employment base and create local job opportunities; (3) create built and landscaped environments that reflect a high level of concern for urban design, land use, architecture, landscape principles, and local site conditions through implementation of Design Guidelines; and (4) facilitate the installation and expansion of required public infrastructure, utilities, streets, and landscaping. Ultimately, the proposed project will serve to enhance and promote a positive image and identity for the site and Redevelopment Project Subarea 1d (in which the site is located) as a whole. The project will not be required to have a Participation Agreement since the City is not directly involved in the redevelopment of the site.

Redevelopment Area III Plan Development Restrictions: The Redevelopment Area III Plan specifies that the type, size, height, number and proposed use of buildings within the Redevelopment Project Area shall be limited by applicable local and state ordinances as well as the Lakewood General Plan. As such, the Redevelopment Area III Plan designates the project site for industrial uses as set forth in the General Plan. In addition, the Redevelopment Area III Plan specifies the following: (1) the combined floor area ratio (FAR) for all buildings constructed on a single parcel shall not exceed 1.0 in areas designated for commercial or industrial use; (2) building heights are limited to a maximum of five stories; (3) building type shall be limited to those building types permitted by the Uniform Building Code (UBC) provided that the building type is appropriate for the permitted use; and (4) mixed-use development shall be permitted in compliance with the Lakewood Municipal Code and approved by the City of Lakewood.

Consistency with Development Restrictions: The PacifiCenter project falls within the estimated total potential development permitted under the Redevelopment Area III Plan. Specifically, the total floor area within this 23-acre portion of the site will be well below the 1.0 FAR. The height limit will range from 14 to 55 feet (four stories), which is below the five-story height limit established in the Redevelopment Area III Plan. In addition, proposed buildings will be constructed in accordance with UBC requirements. Furthermore, the project will comply with applicable requirements established in the City of Lakewood General Plan and Zoning Ordinance.

Based on the above, the PacifiCenter project will be considered consistent with the Redevelopment Area III Plan.

(3) Airport Planning

As discussed in detail in Section V.E, Hazards and Hazardous Materials, development within the vicinity of the Airport is regulated by a number of airport planning documents and regulations, including Federal Aviation Administration Part 77 Regulations, the Airport Layout Plan for the Long Beach Airport (reviewed and approved by the FAA on April 5, 2000), and the Long Beach Airport Comprehensive Airport Land Use Plan (ALUP). The ALUP was prepared and adopted by the Los Angeles County Airport Land Use Commission (ALUC) based on guidelines, recommendations, regulations and/or policies of the FAA, Caltrans Division of Aeronautics, and municipalities within the County. The ALUP provides policies to promote land use compatibility and limit noise and other safety conflicts in areas surrounding airports. As discussed in Section V.E, Hazards and Hazardous Materials, the project will comply with the Airport Layout Plan as well as FAA Part 77 Regulations. The project will also assist in implementing the ALUP safety policies through restrictions on the following: development within Runway Protection Zones (RPZs); above-ground storage tanks of flammable liquids or toxic materials in RPZs; lighting within RPZs; erection or growth of objects within the RPZs associated with Runways 16L, 16R, 12, and 25R; uses that may affect safe air navigation; and uses that will generate electrical interference. In addition, as discussed in Section V.I, Noise, of this EIR, the project will be consistent with applicable noise policies set forth in the ALUP, including those regarding the ALUP Land Use Compatibility Table (which is based on noise exposure), the use of sound insulation for new residential uses, and informing property owners of airport noise levels. The project will be reviewed by the ALUC since the site is within the Airport "referral zone."

As discussed in Section V.E, Hazards and Hazardous Materials, the Caltrans Division of Aeronautics has prepared the Caltrans Airport Land Use Planning Handbook (hereinafter referred to as the Caltrans Handbook). The Caltrans Handbook provides compatibility planning guidance to airport land use commissions, their staff and consultants, the counties and cities having jurisdiction over airport area land uses, and airport proprietors. With respect to the safety of persons on the ground, neither the FAA nor the County provides specific guidelines for land use compatibility assessments beyond the Runway Protection Zone. As such, although the Caltrans Handbook does not constitute formal state policy or regulation, the guidelines presented in the handbook have been considered in evaluating the compatibility of the project relative to the adjacent Airport. The Caltrans Handbook guidelines address various safety concerns (e.g., bird strikes, light, and glare) and include the establishment of various land use compatibility zones to assist project applicants in assessing areas of increased hazards based on the flight paths of aircraft. As discussed in detail in Section V.E, Hazards and Hazardous Materials, based on a number of factors, including current and expected airport

operations, the height zones proposed by the project, the compatibility guidelines set forth by the Caltrans Handbook, and the proposed mitigation measures, the risk exposure of the proposed project to aircraft operations will not cause a safety hazard for people residing or working in the PacifiCenter project area. In addition, as discussed in Section V.I, Noise, the proposed uses will be consistent with the noise compatibility guidelines set forth by the Caltrans Handbook, including the guideline stating that residential uses in urban areas should not be located within the 65 A-weighted decibel (dBA) Community Noise Equivalent Level (CNEL) contour.

(4) Consistency with the Metropolitan Transportation Authority Congestion Management Plan for Los Angeles County

The Congestion Management Program is a state-mandated program enacted by the legislature to address increasing concerns regarding the impact urban congestion has on local communities and the region as a whole. The CMP includes a system of highways and roadways with minimum level of service (LOS) standards, transit standards, a trip reduction and travel demand management element, a program to analyze the impacts of local land use decisions on the regional transportation system, a seven-year capital improvement program, and a county-wide computer model to evaluate traffic congestion and recommend relief strategies and actions. The CMP incorporates procedures for meeting deficiency plan requirements and strategies that mitigate or improve congestion and air quality. Proposed projects that have the potential to affect the designated CMP network (primarily mainline freeway segments and State routes such as Lakewood Boulevard) are required to identify and mitigate their adverse effects on the network. Section V.L, Transportation/Circulation and Parking, provides an analysis of the proposed project relative to CMP criteria and requirements, including an evaluation of post-project traffic levels on CMP corridors. As discussed therein, the project will be consistent with the Congestion Management Plan.

(5) Consistency with the Southern California Association of Governments Regional Comprehensive Plan and Guide

The PacifiCenter project site is located within the Gateway Cities subregion of the Southern California Association of Governments planning area and therefore falls under planning policies established by SCAG. SCAG is a joint powers agency made up of 13 subregions comprising six counties (Los Angeles, Ventura, San Bernardino, Orange, Riverside, and Imperial Counties). SCAG's Regional Comprehensive Plan and Guide (RCPG), with several chapters updated as recently as 2002, provides a general overview of various federal, state, and regional plans that affect the Southern California region and

serves as a comprehensive planning guide, focusing on growth through the year 2015. The primary goals of the RCPG are to improve the standard of living, enhance quality of life, and promote social and economic equity. The RCPG is divided into core chapters (Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management), which present federal and state policy requirements and recommendations; ancillary chapters (Economy, Housing, Human Resources and Services, Finance, Open Space and Conservation, Water Resources, Energy, and Integrated Waste Management), which provide regional plan recommendations; and bridge chapters (Introduction, Strategy, and Implementation), which serve as links between chapters.

Multiple elements of the PacifiCenter project are supportive of the concepts and policies contained within the RCPG. The proposed redevelopment of an existing, underutilized, aircraft production facility in an urbanized area will concentrate a mix of mutually supportive land uses near existing public facilities and infrastructure (e.g., roads, freeways, and utilities) as well as existing transit corridors. More specifically, project implementation will transform the PacifiCenter site into an activity center and community that will serve as a place to live and work. The mix of uses and amenities to be provided on-site, such as retail uses (including food service), sidewalks, and bicycle routes, will support the concept of sustainable development and help reduce the vehicle miles traveled by employees and residents. Similarly, the creation of parks and landscaped greenways throughout the site will promote a higher quality of life for PacifiCenter residents, employees, and visitors, in addition to enhancing the area's urban form.

Also in support of RCPG policies, the project's Design Features combined with the existing site conditions and proposed mitigation measures will serve to minimize adverse environmental impacts to the extent feasible. Based on these characteristics, the PacifiCenter project will be consistent with the SCAG RCPG. Table 27 on pages 476 through 480 provides a more detailed analysis of the project's consistency with specific RCPG policies.[230] Also refer to Table 41 on page 564 in Section V.J.1, Employment, as well as Section V.J.2, Housing, for additional discussion of the project's consistency with RCPG policies, particularly those pertaining to employment, population, and housing issues. As discussed therein, the relevant project analyses are based on growth projections contained in SCAG's RCPG, and since the project falls well within SCAG's

[230] *Upon review of the Notice of Preparation (NOP) prepared for the PacifiCenter project, SCAG submitted written comments dated December 10, 2002 (included in Appendix A of this). In the NOP comment letter, SCAG identified the RCPG policies it considers particularly relevant to the PacifiCenter project.*

Table 27

ANALYSIS OF PROJECT CONSISTENCY WITH SCAG RCPG POLICIES [a]

Relevant Policy [b]	Analysis of Project Consistency
Growth Management Chapter	
3.03 The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.	The proposed project will be developed incrementally over an approximate 15-year period. Project implementation will include connections and improvements to the local utilities systems. In addition, both on- and off-site improvements to the existing transportation infrastructure will facilitate access in and around the site. The proposed project will include on-site public facilities; security and fire prevention measures will be incorporated into the project design. Furthermore, on-site amenities, such as active and passive recreation opportunities, retail, and restaurants will be provided for employees and residents. As discussed in Section V.J, Employment, Housing, and Population, the project is consistent with regional growth projections.
3.05 Encourage patterns of urban development and land use which reduce costs on infrastructure construction and make better use of existing facilities.	The PacifiCenter project will provide for the redevelopment of an existing aircraft production facility. The proposed development will include a mix of complementary uses, including research and development, light industrial, office, retail, hotel, and residential uses. Project design will connect new on-site infrastructure to the existing infrastructure; however, some improvements (both on- and off-site) will be required in order to accommodate the increased intensity of development.
3.09 Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.	Residential infrastructure improvements associated with the PacifiCenter project will be implemented based on demand and geographic location to minimize the time, amount, and costs of construction. Commercial infrastructure will be phased based on residential development. The project will maintain and expand property, retail, and other City tax revenues that may be used to support local infrastructure improvements.
3.10 Support local jurisdictions' actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.	The project includes a Master Plan and Design Guidelines, as well as a Development Agreement with the City of Long Beach, that will expedite the development review process, thereby reducing costs and providing for the rapid delivery of a viable and competitive location for technology-based businesses and their employees. The PacifiCenter project will also help to reverse the trend of decreasing on-site employment associated with the aerospace industry by attracting an extensive and diversified employment base.

Table 27 (Continued)

ANALYSIS OF PROJECT CONSISTENCY WITH SCAG RCPG POLICIES

Relevant Policy [D]		Analysis of Project Consistency
3.12	Encourage existing or proposed local jurisdictions' programs aimed at designing land uses which encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and vehicle miles traveled, and create opportunities for residents to walk and bike.	The PacifiCenter project will be developed as a master-planned community with a variety of employment, residential, and recreational opportunities. As a result of the mix of on-site uses and the pedestrian-oriented design, the proposed project will minimize off-site vehicle trips. Project design will also encourage pedestrian and bicycle circulation throughout the site by creating smaller, walkable blocks, developing a mix of commercial and residential uses within the project site, and by providing sidewalks and bicycle routes, including a bike path that links to a more regional bicycle system through Long Beach.
3.13	Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.	Implementation of the PacifiCenter project will provide for the redevelopment of nearly five million square feet of aviation-related industrial development with a variety of commercial office, light industrial, research and development, retail, hotel, and residential uses. The project is located along two major arterials, Carson Street and Lakewood Boulevard, which provide access to local and regional bus service. In addition, the PacifiCenter site is adjacent to the Long Beach Municipal Airport and within close proximity of several freeways, including the I-405, I-710, I-605 and SR-91. Consequently, the project will be able to utilize existing infrastructure, public transportation, and commercial aviation services.
3.14	Support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems, and activity centers.	The proposed project will be developed as a major activity center, providing for the replacement of the existing research and development, manufacturing, and office uses with new research and development, light industrial, office, retail, hotel, and residential development. Project implementation will result in a maximum of approximately 3.3 million square feet of new non-residential floor area, up to 400 hotel rooms, and up to 2,500 residential units. As described above under Policy 3.13, the project site is adequately served by existing public transportation systems and facilities.
3.15	Support local jurisdictions' strategies to establish mixed-use clusters and other transit-oriented developments around transit stations and along transit corridors.	The project will create a mixed use environment including office, research and development, light industrial, retail, hotel, and residential development. The proposed project will concentrate the construction of new single family and multi-family residences along two major transportation corridors (Carson Street and Lakewood Boulevard), adjacent to commercial aviation services (Long Beach Airport), and within close proximity to several local freeways.

Table 27 (Continued)

ANALYSIS OF PROJECT CONSISTENCY WITH SCAG RCPG POLICIES

Relevant Policy [D]		Analysis of Project Consistency
3.16	Encourage development in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment.	The proposed project entails the revitalization and redevelopment of an older, underutilized aircraft production facility. The PacifiCenter project will be developed as a regional employment and residential center and, as indicated above, is served by existing utilities, infrastructure, and public services.
3.18	Encourage planned development in locations least likely to cause environmental impact.	The PacifiCenter project will result in the redevelopment of an existing aircraft production facility that is located in an urbanized area. The project site currently includes manufacturing, office, research and development, and other aviation-related structures and operations. The PacifiCenter project will include a mixture of complementary land uses and a variety of on-site amenities. Project implementation will also result in an increase in open space and landscaping and the replacement of underutilized and/or deteriorating industrial structures with a contemporary urban design with unique commercial office, hotel, retail, research and development, light industrial, and residential development.
3.22	Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.	The project site does not include any steep slopes, high fire risks, or flood hazards. In addition, as discussed in Section V.D, Geology and Soils, the project will meet applicable seismic safety standards to reduce seismic risks to acceptable levels.
3.23	Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.	As discussed in Section V.I, Noise, mitigation measures are recommended to minimize project-generated noise levels at both on- and off-site sensitive receptors. The proposed project will result in the redevelopment of an existing industrial facility, which does not include any biological and/or ecological resources. Project implementation will, however, provide for an increase in pervious surfaces, landscaping, and open space. Please also see the discussion under Policy 3.22 regarding seismic hazards.
3.24	Encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.	The project will provide up to 2,500 housing units on the project site, which will increase the supply and quality of housing in the City of Long Beach. In addition, the Applicant will coordinate with the City of Long Beach to establish a fee to be paid in lieu of the provision of affordable housing on-site. This fee will be included in the Development Agreement to be approved for the proposed project.

Table 27 (Continued)

ANALYSIS OF PROJECT CONSISTENCY WITH SCAG RCPG POLICIES

Relevant Policy [D]		Analysis of Project Consistency
3.27	Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.	The project will be developed as a master-planned community with a variety of employment, residential, and recreational opportunities. The mix of uses and amenities to be provided on-site, such as retail uses, sidewalks and bicycle routes will support the concept of sustainable development and help reduce the vehicle miles traveled by employees and residents. As a result of its location in an urbanized area with several transit options, on-site residents will have easy access to services, including public education, health care, and social services. In addition, the project will provide 10.5 acres of open space on-site, providing for the recreational needs of the on-site population. Furthermore, the project will comply with the requirements set forth by the Long Beach Police Department and the Los Angeles County Sheriffs Department, as well as the Long Beach Fire Department and the Los Angeles County Fire Department.
Air Quality Chapter		
5.07	Determine specific programs and associated actions needed (e.g., indirect source rules, enhanced use of telecom-munications, provision of community-based shuttle services, provision of demand management based programs, or VMT/emission fees) so that options to command and control regulations can be assessed.	As discussed under Policy 3.12, the project will be designed so as to minimize both off-site and internal vehicle trips through a mixture of complementary land uses and by providing on-site amenities and pedestrian and biking opportunities. Other TDM measures are also proposed through a TDM Program as discussed in Section V.L, Transportation/Circulation and Parking. Roadway modification proposed by the PacifiCenter project will support alternative/public transportation and will complement transportation improvements currently underway or planned by the Cities of Long Beach and Lakewood.
5.11	Through its environmental document review process, SCAG should help ensure that plans at all levels of govern-ment (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.	This policy pertains to the activities of SCAG, which are beyond the focus of individual development projects. However, Section V.B, Air Quality, and V.L, Transportation /Circulation and Parking, and this Section V.H, Land Use, include analyses of project consistency with applicable local, county, regional, air basin, and state policies. Many of these plans and policies support a multi-disciplinary approach that incorporates air quality, land use, transportation, and economic relationships (e.g., MTA's CMP, SCAG's RTP, and SCAQMD's AQMP). As part of the project's analyses, mitigation measures are recommended to minimize the potential impacts and/or conflicts.

Table 27 (Continued)

ANALYSIS OF PROJECT CONSISTENCY WITH SCAG RCPG POLICIES

Relevant Policy [b]	Analysis of Project Consistency
Water Quality Chapter	
11.07 Encourage water reclamation throughout the region where it is cost-effective, feasible and appropriate to reduce reliance on imported water and waste-water discharges. Current administrative impediments to increased use of wastewater should be addressed.	This policy primarily addresses the activities of local jurisdictions and/or regional entities rather than those of the proposed project. Nevertheless, reclaimed water will be used, as available and appropriate, at the PacifiCenter site. Furthermore, project design will emphasize the efficient use of domestic, industrial, and irrigation water.

[a] *Also refer to Table 40 on page 413 in Section V.J.1, Employment, and Table 70 on page 547 in Section V.L, Transportation/Circulation and Parking, for additional discussion of the project's consistency with RCPG policies.*

[b] *Relevant policies have been excerpted directly from SCAG's Regional Comprehensive Plan and Guide. However, the policy numbers listed correspond with those provided in SCAG's NOP comment letter dated December 10, 2002, which is included in Appendix A of this EIR.*

Source: PCR Services Corporation, December 2003.

projections for new development within the Southeastern Los Angeles County (SELAC) subregion, the PacifiCenter project will be consistent with the RCPG.

(6) Consistency with the South Coast Air Quality Management District Air Quality Management Plan

As discussed in detail in Section V.B, Air Quality, since the PacifiCenter project site is located within the South Coast Air Basin (Basin), the proposed project is also subject to policies set forth by the South Coast Air Quality Management District. The SCAQMD, in conjunction with SCAG, is responsible for establishing and implementing air pollution control programs throughout the Basin. The SCAQMD's Air Quality Management Plan (AQMP), approved in 1997 and amended in 1999, details a strategy for attainment of air quality planning goals set forth in the federal Clean Air Act and the California Clean Air Act. Specifically, the AQMP proposes a comprehensive list of pollution control measures aimed at reducing emissions and achieving ambient air quality standards. The AQMP also sets forth an implementation schedule for such measures. An analysis of the proposed project relative to SCAQMD policies and requirements is contained in Section V.B, Air Quality, and includes an evaluation of project emissions relative to state

and federal ambient air quality standards. As discussed therein, the project will be consistent with the AQMP.

e. Analysis of Project Impacts Relative to Land Use Compatibility

As discussed above, the project site was previously occupied by more than five million square feet of office, manufacturing, assembly, research and development (R&D), warehouse, and mechanical space. However, in recent years the occupancy of the site has dropped dramatically as a result of the decline in the aerospace industry. The proposed project will replace the previous aviation-related uses and associated employment with a Master-Planned community including new R&D, light industrial, office, retail, hotel, residential, aviation-related, and ancillary uses. The following provides an analysis of compatibility of these new uses with surrounding uses as well as internal compatibility of uses within the site.

A primary land use issue is the compatibility of a project with the surrounding area, as well as internal compatibility on-site, as stated in the City of Long Beach Land Use Element LUD No. 7 text and in the discussion of Activity Centers.[231] The PacifiCenter project will be compatible with the surrounding land uses described above.

With regard to residential uses on the project site, the placement of housing along Carson Street will provide an effective transition to the single-family residential neighborhood to the north within the City of Lakewood that is zoned R-1-15000, R-1-7500, and R-1 (the Lakewood Country Club Estates). The placement of primarily residential development along Carson Street on the project site, although in some areas at a greater density than the existing off-site neighborhood, will create a substantive improvement over existing conditions that have existed for decades. Although the adjacent neighborhood is within another jurisdiction, the objective stated in the LUD No. 7 text regarding the elimination of potential conflict between widely different building types, heights, and densities, is appropriate to consider. Given the 76-foot width of Carson Street, the proposed 28-foot setback of buildings from the property line and the 12-foot right-of-way for the sidewalk and parkway along Carson Street the transition to a low- to medium-density residential area on the project site will not adversely impact the adjacent single-family residential neighborhood. The residential buildings within the low- to medium-density Housing area will be limited to 45 feet in height, with a reduced height of 35 feet for

[231] *City of Long Beach Land Use Element, 1997, pages 65 and 66 for discussion regarding LUD No. 7 and page 44 for discussion regarding Activity Centers.*

buildings located immediately along Carson Street. The residential buildings in the medium- to high-density Housing area will be a maximum of 75 feet in height except along Carson Street, where heights will be limited to 35 feet. In addition, a block wall and landscaping will continue to be located to the north of Carson Street obscuring views of the existing residences. Further, as discussed in Section III, Project Description, the internal roadways within the project site will not be aligned with Lakewood Drive to the north of the site, thus minimizing the potential for additional vehicles to use Lakewood Drive as an access route to or from the project site. Overall, given the proposed uses, height limitations, and access proposed as part of the project, land use compatibility impacts relative to the existing land uses on the north side of Carson Street will be less than significant. The residences in the Housing area will also be compatible with the adjacent commercial and industrial uses (zones PD-23 and PD-19) to the east across Lakewood Boulevard since the proposed 26-foot setback plus the 14-foot right-of-way along Lakewood Boulevard, as well as the width of the street, will provide a buffer between the uses. In addition, the residential uses within the eastern portion of the Housing area will have increased densities and building heights as compared with the residential uses proposed within the western portion of the Housing Area. As such, the massing of residential uses within the eastern portion of the Housing Area will be more compatible with the larger commercial buildings to the east of Lakewood Boulevard. Additionally, the lower-density residential uses within the western portion of the Housing area will be compatible with the Lakewood Country Club Golf Course immediately west of the project site. Furthermore, the Commercial area will serve as a buffer between the on-site residential uses and the Airport to the south. Thus, potential residential land use compatibility issues relative to the adjacent commercial and industrial uses will not be significant given the proposed setbacks, width of streets, density and massing of buildings and applicable buffers.

The uses allowed in the Commercial land use category within the eastern portion of the site, which include office, R&D, some light industrial, hotel, and retail uses, will be compatible with the adjacent commercial and industrial uses across Lakewood Boulevard given the proposed building heights and density. The Commercial land use area also abuts the Lakewood Country Club golf course to the west, and the uses allowed within the western portion of the site, which include retail, office, light industrial, warehousing/ distribution, and R&D, will be compatible with this open space use in light of the proposed setbacks, maximum building heights, and the building restriction zone which encompasses much of this area. Similarly, the Commercial land uses along the southern portion of the site will be compatible with the adjacent Airport land use based on the uses, building height limitations, and densities proposed within this area of the site, as well as the building restriction zones.

The 66-kV substation, which will have a maximum footprint of approximately 305 feet by 230 feet, is proposed within either the Commercial or Housing areas of the site (see Figure 8 on page 124, Section III, Project Description). The structure will be designed with a low-profile (equipment will be approximately 12 feet in height) if located in the residential portion of the project site or fronting A Street in the commercial area. The equipment will be approximately 20 feet in height if located in the commercial area not fronting on A Street. The substation will be compatible with surrounding uses in either area since an 8-foot perimeter masonry screen wall will be constructed at the building setback line and landscaping will be installed between the right-of-way and the wall.

As summarized above and discussed in detail in Section V.E, Hazards and Hazardous Materials, the proposed uses and building locations will comply with FAR Part 77 restrictions, the Airport Layout Plan, and ALUP policies. In addition, based on consideration of the Caltrans Handbook and implementation of the proposed mitigation measures, the risk exposure of the proposed project to aircraft operations will not cause a safety hazard for people residing or working in the PacifiCenter project area. As discussed in Section V.I, Noise, while the residents of the project may be exposed to airport-related Single Event Level (SEL) noise levels that may be a source of annoyance, all of the residential uses will be well outside the 65 dBA CNEL contour for the airport, which is the regulatory basis for determining compatibility of residential uses with airport-related noise levels. Therefore, the proposed uses will be compatible with the adjacent Long Beach Airport.

In addition, as discussed in Section V.E., Hazards and Hazardous Materials, there are instances when the owner of a public airport may permit access to the public landing area by independent operators offering an aeronautical activity or by aircraft based on land adjacent to, but not a part of, the airport property. This type of arrangement is commonly called a “through-the-fence” operation. Through-the-fence operations include businesses or individuals that have access to the airport infrastructure from outside airport property, or that utilize airport property to conduct a business but do not rent business space at the airport. More common types of through-the-fence agreements are for freelance flight instruction, aircraft maintenance, and aircraft hangars. Such through-the-fence agreements between an airport proprietor and a through-the fence operator are typically reviewed and approved by the Airport with Airport consultation with the FAA. Aviation related uses could occur in the southern portion of the site adjacent to the Airport. A mitigation measure is provided in Section V.E., Hazards and Hazardous Materials, that requires that prior to execution of a “through-the-fence” agreement for a proposed aviation-related use, the proposal will be submitted to the Airport for review and approval and the

Airport will consult with the FAA. In this way, the proposed aviation related uses will be compatible with the adjacent Airport.

Overall, the project will be compatible with surrounding land uses and will not create an incompatible interface between the surrounding area and the physical and/or operational characteristics of the proposed uses.

The LUD No. 7 text also stresses the need for internal compatibility within a mixed-use development. The project is designed to provide transition and buffers between the proposed uses on the project site. Residential uses will be buffered from non-residential uses on-site since the Commercial and Housing areas are physically separated by A Street, which will be a primary street within the project site. West of 1st Street, A Street will include 18-foot setbacks from the property line; east of 1st Street, A Street will include 2-foot setbacks from the property line for street oriented retail uses within the retail overlay zone, which will also function as a buffer between residential uses to the north and commercial uses to the south. Warehouse uses will be limited to accessory uses within the PCC-1 and PCC-2 areas. In addition, landscaping, setbacks, and building orientation will provide an additional buffer between the Commercial and Housing areas. As discussed in Section V.I, Noise, development of residential uses in close proximity to the Boeing Enclave will be prohibited until such time that aircraft run-up activities permanently cease in the 717 run-up area. The Boeing Enclave will include visual screening and landscaping along its northern and eastern perimeters. In addition, if located in the residential portion of the project site, the future electrical substation will be a low profile structure with underground feed lines, a perimeter screen wall, and associated perimeter landscaping (refer to Section V.A, Aesthetics, for further discussion of the substation). As discussed in Section V.I, Noise, the substation will not introduce noise levels that will have a significant impact on residential or commercial uses. Based on the above, the project will not result in land uses that are internally or externally incompatible.

3. CUMULATIVE IMPACTS

The geographic area for the cumulative analysis of land use includes the Cities of Long Beach, Lakewood, and Signal Hill because of the size of the proposed project and its location relative to jurisdictional boundaries. Four of the related projects are within close proximity to the site. Included in these are the activities associated with Cleanup and Abatement Order 95-048 (Related Project No. 44), the on-site mandatory soil and groundwater remediation program) as well as the associated demolition of on-site buildings. To the south of the project site, improvements to the Airport (Related Project

No. 77) are proposed and involve 43,000 square feet of building improvements, and a 4,000 space parking garage. By 2020, the Airport is expected to provide for 3.8 million annual passengers. In addition, two retail projects (Related Project Nos. 6 and 12) are proposed to the west of the site within the City of Lakewood.

The local and regional land use plans discussed above recognize the need for redevelopment of many of the older industrial and commercial areas within the Cities of Long Beach and Lakewood. The plans also recognize the need for circulation and infrastructure improvements to accommodate projected growth. Like the proposed project, the cumulative projects are expected to be developed in accordance with relevant land use plans and regulations. Based on available information regarding cumulative development, it is reasonable to assume that these projects will implement and support applicable planning goals and policies.

The activities associated with the on-site remediation program will not result in cumulative land use compatibility impacts as the more visible remediation activities and much of the associated demolition will be completed prior to development of the proposed on-site uses. As discussed in Section V.E, Hazards and Hazardous Materials, the PacifiCenter project's Risk Management Plan (RMP) will ensure the long-term health and safety of the site's future residents and employees and will be designed to complement the ongoing remediation program. Furthermore, in order to develop areas of the project site, remediation activities must be completed to the satisfaction of the oversight agency. While some on-site demolition can occur subsequent to construction of proposed uses in various areas of the project site, such demolition will be short-term in nature and will not result in significant cumulative land use compatibility impacts.

With regard to the Airport improvements, such improvements will not result in a change in the land use pattern of the area, will not alter the urban character of the area, and will not change the nature of existing uses or activities on that property. In addition, the proposed commercial uses within the southern portion of the project site will create a buffer between the on-site residential uses and the Airport activities to the south of the project site. The retail projects to the west of the project also will not alter the urban character or land use pattern of the area, and will be buffered from the proposed on-site residential uses by the Lakewood Country Club golf course. Furthermore, each of the related projects involving some form of discretionary action by the applicable local agency will be subject to the project and permit approval process and will incorporate any mitigation measures necessary to reduce potential land use impacts. Therefore, the project in conjunction with the related projects will not result in a cumulative land use impact. (Refer to Sections V.B, Air Quality; V.C, Cultural Resources; V.I, Noise; and V.E, Hazards and Hazardous Materials, for a discussion of potential cumulative air quality,

historic resources, noise, and hazards impacts, respectively, resulting from implementation of the proposed project together with the related projects.)

4. MITIGATION MEASURES

Based on the analysis provided above and to ensure that land use impacts are reduced to a level of less than significant, the following mitigation measures are recommended relative to land use:

V.H-1 Uses within the project site shall be limited to those set forth by the Planned Development-32 District for the City of Long Beach portion of the site and by the M-2 Zone for the City of Lakewood portion of the site.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits/issuance of business licenses

V.H –2 Warehouse uses shall not abut residential uses and shall be limited to the PCC-1 and PCC-2 Commercial Use area as an accessory use within the City of Long Beach. Such uses shall be dependent upon the principal use for the majority of its use or activity.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits/issuance of business license

V.H-3 Amendments to the City of Long Beach Land Use Element and map as well as the zoning for the site shall be approved prior to project approval.

Monitoring Phase: Prior to project approval

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Minutes from City Council meeting approving amendments to Land Use Element and map

The following mitigation measures listed in Section V.A, Aesthetics are also proposed to mitigate potential land use impacts**:**

V.A-1 Minimum setbacks measured from the property line to the building face shall be provided in substantial conformance with Figure 19 of this EIR. The setbacks along the periphery include:

- A 28-foot setback from the property line along Carson Street (excluding the 12-foot right-of-way).
- A 26-foot setback from the property line along Lakewood Boulevard (excluding the 14-foot right-of-way).
- A 20-foot setback from the property line adjacent to the Lakewood Country Club.
- A minimum 20-foot setback along the limited portions of the Airport edge on the southern and southwestern boundaries of the project site that are not part of the Long Beach Airport Layout Plan Building Restriction Zone. The no-build zone, which is greater than 20 feet in width, extends along most of the southern portion of the project site.

Setbacks have also been established for several of the internal streets, as follows:

- A 2-foot setback from the property line (excluding the 10-foot right-of-way) along A Street between Lakewood Boulevard and 1st Street for street-oriented retail uses.

- A 10-foot setback from the property line (excluding the 11-foot right-of-way) along 1st Street.

- An 18-foot setback from the property line (excluding the 11-foot right-of-way) along other internal collector roadways, including 2nd and 3rd Streets, except for those street segments that abut Building Restriction Zones, where adjacent development is not permitted. [232, 233]

- These proposed setbacks shall be set forth by the Planned Development-32 District for the City of Long Beach portion of the site. (For those internal streets that may be constructed within the project site but are not depicted in Figure 19 of this EIR, setbacks may vary and may be less than the setbacks indicated in Figure 19 of this EIR.)

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits/certificate of occupancy

V.A-2 Maximum building heights shall be defined in the PD-32 ordinance in conformance with Figure 14, Height Zones, in Section III, Project Description, of this EIR. The proposed maximum building heights shall be measured from curb elevation to the top of a parapet or midpoint of a pitched roof within the City of Long Beach. Project buildings located within the City of Lakewood shall be limited to four stories and 55 feet, measured from finished grade to the ceiling of the uppermost story.

Monitoring Phase: Pre-Construction/Construction

[232] *Additional internal streets may be constructed within the project site. Setbacks along these streets will vary and may be less than 30 feet, in accordance with the Design Guidelines to be implemented as part of the project.*

[233] *If A Street in the western portion of the site is located adjacent to the Golf Course, the minimum building setback will be 5 feet from the property line (excluding the 11 foot right of way).*

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-3 Design Guidelines shall be developed for the PacifiCenter project and shall establish standards regarding building and roof design, landscape amenities, streetscaping and pedestrian improvements, including sidewalks and bike lanes, and signage and exterior lighting.

Monitoring Phase: Pre-Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-4 New utility lines for water, gas, sewer, electricity, and communications associated with the project shall be installed underground, to the extent feasible. Underground utility installation shall not interfere with the ongoing remediation program and shall comply with the Risk Management Plan (RMP) designed to assure the long-term protection of health and safety of future residents and employees at the project site. Service areas, including loading docks, refuse collection areas and storage areas shall be visually screened from the street and adjacent parcels to the extent feasible.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-5 All night lighting installed on private property within the project site shall be shielded, directed away from residential uses, and confined to the project site. Rooftop lighting shall be limited to security lighting or aviation warning lights in accordance with Airport/FAA requirements.

Monitoring Phase: Pre-Construction /Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-8 The electrical substation, if located in the residential portion of the project site or fronting A Street in the commercial area, shall be a low profile structure (equipment will be approximately 12 feet in height) whereas if the substation is located in the commercial area not fronting on A Street the equipment may be approximately 20 feet in height.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-9 The electrical substation to be constructed on-site shall include an 8-foot masonry wall located at the building setback line. The area between the right-of-way and the setback shall be landscaped with groundcover, shrubs and trees.

Monitoring Phase: Pre-Construction /Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-10 Landscaping shall be installed on the eastern side of the Enclave fence from the north end of Building 15 to the southern property line upon installation of Phase I commercial infrastructure. Landscaping shall be installed on the northern side of the fence surrounding the Enclave or along the proposed street to the north of the Enclave upon development of the residential units in the northwestern portion of the site as shown in Figure 25 of this EIR.

Monitoring Phase: Pre-Construction /Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

V.A-11 All parking structure lighting shall be shielded and directed away from residential uses. Such lighting shall be primarily located and directed so as to provide adequate security. Rooftop lighting shall be limited to security lighting and aircraft warning lights as may be required by FAA.

Monitoring Phase: Pre-Construction /Construction

Enforcement Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department or City of Lakewood Community Development Department

Action Indicating Compliance: Site plan review/issuance of building permits

The following mitigation measures listed in Section V.I, Noise are also proposed to mitigate potential land use impacts:

V.I-14 The residential developer shall provide insulation for all residential buildings on the project site to reduce interior noise levels below 45 dBA CNEL with doors and windows closed. In addition, any residential development within the delineated residential area (i.e., hatched area) provided in Figure 54 of this EIR shall require a minimum outside-to-inside noise insulation of 30 dBA and shall appoint an acoustical consultant to confirm that the proposed residential buildings will achieve this design standard before submitting an application for a building permit.[234]

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Issuance of building permits and certificate of occupancy

V.I-17 Development of residential uses in close proximity to the Boeing Enclave shall be prohibited until such time that run-up activities permanently cease in the 717 run-up area. The delineation of this area is provided in Figure 54 of this EIR.

Monitoring Phase: Pre-Construction /Construction

Enforcement Agency: City of Long Beach Planning and Building Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Site plan review/issuance of building permits

[234] *The California Land Use Handbook documents that this level of sound insulation may include the following: (1) air-conditioning/mechanical ventilation such that the units would not have to rely on open windows for ventilation; (2) ½-inch thick glazing, or a dual insulating glazed system comprised of $^{3}/_{8}$-inch thick laminated glass/½-inch air space/¼-inch glass (or acoustical equivalent); (3) doors and windows opening to the exterior with acoustical seals; (4) adding insulation to attics; and/or (5) fitting chimneys and vents with dampers and/or acoustic louvers.*

5. SIGNIFICANCE AFTER MITIGATION

Significant and unavoidable impacts relative to project consistency with applicable land use regulations and land use compatibility will not occur with the incorporation of the project features and mitigation measures listed above.

V. ENVIRONMENTAL IMPACT ANALYSIS
I. NOISE

This section is based on the Noise Assessment Technical Report prepared by PCR Services Corporation regarding the proposed project, which is provided in Appendix P of this EIR.

1. ENVIRONMENTAL SETTING

a. Noise and Vibration Basics

(1) Noise

Sound is mechanical energy transmitted by pressure waves in a compressible medium, such as air. Noise is generally defined as unwanted or excessive sound. Increasingly recognized as an environmental pollutant with the potential to cause physiological or psychological damage, noise can interfere with communication, work, rest, recreation and sleep.

Sound can vary substantially within the human range of hearing. Therefore, noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). To better approximate the range of sensitivity of the human ear to various frequencies, the A-weighted decibel scale (dBA) was developed. This scale de-emphasizes low frequencies to which human hearing is less sensitive and focuses on mid-range frequencies. A doubling of sound energy results in a 3 dBA increase in noise levels. However, the human ear does not typically notice changes in a community noise level of less than 3 dBA.[235] Some individuals who are extremely sensitive to changes in noise may notice changes from 3 to 5 dBA. A 5 dBA increase is readily noticeable, while the human ear perceives a 10 dBA increase in sound level to be a doubling of sound. A change in noise levels will usually not be detectable unless the new noise source is at least as loud as the ambient conditions.

[235] *Federal Highway Administration,* Highway Noise Fundamentals, September 1980.

Although the A-weighted scale accounts for the range of people's response, and therefore, is commonly used to quantify individual event or general community sound levels, the degree of annoyance or other response effects also depends on several other perceptibility factors. These factors include:

- Ambient (background) sound level;
- Magnitude of sound event with respect to the background noise level;
- Duration of the sound event;
- Number of event occurrences and their repetitiveness; and
- Time of day that the event occurs.

Sound levels decrease (or attenuate) exponentially as the distance from the noise source increases. For a single "point" source, such as a piece of mechanical equipment, the sound level normally attenuates by about 6 dBA for each doubling of the distance. In comparison, sound generated by "linear" sources, such as vehicles traveling along a busy street, attenuates by about 3 dBA for each doubling of the distance. This attenuation rate is based upon "hard" reflective surfaces (e.g., pavement and concrete) and increases to 4.5 dBA for each doubling of the distance for "soft" surfaces (e.g., vegetative cover).

Objects that obstruct the line-of-sight between a noise source and a receptor attenuate the source strength if the receptor is located within the "shadow" of the obstruction, such as behind a sound wall. This type of sound attenuation is known as "barrier insertion loss." If a receptor is located behind the wall but still has a view of the source (i.e., line-of-sight not fully penetrated), some barrier insertion loss will still occur, however to a much lesser extent. Additionally, a receptor located on the same side of the wall as a noise source may actually experience an increase in the perceived noise level as the wall reflects noise back to the receptor, thereby compounding the noise.

Various noise indices have been developed to express the way in which noise levels are experienced by sensitive receptors. The most commonly used index is the equivalent sound level (L_{eq}), which is the average sound exposure over a specified period of time. Examples of other noise metrics based on given periods of time include L_{max} (the maximum noise level), L_{min} (the minimum noise level), and L_{xx} (the noise level exceeded XX percent of the time).

Noise metrics can be categorized as single event metrics and cumulative metrics. Single event metrics describe the noise from individual events, such as an individual

aircraft flyover. Cumulative metrics describe the noise in terms of total noise exposure throughout an extended period of time, such as a full day.

A Single Event Noise Exposure Level (SENEL) is a single event metric reported for aircraft takeoffs and landings. This metric is essentially equivalent to the Sound Exposure Level (SEL) metric and accounts for the maximum noise level of the event and the duration of the event. The relationship between SENEL and the L_{max} is not constant, however. For most aircraft noise events, SENEL is about 5 to 10 dB higher than L_{max}. The SENEL value is the integration of all the acoustic energy contained within the event. Previous studies have addressed the effects of SENEL on speech and sleep. The Federal Interagency Committee on Aviation Noise (FICAN) in 1997 recommended use of a particular dose-response curve that can be used to estimate "the maximum percent of the exposed population expected to be behaviorally awakened" from the SENEL. This is referred to as the FICAN 1997 curve. This curve has been used to estimate population percentage awakenings for various interior SENEL levels. As an example, an interior noise level of 65 SENEL corresponds to a five percent probability of awakening.[236]

Several methods have been devised to relate noise exposure over time to community response. A commonly used noise metric for this type of study is the Community Noise Equivalent Level (CNEL). The CNEL, originally developed for use in the California Airport Noise Regulation, adds a 5 dBA penalty to noise occurring during evening hours from 7:00 P.M. to 10:00 P.M., and a 10 dBA penalty to sounds occurring between the hours of 10:00 P.M. to 7:00 A.M. to account for the increased sensitivity to noise events that occur during the quiet late evening and nighttime periods. Thus, the CNEL noise metric provides a 24-hour average of A-weighted noise levels at a particular location, with an evening and a nighttime adjustment, which reflects increased sensitivity to noise during these times of the day.

(2) Ground-borne Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the

[236] *FICAN, Annual Report Federal Interagency Committee on Aviation Noise, 1997.*

source of the vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source.

Both construction and operation of development projects can generate ground-borne vibration. In general, demolition of structures preceding construction generates the highest vibrations. Construction equipment such as vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible vibration during construction activities. Heavy trucks can also generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions.

b. Regulatory Framework

Many government agencies have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise and ground-borne vibration. The Cities of Long Beach and Lakewood have adopted a number of policies, which are in part, based on federal and state regulations that are directed at controlling or mitigating environmental noise effects. City policies that are relevant for project development and operation are discussed below. A discussion of relevant Federal and State policies, as well as a more detailed discussion of City policies, is provided in the Noise Assessment Technical Report, Section 3.0 (Regulatory Framework and Significance Criteria), which is included as Appendix P to this EIR.

(1) Noise

(a) City of Long Beach

Chapter 8.80 of the Long Beach Municipal Code (LBMC) controls unnecessary, excessive and annoying noise and vibration in the City of Long Beach. However, this chapter does not control noise sources that are preempted by other jurisdictions including in-flight aircraft and motor vehicles operating on public rights-of-way.

As outlined in Section 8.80.150 of the LBMC and presented in Table 28 on page 498, the City of Long Beach has established maximum exterior noise levels based on land use districts. Noise levels in excess of the levels indicated in Table 28 are conditionally permitted, depending on the intensity of the noise and the duration of exposure.[237] As the

[237] *Noise levels may not exceed the exterior noise standard for a cumulative period of more than thirty minutes in any hour; or plus five decibels for a combined period of more than fifteen minutes in any hour; or plus ten decibels for a combined period of more than five minutes in any hour; or plus fifteen decibels for a combined period of more than one minute in any hour; or plus twenty decibels for any period of time (maximum noise level).*

Table 28

EXTERIOR NOISE LIMITS

Land Use District	Land Uses within District	Maximum Noise Levels (dBA) L_{eq}		
		Daytime [a]	Nighttime [b]	Anytime
One	Predominately residential	50	45	—
Two	Predominately commercial	60	55	—
Three	Predominately industrial	—	—	65 [c]
Four	Predominately industrial	—	—	70 [c]
Five	Airports, freeways, and waterways	Regulated by other agencies and laws		

[a] *7:00 A.M. to 10 P.M.*
[b] *10:00 P.M. to 7 A.M.*
[c] *Districts Three and Four limits are intended primarily for use at their boundaries rather than for noise control within those districts.*

Source: LBMC, Section 8.80.150.

project site is located in Land Use District 4, the Noise District Map in Section 8.80 of the LBMC will need to be updated to reflect land uses designated as part of the project. Please see Section V.H., Land Use and Planning, for a detailed discussion of the proposed updates to the LBMC and Noise Element that will be required as part of the project. As outlined in Section 8.80.170 of the LBMC and presented in Table 29 on page 499, the City of Long Beach has also established maximum interior noise levels based on land use districts.[238] If the existing interior or exterior ambient noise level exceeds that permissible within the noise limit categories, the allowable noise exposure standard is increased to ambient conditions (Section 8.80.150 and 8.80.170 of the LBMC). In addition, these exterior and interior noise limits are adjusted depending on the duration of exposure (e.g., the standard plus ten decibels for a cumulative period of more than five minutes in any hour). Section 8.80.240 of the LBMC (vehicle, motorboat or aircraft repair and testing) provides an exemption to the exterior and interior noise limits (Section 8.80.150 and 8.80.170 of the LBMC) for aircraft within the airport property or within any other aviation-related property abutting it.

For projects requiring a building or other related permit, construction noise within the City of Long Beach is regulated by Section 8.80.202 of the LBMC. During the week (including weekday Federal holidays), construction activities are generally limited to between the hours of 7 A.M. and 7 P.M. On the weekend, construction activities are limited

[238] *Noise levels may not exceed the interior noise standard for a cumulative period of more than five minutes in any hour; or plus five decibels for a combined period of more than one minute in any hour; or plus ten decibels for any period of time (maximum noise level).*

Table 29

INTERIOR NOISE LIMITS

Land Use District	Land Uses within District	Maximum Noise Levels (dBA) L_{eq}		
		Daytime [a]	Nighttime [b]	Anytime
All	Residential	45	35	—
All	School	45	—	—
All	Hospital, designated quiet zone	—	—	40

[a] *7:00 A.M. to 10 P.M.*
[b] *10:00 P.M. to 7 A.M.*

Source: LBMC, Section 8.80.170.

to between the hours of 9 A.M. and 6 P.M. on Saturdays and are prohibited on Sundays, unless a Sunday Work Permit is authorized. Section 8.80 of the LBMC requires a Noise Variance for all construction activity that falls outside the approved construction hours. The LBMC does not provide specific standards for noise levels associated with construction activities. Although there is no upper threshold for construction noise, the LBMC Section 8.80 does give the Noise Control Officer authority to address extremely loud or unusual noises (e.g., employee use of radios or other noises not associated with the construction activity).[239]

The City began efforts to control airport-related noise through adoption of an ordinance more than 20 years ago. These efforts were groundbreaking and precedent setting—and they were continuously challenged in the courts. It took more than a dozen years to strike a balance between air commerce and community noise exposure. The resulting Airport Noise Compatibility Ordinance (LBMC Chapter 16.43), passed in 1995, gives Long Beach one of the strictest noise-controlled airports in the United States. LBMC Chapter 16.43 controls the maximum SENEL (Single Event Noise Exposure Limits) limits, prohibited activities, cumulative noise limits (CNEL, or Community Noise Equivalent Level) and noise budgets, compliance with noise budgets, violation enforcement, general exemptions, and flight limits. In addition, the Noise Ordinance regulates certain ground-related activities (e.g., touch-and-go practice and engine run-ups that occur on Airport property).[240] LBMC Chapter 16.43 does not regulate in-flight aircraft or establish

[239] *"Noise Control Officer" means the city official appointed by the city manager to direct the noise control office.*

[240] *To determine compliance with LBMC Chapter 16.43, aircraft approach and departure SENEL noise levels are monitored by a comprehensive noise monitoring system which is made up of 18 noise monitors located throughout the City of Long Beach and within the City of Lakewood. The monitors are concentrated northwest and southeast of the Runway 12/30 as air carrier aircraft use this runway and are the predominant noise source at the Airport.*

acceptable land use noise levels related to SENEL from the Airport. CNEL budget and enforcement limits have been established for five separate user groups (i.e., air carrier, charter, commuter, general aviation, and industrial users) based on the baseline year of 1989-90.[241] CNEL noise contours for the purpose of compliance with LBMC Chapter 16.43 noise budget and enforcement limits are provided in Figure 50 on page 501. As illustrated, the noise contours generally extend from northwest to southeast due to the larger aircraft associated with Runway 12/30. A more detailed discussion of LBMC Chapter 16.43, including SENEL limits at specific monitoring stations, is provided in the Noise Assessment Technical Report, Section 3.0 (Regulatory Framework and Significance Criteria), which is included as Appendix P to this EIR.

The Noise Element of the City of Long Beach General Plan includes several general goals that reflect the City's desire to attain a healthier and quieter environment for all of its citizens while maintaining a reasonable level of economic progress and development. These goals regard improvement and preservation of the unique and fine qualities of Long Beach, development of a well balanced community, improvement of the urban environment, development of noise policy guidelines and development of specific neighborhood noise plans. Refer to the Noise Technical Report for a more specific discussion of these and other goals within the Noise Element.

The Noise Element suggests the following acceptable construction noise levels, where an average maximum noise level outside the nearest building at the window of an occupied room closest to the site boundary, should not exceed:

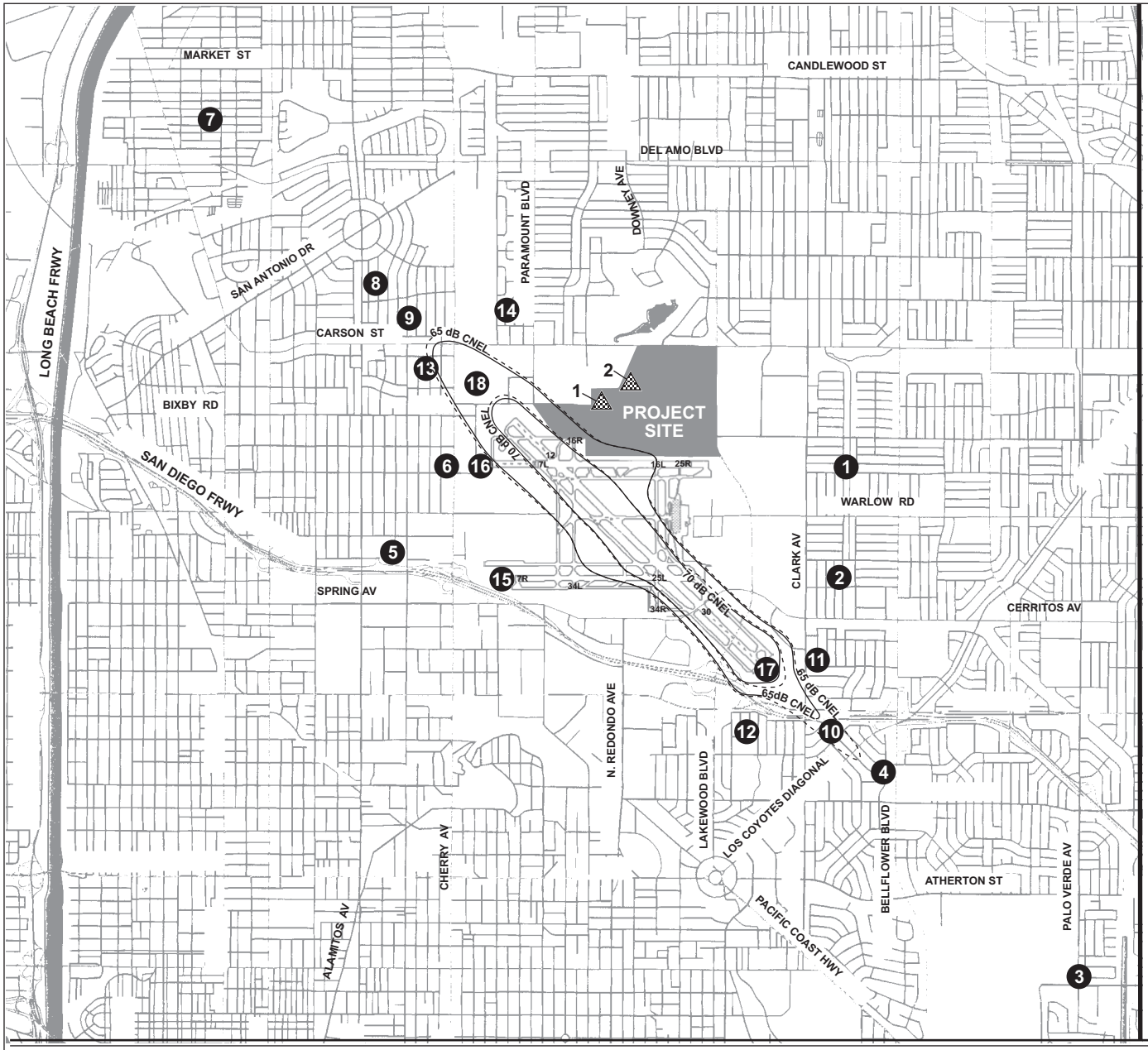
- 70 dBA in areas away from main roads and sources of industrial noise; and
- 75 dBA in areas near main roads and heavy industries.

The Noise Element of the City of Long Beach General Plan also recommends criteria for maximum acceptable outdoor and indoor noise levels based on land use type. The criteria are presented in the Noise Assessment Technical Report. The criteria are for planning purposes only and do not carry any regulatory authority.

(b) City of Lakewood

Noise in residential areas is addressed in Section 9376 of the Lakewood Municipal Code (LMC). In the City of Lakewood no person within any area zoned for residential use or any area adjacent thereto may operate air conditioners, mechanical equipment or

[241] *Baseline noise budgets were established by the actual monitored noise levels of each group during the cumulative 12-month period from November 1, 1989 to October 31, 1990.*



LEGEND

1) Monlaco St. / Charlemagne Av.
2) Pageantry St. / Charlemagne Av.
3) Palo Verde Av. / Anaheim St.
4) Los Altos Park
5) Corner of the Boundary Lines City of Signal Hill / Long Beach North of 405 Fwy
6) North Alley of 36th Street between Gardena Av. / Cherry Av.
7) Elm Av. / Home St.
8) Tehachapi Dr. / Gundry Av.
9) Cartagena St. between Gaviota & Rose Av.
10) Stearnlee Av. between Burnett & Eagle St.
11) Greenbrier Rd. / 28th St.
12) Quincy Av. / Burnett St
13) Ally west of Gardena Av. & South of Marshall Pl.
14) Pixie Av. / Greenmeadow Rd. - City of Lakewood
15) Runway 7R Approach End.
16) Runway 7L Approach End.
17) Runway 30 Approach End.
18) Runway 12 Approach End.

——— Budget Limits

- - - - - - Enforcement Limits with 41 Air Carrier Flights per Day

(#) Airport Noise Monitoring Location

On-Site Monitoring Locations

PCR

N

Source: City of Long Beach Airport Bureau, 2001

Figure 50
65 dB and 70 dB CNEL Contours-Noise Ordinance Budget Limits and Enforcement Limits with 41 Air Carrier Flight Per Day

machinery, which causes the noise level at the residential property line to exceed 65 dB L_{eq}. Section 9347 of the LMC limits commercial noise levels to 60 dBA L_{eq}, as measured at the property line of residentially zoned or occupied property. Similarly, Section 9368 of the LMC limits heavy manufacturing noise to 60 dBA L_{eq}, as measured at the property line of residentially zoned property, or otherwise 70 dBA L_{eq}. No other applicable operational noise standards were identified in the LMC.

Section 8020 of the LMC regulates construction noise within the City of Lakewood. Construction activities are generally limited to between the hours of 7 A.M. and 7 P.M. Monday through Saturday, and 9 A.M. and 7 P.M. on Sundays within 500 feet of a residential zone. However, specific construction noise level standards are not provided within the LMC.

(c) Los Angeles County

State law requires the creation of Airport Land Use Commissions (ALUCs) to coordinate planning efforts for those areas surrounding public use airports. Under the Los Angeles County Department of Regional Planning, the Regional Planning Commission is responsible for acting as the ALUC for airports in Los Angeles County, including the Long Beach Municipal Airport. The Los Angeles County Comprehensive Airport Land Use Plan (ALUP) provides policies related to noise levels and sources associated with airport operations. These policies include:

- N-1: Use the CNEL method for measuring noise impacts near airports in determining suitability for various land use types.
- N-2: Require sound insulation to insure a maximum interior 45 CNEL in new residential, educational, and health-related uses in areas subject to exterior noise levels of 65 CNEL or greater.
- N-3: Utilize the Table Listing Land Use Compatibility for Airport Noise Environments in evaluating projects within the planning boundaries.
- N-4: Encourage local agencies to adopt procedures to ensure that prospective property owners in aircraft noise exposure areas above a current or anticipated 60 CNEL are informed of these noise levels associated with high noise exposure.

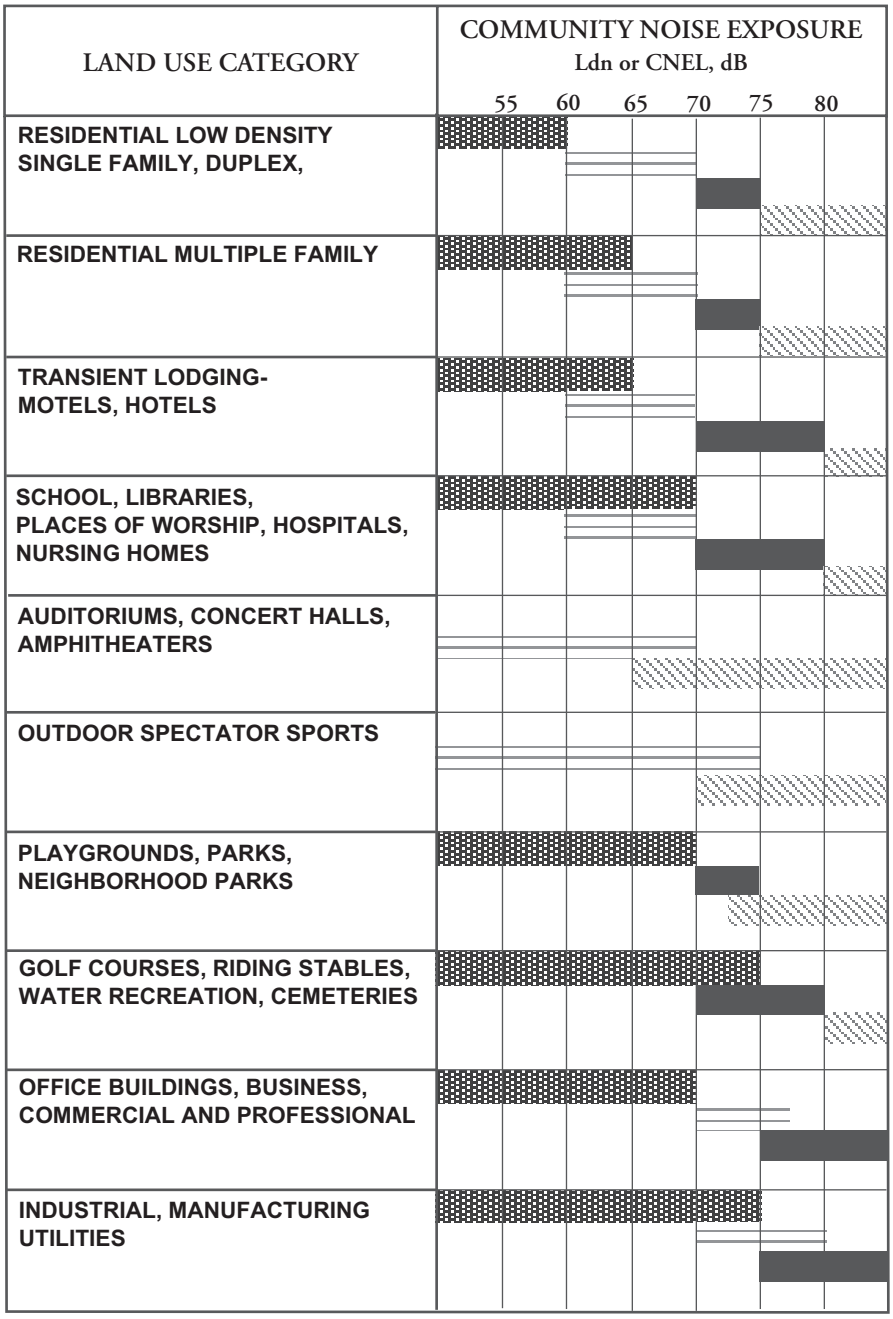
(d) California Department of Transportation, Division of Aeronautics

In 1990 California legislation (AB 4164) directed the California Department of Transportation (Caltrans), Division of Aeronautics, to develop and implement a program to assist in the training and development of airport land use commissions. Caltrans published the Airport Land Use Planning Handbook (Handbook) in 1993, with a revised version published in 2002, to satisfy these requirements. As discussed in Section V.E., Hazards, the Handbook provides recommendations and suggestions for consideration by individual airport land use commissions, counties and cities in developing an airport land use plan. With regard to noise, the Handbook provides discussion on the nature of airport noise, the effects of noise on people, established regulations and policies, noise exposure measurement issues, and determination of acceptable noise levels. The Handbook suggests land use compatibility criteria, stating that residential uses in urban areas should not be located within the 65 CNEL contour.

Title 21 of the California Code of Regulations, Division 2.5 (Caltrans, Division of Aeronautics), requires a minimum standard of exterior sound transmission control for residential buildings that are located within the 65 CNEL contour such that internal noise levels due to external noise sources should not exceed 45 dB (CNEL) for habitable rooms.

(e) California Department of Health Services

The California Department of Health Services establishes noise criteria for various land uses. Figure 51 on page 504 identifies the typically acceptable limits of noise exposure for various land use categories. Figure 51 shows that the noise exposure for a residential land use is “normally acceptable” when the CNEL at exterior residential locations is equal to or below 60 dBA, “conditionally acceptable” when the CNEL is between 60 to 70 dBA, “normally unacceptable” when the CNEL is between 70 to 75 dBA, and “clearly unacceptable” when the CNEL is greater than 75 dBA. For office and industrial land uses a CNEL of 75 dBA is considered “normally acceptable,” while a CNEL level of greater than 75 dBA is considered “normally unacceptable.” In general, CNEL increases of less than 3 dBA are not considered an adverse change in the environment, while an increase of between 3 and 5 dBA is generally considered to be an adverse impact. An increase in CNEL of 5 dBA or more is generally considered a significant impact. These guidelines apply to noise sources such as vehicular traffic.



INTERPRETATION

NORMALLY ACCEPTABLE
Specified land use is satisfactory. Based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

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

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged, If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

Source: Guidelines for the Preparation and Content of the Noise Element of the General Plan, California Department of Health Services, in coordination with the office of Planning and Research.

PCR

Figure 51
Land Use Compatibility for Community Noise

(2) Ground-Borne Vibration

(a) City of Long Beach

The City of Long Beach does not have any adopted policies or standards for construction ground-borne vibration.[242] Policies and standards related to operational ground-borne vibration are provided in Section 8.80.200 of the LBMC, where the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property, or at 150 feet from the source if on a public space or public right-of-way, is a code violation. The Ordinance defines the vibration perception threshold as the minimal ground- or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold is presumed to be 0.001 g's in the frequency range 0-30 hertz and 0.003 g's in the frequency range between 30-100 hertz which is equivalent to a peak velocity in terms of RMS of 0.01 inches per second over the range of 1 to 100 hertz.

(b) City of Lakewood

There are no adopted City of Lakewood policies or standards for ground-borne vibration.

c. Existing Local Noise Conditions

The project site and nearby vicinity are primarily exposed to noise generated by traffic on the surrounding roadways and freeways, noise generated by operations at the Airport including aircraft takeoffs and landings, noise generated by engine testing at Boeing's engine run-up area and noise generated by the separate and ongoing remediation efforts pursuant to the LARWQCB Cleanup and Abatement Order 95-048. Each of these noise sources is discussed in the following sections.

(1) Noise Sensitive Receptors

Some land uses are considered more sensitive to intrusive noise than others, due to the types of activities typically involved at the receptor location. Specifically, residences,

[242] *However, the Federal Transit Authority provides a construction equipment vibration damage threshold criterion of 0.20 inches per second PPV for fragile buildings (U.S.DOT, 1995).*

schools, libraries, religious institutions, hospitals and nursing homes are generally more sensitive to noise than are commercial and industrial land uses. The nearest sensitive residential receptors that may be affected by the proposed project are the single-family residences located along and north of Carson Street. Other potentially sensitive uses in the more distant area include multi-family and single-family residences, schools, libraries, religious institutions, hospitals and nursing homes.

(2) Ambient Noise Levels

(i) Long Beach Airport

The proposed PacifiCenter project is located immediately north of the 1,166-acre Airport which is designated as a non-hub airport (i.e., serving less than 0.05 percent of the total nation-wide enplanements) with 350,603 annual operations (landings and takeoffs) in 2002. The airport serves a large number of private non-commercial aircraft and is one of the nation's busiest airports in terms of general aviation activity, in which 93 percent of the annual operations are general aviation.[243, 244] The remaining seven percent of the operations are as follows: five percent of the operations is by air carrier, two percent is by commuter carrier, and less than one percent is by industrial.[245, 246] In 2002, the airport handled approximately 58,600 tons of air cargo. In addition, between August 2001 and 2003, the number of passengers increased from 600,000 annual passengers to almost 3,000,000 annual passengers. The Airport includes scheduled flights by America West, American, Airborne Express, Federal Express, Horizon, Jet Blue Airways, and United Parcel Service.[247]

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[243] *Long Beach Airport, LGB Monthly Airport Activity Report, December 2002.*

[244] *General aviation is defined as activity other than operation by air carrier, commuter carrier, industrial operations, charter operations, and public aircraft (i.e., private non-commercial aircraft).*

[245] *Long Beach Airport, LGB Monthly Airport Activity Report, December 2002.*

[246] *Air carrier is defined as a scheduled carrier operating aircraft having a certified maximum takeoff weight of 75,000 pounds or more, transporting passengers or cargo. Commuter carrier is defined as a scheduled carrier operating aircraft having a certified maximum takeoff weight of less than 75,000 pounds, transporting passengers or cargo. Industrial operation refers to aircraft over 75,000 pounds for purposes of production, testing, remanufacturing, or delivery by or under the control of a manufacturer based at the Long Beach Airport.*

[247] *Long Beach Airport, LGB Monthly Airport Activity Report, August 2003.*

The Airport has five runways, ranging in total length from 4,267 feet to 10,000 feet.[248] There are two sets of parallel runways aligned in an east-west (7L/25R and 7R/25L) and north-south (16L/34R and 16R/34L) direction forming a rectangle, and an additional 10,000-foot-long runway (Number 12/30) that is aligned in a northwest-southeast direction splitting the two sets of runways. All of the runways are used for general aviation. Runway 12/30 is used for commercial flights as well as general aviation. Runway 7L/25R is used as the back-up runway for commercial flights, but is typically used only during rare circumstances (e.g., during repaving of Runway 12/30). Airport runways are identified in Figure 50 on page 501 as they relate to the project site and runway utilization characteristics are provided in Table 30 on page 508.

The City of Long Beach Airport Bureau monitors aircraft noise levels at several locations around the Airport. Noise from daily operations, including takeoffs and landings, are calculated in terms of CNEL, from which noise contours are developed. This data is updated on a quarterly basis in compliance with Title 21 of the California Code of Regulations. The most recent Long Beach Airport Noise Report demonstrates compliance with the LBMC Chapter 16.43 noise budget, in which the noise contours were within the noise budget contours provided in Figure 50 on page 501.[249] As illustrated, the noise contours generally extend from northwest to southeast due to the larger aircraft associated with runway 12/30. The 70-CNEL contour is generally contained within the Airport boundaries. However, the 65-CNEL contour extends to approximately the intersection of Carson Street and Cherry Street. As shown in Figure 50, the southwestern portion of the project site is within the 65-CNEL contour.

The Airport's noise monitoring system is made up of 18 noise monitors located throughout the City of Long Beach and one within the City of Lakewood. The monitors are concentrated northwest and southeast of the Runway 12/30 as air carrier aircraft use this runway and are the predominant noise source at the Airport. Monitoring Station No. 14 is the most representative station for the Lakewood portion of the project site and is located near Pixie Avenue and Greenmeadow Road within the City of Lakewood (see Figure 50 on page 501). Monitoring data from Station No. 14 for the last consecutive 12-month period ending in the first quarter of 2003 is provided in Table 31 on page 509. As shown in this table, SENEL noise levels average approximately 83 dB for arrival and 91 dB for departures.

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[248] *Measured end to end of pavement. There is a short piece of pavement at the south and north ends of Runway 16/34 that is not counted as pavement or as a stopway probably because of an east-west taxiway at the end.*

[249] *Acoustical Analysis Associates, Incorporated, Analysis of Long Beach Airport Noise Monitoring Data for the First Quarter of 2003, May 19, 2003.*

Table 30

LONG BEACH MUNICIPAL AIRPORT RUNWAY CHARACTERISTICS

Orientation	Runway Number	Aircraft Runway Usage (%)	Length (feet)	Width (feet)	Use
East-West	7R/25L	7R (2.5%) 25L (25.0%)	5,420	150	General Aviation
East-West	7L/25R	7L (2.5%) 25R (25.0%)	6,192	150	General Aviation and airline alternate for Runway 12/30
North-South	16R/34L	16R (7.0%) 34L (0.5%)	4,470	75	General Aviation
North-South	16L/34R	16L (7.0%) 34R (0.5%)	4,267	75	General Aviation
Northwest-Southeast	12/30	12 (6.0%) 30 (24.0%)	10,000	200	General Aviation and Commercial

Source: www.airnav.com/airport/KLGB, 2003 and US Department of Transportation, FAA, personal correspondence, November 24, 2003.

Air carrier operations during the first quarter of 2003 were predominately A-320s and to a lesser extent MD-80s, where A-320s and MD-80s were approximately 69 and 15 percent of the 33.8 average daily flights, respectively. SENEL noise contours illustrated in Figure 52 on page 510 show a hypothetical typical sound exposure level for a single MD-80 and A-320 commercial jet aircraft departure on Runway 30.[250] While the MD-80 and A-320 commercial jet departures are the most common air carrier departure operations, other aircraft will generally produce less noise, while some may on occasion be louder. The SENEL exposure for a typical MD-80 departure ranges from 100 to 75 SENEL from west to east across the proposed project site. The SENEL exposure is reduced substantially for the more predominate A-320 departure and is approximately 90 SENEL along the western boundary of the project site and quickly dissipates below 75 SENEL for most of the project site.

Continuous noise monitoring was conducted at two representative locations on the project site from January 16 through January 19, 2004, to further characterize airport related noise levels north of the Airport (see Figure 53 on page 511). Monitoring data from two positions indicates that the SENEL ranges from 80.2 dBA to 81.8 dBA and the CNEL ranges from 58 dBA to 59 dBA. This measurement data is consistent with measurement

[250] *City of Long Beach, Airport Bureau, Written Communication, May 2001 and Jet Blue Long Beach Airport Analysis, May 29, 2001.*

Table 31

NOISE MONITORING DATA FOR LONG BEACH AIRPORT STATION NO. 14[A]

		Arrival				Departure			
		SENEL		L_{max}		SENEL		L_{max}	
Quarter	CNEL	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
Q4 2001	58.8	84.8	93.0	76.1	82.8	90.7	103.2	81.6	95.7
Q1 2002	59.3	82.9	90.9	72.8	80.8	90.7	106.8	81.6	97.6
Q2 2002	60.6	83.0	92.8	74.4	84.7	91.8	116.9	83.1	109.8
Q3 2002	60.5	80.5	87.8	71.6	79.0	91.1	102.3	82.2	93.9

[a] *The monitoring station is located near Pixie Avenue and Greenmeadow Road within the City of Lakewood*

Source: Dennis Rambeau, Noise/Operations Supervisor of Long Beach Airport, March 5, 2003.

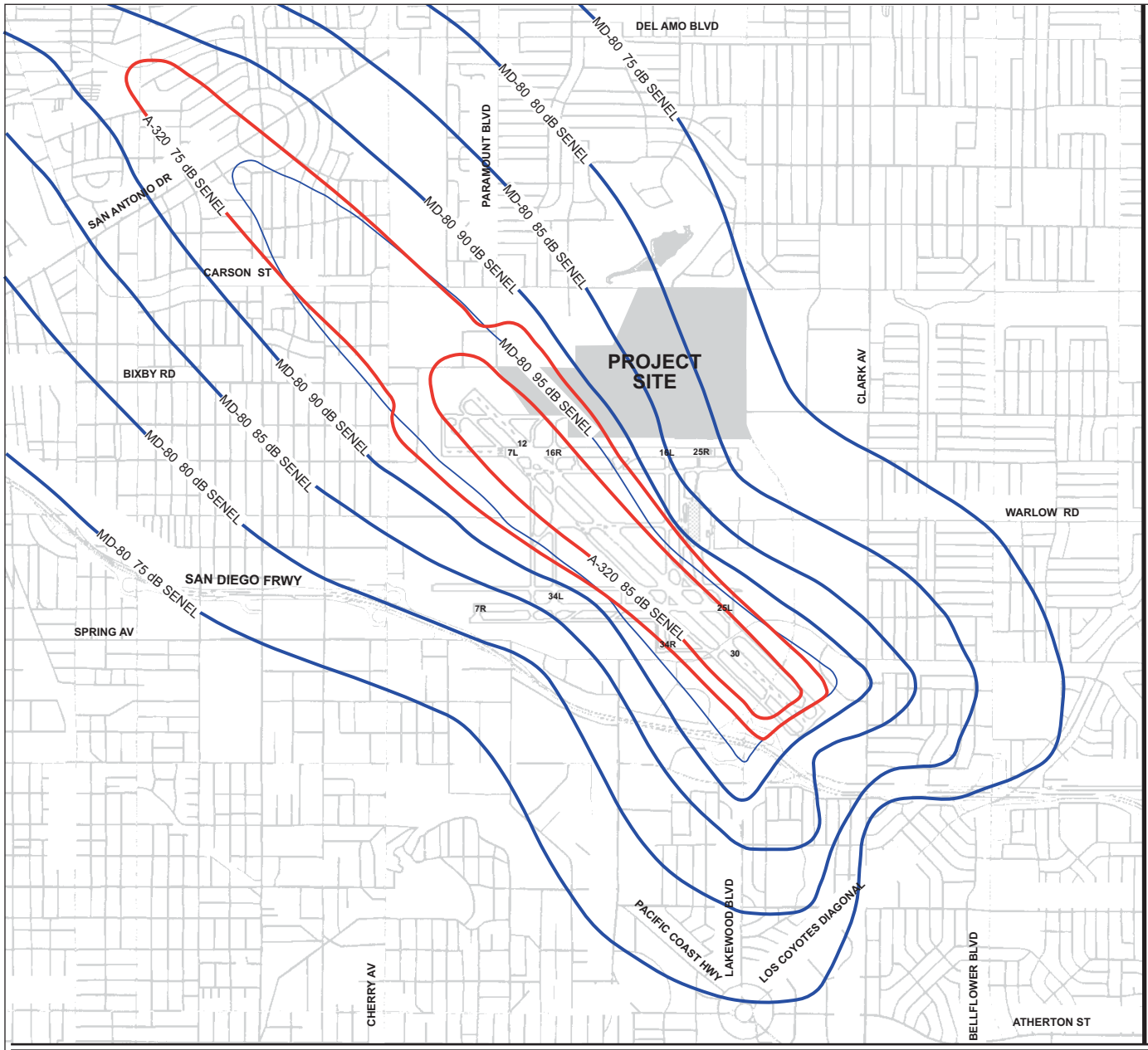
data from Long Beach Airport Station No. 14 and the CNEL and SENEL contours presented in Figure 50 and Figure 52, respectively.

Scientific research has found that the minimum continuous sound level that will permit relaxed conversation within 100 percent intelligibility throughout a typical residential living room (talker/listener separation greater than approximately 3.5 feet) is 45 dB (L_{eq} = 45 dB). A 95 percent intelligibility conversation (considered to be "satisfactory conversation") can be obtained with a steady sound level of up to 64 dB.[251] As shown in Figure 50, the majority of residential units in the project vicinity comply with California Title 21 (i.e., interior and exterior noise levels of 45 and 65 dB CNEL, respectively). Therefore, longer-duration noise levels (i.e., CNEL and L_{eq}) are not expected to be problematic from a speech interference level as the majority of residential units in the project vicinity comply with California Title 21 and aircraft related interior noise levels are typically less than 45 dBA L_{eq} at residential units. However, noise events produced by aircraft overflights in the project vicinity could exceed an internal 65 SENEL and may intermittently be problematic from a speech interference level. In addition, during outdoor activities aircraft overflights may briefly interfere with speech communication.

Airport related noise complaints concentrate along the arrival and departure flight track for Runway 12/30 and to a much lesser extent north of Carson Street.[252] Based on

[251] *Source: Caltrans, California Airport Land Use Planning Handbook, January 2002.*

[252] *Long Beach Airport, http://www.lgb.org/content/Noise%20Activity.htm*



LEGEND

A-320 SENEL Contours

MD-80 SENEL Contours

N

Source: City of Long Beach Airport Bureau, 2001 and Jet Blue Long Beach Airport Analysis, 2001

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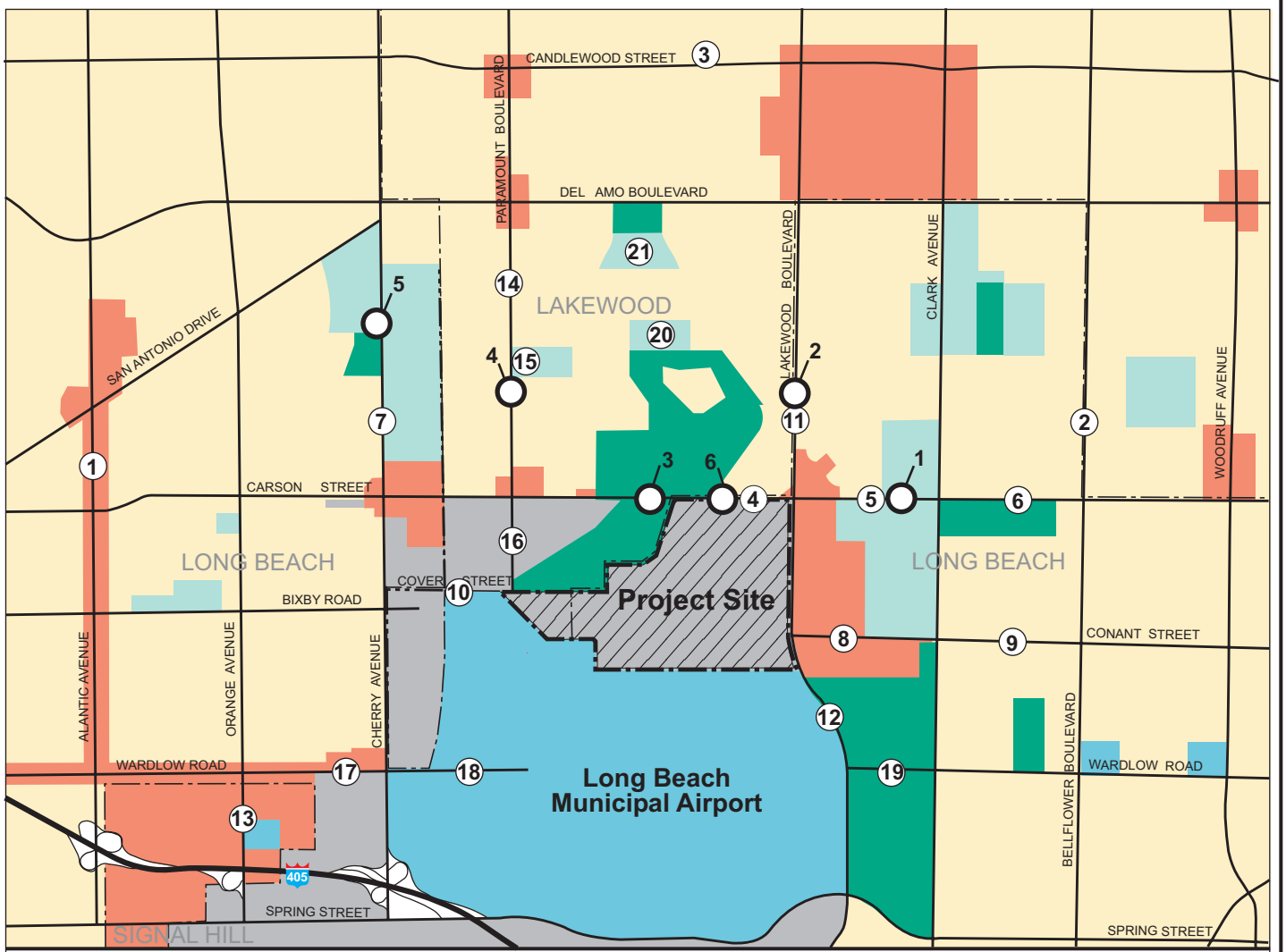
Figure 52
SENEL Contours for A-320 and MD-80
(Typical Hypothetical Departure from Runway 12/30)



LEGEND

- Measurement Locations
- Analysis Locations
- Residential
- Commercial
- Park/Golf Course
- Industrial
- Institutions & Schools

NOTABLE OFF-SITE RECEPTORS

- (5) Long Beach City College
- (6) Heartwell Park
- (12)(19) Skylinks Golf Course
- (13) John Burroughs Elementary School
- (15) James Madison Elementary School
- (20) Herbert Hoover Middle School
- (21) Riley Elementary School

Note: The land uses identified on this map are intended to provide a general representation of the uses surrounding the measurement and analysis locations. As such, not all uses are depicted.

PCR

N

0 0.5 Miles

Source: PCR Services Corporation, 2004

Figure 53
Off-Site Noise Measurement and Analysis Locations

general aviation flight track data provided by the City of Long Beach Airport Bureau, the predominant east/west (7L/25R and 7R/25L) runway flight pattern results in over flights north of Carson Street. The north/south (16L/34R and 16R/34L) runway flight pattern is used infrequently and therefore results in few complaints.[253] These overflights may be a source of annoyance to existing sensitive receptors in the project vicinity as the general community attitude toward a CNEL of 60 dB results in approximately 7 percent of the population to be highly annoyed.[254]

The Airport has approximately 60,000 annual helicopter operations per year, in which the predominant east/west configuration is used most of the time and inbound and outbound routes occur between 7L/25R and 7R/25L generally in line with Wardlow Road. The north/south configuration is used less frequently and inbound and outbound routes occur between 16R/34L and 16L/34R generally in line with Downey Avenue and Redondo Avenue. The north/south configuration is the only path that crosses the project site. Helicopter corridor utilization characteristics and operational data are provided in Table 32 on page 513. These helicopter operations are included in the noise measurement data provided above in Table 32. Noise measurements conducted for overflight helicopter operations on the project site resulted in a maximum noise level of 72 dBA during departure and 75 dBA during an approach for a R-22 helicopter. Emergency services helicopters also operate out of the Airport. The Los Angeles Sheriff's Department typically has two to six operations per night which travel north across the project site following Downey Avenue. In addition, the Long Beach Police Department has eight to ten operations per night and typically takes the most direct path to the emergency, which could occur across the project site. These events are infrequent and are unscheduled.

(ii) Boeing Engine Run-Up Area

Engine run-up tests for newly manufactured 717 and C-17 aircraft are currently conducted within a 48-acre area known as the Boeing Enclave, located within the western portion of the project site and depicted in Figure 6 of the Noise Assessment Technical Report, which is included in Appendix P to this EIR. Refer to Section III, Project Description, for a more detailed discussion of operations within the Boeing Enclave.

[253] *Long Beach Airport, http://www.lgb.org/content/Noise%20Activity.htm*

[254] *Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.*

Table 32

LONG BEACH MUNICIPAL AIRPORT HELICOPTER CHARACTERISTICS

Approach and Departure Corridor	Corridor Usage (%)	Annual Operations (%)	Daily Operations (%)
North Atlantic	2	1,200	3.3
North Downey	22	13,200	36.2
Bellflower	2	1,200	3.3
East Wardlow	22	13,200	36.2
West Wardlow	22	13,200	36.2
Lakewood	3	1,800	4.9
South Redondo	22	13,200	36.2
South Cherry	5	3,000	8.2
Total	100	60,000	164.4

Source: US Department of Transportation, FAA, personal correspondence, November 24, 2003.

C-17 Engine Run-Up Tests

Boeing performs a single, identical, run-up test procedure for each individual C-17 aircraft produced prior to delivery (i.e., the procedure requires that tests are conducted at the same engine thrust for each aircraft). These tests are always performed at the same location and always between the hours of 7 A.M. and 9 P.M. on weekdays and 9 A.M. and 9 P.M. on weekends and holidays. While engine runs are allowed to take place into the evening, they are typically not performed after sunset. Boeing projects a limited number of such tests, totaling 16 per year through year 2008.

To characterize the noise levels produced by a C-17 aircraft engine run-up, one such test was surveyed on July 5, 2001, at a single measurement position located in the vicinity of the proposed residential development closest to the run-up area. The measurement position was approximately 35 feet above ground level on top of an existing water tank and approximately 3,200 feet northeast of the run-up position. (The elevated location was chosen to minimize the influence of acoustical screening from buildings closer to the runway).

As perceived from the measurement location, the engine run-up test was comprised of five separate audible events that were audible for periods ranging from 10 seconds to 69 seconds. A period of approximately 13 minutes elapsed between the start of the first audible event and completion of the last audible event. The measured single event levels for the individual events ranged from 67 to 79 (SEL). The maximum measured noise level during the C-17 engine run-up test was 71 dBA (L_{max}). All of the

measured single events for the C-17 engine run-up test were lower than the hypothetical typical sound exposure level for a single MD-80 commercial jet aircraft departure on Runway 30, which could be as high as 85 SENEL at the monitoring position. A summary of measured noise levels is provided in Appendix P of the Noise Assessment Technical Report.

717 Engine Run-Up Tests

Boeing 717 engine tests are conducted in the engine run-up area, which is also used as a staging area for commercial delivery and has a capacity to support up to 10 aircraft in the engine run-up area at any time. Each aircraft is tested individually based on the production schedule, delivery date, and specific engine functions checked. Engine tests vary from brief periods of idle (10 to 30 minutes) to full-thrust runs (1 to 5 minutes) throughout the day and may occur for a second day depending upon whether problems are encountered. It is not typical for two or more aircraft to be at full thrust at the same time. While engine tests are allowed to take place Monday through Sunday 7 A.M. to 9 P.M., primary hours of operation typically occur Monday though Friday 7 A.M. to 5 P.M. Boeing projects a 717 production rate of 12 per year through year 2005.

Test flights are performed for each aircraft and include Boeing test flights, customer acceptance flights, and customer delivery flights. Boeing pilots or customer pilots power off the Boeing Delivery Center ramp located within the Boeing Enclave onto the airport runway, take off and land, then power back to the ramp. The aircraft may return to the ramp for further engine checks including additional engine run-ups at the ramp. The aircraft may or may not take another test flight based on the requirements of the customer. These test flights are accounted for in the LBMC Chapter 16.43 noise budget.

To characterize the noise levels produced by a 717 aircraft engine run-up, one such test was surveyed on July 17, 2003. The existing water tank position used in the C-17 measurement could not be used for this survey, since Building 41 (approximately 100 feet high) was located between the engine run-up positions and the measurement position. To avoid acoustical screening from this building, an alternate monitoring position was selected, which was located approximately 1,410 feet north-northwest of the engine run-up area along Cover Street. This position was at a similar horizontal angle to the aircraft engine axis that would exist at the C-17 monitoring position located on top of the existing water tank. Noise measurements were conducted at approximately 5 feet above grade to replicate ambient noise conditions for proposed land uses. Noise levels at the water tank monitoring location were estimated from the measured noise data by simply adding a 6-dBA correction per doubling of distance for the increased distance of the monitoring position from the engines compared to the noise survey location. A summary

of measured noise levels is provided in Appendix P of the Noise Assessment Technical Report.

With reference to the measured noise levels, noise levels can be seen to vary, generally rising as the engine thrust was increased. The highest maximum (L_{max}) noise level measured was 91 dBA. Taking this worst-case measured noise level and applying the 6 dBA acoustical loss for distance discussed above, results in an estimated noise level of 87 dBA at the water tank monitoring location of the Boeing C-17 engine run-up tests. The measured maximum noise levels for the 717 engine run-up test would be similar to the hypothetical typical sound exposure level for a single MD-80 commercial jet aircraft departure on Runway 30, which could be as high as 85 SENEL at the monitoring position.[255]

(iii) Traffic Noise

Motor vehicles traveling on freeways, arterials and collector streets are a major source of noise in the Cities of Long Beach and Lakewood. Short-term, 15-minute noise measurements were conducted at five segments of arterial roadways at the rights-of-way to determine ambient noise levels in the project area. Figure 53 on page 511 shows the measurement locations. The measurement locations were selected based on their proximity to the project site and were focused on sensitive land uses. The measurement data indicate L_{eq} levels ranging from 68.0 to 75.1 dBA during the peak traffic hours, and levels ranging from 64.0 to 73.5 dBA during the off-peak hours. These noise levels are indicative of noise levels at the right-of-way and noise levels at more distant locations will be substantially less. As an example, a typical four-lane roadway with a sidewalk will result in a 3-dBA reduction in noise levels approximately 14 feet from the right-of-way and a 6-dBA reduction will occur approximately 48 feet from the right-of-way. A 24-hour measurement was also conducted on the northern end of the project site, 15 feet from the right-of-way of Carson Street. The measurement resulted in an L_{eq} of 69.9 dBA, with a CNEL of 73.6 dBA. Table 33 on page 516 provides a summary of the noise measurement data.

Existing noise levels were also estimated using the Federal Highway Administration (FHWA) traffic noise prediction model and existing traffic data provided by Crain &

[255] *SENEL and L_{max} do not have a linear relationship. However, SENEL is typically 5 to 10 dBA higher than L_{max}.*

Table 33

AMBIENT NOISE MEASUREMENT DATA

Measurement Number[a]	Time	Duration[b,c]	A-Weighted Sound Pressure Level (dBA) L_{max}	L_{min}	L_{eq}
1	07:03	15 minutes	83.1	52.6	73.9
	10:05	15 minutes	78.9	49.7	67.4
	14:52	15 minutes	93.0	52.9	70.5
	16:05	15 minutes	82.4	55.1	69.4
	19:33	15 minutes	80.5	51.8	69.1
	22:30	15 minutes	77.2	46.0	65.5
2	07:24	15 minutes	83.0	47.1	72.7
	10:27	15 minutes	84.2	50.5	70.8
	13:04	15 minutes	81.9	49.6	70.6
	16:32	15 minutes	80.5	50.0	71.0
	19:55	15 minutes	78.2	47.5	68.3
	22:52	15 minutes	93.9	44.9	69.2
3	07:43	15 minutes	81.6	49.4	72.5
	10:51	15 minutes	81.9	54.6	72.7
	13:23	15 minutes	87.0	54.2	73.5
	16:58	15 minutes	86.5	48.0	75.1
	20:20	15 minutes	81.0	51.7	71.1
	23:15	15 minutes	79.9	44.4	67.4
4	08:03	15 minutes	83.6	47.3	68.0
	11:12	15 minutes	79.4	50.3	69.7
	13:51	15 minutes	80.8	49.5	69.9
	17:20	15 minutes	80.9	49.4	72.5
	20:45	15 minutes	79.2	46.8	68.7
	23:40	15 minutes	79.5	44.0	67.3
5	08:24	15 minutes	85.0	53.9	71.9
	11:42	15 minutes	82.7	53.8	72.7
	14:15	15 minutes	85.6	51.7	70.9
	17:42	15 minutes	82.0	55.4	72.1
	21:10	15 minutes	76.6	50.4	67.0
	00:02	15 minutes	77.0	45.1	64.0
6	09:00	24 hours	91.9	38.15	69.9

[a] *Receptor locations are at the roadway right-of-way and are shown on Figure 53 on page 511.*

[b] *15-minute measurements were conducted August 8, 2001, for each time period as follows: morning peak (7 to 9 A.M.), midmorning (10 A.M. to 12 P.M.), midday (1 to 3 P.M.), evening peak (4 to 6 P.M.), late evening (7 to 9 P.M.), and nighttime (10 P.M. to 12 A.M.).*

[c] *The 24-hour measurement was conducted August 7-8, 2001. The calculated CNEL is 73.6.*

Source: PCR Services Corporation, 2004.

Associates.[256] Table 34 on page 518 provides the estimated existing traffic noise levels at the right-of-way, 50 feet from the right-of-way, and 100 feet from the right-of-way for the selected roadway segments. The predicted CNEL from existing vehicular traffic range from 56.2 to 70.9 dBA at 50 feet from the right-of-way of the analyzed roadway segments. The existing CNEL from traffic along the analyzed roadway segments and traffic volumes are provided in Table A-1 of the Noise Assessment Technical Report. These noise levels decrease as the distance from the roadway is increased or as features such as block walls, structures or landscaping are introduced.[257]

(iv) Ground-Borne Vibration

The predominant source of vibration in the project vicinity is heavy trucks traveling on the local roadways. Other possible sources of vibration located in the vicinity of the southern portion of the project site may include Airport operations (primarily jet aircraft and helicopters) and Boeing's engine run-up area, where low frequency noise from these sources could cause rattling of doors and windows.[258]

(v) Ongoing Remediation Activities

As discussed in detail in Section V.E. Hazards, a soil and groundwater remediation program is presently being implemented at the project site in accordance with Cleanup and Abatement Order 95-048 issued by the California Regional Water Quality Control Board, Los Angeles Region. The remediation and associated demolition activities result in noise from the use of heavy-duty earthmoving equipment and control equipment (e.g., soil vapor extraction systems, pumps, and motors). These sources of noise affect the existing ambient community noise levels to a much lesser extent than the other sources described above.

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[256] *The actual short-term (15-minute) measurements are consistent with the modeled traffic noise levels. The FHWA traffic noise model (FHWA-RD-77-108) was used to model existing and all future L_{eq} traffic noise levels. This methodology allows for evaluation of the Average Daily Traffic Volumes provided by the Traffic Technical Report. This methodology also avoids use of inaccurate data that often results from monitoring during atypical traffic conditions (e.g., periods with reduced or increased vehicle volumes over a specific time frame which can generate atypical noise conditions). Such atypical traffic conditions are generally unpredictable.*

[257] *A typical four-lane roadway with a sidewalk would result in a 3-dBA reduction in noise levels approximately 14 feet from the right-of-way and a 6-dBA reduction approximately 48 feet from the right-of-way.*

[258] *Low frequency noise can travel long distances and it does not decay as rapidly as higher frequency noise. In addition, typical noise attenuation features such as noise barriers are not as effective for secondary vibration caused by low frequency noise. However, using new construction materials/methods that include weather-stripping can minimize rattling doors and windows.*

Table 34

PREDICTED EXISTING VEHICULAR TRAFFIC NOISE LEVELS

Analyzed Segments	Roadway Segment at Right-of-Way	Land Use	Predicted Existing CNEL (dBA) at Referenced Distances from Roadway Right-of-Way		
			Adjacent	50 Feet	100 Feet
1	Atlantic Ave. North of Carson St.	Commercial	73.4	69.4	67.3
2	Bellflower Blvd. North of Carson St.	Residential	73.5	69.3	67.2
3	Candlewood St. West of Lakewood Blvd.	Residential	72.7	68.0	65.7
4	Carson St. West of Lakewood Blvd.	Residential	58.4	61.1	59.7
5	Carson St. East of Lakewood Blvd.	School	57.8	60.5	59.1
6	Carson St. East of Clark Ave.	Residential, Park	57.8	60.7	59.3
7	Cherry Ave. North of Carson St.	Residential	71.1	68.6	67.0
8	Conant St. East of Lakewood Blvd.	Golf Course	60.7	56.2	54.0
9	Conant St. East of Clark Ave.	Residential	61.3	56.8	54.6
10	Cover St. West of Paramount Blvd.	Commercial	71.0	65.4	63.1
11	Lakewood Blvd. North of Carson St.	Residential	74.7	70.2	68.0
12	Lakewood Blvd. North of Wardlow Rd.	Golf Course	75.1	70.9	68.7
13	Orange Ave. South of Wardlow Rd.	Residential, School	72.2	67.5	65.3
14	Paramount Blvd. South of Del Amo Blvd.	Residential	67.5	65.5	64.2
15	Paramount Blvd. North of Carson St.	Residential, School	67.1	65.2	63.8
16	Paramount Blvd. South of Carson St.	Commercial	71.1	66.3	64.1
17	Wardlow Rd. West of Cherry Ave.	Residential	69.0	65.4	63.5
18	Wardlow Rd. East of Cherry Ave.	Commercial	67.0	63.3	61.4
19	Wardlow Rd. East of Lakewood Blvd.	Golf Course	67.5	63.9	61.9

Source: PCR Services Corporation, 2004.

2. ENVIRONMENTAL IMPACTS

a. Methodology

A summary of the methodology used to evaluate noise and ground-borne vibration impacts that may result from project construction and long-term operations is provided below.

(1) On-Site Construction Noise

Noise impacts from construction activity are a function of noise generated by construction equipment, the equipment location, the sensitivity of nearby land uses, and the timing and duration of the noise generating activities. Noise impacts were evaluated based on the established methodology outlined in USEPA's "Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, December 1971.

(2) Traffic Noise

Roadway noise impacts were evaluated using the FHWA traffic noise prediction model and forecasted data provided by Crain and Associates.[259, 260] The prediction model utilizes a three-dimensional coordinate system that allows the user to define roadway configurations, barrier type, and receiver locations. Roadway-noise attributable to project development was calculated and compared to baseline noise levels that will occur under the "no project" condition to determine significance.

(3) Airport Noise

In compliance with California Code of Regulation Title 21 and FAA Guidelines, the published Airport CNEL contours were used to assess potential noise impacts upon the proposed residential uses and associated outdoor recreational areas within the PacifiCenter development resulting from airport noise.

In addition, the Federal Interagency Committee on Aviation Noise (FICAN) in 1997 recommended use of a particular dose-response curve that can be used to estimate "the maximum percent of the exposed population expected to be behaviorally awakened" from the SENEL. This is referred to as the FICAN 1997 curve. This curve has been used to estimate population percentage awakenings for various interior SENEL levels.

(4) Aviation-Related Uses

Noise levels associated with proposed aviation-related uses (i.e., a possible corporate jet use) were compared to SENEL curves created using the Federal Aviation Administration's Industrial Noise Model (INM) Version 6.0. The SENEL curves were compared to Chapter 16.43 of the LBMC to determine potential significance.

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[259] *FHWA, The Federal Highway Administration's Traffic Noise Prediction Model FHWA RD-77-108, 1978.*

[260] *Crain & Associates, Traffic Impact Study Report for PacifiCenter, January 2004.*

(5) On-Site Activities

Noise levels associated with on-site activities (e.g., mechanical equipment, truck movements, parking facilities, continued use of engine run-up areas, a potential 66kV Substation) were assessed based on measured and referenced noise levels. Noise levels were determined at sensitive receptors by applying a hard-site distance attenuation factor and accounting for loss by intervening structures.

(6) Ground-Borne Vibration

Ground-borne vibration impacts were evaluated by identifying potential vibration sources, measuring the distance between vibration sources and surrounding structure locations, and making a significance determination.

b. Thresholds of Significance

In general, impacts to noise will be considered significant if the project will result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, if the project exposes people residing or working in the project area to excessive noise levels.

In order to determine if the project exceeds any of the general thresholds listed above, more specific noise thresholds are typically applied. The following specific significance thresholds were used to evaluate the project's short-term construction and

long-term operations impacts. These thresholds are based on applicable federal, state, and local policies and regulations described earlier.

(1) Construction Noise

Neither the City of Long Beach nor the City of Lakewood has established significance thresholds for construction noise impacts. In the absence of such thresholds and consistent with thresholds often used in other jurisdictions, including the City of Los Angeles, a significant impact associated with construction noise will result if: [261]

- Project construction activities lasting more than 10 days in a three-month period will exceed existing ambient exterior noise levels by 5 dBA L_{eq} or more at a noise sensitive use.

In addition, an evaluation of L_{max} noise levels is provided as part of the construction impact analysis. However, neither the City of Long Beach nor the City of Lakewood have established significance thresholds, and as such, the L_{max} discussion is provided for informational purposes only.

(2) Roadway Noise

Mobile noise sources, such as project-generated traffic traveling on public roadways, are exempt from the requirements of the City's of Long Beach and Lakewood Municipal Codes but still subject to CEQA. Therefore, the City of Long Beach and the City of Lakewood use the State Noise/Land Use Compatibility Matrix, provided earlier in Figure 51 on page 504, to define acceptable mobile source noise levels. Thus, a significant impact will occur if any of the significance thresholds listed below are exceeded:

- Project traffic causes an increase in CNEL along any roadway segment by 5 dBA or more when the CNEL is within the acceptable range as shown on the Community Compatibility Matrix.

- Project traffic increases the CNEL along any roadway segment by an audible amount (3 dBA or more) and causes the noise levels to move from acceptable range to unacceptable range as shown on the Community Compatibility Matrix.

[261] *L.A. CEQA Thresholds Guide, August 2001.*

(3) Airport Noise

In compliance with California Title 21, Caltrans' California Airport Land Use Planning Handbook, and FAA Guidelines, a significant impact will occur if proposed residential uses and associated outdoor recreational areas were located within the Airport 65 CNEL contour based upon the maximum-expected operating scenario allowed by LBMC Chapter 16.43.

(4) Aviation-Related Uses

In compliance with Chapter 16.43 of the LBMC, a significant impact will occur if proposed aviation-related uses will result in aircraft using the Long Beach Airport that will not comply with the Noise Ordinance SENEL limitations.

(5) On-Site Activities

The criteria and guidelines identified in the Regulatory Framework section above were used to determine operational noise impacts. Within the portion of the project site located within the City of Long Beach, a significant impact associated with on-site activities (i.e., aviation-related uses, mechanical, equipment, parking facilities) will occur during daytime (7:00 A.M. to 10:00 P.M.) and nighttime (10:00 P.M. to 7:00 A.M.) hours if:

- Exterior noise levels for predominantly residential or commercial uses exceed those set forth by Section 8.80.150 of the LBMC and presented in Table 28 on page 498. Noise levels in excess of the levels indicated in Table 28 are conditionally permitted, depending on the intensity of the noise and the duration of exposure. Specifically, noise levels may not exceed the exterior noise standard for a cumulative period of more than 30 minutes in any hour; or +5 decibels for a combined period of more than 15 minutes in any hour; or +10 decibels for a combined period of more than 5 minutes in any hour; or +15 decibels for a combined period of more than 1 minute in any hour; or +20 decibels for any period of time (maximum noise level). [262]

[262] *If the existing exterior ambient noise level exceeds that permissible within the noise limit categories, the allowable noise exposure standard is increased to ambient conditions (Section 8.80.150 of the LBMC). In addition, Section 8.80.240 of the LBMC (vehicle, motorboat or aircraft repair and testing) provides an exemption to the exterior noise limits (Section 8.80.150 of the LBMC) for aircraft within the airport property or within any other aviation-related property abutting it.*

- Interior noise levels for residential uses exceed those set forth by Section 8.80.170 of the LBMC and presented in Table 29 on page 499. Noise levels in excess of the levels indicated in Table 2 are conditionally permitted, depending on the intensity of the noise and the duration of exposure. Specifically, noise levels may not exceed the interior noise standard for a cumulative period of more than 5 minutes in any hour; or +5 decibels for a combined period of more than 1 minute in any hour; or +10 decibels for any period of time (maximum noise level). [263]

In addition, a significant impact will occur as a result of on-site activities in the City of Lakewood portion of the site if:

- In accordance with the LMC, any person within any area zoned for residential use or any area adjacent to residential use operates air conditioners, mechanical equipment, or mechanical machinery that causes the noise level at the residential property line to exceed 65 dBA L_{eq}.[264]

- In accordance with the LMC, commercial noise levels exceed 60 dBA L_{eq} at residentially zoned or occupied property.[265]

(6) Ground-borne Vibration

The City of Long Beach and Lakewood do not have any adopted policies or standards for construction ground-borne vibration. However, the Federal Transit Authority (FTA) provides a construction equipment vibration damage threshold criterion of 0.20 inch per second PPV for fragile buildings (U.S.DOT, 1995). In the absence of any City significance thresholds for vibration associated with construction, an exceedance of the FTA standard was used to determine construction vibration impacts.

The City of Long Beach's vibration perception criteria described above will be used to evaluate potential impacts associated with operation of the project site. A significant impact will occur if:

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[263] *If the existing interior ambient noise level exceeds that permissible within the noise limit categories, the allowable noise exposure standard is increased to ambient conditions (Section 8.80.170 of the LBMC). Section 8.80.240 of the LBMC (vehicle, motorboat or aircraft repair and testing) provides an exemption to the interior noise limits (Section 8.80.170 of the LBMC) for aircraft within the airport property or within any other aviation-related property abutting it.*

[264] *LMC, Section 9376.*

[265] *LMC, Section 9347.*

- Project operation activities cause a RMS of 0.01 inch/sec at or beyond the property boundary of the source if on a private property or at 150 feet from the source if on a public space.

c. Project Features

(1) Construction

The following project features will be included to reduce noise levels in the surrounding communities and on-site proposed residential uses.

- The project applicant will provide a construction relations officer to serve as liaison with surrounding communities and on-site proposed residents.
- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained muffler exhaust systems.
- Construction activities will be scheduled to the extent feasible so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.
- Engine idling from construction equipment such as dozers and haul trucks will be limited, to the extent feasible.
- Construction routes will be established to avoid residential streets in order to prevent noise and vibration impacts in residential areas. Generally, construction delivery and haul trucks will access the project site from I-405 along Lakewood Boulevard or along Cherry Boulevard.

(2) Residential

Project features will be incorporated to provide insulation for all residential buildings on the project site to reduce interior noise levels below 45 dBA CNEL. Achieving this level of sound insulation may include the following: (1) air-conditioning/mechanical ventilation such that the units will not have to rely on open windows for ventilation; (2) dual insulating glazed systems; (3) doors and windows opening to the exterior with acoustical seals; (4) adding insulation to attics; and/or (5) fitting chimneys and vents with dampers and/or

acoustic louvers.[266] The residential developer will incorporate necessary measures during the detailed design stage of the project to comply with the minimum sound insulation design standard. The project features included to reduce noise levels at residences from aircraft noise will also serve to reduce noise levels from parking facilities.

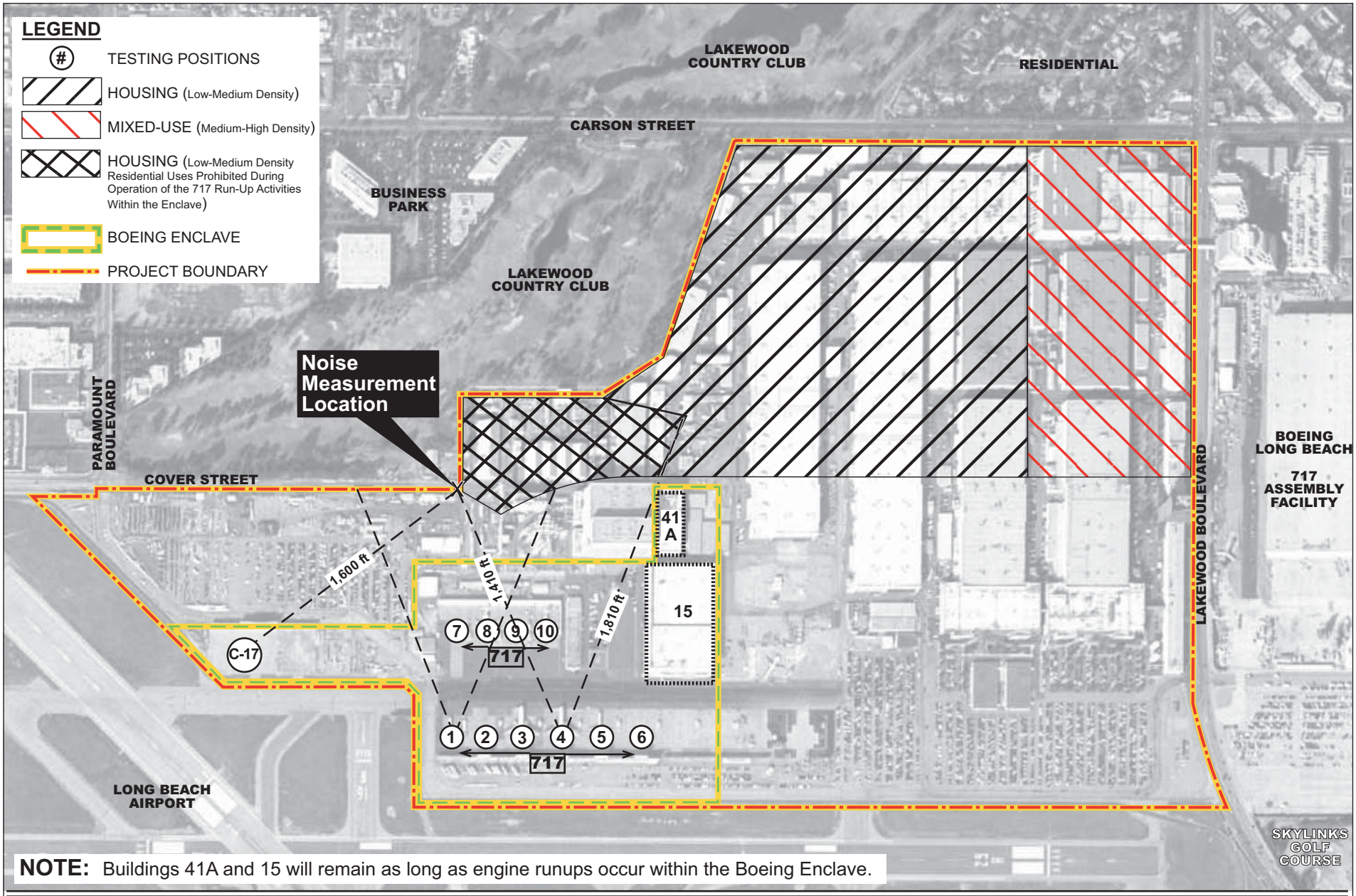
The project will also limit the development of residential uses in close proximity to the Boeing Enclave until such time that run-up activities permanently cease in the 717 run-up area. Please see Figure 54 on page 526 for a delineation of this zone. Also, Boeing will preferentially use the testing positions along the southern side of the Boeing Enclave (Numbers 1-6). These testing positions have the tail end of the planes (i.e., engines) facing towards the airport and, more importantly, away from proposed residences.

In addition, all persons purchasing, leasing, or renting residential land or property within the PacifiCenter development will be required to sign an "acknowledgement covenant" which acknowledges, the fact that residential properties are near an airport, that there may be low level aircraft overflights, and that there may be noise impacts because of proximity to the Airport and overflights. In addition, the acknowledgement covenant shall acknowledge the avigation easements, which waive the right to take legal action in connection with aircraft noise.

(3) Parking Facilities

The floors of parking structures will utilize a broom finish to minimize noise from tires, and 42-inch solid spandrels will be used to reduce noise transmission. Parking structures will also include walls or barriers in the design that assist in blocking the line-of-site from sensitive receptors to parking stalls. Landscaping will be provided along the exterior of all parking structures and surface parking lots to assist in buffering noise. In addition, project features specified above to reduce noise levels at residences from aircraft noise will also reduce noise levels from parking facilities.

[266] *The primary path of aircraft noise into buildings is usually through the windows, so the acoustical performance of buildings is strongly dependent upon the type, location, and size of windows. If the windows are acoustically treated, then other building components become acoustically significant. For this reason, sound insulation programs almost always include windows and doors with acoustically-rated assemblies. In addition, most programs include insulation of attic spaces, and sealing or baffling of openings and vents to limit the effects of other common building elements on the interior noise levels. Fireplaces may also be treated with chimney cap dampers or glass doors. The use of these measures can provide up to 35 dB aircraft noise reduction (California Airport Land Use Planning Handbook (January 2002).*



NOTE: Buildings 41A and 15 will remain as long as engine runups occur within the Boeing Enclave.

PCR

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Scale not Provided

Sources: Boeing Realty Corporation and PCR Services Corporation, 2004

Figure 54
Boeing 717 Engine Run-Up Noise and Proposed Residential Uses

(4) 66kV Substation

A 66-kV substation with a maximum footprint of approximately 305 feet by 230 feet is proposed within either the Commercial or Housing areas of the site. As discussed in Section V.M. Energy, this substation is anticipated to be developed around the year 2009 and will serve the project site as well as other off-site areas. An illustration of potential areas within the site that may be utilized for this substation is provided in Section III, Project Description. If located in the residential portion of the project site or fronting A Street in the commercial area, the substation will be a low profile structure (equipment will be approximately 12 feet in height) with underground feed lines, with an 8-foot perimeter masonry screen wall located at the building setback line, and associated perimeter landscaping between the right-of-way and the wall consisting of trees, shrubs, and ground cover. If the substation is located in the commercial area not fronting on A Street, the equipment will be approximately 20 feet in height and will include an 8-foot masonry wall located at the building setback line with landscaping between the right-of-way and the wall. Such landscaping will include trees, shrubs, and ground cover.

(5) Mechanical Equipment

All mechanical equipment will incorporate noise control measures to ensure that City of LBMC and LMC requirements are satisfied.

d. Analysis of Project Impacts

(1) Noise

The project site and vicinity will be exposed to noise generated by intermittent construction activities associated with the proposed project, vehicular traffic from the project and other ambient traffic growth, and aviation-related uses. Similar to existing on-site conditions, other sources of noise from the project site will include aircraft engine run-up, power substation, mechanical equipment, truck deliveries, trash pickups, and parking facilities. The future noise levels associated with each of these noise sources are discussed in the following sections.

(a) Construction Noise Levels

Noise impacts from construction activities occurring within the project site will be a function of the noise generated by construction equipment, the equipment location, and

the timing and duration of the noise-generating activities. Construction activities will include six stages: (1) demolition;[267] (2) site preparation; (3) excavation; (4) foundation construction; (5) building construction; and (6) finishing and cleanup. Each stage involves the use of different kinds of construction equipment and, therefore, has its own distinct noise characteristics. As discussed above in the Regulatory Framework, construction activities will be limited to the hours specified in the Long Beach Municipal Code, which is more restrictive than the Lakewood Municipal Code, thereby limiting the hours during which construction noise will be generated.

The nearest sensitive receptors with potential to be disturbed by construction activities include single-family residences located on the north side of Carson Street. These residential structures are located approximately 125 feet from the closest project construction and approximately 175 feet from the nearest construction area. In addition, a nine-foot wall separates the residences from Carson Street and the project site. This 9-foot wall was built to reduce traffic-related noise levels, but will also reduce construction noise levels by approximately 9 dBA.[268] The closest non-residential sensitive receptor is the Herbert Hoover Middle approximately 2,700 feet northwest of the project site and is well screened from the project site by the 9-foot wall along Carson Street. In addition, Long Beach City College is located approximately 500 feet west of the project site and 550 feet from the nearest construction area. However, Long Beach Community College is well shielded from any potential noise from the project site, as several large buildings east of Lakewood Boulevard are located between the project site and such uses.

As with most development projects, construction will require the use of mobile heavy equipment with high noise level characteristics. Individual pieces of construction equipment that will be used for project construction and referenced noise levels are provided in Table 35 on page 529. As indicated in Table 35, construction equipment will produce maximum noise levels of 74 dBA to 101 dBA at a reference distance of 50 feet from the noise source. These maximum noise levels will occur when equipment is operating under full power conditions or during "impact" activities such as pile driving, jack hammering, or sawing. Using the industry standard sound attenuation rate of 6 dB per doubling of distance for point sources (e.g., construction equipment), a noise level of 101 dBA at a distance of 50 feet will be about 95 dBA at 100 feet, and 89 dBA at 200 feet.

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[267] *Some demolition activities associated with the remediation program underway within the project site may overlap with project construction activities. In addition, when activities within the Boeing Enclave cease, the Boeing Enclave may be demolished as part of the remediation program or as part of the project. For purposes of providing a conservative analysis, it is assumed that demolition of the Boeing Enclave will occur as part of the proposed project*

[268] *EPA, Noise from Construction Equipment and operations, Building Equipment and Home Appliances, PB 206717, 1971.*

Table 35

CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS

Equipment	Noise Level (dBA) at 50 feet
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Jack Hammer	88
Loader	85
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scraper	89
Truck	88

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, 1995.

As heavy equipment passes near the project site boundary, the maximum noise level at a given moment at the nearest residential receptor could reach as high as 93 dBA, but noise levels will be reduced to 84 dBA with consideration of barrier insertion loss from the existing sound wall. As the equipment travels toward the center of the project site, the maximum noise level at the property line will diminish considerably into the 60s dBA. These estimated maximum noise levels will not be continuous, nor will they be typical of noise levels throughout the construction period.

Equipment used on construction sites often operates under less than full power conditions, or part power. Actual measurements performed while equipment is performing work indicate that shift-long equivalent L_{eq} sound levels are typically 2 dBA to 15 dBA less than maximum noise levels. For project-long equivalent L_{eq} levels, these values can be

further reduced to account for the percentage of time that equipment actually operate on the construction site.[269] Table 36 on page 531 lists the highest noise levels associated with each phase of construction. These estimated construction noise levels are governed primarily by the high noise-producing pieces of equipment to be used and represent conservative worst-case conditions in which the maximum amount of construction equipment will be operating during a one-hour period. These estimated maximum hourly noise levels will not be typical of noise levels throughout the construction period. To account for multiple construction crews operating in close proximity to each other, a maximum 89 dBA L_{eq} at 50 feet was used as a worst-case construction L_{eq}. The estimated aggregate construction noise levels during the heaviest periods of activity at each receptor are provided in Table 37 on page 531. Table 37 shows that the residences located to the north of the project site along Carson Street (Receptor 2) will occasionally experience construction noise levels of 70 dBA (hourly L_{eq}) during the heaviest periods of construction. If pile driving is required in the northern section of the project site along Carson Street, nearby residences could experience maximum noise levels of 84 dBA. As the worst-case hourly L_{eq} exceeds ambient noise levels by more than the 5 dBA incremental significance threshold, construction of the proposed project will result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity and a significant impact to off-site sensitive receptors without incorporation of mitigation measures.

Since proposed residential areas will be constructed prior to project buildout and construction of the 66kV Substation, on-site sensitive receptors could be located as close as 75 feet from a construction zone and will therefore occasionally experience construction noise levels as high as 83 dBA. If pile driving is required on-site, sensitive receptors could experience maximum noise levels of 98 dBA. These noise levels will be considerably higher than ambient noise levels. As the worst-case hourly L_{eq} will be more than the 5-dBA incremental significance threshold, the proposed project will result in a significant impact to proposed on-site sensitive receptors without incorporation of mitigation measures. However, such noise levels will be experienced for short-durations as only portions of the project site will be under construction at any one time. The majority of the time construction noise levels at on-site sensitive locations will be much lower due to reduced construction activity and the phasing of construction (i.e., construction noise levels at a given location will be reduced as construction activities conclude or move to another more distant location of the site). Furthermore, the estimated highest noise levels do not account for shielding that may be provided by future structures located between construction activity areas and adjacent receptors.

[269] *Beranek and Ver, Noise and Vibration Control Engineering, Principles and Applications, p. 652, 1992.*

Table 36

OUTDOOR CONSTRUCTION NOISE LEVELS WITH MUFFLERS

Construction Stage	L_{eq} (dBA) at 50 feet
Ground Clearing	82
Excavation, Grading	86
Foundation	77
Structural	83
Finishing	86

Source: EPA, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

Table 37

HIGHEST ESTIMATED L_{eq} CONSTRUCTION NOISE LEVELS AT RECEPTOR LOCATIONS (During Heaviest Periods of Construction Activity for One-Hour Period)

Receptor Number and Land Use [a]	Presumed Ambient Noise Level (dBA) [b]	Distance to Construction Zone (feet)	Predicted Aggregate Construction Noise (dBA) [c]	Predicted Pile Driving Noise (dBA)
1-Residential	60	1,850	58	70
2-Residential	60	175	70 [d]	84 [d]
3-School	60	2,700	45 [d]	57 [d]
On-site Residential	60	75	86	98

[a] *Receptors are shown in Figure 53.*
[b] *Based on the exterior noise level standards identified in Table 1 (LBMC Section 8.80.150).*
[c] *Based on heaviest period of construction activity over a one-hour period.*
[d] *A 9 dB noise reduction adjustment was applied to the calculated value to account for shielding and barrier effects from the ten-foot sound wall along Carson Street.*

Source: PCR Services Corporation, 2004.

Based on the size of the project, a number of delivery trucks and haul trucks will require access to the site on a daily basis. Therefore, a project feature has been included to avoid sensitive land uses (e.g., schools and residences) by accessing the project site from the I-405 along Lakewood Boulevard and Cherry Boulevard.

(b) Traffic Noise Levels

The traffic noise analysis considered the roadway configuration, percentage of 2-axle and 3-axle trucks, 24-hour count data to develop day/evening/night split, average vehicle speeds, and right-of-way distances to calculate future traffic noise levels. Table 38 on page 533 provides the estimated traffic CNEL at the selected roadway segments for the following scenarios for year 2020: ambient growth without the project; ambient growth plus project development; and ambient growth plus project development plus all traffic mitigation. Table 38 also lists the project-related increase in CNEL above future without project noise levels and the cumulative increase in CNEL above existing traffic noise levels. As indicated therein, existing CNEL traffic noise levels at 50 feet from the right-of-way of the analyzed segments range from 56.2 to 70.9 dBA. Future without project CNEL traffic noise levels (ambient growth without the project) at the segment locations will range from 57.1 to 71.7 dBA. Future CNEL noise levels with ambient growth plus project development and all traffic mitigation measures will range from 61.3 to 73.5 dBA for the roadway segments. The future traffic-generated CNEL along the analyzed roadway segments and traffic volumes are provided in Appendix P of the Noise Assessment Technical Report.

Compared with the future without project conditions, the increase in future predicted CNEL with ambient growth plus project development and all traffic mitigation will be a maximum of 4.3 dBA and will be less than significant for all off-site roadway segments because it will be less than the 5 dBA significance threshold, with the exception of Conant Street east of Lakewood Boulevard (Roadway Segment No. 8), which will increase by 7.0 dBA. This roadway segment is bordered by parking facilities and the Boeing 717 Assembly Facility. While noise levels associated with project traffic at this roadway segment will result in a significant and unavoidable impact, no sensitive receptors will be impacted. An additional analysis was completed for A Street located within the western portion of the site as this street may be located farther to the north and adjacent to the Lakewood Country Club Golf Course (in the vicinity of where Cover Street is currently located). Given the low level of traffic that currently travels on in this area, mobile noise levels were predicted to increase by 18.7 dBA. However, this roadway segment is bound by the Airport to the south and a golf course to the north, and, therefore no sensitive residential receptors will be impacted. Nonetheless, noise levels associated with project traffic at this roadway segment will result in a significant and unavoidable impact.[270]

[270] *In addition, predicted project traffic related noise levels will drop below airport noise CNEL noise levels at approximately 175 feet north of the roadway right-of-way which is based on a 4.5 dBA per doubling of distance drop-off rate for soft sites (i.e., soft dirt, grass or scattered bushes and trees).*

Table 38

PREDICTED FUTURE TRAFFIC NOISE LEVELS—PROJECT BUILDOUT (2020)

			Predicted Future CNEL (dBA) at 50 feet from the Right-of-Way				
Roadway Segment #	Roadway Segment	Existing CNEL	Ambient Growth Without Project [a]	Ambient Growth With Project	Ambient Growth Plus Project and All Traffic Mitigation	Project Increase [b]	Cumulative Increase [c]
1	Atlantic Avenue North of Carson Street	69.4	70.2	70.2	70.2	0.0	0.8
2	Bellflower Boulevard North of Carson Street	69.3	69.7	69.9	69.9	0.2	0.6
3	Candlewood Street West of Lakewood Boulevard	68.0	69.4	69.4	69.4	0.1	1.5
4	Carson Street West of Lakewood Boulevard	61.1	62.0	62.5	62.5	0.5	1.4
5	Carson Street East of Lakewood Boulevard	60.5	61.1	61.9	61.8	0.7	1.3
6	Carson Street East of Clark Avenue	60.7	61.2	61.8	61.6	0.4	0.9
7	Cherry Avenue North of Carson Street	68.6	69.3	69.6	69.9	0.6	1.3
8	Clark Avenue North of Conant Street	68.3	68.7	69.0	68.9	0.2	0.6
9	Clark Avenue South of Conant Street	67.3	67.7	67.7	67.8	0.1	0.5
10	Conant Street East of Lakewood Boulevard	56.2	57.5	64.9	64.5	7.0	8.3
11	Conant Street East of Clark Avenue	56.8	57.1	61.7	61.4	4.3	4.6
12	Cover Street West of Paramount Boulevard	65.4	65.9	69.4	69.2	3.3	3.8
13	Lakewood Boulevard North of Carson Street	70.2	70.5	71.7	71.6	1.1	1.4

Table 38(Continued)

PREDICTED FUTURE TRAFFIC NOISE LEVELS—PROJECT BUILDOUT (2020)

			Predicted Future CNEL (dBA) at 50 feet from the Right-of-Way				
Roadway Segment #	Roadway Segment	Existing CNEL	Ambient Growth Without Project [a]	Ambient Growth With Project	Ambient Growth Plus Project and All Traffic Mitigation	Project Increase [b]	Cumulative Increase [c]
14	Lakewood Boulevard North of Wardlow Road	70.9	71.7	73.7	73.5	1.9	2.7
15	Orange Avenue South of Wardlow Road	67.5	67.6	67.6	67.6	0.0	0.1
16	Paramount Boulevard South of Del Amo Boulevard	65.5	66.4	67.4	66.9	0.5	1.4
17	Paramount Boulevard North of Carson Street	65.2	66.2	67.5	67.0	0.8	1.8
18	Paramount Boulevard South of Carson Street	66.3	67.8	69.5	68.9	1.1	2.6
19	Wardlow Road West of Cherry Avenue	65.4	66.1	66.3	66.3	0.2	0.9
20	Wardlow Road East of Cherry Avenue	63.3	63.8	63.9	63.9	0.0	0.5
20	Wardlow Road East of Lakewood Boulevard	63.9	64.6	66.7	66.5	1.9	2.6

[a] *Includes ambient traffic growth projected through year 2020.*
[b] *Increase relative to traffic noise levels associated with ambient growth without the project, resulting from ambient growth plus project development and all traffic mitigation.*
[c] *Cumulative increase relative to existing traffic noise levels, resulting from ambient growth plus project development and all traffic mitigation.*

Source: PCR Services Corporation, 2004.

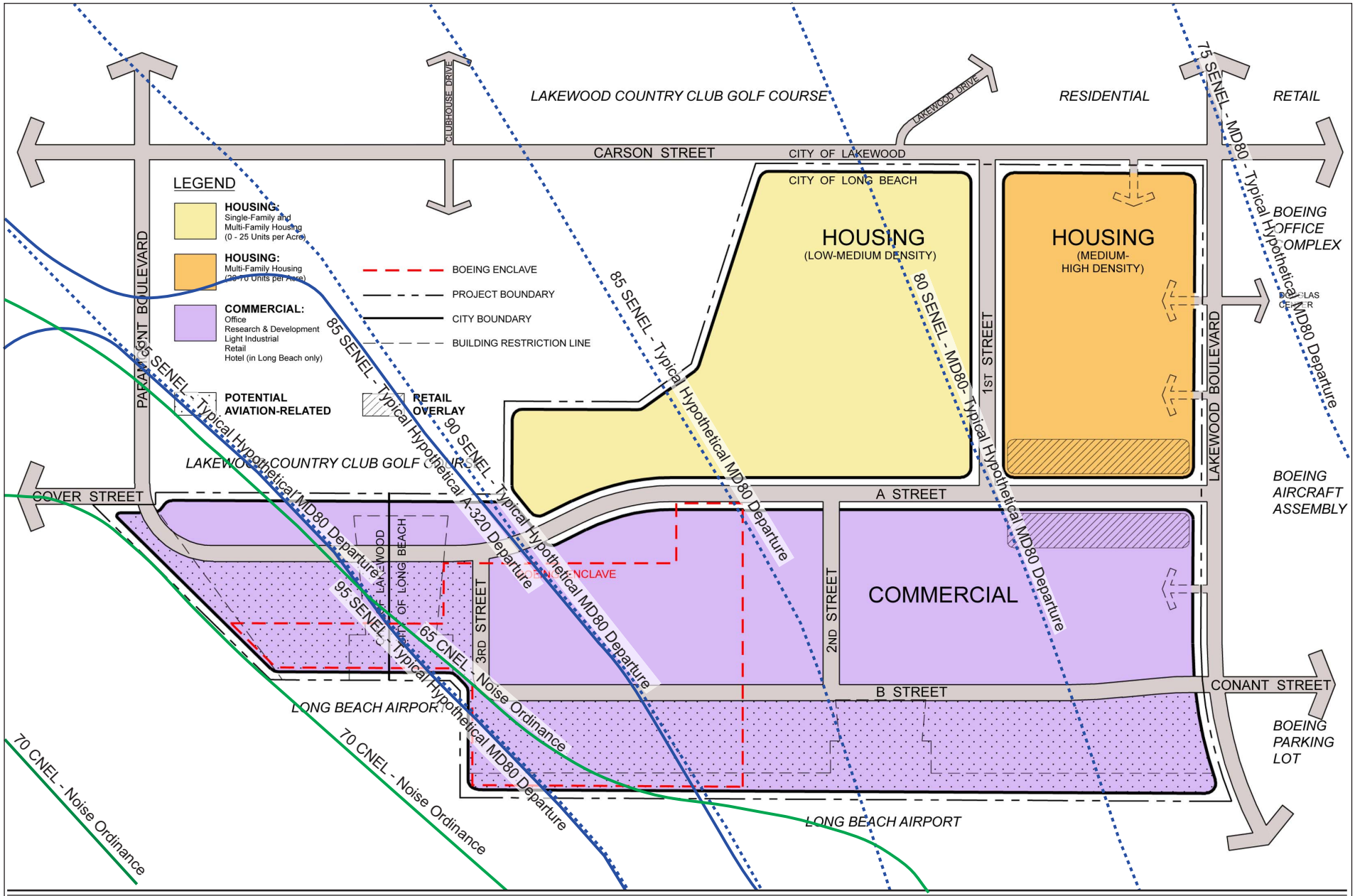
Additional analysis was conducted to account for the increase in heavy duty truck trips associated with any accessory warehouse uses. If the project were to include up to the permitted amount of warehouse uses in the PCC-1 and PCC-2 areas, roadway noise levels will increase by a maximum of 0.1 dBA over the project noise levels displayed in Table 38 at roadways where heavy duty trucks are likely to travel. Therefore, increased heavy duty truck trips associated with potential warehouse uses will not significantly exacerbate the impact at Conant Street east of Lakewood Boulevard nor create new significant impacts.

(c) Airport Noise Exposure at the Site

In compliance with the policies of the ALUP, California Title 21, and FAA Guidelines, the published Airport CNEL contours were used to assess potential noise impacts upon the proposed residential uses and associated outdoor recreational areas within the PacifiCenter development resulting from airport noise. LBMC Chapter 16.43.050(A) states that, "it is the goal of the City that incompatible property in the vicinity of the Airport shall not be exposed to noise above 65 CNEL." CNEL noise contours produced by landing and takeoff activity at the Airport, which are based upon the maximum expected operating scenario allowed by LBMC Chapter 16.43, are shown in Figure 55 on page 536. As indicated by Figure 6, the residential uses and associated outdoor recreational areas proposed within the PacifiCenter site will be outside of the 65 CNEL contour. Therefore, the project will not expose people residing or working in the project area to excessive noise levels and noise impacts from airport operations upon such land uses such as residential development and associated outdoor recreational areas will be less than significant since these uses will be exposed to appreciably lower noise levels than cited by California Title 21, FAA Guidelines, and LBMC policy.

Consistent with the ALUP, Title 21 of the California Code of Regulations, Division 2.5 (Caltrans, Division of Aeronautics), requires a minimum standard of exterior sound transmission control for residential buildings that are located within the 65 CNEL contour such that internal noise levels due to external noise sources should not exceed 45 dB CNEL for habitable rooms. Although proposed residential buildings will be outside of the 65 CNEL contour, project features discussed above will be incorporated into the project to ensure that all habitable rooms of residential buildings on the project site will not exceed 45 dB CNEL.

The SENEL noise contours illustrated in Figure 55 show a hypothetical typical sound exposure level for a single MD-80 and A-320 commercial jet aircraft departure on



PCR

Source: MVE Architects, January 2004

Figure 55
Airport Compatibility with Future Proposed Project Land Uses

Runway 30.[271] While the MD-80 and A-320 commercial jet departures are the most common air carrier departure operations, other aircraft will generally produce less noise, while some may on occasion be louder. The SENEL exposure for the proposed residential uses within PacifiCenter located closest to the Airport from the louder typical MD-80 departure could be as high as 90 SENEL, which with typical residential outside-to-inside modern construction noise insulation of 25 dBA will yield an internal 65 SENEL.[272]

The Federal Interagency Committee on Aviation Noise (FICAN) in 1997 recommended use of a particular dose-response curve that can be used to estimate "the maximum percent of the exposed population expected to be behaviorally awakened" from the SENEL. This is referred to as the FICAN 1997 curve. This curve has been used to estimate population percentage awakenings for various interior SENEL levels. In evaluating the typical MD-80 departure contour supplied by the City of Long Beach and based upon data published by FICAN in 1997, an interior noise level of 65 SENEL corresponds to only a five percent probability of awakening.[273] Also, with the exception of general aviation, the Airport has a curfew that limits operations to between 7 A.M. and 10 P.M. Although there is no established significance threshold for SENEL, the low probability of awakening from a typical MD-80 departure coupled with the fact that the Airport has a curfew, indicates a low possibility of such sleep disruption.

As discussed earlier, a "satisfactory conversation" can be obtained with a steady sound level of up to 64 dBA. Therefore, an internal 65 SENEL during a typical MD-80 departure could be intermittently problematic from a speech interference level. In addition, during outdoor activities aircraft operations may briefly interfere with speech communication. Airport related noise complaints concentrate along the arrival and departure flight track for Runway 12/30 and to a much lesser extent north of Carson Street. Based on general aviation flight track data provided by the City of Long Beach Airport Bureau, the predominant east/west (7L/25R and 7R/25L) runway flight pattern results in over flights north of Carson Street and does not impact the project site. The north/south (16L/34R and 16R/34L) runway flight pattern results in few complaints as it is used infrequently due to the short runway length, limitation for only visual operations, and curfew after 10:00 P.M. These overflights may be a source of annoyance to proposed sensitive receptors on the project site as a portion of the proposed residential uses are

[271] *City of Long Beach, Airport Bureau, Written Communication, May 2001 and Jet Blue Long Beach Airport Analysis, May 29, 2001.*

[272] *California Land Use Planning Handbook, January 2004.*

[273] *FICAN, Annual Report Federal Interagency Committee on Aviation Noise, 1997.*

within the 60 CNEL contour and the general community attitude toward a CNEL of 60 dB results in approximately seven percent of the population to be highly annoyed.[274]

The Airport has approximately 60,000 annual helicopter operations per year in which the predominant east/west configuration is used most of the time and inbound and outbound routes occur between 7L/25R and 7R/25L generally in line with Wardlow Road. Thus the majority of potential helicopter flights do not occur over the project site. In fact, as shown in Table 32, only approximately 39 helicopter overflights occur over the project site per 24-hour period and typically occur during daytime hours. Emergency services helicopters also operate out of the Airport. The Los Angeles Sheriff's Department typically has two to six operations per night which travel north across the project site following Downey Avenue. In addition the Long Beach Police Department has eight to ten operations per night and typically take the most direct path to the emergency, which could occur across the project site. These events are infrequent and are unscheduled. Noise measurements conducted for overflight helicopter operations on the project site resulted in a maximum noise level of 72 dBA during departure and 75 dBA during an approach for a R-22 helicopter. These noise levels will not be problematic from a speech interference level as aircraft related interior noise levels will be below 64 dBA L_{eq}. Also, project features discussed above will be incorporated into the project to ensure that all habitable rooms of residential buildings on the project site will not exceed 45 dB CNEL and will substantially lessen annoyance to residential uses.

(d) Aviation-Related Uses

The project could also include an optional component allowing for the continuation of a limited amount of aviation-related uses on the PacifiCenter site. The uses will primarily serve as an amenity to businesses at the project site and will include hanger space for corporate jets and line maintenance "A" checks.[275] As illustrated by the Federal Aviation Administration's Industrial Noise Model (INM) Version 6.0 SENEL curves provided in Appendix P-4 of the Noise Assessment, all reasonably foreseeable types of aircraft that may use the Airport will comply with LBMC Chapter 16.43 SENEL requirements. In addition, the proposed operations will not affect overall activity at the Airport since it must maintain compliance with LBMC Chapter 16.43 noise budgets. Furthermore, in accordance with the LBMC, if noise levels from general aviation exceed its

[274] *Source: Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.*

[275] *Line Maintenance "A" checks are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts, servicing of fluids, inspection of components, hoses, electrical items and aircraft structure. Lighting and a ground power unit are used during these checks.*

cumulative noise budget, the General Aviation Noise Committee will institute voluntary noise reduction measures. If these voluntary procedures do not sufficiently reduce the cumulative noise levels after two calendar quarters, the Airport Manager will require mandatory reductions.

The potential aviation-related uses will employ several tugs, several service carts and auxiliary power units. These pieces of equipment will only be operated intermittently in support of aircraft operations. In addition, the structures related to the hanger space will be positioned between any aviation activity and adjacent on-site land uses, thus limiting the amount of noise perceptible from these operations. Therefore, noise levels associated with operation of the aviation-related uses will be less than significant.

(e) Boeing Engine Run-up Area

As discussed above, Boeing will continue to conduct engine run-up tests for newly manufactured 717 and C-17 aircraft in the Boeing Enclave. The published airport noise contours make no allowance for these ground activities. As discussed earlier, the project will limit the development of residential uses in close proximity to the Boeing Enclave until such time that 717 run-up activities permanently cease. Please see Figure 54 on page 526 for a delineation of this zone. In addition, Boeing will preferentially use the testing positions along the southern side of the Boeing Enclave (Numbers 1-6) so that the engines are facing away from proposed residential uses and towards the Airport.

With incorporation of project features, the closest proposed residential uses will be located approximately 1,810 feet northeast of the 717 engine run-up area. Adjusting the measured maximum noise levels measured in the engine run-up tests will result in a 717 maximum noise level of 88 dBA (L_{max}). Based upon the specified noise insulation that will be required for the completed residential buildings, the maximum internal noise level in a residential unit attributable to these tests will be approximately 63 dBA (L_{max}). As shown in Appendix B of the Noise Assessment Technical Report, the maximum L_{eq} for the 717 engine run-up testing will occur for approximately five minutes and will result in a 78 dBA exterior or 53 dBA interior noise level at the closest proposed residential uses. This interior noise level will not be expected to significantly interfere with typical speech communication, watching television or similar activities taking place indoors. However, 717 engine run-up noise may interfere with speech communication during outdoor activities.

The closest proposed residential uses will be located approximately 1,600 feet northeast of the C-17 run-up area. Adjusting the measured maximum noise levels measured in the engine run-up tests will result in C-17 maximum noise level of 83 dBA

(L_{max}). Based upon the specified noise insulation that will be required for the completed residential buildings, the maximum internal noise level in a residential unit attributable to these tests will be approximately 58 dBA (L_{max}) and is less than the 717 maximum noise levels. This noise level will occur for brief moments during the engine run-ups. In addition, commercial uses immediately north of the C-17 engine run-up area could reach a maximum noise level of 89 dBA (L_{max}). This noise level is less than the maximum noise levels from aircraft departing Runway 12/30, as shown in Table 4 (Station No. 14). However, C-17 engine run-up noise may interfere with speech communication during outdoor activities.

Given the relative infrequency of these C-17 and 717 engine run-up tests (compared to the 41 air carrier flights per day as well as commuter, industrial, charter, and military operations already accounted for in the City's CNEL noise contours for the airport), together with the fact that the associated single event and L_{max} noise levels measured for the C-17 and 717 are similar to the average levels monitored over the last consecutive 12-month period at the most representative station for the project site (Station No. 14), it is reasonable to rely upon the published CNEL contours for the Airport in order to assess the potential noise impact upon the residential land uses of the PacifiCenter project.[276] Therefore, as residential development and associated outdoor recreational areas will not be located within the 65 CNEL contour, no significant impact will occur from the Boeing engine run-up tests.

(f) Substation

The proposed 66kV substation will include four 28 MVA transformers. In addition, as described in the project features an eight-foot high wall will enclose the substation area (approximately 340 feet by 230 feet) if it is located within a residential area.

Operation of the substation will result in the production of long-term noise from transformers. The substation may be located near residential or commercial uses but this conservative analysis assumed the substation will be located near residential uses. The City of Long Beach's noise ordinance specifies a noise level of 55 and 45 dBA at the receiving property boundary as the acceptable limit during the daytime and nighttime hours, respectively. Each transformer will generate a maximum sound level of 61 dBA at approximately six feet. Using accepted additive noise methodology, four transformers will generate a maximum noise level of 67 dBA at approximately six feet. For point sources

[276] *Station No. 14 is the most representative station for the project site and is located near Pixie Avenue and Greenmeadow Road within the City of Lakewood (see Figure 50 on page 501).*

such as transformers, noise decrease by approximately 6 dBA for each doubling of distance for a hard, flat site (no topography). Therefore, with distance attenuation alone and not accounting for the eight-foot wall project feature, the worst-case noise level will be less than 45 dBA at the substation property line, which will comply with the more strict LBMC and LMC nighttime noise standards. Therefore, noise impacts resulting from operation of the substation will be less than significant.

(g) Mechanical Equipment

Project development will include mechanical equipment, which could generate noise levels that are audible at both on- and off-site noise sensitive locations. Such equipment may include, but will not be limited to, air conditioners, fans, blowers, compressors, and pumps that will be used to support the basic functioning of various structures and/or facilities on the property. However, most of this mechanical equipment will be expected to be located within enclosures or behind new buildings or otherwise shielded from the nearby sensitive land uses. In addition to this physical shielding, proper engineering during the detailed design phases, including noise control engineering of the mechanical equipment, should ensure that the noise generated by mechanical equipment operations will meet both LBMC and LMC noise standards. Impacts are expected to be less than significant.

(h) Truck Movements

The noise produced by delivery and trash pick-up trucks at the project site will also be a potential source of annoyance. The noise level within 50 feet of a delivery and trash truck will be approximately 86 dBA during the heaviest periods of activity. These sources of noise currently occur within the project site and vicinity and are typical in an urban environment. As these operations will be intermittent and will occur for short durations, impacts will be less than significant at both on-site receptors and the receptors nearest to the project site.

(i) Parking Facilities

Various sounds, including automobile movement, car alarms, car horns, door slams, and tire squeals, may occur at the parking facilities (surface parking areas and parking structures). The activation of car alarms, sounding of car horns, slamming of car doors, and tire squeals will occur periodically and may occasionally be audible. Noise from these sources, even though intermittent and short-term in nature, may be intermittently audible to nearby sensitive land uses. Automobile movement will result in

the most continuous source of noise and will result in a noise level of approximately 50 dBA at a distance of 25 feet. The resultant noise levels at any nearby sensitive land uses without incorporation of project design features will be over the nighttime residential noise standard of 45 dBA specified in Section 8.80 of the LBMC. As described above, the floors of parking structures will be broom finished to minimize noise from tires, and 42-inch solid spandrels will be used to reduce noise transmission. Parking structures will also include walls or barriers that block the line-of-site from sensitive receptors to parking stalls. Landscaping will be provided along the exterior of all parking structures and parking lots to assist in buffering noise. In addition, project features proposed to reduce interior noise levels at residences from aircraft noise will also reduce noise levels from parking facilities. Noise levels will thus, be reduced with implementation of these project features. A conservative attenuation rate of 6 dBA, only accounting for blocking the line-of-site from sensitive receptors, will result in a noise level of 44 dBA at a distance of 25 feet, which is in compliance with Section 8.80 of the LBMC. Therefore, noise levels associated with operation of the parking facilities will be less than significant.

(2) Vibration

(a) Construction Vibration

Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and the construction equipment used. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receptor building(s). Ground vibrations from construction activities rarely reach the levels that can damage structures. Typically, pile driving generates the highest vibration. The FTA has published standard vibration velocities for construction equipment operations, which are included in Table 9 of the Noise Assessment Technical Report. Based on the FTA data, vibration velocities from typical heavy construction equipment operations range from 0.003 to 0.644 inch/sec at 25 feet from the source of activity. At 75 feet from the source of activity, vibration velocities from typical heavy construction equipment operations range from 0.001 to 0.124 inch/sec. Within the project site, the highest vibration will be generated during pile driving operations, while more consistent, but lower ground vibration will be generated during the clearing, excavation, and grading processes when heavy materials are moved. Both off-site and on-site sensitive land uses will be located at a sufficient distance (greater than 75 feet) from any potential pile driving activity so that vibration from such activities will be below the peak particle velocity threshold of 0.2 inch/sec. Therefore, the project will not generate excessive groundborne vibration or groundborne noise levels and vibration impacts associated with construction will be less than significant.

(b) Operation

Future ground-borne vibration in the project vicinity will continue to be generated by heavy trucks traveling on the local roadways. Potential ground-borne vibration impacts from the airport and Boeing Enclave are not anticipated to affect the new residential uses within the PacifiCenter project site, since all airplanes are equipped with compressed air rubberized tires that act as vibration isolators. In addition, project features to reduce interior noise levels at residences from aircraft noise will help to reduce vibration.

Additional measurements of a Boeing 717 engine run-up test were conducted on July 17, 2003, to determine if low frequency noise levels may cause structure borne vibration and secondary interior noise impacts from possible rattling of doors and windows. These measurements were conducted using the C-weighted scale, which is a better indicator of low-frequency noise as compared to the A-weighted scale. The results indicate that noise levels within the proposed residential uses north of the Boeing Enclave could reach levels of 81 dBC L_{eq} and 89 dBC L_{max}. A complete discussion of the measurements is provided in the Noise Assessment Technical Report, Appendix P.

Information provided by the Federal Interagency Committee on Aviation Noise (FICAN) Expert Panel[277] suggests that the ideal descriptor for measuring low frequency sound level (LFSL) is the sum of the maximum sound levels in the 25-80 Hz one-third octave bands during individual noise events. The documentation provides a low frequency survey response curve conducted at MSP and LAX. The C-weighted measurements best represent the LFSL and were therefore used with the response curve to determine the prevalence of high annoyance due to rattle or vibration. Based on a maximum noise level of 89 dBC, approximately 38 percent of the people will be highly annoyed due to rattle or vibration. Also, the Expert Panel recommended that LFSL doses above 87 dB be identified as incompatible with residential use and not susceptible to remedial treatment. Therefore, as discussed above, a project feature has been incorporated to limit proposed residential uses until the 717 engine run-ups stop within the area identified on Figure 54 on page 526. Areas outside this area will experience a noise level of less than 87 dBC. This, coupled with the project feature discussed above, which will provide insulation for all residential buildings on the project site to reduce interior noise levels below 45 dBA CNEL, the project will not generate excessive groundborne vibration or groundborne noise levels and impacts will be less than significant.

[277] *FICAN on the Findings of the Minneapolis-St. Paul International Airport (MSP) Low-Frequency Noise (LFN) Expert Panel.*

3. CUMULATIVE IMPACTS

a. Cumulative Construction Noise Levels

It is not anticipated that future construction and related-demolition will occur on lots adjacent to the site simultaneously with construction of the proposed project. In the event that such simultaneous construction does occur, however, construction noise levels could be cumulatively significant at sensitive receptors, including single-family residences located along and north of Carson Street. In addition, project construction in certain areas of the site could potentially coincide with later phases of site demolition occurring as part of the ongoing soil and remediation program (Related Project No. 44).[278, 279] Since receptors located immediately adjacent to the project site will occasionally experience project-related noise levels well above existing ambient noise levels and in the absence of City construction noise thresholds, cumulative construction noise levels will also be considered significant.

b. Cumulative Traffic Noise Levels

Compared with the existing conditions, cumulative increases in future predicted CNEL with ambient growth plus project development and all traffic mitigation will be a maximum of 4.6 dBA and will be less than significant for all off-site roadway segments, with the exception of Conant Street east of Lakewood Boulevard (Roadway Segment No. 8), which will increase by 8.3 dBA. This roadway segment is bordered by parking facilities and the Boeing 717 Assembly Facility. While noise levels associated with cumulative traffic at this roadway segment will result in a significant and unavoidable impact, no sensitive receptors will be impacted. An additional analysis was completed for A Street located within the western portion of the site as this street may be located farther to the north and adjacent to the Lakewood Country Club Golf Course (in the vicinity of where Cover Street is currently located). Given the low level of traffic that currently travels on this segment, cumulative mobile noise levels were predicted to increase by 19.6 dBA. However, this roadway segment is bound by the Airport to the south and a golf course to the north, and, therefore no sensitive residential receptors will be impacted. Nonetheless, noise levels associated with cumulative traffic at this roadway segment will result in a significant and unavoidable impact.

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[278] *Demolition of structures within the 48-acre Boeing Enclave could occur under either the remediation program or the project; however, the analysis of project impacts provided above conservatively assumed that such activities would occur as part of the project.*

[279] *The project construction noise analysis provided above accounts for the possibility of two separate construction crews working on-site simultaneously.*

c. Cumulative Noise Levels from Facility Operations

The proposed project site will be developed with uses that will generate noise from mechanical equipment, truck movements (e.g., delivery and trash trucks), parking facilities, and a substation. In addition, the ongoing separate remediation activities on the project site (Related Project No. 44) will generate noise from mechanical equipment (i.e., pumps, motors, etc.). However, mechanical equipment from the remediation activities will comply with requirements under Chapter 8.80 of the LBMC, and, therefore will not result in a cumulative operational noise impact to on-site or off-site sensitive receptors. Given the existing urban nature of the project site and vicinity, operation of future related projects together with the PacifiCenter project will not result in cumulative noise impacts from facility operations.

4. MITIGATION MEASURES

The following mitigation measures are recommended to reduce noise and vibration impacts resulting from the proposed project. In addition to these mitigation measures, the project features presented and evaluated above will further reduce impacts associated with noise.

a. Construction

V.I-1 In compliance with Section 8.80.202 of the LBMC, site preparation, grading, and construction within the City of Long Beach shall be limited to the hours of 7 A.M. and 7 P.M., Monday through Friday, 9 A.M. and 6 P.M. on Saturdays, and prohibited on Sundays.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department.

Monitoring Agency: City of Long Beach Planning and Building Department or Public Works Department.

Action Indicating Compliance: Field Inspection

V.I-2 In compliance with Section 8020 of the LMC, site preparation, grading, and construction within the City of Lakewood shall be limited to the hours of 7 a.m. and 7 p.m., Monday through Saturday and 9 a.m. and 7 p.m. on Sundays within 500 feet of a residential zone.

Monitoring Phase: Construction

Enforcement Agency: City Lakewood Community Development Department

Monitoring Agency: City Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-3 All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained muffler exhaust systems.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-4 The project applicant shall provide a construction relations officer to serve as a liaison with surrounding communities and future on-site residents.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Designation of an Officer

V.I-5 Construction activities shall be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-6 Engine idling from construction equipment such as dozers and haul trucks shall be limited, to the extent feasible.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-7 Equipment and materials staging shall be located as far from noise-sensitive uses as practical.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-8 Semi-stationary heavy equipment shall be located as far from noise-sensitive uses as practical.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-9 Electrically powered equipment shall be used instead of equipment driven by internal combustion engines where feasible.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-10 Active construction sites within 400 feet of on-site occupied residential uses shall be acoustically screened with a temporary ten-foot, ½ inch thick plywood fence around the construction zone, to the extent feasible. The plywood fence will have an approximate sound transmission classification level of 18.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-11 An on-site area shall be designated for delivery of materials and equipment. No construction deliveries shall be permitted outside the hours of 7 a.m. and 10 p.m. on weekdays.

Monitoring Phase: Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-12 Pile shields (i.e., sound blankets) shall be used where pile driving activities occur within 200 feet from the northern property boundary along Carson Street or within 400 feet of on-site residential uses on the project site.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

V.I-13 Construction routes will be established to avoid residential streets in order to prevent noise and vibration impacts in residential areas. Generally, construction delivery and haul trucks will access the project site from I-405 along Lakewood Boulevard and Cherry Boulevard.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field Inspection

b. Operation

V.I-14 The residential developer shall provide insulation for all residential buildings on the project site to reduce interior noise levels below 45 dBA CNEL with doors and windows closed and shall provide confirmation of this noise level through an acoustical consultant. In addition, any residential development within the delineated residential area (i.e., hatched area) provided in Figure 54 of this EIR shall require a minimum outside-to-inside noise insulation of 30 dBA and shall appoint an acoustical consultant to confirm that the proposed residential buildings will achieve this design standard before submitting an application for a building permit.[280]

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of building permits and certificate of occupancy

V.I-15 All persons purchasing, leasing, or renting residential land or property within the PacifiCenter development shall be required to sign an "acknowledgement covenant" which acknowledges the fact that residential properties are near an airport, that there may be low level aircraft overflights, and that there may be noise impacts because of proximity to the Airport and overflights. In addition, the acknowledgment covenant shall acknowledge the avigation easements, which waive the right to take legal action in connection with aircraft noise.

Monitoring Phase: Operation

[280] *As discussed previously, the California Airport Land Use Handbook documents that this level of sound insulation may include the following: 1) air-conditioning/mechanical ventilation such that the units would not have to rely on open windows for ventilation; 2) ½-inch thick glazing, or a dual insulating glazed system comprised of $^{3}/_{8}$-inch thick laminated glass/½-inch air space/¼-inch glass (or acoustical equivalent); 3) doors and windows opening to the exterior with acoustical seals; 4) adding insulation to attics; and/or 5) fitting chimneys and vents with dampers and/or acoustic louvers.*

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Evidence of Acknowledgement

V.I-16 Aircraft related to new aviation-related uses proposed within the project site shall comply with requirements in LBMC Chapter 16.43.030(B) which limits engine run-ups to designated areas at the Airport and between the hours of 7 a.m. and 9 p.m. on weekdays and 9 a.m. and 9 p.m. on weekends and holidays.

Monitoring Phase: Operation

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field inspection

V.I-17 Development of residential uses in close proximity to the Boeing Enclave shall be prohibited until such time that run-up activities permanently cease in the 717 run-up area. The delineation of this area is provided in Figure 54 of this EIR.

Monitoring Phase: Construction/Operation

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department

Action Indicating Compliance: Issuance of building permits

V.I-18 Boeing shall preferentially use the testing positions along the southern side of the Boeing Enclave (Numbers 1-6), as shown in Figure 54 of this EIR

Monitoring Phase: Operation

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Field inspection

V.I-19 The substation shall include an eight-foot high wall surrounding the substation area if it is to be located within a residential area.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of building permits and certificate of occupancy

V.I-20 All mechanical equipment shall incorporate noise control measures to ensure that City of LBMC and LMC requirements are satisfied.

Monitoring Phase: Pre-Construction/Construction

Enforcement Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Monitoring Agency: City of Long Beach Planning and Building Department and City of Lakewood Community Development Department

Action Indicating Compliance: Issuance of building permits and certificate of occupancy

5. SIGNIFICANCE AFTER MITIGATION

a. Noise

With implementation of the proposed mitigation measures, future construction operations are expected to generate noise levels at proposed residential areas in close proximity to the construction zone as high as 77 dBA L_{eq} and will substantially reduce the pile driving short-term, maximum noise level of 98 dBA by 10 to 15 dBA. These noise levels will be considerably higher than ambient noise levels. As the worst-case hourly L_{eq} exceeds ambient noise levels by more than the 5 dBA incremental significance threshold, construction of the proposed project will result in a significant and unavoidable impact to proposed on-site sensitive receptors and off-site sensitive receptors (i.e., residential uses located along and north of Carson Street). However, such noise levels will be experienced for short-durations as only portions of the project site will be under construction at any one time. The majority of the time construction noise levels at on-site and off-site sensitive locations will be much lower due to reduced construction activity and the phasing of construction (i.e., construction noise levels at a given location will be reduced as construction activities conclude or move to another more distant location of the site).

The increase in future traffic noise associated with the project and all traffic mitigation will be less than significant for all roadway segments, with the exception of Conant Street east of Lakewood Boulevard, which will exceed the 5 dBA significance threshold. This roadway segment is bordered by parking facilities and the Boeing 717 Assembly Facility. While noise levels associated with project traffic at this roadway segment will result in a significant and unavoidable impact, no sensitive receptors will be impacted.

In addition, if A Street is reconfigured in the western portion of the project site to be adjacent to the Lakewood Country Golf Course, traffic noise on this segment will exceed the 5 dBA significance threshold. This noise increase is due to the fact that the current roadway does not support a large amount of traffic. Nonetheless, this noise increase will result in a significant and unavoidable impact. Residential uses and associated outdoor recreational areas proposed within the PacifiCenter site will be outside of the 65 CNEL contour produced by landing and takeoff activities at the Airport, which are based upon the future maximum expected operating scenario allowed by LBMC Chapter 16.43. Therefore, with incorporation of project features to reduce noise levels at residential uses, noise impacts from Airport operations upon such land uses will be less than significant since these uses will be exposed to lower noise levels than allowed by ALUP, California Code of Regulations Title 21, and FAA Guidelines.

With incorporation of MM V.I-14, the SENEL exposure for the proposed residential uses within PacifiCenter located closest to the Airport from the louder typical MD-80 departure of 90 SENEL, will be reduced to 60 SENEL with an outside-to-inside noise insulation of 30 dBA. As discussed earlier, a "satisfactory conversation" can be obtained with a steady sound level of up to 64 dBA. Therefore, an internal 60 SENEL during a typical MD-80 departure will not be problematic from a speech interference level. During outdoor activities aircraft operations may still briefly interfere with speech communication. In addition, helicopter and general aviation overflights may also be a source of annoyance to proposed sensitive receptors on the project site as a portion of the proposed residential uses are within the 60 CNEL contour and the general community attitude toward a CNEL of 60 dB results in approximately seven percent of the population to be highly annoyed.[281]

Boeing C-17 and 717 engine run-up tests will not be expected to significantly interfere with typical speech communication, watching television or similar activities taking place indoors. However, engine run-up noise may interfere with speech communication during outdoor activities. While production rates could increase in the future, current and projected levels of production (i.e., 16 for C-17's and 12 for 717's) will result in infrequent engine run-up tests.

Given the relative infrequency of these C-17 and 717 engine run-up tests (compared to the 41 air carrier flights per day as well as commuter, industrial, charter, and military operations already accounted for in the City's CNEL noise contours for the airport), together with the fact that the associated single event and L_{max} noise levels measured for the C-17 and 717 are similar to the average levels monitored over the last consecutive 12-month period at the most representative station for the project site (Station No. 14), it is reasonable to rely upon the published CNEL contours for the Airport in order to assess the potential noise impact upon the residential land uses of the PacifiCenter project.[282] Therefore, as residential development and associated outdoor recreational areas will not be located within the 65 CNEL contour, no significant impact will occur from the Boeing engine run-up tests.

With incorporation of the project features associated with parking structures and surface parking areas, noise increases associated with operation of future parking facilities will be less than significant.

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[281] *Source: Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.*

[282] *Station No. 14 is the most representative station for the project site and is located near Pixie Avenue and Greenmeadow Road within the City of Lakewood (see Figure 50 on page 501).*

b. Vibration

Future ground-borne vibration in the project vicinity will continue to be generated by heavy trucks traveling on the local roadways. Operation of the project with incorporation of project features and mitigation measures will not result in additional sources of vibration which will exceed the City's vibration violation threshold of 0.01 inch/sec at adjacent properties. Specifically, the project feature limiting proposed residential uses within the area identified in Figure 54 on page 526 will reduce potential structural-borne vibration from the engine run-up testing in the Boeing Enclave to a less than significant impact. As such, operational impacts associated with vibration will be less than significant.

V. ENVIRONMENTAL IMPACT ANALYSIS
J. EMPLOYMENT, HOUSING AND POPULATION
1. EMPLOYMENT

The California Environmental Quality Act (CEQA) focuses on the physical effects of a project and states that economic and social changes resulting from a project shall not be treated as physical effects on the environment Although employment impacts are typically economic or social in nature, the analysis of such impacts is provided herein to support other impact analyses prepared for this EIR and to identify any potential physical changes that may be caused by employment impacts resulting from project implementation.

The Southern California Association of Governments (SCAG), the region's federally designated metropolitan planning organization, is responsible for preparing the Regional Comprehensive Plan and Guide (RCPG) and the Regional Transportation Plan (RTP). The RCPG serves as a guide for local governments to use in addressing regional issues and in developing local goals and objectives. Adopted in 1994 with several chapters updated as recently as 2002, the RCPG establishes a broad set of goals for the region and identifies strategies for agencies at all levels to use in guiding growth decisions. Adopted in April 1998, the RTP contains a set of existing socioeconomic projections that are used as the basis for SCAG's transportation planning efforts. They include projections of employment at the regional, county, subregional, jurisdictional, census tract, and transportation analysis zone levels.[283]

The SCAG RTP projections are the most useful set of population, household, and employment projections for the type of analysis contained in this EIR. Therefore, for forecasts of future levels of population, households, and employment, SCAG's 2001 RTP data has been used.[284]

The analyses presented in this section focus on the local, subregional, and regional context. Specifically, the geographic areas of analysis include the Cities of Long Beach

[283] *SCAG's RTP data sets are revised every three years. The latest data set is 2001, with the next release expected in 2004.*

[284] *The 2001 RTP data is forecasted for the years 2005, 2010, 2015, 2020, and 2025. Several of the projections pertinent to this analysis have been substantially revised by SCAG from the 1998 RTP forecasts. In general, the 2001 RTP reduced the earlier employment projections due to an economic downturn and reduced economic expectations. As such, the origin of data presented is important to note.*

and Lakewood, the Gateway Cities subregion, and Los Angeles County. The Gateway Cities Council of Governments subregion, as defined by SCAG, is comprised of 27 cities including the Cities of Artesia, Avalon, Bell, Bell Gardens, Bellflower, Cerritos, Commerce, Compton, Cudahy, Downey, Hawaiian Gardens, Huntington Park, La Habra Heights, La Mirada, Lakewood, Long Beach, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Signal Hill, South Gate, Vernon, and Whittier.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

During the early 1990s, California, and southern California in particular, suffered through one of the most severe regional economic recessions in its history. According to SCAG data, Los Angeles County lost an estimated 481,648 jobs between 1990 and 1994, or approximately ten percent of 1990 employment levels. The Gateway Cities subregion lost approximately 13 percent of its 1990 employment level. Job losses during this recession within the City of Long Beach were much worse, as the City lost an estimated 63,442 jobs, or 27 percent of citywide employment. The City of Lakewood fared only somewhat better than Long Beach, as it lost 4,261 jobs, or 21 percent of its 1990 employment level by 1994. This information is summarized in Table 39 on page 558. The constriction of the local employment supply resulted from several trends affecting the region, including changes in world markets; the reassignment of substantial U.S. Navy personnel and closure of the Long Beach Naval Complex; the downturn in aerospace and related manufacturing jobs associated with changes in national defense priorities, and reductions in orders for civilian aircraft; a significant downturn in local construction; an unusual slowdown in spending relative to income causing a corresponding decline in retail sales; and an unprecedented string of natural disasters and civil disturbances.

Although the national economy came out of the recession in 1993, the California economy, and particularly the southern California economy, lagged behind the national recovery. The southern California region finally closed the "job growth gap" with the rest of the United States in early 1996. However, the regional job growth rate has shown a fairly sharp slowdown since the beginning of 1997, while the country as a whole experienced steady employment growth ranging between 2.1 percent and 2.5 percent throughout 1997.[285]

[285] *Southern California Association of Governments, Regional Economic Trends, January 1998, page 9.*

Table 39

JOBS LOST 1990-1994 AND DEGREE OF RECOVERY BY 2000

	Los Angeles County	Gateway Cities Subregion	Long Beach	Lakewood
1990 Employment	4,615,644	918,615	235,825	20,214
1994 Employment	4,133,996	795,231	172,383	15,953
2000 Employment	4,425,819	815,196	186,245	19,152
% of Jobs Lost from 1990 to 1994	10%	13%	27%	21%
% of Jobs Lost from 1990 to 2000	4%	11%	21%	5%

Source: SCAG Regional Transportation Plan, 1998 and SCAG RTP Growth Projections, City Projections.

As indicated in Table 39, by 2000, Los Angeles County and the City of Lakewood had gained much of the employment lost since 1990. However, while the City of Long Beach and Gateway Cities Subregion recovered some employment lost by 2000, they lost a greater share of their jobs during the first part of the decade than the County or the City of Lakewood and still lag considerably behind their 1990 employment levels. Boeing's Long Beach employment in particular decreased from approximately 33,000 employees in 1990 (including approximately 15,200 within the project site boundaries) to approximately 10,500 employees recently. This decrease accounts for nearly 45 percent of the loss of employment in the City of Long Beach. Employment at the project site, which has continued to steadily decline to approximately 545 employees as of November 2002, represents a large portion of the City's loss in employment

Over the course of the past few years the economy has once again experienced a slowdown, marked by a decline in employment nationally, statewide, and within the region. Specifically, the national unemployment rate increased from 4.0 percent in January 2000 to 6.0 percent by October 2003; California has experienced higher unemployment levels with an unemployment rate of 5.0 percent in January 2000 increasing to 6.6 percent as of October 2003. Similarly, unemployment within the Los Angeles-Long Beach area has been higher than the national average, with an unemployment rate of 5.9 percent in January 2000 increasing to 6.8 percent as of October 2003.[286]

[286] *U.S. Department of Labor, Bureau of Labor Statistics (www.bls.gov), Local Area Unemployment Statistics and Labor Force Statistics from the Current Population Survey, October 2003; and California Employment Development Department (www.calmis.ca.gov), October 2003.*

b. Projected Employment Growth

The Cities of Long Beach and Lakewood are currently forecasted to continue slow recovery from the industrial realignment that took place in the early nineties. Table 40 on page 560 presents the projected employment growth for the Cities of Long Beach and Lakewood and Los Angeles County from the 2001 RTP Adopted Forecasts from SCAG. The projections provided in Table 40 on page 560 indicate that employment in Long Beach is expected to increase from 192,517 in 2003 to 218,915 in 2020, a projected increase of 26,398 at an average annual growth rate of 0.83 percent.[287] (This estimate may be conservative as the City of Long Beach, in partnership with the Economic Research Department at California State University, Long Beach (CSULB), has projected a local employment level of 238,500 by 2010, representing an annual average growth rate of 2.8 percent).[288] Employment in the City of Lakewood is expected to grow by 2,743 jobs to 22,504 in 2020, representing an annual average growth rate of 0.84 percent. The Gateway Cities subregion is projected to expand by 113,727 jobs from 2003 to 2020, representing an annual average growth rate of 0.82 percent. Employment expansion in Los Angeles County as a whole is projected to be 570,027 jobs over the 2003 to 2020 period, representing an annual average growth rate of 0.76 percent.

Based on historical estimates and future projections of employment in Lakewood, the Gateway Cities subregion, and Los Angeles County, each of these jurisdictions is estimated to recover 1990 employment levels by the year 2020. However, the forecasts for Long Beach still anticipate a level of employment that is 7 percent lower in 2020 than the City's 1990 employment level. (Again, this estimated recovery may be conservative based on the employment projections by the City of Long Beach and the Economic Research Department at CSULB.)

c. Regulatory Framework

There are a number of goals and policies set forth by the Cities of Long Beach and Lakewood and SCAG that relate to the expansion of employment. A description of applicable goals and policies is provided below.

[287] *Year 2003 forecasts were estimated by using a straight line interpolation between the 2000 and 2005 projections provided within the 2001 RTP Growth Forecasts.*

[288] *City of Long Beach Workforce Development Bureau, July 2003.*

Table 40

PROJECTED EMPLOYMENT GROWTH FROM 2000 TO 2020

Employment	2000	2003 [a]	2020
City of Long Beach	186,245	192,517	218,915
City of Lakewood	19,152	19,761	22,504
Gateway Cities Subregion	815,196	842,203	955,930
Los Angeles County [b]	4,425,819	4,561,782	5,131,809
Employment Growth Increments		**2003-2020**	
City of Long Beach		26,398	
City of Lakewood		2,743	
Gateway Cities Subregion		113,727	
Los Angeles County		570,027	
Average Annual Growth Rates		**2003-2020**	
City of Long Beach		0.83%	
City of Lakewood		0.84%	
Gateway Cities Subregion		0.82%	
Los Angeles County		0.76%	

[a] *Year 2003 forecasts were estimated by using a straight line interpolation between the 2000 and 2005 projections.*

[b] *The California Employment Development Department cites the actual population in Los Angeles County as 4,397,410 for 2000 and 4,429,300 as of June 2003. Employment statistics often vary depending on the methodology utilized by different sources. For consistency, SCAG statistics and projections have been used in this analysis.*

Source: SCAG 2001 RTP Growth Forecasts, City Projections; PCR Services Corporation, January 2004.

City of Long Beach. The City's Land Use Element of the General Plan, adopted in July 1989 and revised in 1997, serves as a long-term planning guide for future development throughout the City. Applicable goals pertaining to the development of employment-generating land uses, such as those contemplated in the PacifiCenter project, are discussed in detail in the Land Use Element. That document includes specific analysis and policies for Major Activity Centers, defined as concentrated areas of human activities which are intended to provide vitality and economic health to the City. By affording employment, shopping, and recreational opportunities, Activity Centers promote the City's character and offer stimulation and social interaction.[289] Central to this concept is the need for Activity Centers to fulfill their purpose in a manner that is harmonious in

[289] *City of Long Beach, Land Use Element, page 203.*

terms of land use, traffic, and architecture.[290] The project site is identified as a Major Employment Center that, as a fundamental policy of the Land Element, should be maintained or enhanced. More specifically, the portion of the PacifiCenter property within the City of Long Beach falls within the Airport Employment/ Activity Center. The Airport Employment/Activity Center is recognized as a location that "combines employment, commercial office, manufacturing, and recreational uses, as well as commercial and private flying activities."[291] The Airport Employment/Activity Center includes the following relevant policy:

- Continue to expand high tech, research and development uses, hotels, restaurants, and offices.[292]

As an operational goal, the Land Use Element seeks to provide at least 1.35 jobs for every household in the City.[293]

City of Lakewood. The Land Use Element of the City of Lakewood Comprehensive General Plan, adopted in November 1996, serves as the framework for future physical, social, and economic development in the City of Lakewood. The Land Use Element recognizes that industrially zoned parcels of land that exist in the southwesterly area of the City have the potential for development, improvement, and expansion. As indicated in Section V.H., Land Use and Planning, of this EIR, the project site is located within Subarea 1d of the Redevelopment Area III Plan. With regard to employment, the following City goals are relevant to the PacifiCenter project:

- Economic Development Goal 2: To help reverse the trend of local and regional job losses.
- Economic Development Goal 3: Maximize the development and economic potential of under-utilized properties zoned for commercial and manufacturing uses.
- Land Use Element Policy 5.1: Encourage the development of industrial and commercial uses at underutilized sites to provide job opportunities for the local labor force.

[290] *Ibid.*

[291] *City of Long Beach, Land Use Element, page 207.*

[292] *City of Long Beach, Land Use Element, page 207.*

[293] *Ibid, page 22.*

Southern California Association of Governments. SCAG's RCPG serves as a comprehensive planning guide, focusing on growth through the year 2015. The primary goals of the RCPG are to improve the standard of living, enhance quality of life, and promote social and economic equity. Within the RCPG, issues related to employment and growth are primarily addressed in Chapter 2, The Economy, and Chapter 3, Growth Management. These chapters analyze growth patterns, provide economic forecasts, recommend strategies for economic prosperity and equity, and specify growth management policies. The RCPG policies that are relevant to the proposed project are listed in Table 41 on page 563. Additionally, SCAG's RTP, discussed above, provides forecasts of population, households, and employment levels for counties, subregions, cities, and Census tracts within SCAG's jurisdiction.

2. ENVIRONMENTAL IMPACTS

a. Methodology

The analysis of potential employment impacts includes an evaluation of the project's consistency with applicable polices described above, as well as a comparison of the net increase in project-generated jobs relative to the employment forecasts for the Cities of Long Beach and Lakewood, the Gateway Cities subregion, and Los Angeles County. Employment generated directly by the proposed project has been calculated based on employment generation factors by land use (employees per square foot).[294] The overall net employment impact of the proposed project is determined by subtracting the jobs lost through removal of occupied structures from the new project-related jobs.

As described in Section III, Project Description, of this EIR, the PacifiCenter project provides flexibility in the configuration of land uses. Maximum development within the site would include up to 3,300,000 square feet of non-residential floor area, including up to 150,000 square feet of retail floor area. In addition, up to 400 hotel rooms and up to 2,500 residential units could be developed within the City of Long Beach portion of the site. Based on this development envelope, the commercial uses that would generate the greatest number of employees have been evaluated. However, the land use configuration that yields the lowest level of employment is also discussed so as to present the range of employment that could occur on the project site. Although neither the maximum nor minimum employment-generating land use mix is necessarily the expected scenario, this analysis assumes such conditions in order to present a conservative or worst-case

[294] *Employee generation factors provided by Robert Charles Lesser & Co., July 2003.*

Table 41

ANALYSIS OF PROJECT CONSISTENCY WITH SCAG RCPG POLICIES [a]

Relevant Policy [a]	Analysis of Project Consistency
3.01 The population, housing, and job forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.	The analysis of employment impacts of the proposed project uses employment projections from SCAG's 2001 RTP in its analysis. The project falls within the projections of the Cities of Long Beach and Lakewood, SCAG's Gateway Cities Subregion, and Los Angeles County for new development and, therefore, is consistent with SCAG projections.
3.24 Encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.	Please refer to Section V.J.2, Housing, in this EIR. The PacifiCenter project development includes the addition of up to 2,500 new housing units in the City of Long Beach. As such, the project will increase the supply of housing, consistent with this policy In addition, in recognition of the need for affordable housing in the City of Long Beach, the Applicant will contribute funds to the City for City-wide affordable housing programs. This fee will be included in the Development Agreement to be approved for the proposed project.
3.27 Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, effective services such as public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.	The mixed-use nature of the PacifiCenter project supports the goal of providing local jurisdictions with sustainable community development. Specifically, the project includes housing, employment, commercial, and recreational opportunities. Refer to Sections V.K.3, Schools and V.K.4 for a detailed discussion of schools and recreational facilities. .

[a] *Relevant policies have been excerpted directly from SCAG's Regional Comprehensive Plan and Guide. However, the policy numbers listed correspond with those provided in SCAG's NOP comment letter dated December 10, 2002, which is included in Appendix A of the EIR. Other policies within the SCAG NOP comment letter are addressed in Section V.H, Land Use, and Section V.L, Transportation/ Circulation.*

Source: PCR Services Corporation, January 2004.

evaluation of employment impacts and a full range of the employment levels potentially generated by the project. In addition, information contained in a study prepared by the Office of Economic Research at California State University, Long Beach, is presented.

b. Thresholds of Significance

An employment impact will be considered significant if construction and operation of the proposed project substantially alters the location, distribution, density, or growth rate of employment planned for the area pursuant to local and regional plans or if the project does not support relevant local or regional policies regarding employment.

c. Analysis of Project Impacts

(1) Consistency with Policies

Consistent with the definition of a Major Activity Center, the proposed project will concentrate a mix of uses on-site and transform the site into a vital economic activity center. Through the provision of a variety of uses, including R&D, light industrial, office, retail, hotel, and aviation-related uses, the PacifiCenter project will support the goals of the Long Beach Land Use Element policy relating to the Airport Employment/Activity Center, which specifically calls for expansion of high-tech, R&D, hotel, restaurant, and office uses. The provision of employment-generating uses, a retail zone, and recreational amenities (refer to Section V.J.4, Recreation), in conjunction with implementation of a Development Agreement and Design Guidelines, will support the City's economic well-being, create opportunities for economic and social interaction, and improve the functional and visual character of the site in a sensitive manner. The PacifiCenter will be developed as a regional employment center that will revitalize and redevelop an underutilized property. The project will thus promote the site as a Major Employment Center, as set forth by the Land Use Element. In addition, the mix of uses developed on-site will provide substantial employment opportunities requiring varied skill sets, which will complement the residential element of the project site.

While the City of Long Beach acknowledges the need to increase employment, a recurring topic within the Land Use Element is the desire to construct new residential units in proximity to growing employment centers, which is also consistent with the intent of the proposed project. The project will provide both jobs to restore an employment center and new residential units. As such, the project's mixed-use nature will afford the regional benefits of reduced commute times and associated quality of life and environmental benefits that occur with the development of residential units within close proximity to jobs.

The project's increase in employment opportunities and residential units in Long Beach will contribute toward the goal of providing at least 1.35 jobs for every household in the City. Based on SCAG data, in 2003 there were 1.16 jobs for every household in the City of Long Beach. Depending upon the specific types of commercial uses that will be

built within the project site, the jobs to housing ratio within the project site will range from 2.2 to 5.6 jobs for every household, thereby contributing to the City's jobs to housing ratio goal. Specifically, if the maximum employment level of 13,987 is attained on-site, a jobs to housing ratio of 5.6 will result; if minimum employment of 5,336 occurs, the jobs to housing ratio will be 2.2 (refer to Table 42 on page 566 and Table 43 on page 567 for workforce and jobs to housing ratio calculations). In addition, if all of the 2,500 housing units proposed are not constructed, the jobs to housing ratio within the project site would increase further.

The Land Use Element of the Lakewood Comprehensive General Plan indicates that there are commercially and industrially zoned vacant parcels in the southwesterly portion of the City that have the potential for development, improvement, and expansion. As indicated above, the project site is located within Subarea 1d of the Redevelopment Area III Plan within the southwestern portion of the City of Lakewood. The PacifiCenter project will include the development of an estimated 360,000 square feet of office, R&D, and/or light industrial development on property within the City of Lakewood, thereby implementing the intent of the Redevelopment Area III. In addition, proposed development is consistent with the objective of creating industrial activity in a currently undeveloped area (Policy 5.1). Economic Development Goals 2 and 3 are also satisfied by the addition of new employment on currently underutilized property.

Implementation of the PacifiCenter project will be consistent with the policies of the SCAG RCPG, as summarized in Table 41 on page 563.

(2) Consistency with Projections

The analysis of potential employment impacts related to consistency with projections includes both construction employment and the growth in the regular workforce associated with operation of the PacifiCenter project.

(a) Construction Employment

The construction jobs associated with implementation of the PacifiCenter project were estimated based on the projected floor area to be developed and standard ratios of direct employment to valuation of construction provided in the South Coast Air Quality Management District CEQA Air Quality Handbook.[295] Based on these ratios,

[295] *Southern California Air Quality Management District, CEQA Air Quality Handbook, April 1993.*

Table 42

ESTIMATED MAXIMUM WORKFORCE GENERATION

Land Use	Sq.Ft./Employee[a]	Total Buildout[b] Sq.Ft.	Total Buildout[b] Employees
Conceptual Development Program			
Commercial Area [b]			
Office—working in Long Beach[c]	225	2,790,000	12,400
Research and Development—working in Lakewood[c]	425	360,000[d]	847
Retail	500	150,000	300
Hotel	1.1 employees per room	400 rooms	440
Subtotal			**13,987**[c]
Existing On-Site Employment			**545**[e]
Increase (New minus Existing)			**13,442**[c]
Jobs to Housing Ratio[f]			5.6

[a] *Factors for commercial development uses provided by Robert Charles Lesser & Co., June 2003.*

[b] *While the Commercial land use category allows a mix of commercial uses, including office, R&D, light industrial, retail, and aviation-related uses, this scenario represents the maximum workforce that will be generated by assuming build out of office uses within the Commercial land use category.*

[c] *Employment generation on-site could range from a net increase of 4,791 employees (5,336 total employees) to the maximum net increase of 13,442 (13,987 total employees) shown above, depending on the mix of commercial uses actually developed. Refer to Table 43 for the minimum workforce generation.*

[d] *360,000 square feet of floor area is an approximate number and is based on the existing zoning and land use designation for this area of the site.*

[e] *Existing on-site employment represents estimated employment on-site at the time the NOP was distributed in November 2002.*

[f] *Represents the maximum total number of jobs at project buildout divided by the total number of residential units at PacifiCenter.*

Source: PCR Services Corporation, January 2004.

approximately 3,832 construction jobs will be created as a result of buildout of the PacifiCenter project.

Owing to the regional nature of the construction industry, these construction employment estimates are appropriately evaluated on a County-wide basis. Specifically, employees in the construction industry work at different locations throughout the County, depending upon where the construction is located. These employees do not typically

Table 43

ESTIMATED MINIMUM WORKFORCE GENERATION

Land Use	Sq.Ft./Employee[a]	Total Buildout[b] Sq.Ft.	Total Buildout[b] Employees
Conceptual Development Program			
Commercial Area [b]			
Light Industrial—working in Long Beach	525	1,764,000	3,360
Warehouse—in Long Beach	1,000	1,176,000	1,176
Warehouse—in Lakewood [c]	1,000	360,000 [d]	360
Hotel	1.1 employees per room	400 rooms	440
Subtotal			**5,336** [e]
Existing On-Site Employment			**545** [f]
Increase (New minus Existing)			**4,791** [g]
Jobs to Housing Ratio [f]			2.2

[a] *Factors for commercial development uses provided by Robert Charles Lesser & Co., June 2003.*

[b] *While the Commercial land use category allows a mix of commercial uses, including office, R&D, light industrial, retail, and aviation-related uses, this scenario represents the minimum workforce that will be generated on-site by assuming the maximum allowable amount of warehouse and distribution uses (20 percent each of the Commercial floor area located in the City of Long Beach, and 100 percent in the City of Lakewood), and light industrial uses for the remainder of the Commercial land use category.*

[c] *The floor area assumed for the City of Lakewood is an approximation.*

[d] *360,000 represents an approximate number based on the existing zoning and land use designation for this area of the project site.*

[e] *Employment generation on-site could range from a net increase of 4,791 employees (5,336 total employees) shown above to the maximum net increase of 13,442 (13,987 total employees), depending on the mix of commercial uses actually developed. Refer to Table 41 for the maximum workforce generation.*

[f] *Existing on-site employment represents estimated employment on-site at the time the NOP was distributed in November 2002.*

[g] *Represents the estimated minimum total number of jobs at project buildout divided by the total number of residential units at PacifiCenter.*

Source: PCR Services Corporation, January 2004.

relocate closer to a construction site as the length of time spent at a specific job site is limited. Based on recent data, an estimated 129,910 persons were employed in the construction industry within Los Angeles County.[296] Assuming that the project is fully occupied by 2020 and that development occurs evenly over the construction period,

[296] *U.S. Department of Labor, Bureau of Labor Statistics data for 2002 (www.bls.gov).*

construction employment associated with the project will constitute less than one percent of the annual countywide construction employment. As a result, anticipated construction employment at the PacifiCenter project site will not substantially alter the location, distribution, density, or growth rate of construction employment in Los Angeles County. Therefore, significant impacts associated with construction employment will not occur and no mitigation measures will be required.

(b) PacifiCenter Workforce

As indicated above, the number of employees at PacifiCenter has been estimated on the basis of ratios of square feet to employees by land use type. Given the project's flexibility in the land use configuration that may ultimately be developed, the level of on-site employment associated with the final land use mix will vary. Therefore, the conceptual development scenario that has been used in this analysis assumes the mix of uses that would generate the maximum employment on-site in order to evaluate conservative or "worst-case" conditions.[297] As indicated in Table 42 on page 566, this most employee-intense scenario includes 3.15 million square feet of office uses, 150,000 square feet of retail uses, and 400 hotel rooms in the Commercial land use category. This mix of uses will generate a greater number of employees compared with a mix of light industrial, R&D, or other uses that are allowed in the Commercial land use category and may also be developed as part of the project.

Based on the most employment intensive scenario, subsequent to construction, PacifiCenter will have a workforce consisting of up to 13,987 employees, as indicated in Table 42 on page 566. The estimated baseline workforce on the project site was subtracted from the estimated total number of employees resulting from the project in order to determine the net increase in employees. As indicated in Table 42, under the most employee intensive scenario, implementation of the PacifiCenter project is anticipated to result in a net increase of up to approximately 13,442 full time equivalent on-site employees by project buildout in 2020 when compared with existing conditions.[298] Up to approximately 847 employees will be employed in the City of Lakewood portion of the site, with the remainder employed within the Long Beach city limits. It is assumed that the majority of the total 13,987 PacifiCenter employees will be new, due to the changes in commercial development at the project site and demolition of the existing business operations.

[297] *As previously indicated, the maximum employment land use mix is not considered the expected development scenario, but is presented herein for a conservative analysis.*

[298] *As indicated in Section III, Project Description, at the time of the NOP (November 2002), there were approximately 545 employees on-site.*

As shown in Table 43 on page 567, assuming development of the site with the types of land use that generate lower employment, the project could result in as few as 5,336 jobs, or a minimum net increase of 4,791 employees over baseline employment. This is based on a mix of light industrial, warehouse, and hotel uses within the City of Long Beach and warehouse development within the City of Lakewood. As illustrated in Table 42 and Table 43, depending on the land use mix ultimately developed, total employment on-site will vary. For comparison, based on another analysis of the project's employment growth and housing prepared by the Office of Economic Research at California State University, Long Beach, assuming the property is developed with a mix of uses in the Commercial land use category, the project will add 11,228 new jobs within the project site.[299]

Table 44 on page 570 provides a comparison of the net increase in employee growth associated with the PacifiCenter project (assuming the development of uses that would generate the maximum number of employees) and employment projections for the Cities of Long Beach and Lakewood, the Gateway Cities subregion, and Los Angeles County.[300] As indicated in Table 44, the net increase in employees resulting from the most employee intensive development scenario that could result from the project represents approximately 48 percent of the projected employment growth in Long Beach, 31 percent of the projected employment growth in Lakewood, 12 percent of the anticipated employment growth in the Gateway Cities subregion, and 2 percent of the projected employment growth in Los Angeles County.

Based on the above comparisons, the workforce estimates for the project will be within the current growth projections for the City of Long Beach, City of Lakewood, the Gateway Cities subregion, and the County of Los Angeles.[301] Therefore, workforce growth associated with the PacifiCenter project will not substantially alter the location, distribution, density, or growth rate of employment planned for these areas by local and regional plans.

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[299] *"An Analysis of Employment Growth and Housing" presentation and associated worksheets, Lisa M. Grobar, Ph.D. and Joseph P. Magaddino, PhD, Office of Economic Research, California State University, Long Beach, 2003. The CSULB analysis utilized slightly different employment generation factors and a different land use mix for the project site than presented throughout this section, yielding a different total estimated employment. The evaluation presented in this section is based on a conservative, or worst-case, employment scenario.*

[300] *For the purposes of evaluating potential impacts of the PacifiCenter project, figures for 2003 were interpolated to use as baseline local, subregional, and regional levels to allow comparison of project-induced employment growth with employment growth forecasted by SCAG.*

[301] *If all project-generated employment (13,442) net employees based on a conservative scenario that nearly all of the commercial uses would be office uses) were to occur within the City of Long Beach portion of the site, the project's percentage of SCAG-forecasted growth for the City would remain within the total projected employment for Long Beach.*

Table 44

EMPLOYMENT IMPACTS

	Baseline Employment 2003	Forecasted Employment Growth 2003-2020	Maximum Project Increment 2020	Percent of Growth 2003-2020
City of Long Beach [a]	192,517	26,398	12,598	48%
City of Lakewood	19,761	2,743	844	31%
Gateway Cities Subregion	842,203	113,727	13,442	12%
Los Angeles County	4,561,782	570,027	13,442	2%

[a] *If all project-generated employment (13,442 net employees based on a conservative scenario that nearly all of the commercial uses would be office uses) were to occur within the City of Long Beach portion of the site, the project's percentage of SCAG-forecasted growth for the City would remain within the total projected employment for Long Beach.*

Source: SCAG 2001 Regional Transportation Plan Growth Forecasts, City Projections; PCR Services Corporation, January 2004.

As such, impacts associated with employment growth will be less than significant and no mitigation measures will be required. In addition, project implementation will serve to restore much of the employment lost at the PacifiCenter site and throughout the City of Long Beach since 1990. It is important to note that SCAG's employment projections in the 2001 RTP were, in many cases, substantially reduced relative to earlier projections in the 1998 RTP due to diminished economic expectations. Thus, implementation of the project will compensate for some of the anticipated growth loss. Development of the project will also counteract more recent negative economic trends.

3. CUMULATIVE IMPACTS

The impact analysis provided above includes an assessment of project employment in comparison with local and regional growth forecasts, which account for planned or reasonably foreseeable development within each jurisdiction in the local area and the region. Therefore, the analysis is both a project-level and cumulative analysis. As stated above, the net increase in employment associated with the PacifiCenter project will be within the employment forecasts for the City of Long Beach, City of Lakewood, the Gateway Cities subregion, and Los Angeles County. Consequently, implementation of the project will not result in significant cumulative impacts associated with employment.

4. MITIGATION MEASURES

No significant impacts associated with employment have been found, therefore no mitigation is required.

5. IMPACTS AFTER MITIGATION

No significant and unavoidable impacts related to employment will occur and no mitigation measures will be required.

The California Environmental Quality Act (CEQA) focuses on the physical effects of a project and states that economic and social changes resulting from a project shall not be treated as physical effects on the environment. Although housing impacts are typically economic or social in nature, an analysis of these impacts is provided below to support other impact analyses prepared for this EIR and to identify any potential physical changes that may occur as a result of housing impacts associated with project implementation.

Similar to the analysis in Section V.J.1, Employment, this analysis uses Southern California Association of Governments (SCAG) 2001 Regional Transportation Plan (RTP) growth projections as well as 2000 Census data. The analyses presented in this section focus on the local, subregional, and regional context in which the project site is situated. The geographic areas of analysis include the Cities of Long Beach and Lakewood, the Gateway Cities subregion, and Los Angeles County. As indicated in Section V.J.1, Employment, the Gateway Cities Council of Governments subregion, as defined by SCAG, is comprised of 27 cities and includes the cities of Artesia, Avalon, Bell, Bell Gardens, Bellflower, Cerritos, Commerce, Compton, Cudahy, Downey, Hawaiian Gardens, Huntington Park, La Habra Heights, La Mirada, Lakewood, Long Beach, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Signal Hill, South Gate, Vernon, and Whittier.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

While there is no existing housing within the project site, residential uses are located to the immediate north of the project site. There were an estimated 171,632 housing units in the City of Long Beach in 2000, an increase of 1,277 housing units when compared with the number of housing units in 1990 (refer to Table 45 on page 573). This represents an expansion of less than 1.0 percent of the housing stock over a ten-year period. The City of Lakewood grew by less than 2.0 percent over the same period, from 26,794 housing units in 1990 to 27,310 housing units in 2000. In contrast, Los Angeles County grew from an estimated 3,162,310 housing units in 1990 to 3,270,906 housing

Table 45

HOUSING CHANGES: 1990-2000

	City of Long Beach		City of Lakewood		Los Angeles County	
Housing Units in 1990 and 2000	**1990**	**2000**	**1990**	**2000**	**1990**	**2000**
Single-Family Detached	68,882	69,003	22,112	22,219	1,538,020	1,593,474
Single-Family Attached	8,046	10,091	598	741	206,625	241,552
Multi-Family 2-4 Units in Structure	24,733	23,382	411	686	281,104	287,528
Multi-Family 5 or More Units in Structure	66,436	66,627	3,574	3,566	1,080,832	1,091,741
Mobile Home or Other	2,258	2,529	99	98	55,729	56,611
Total Units	170,355	171,632	26,794	27,310	3,162,310	3,270,906
Occupied Housing Units	158,944	163,088	26,101	26,853	2,989,521	3,133,771
Vacancy Rate	6.70%	4.98%	2.59%	1.67%	5.46%	4.19%

1990-2000 Housing Growth Analysis	**Incremental Growth**	**Average Annual Growth Rate**	**Incremental Growth**	**Average Annual Growth Rate**	**Incremental Growth**	**Average Annual Growth Rate**
Single-Family Detached	121	0.02%	107	0.05%	55,454	0.36%
Single-Family Attached	2,045	2.54%	143	2.39%	34,927	1.69%
Multi-Family 2-4 Units in Structure	-1,351	-0.55%	275	6.69%	6,424	0.23%
Multi-Family 5 or More Units in Structure	191	0.03%	-8	-0.02%	10,909	0.10%
Mobile Home or Other	271	1.20%	-1	-0.10%	882	0.16%
Total Units	1,277	0.07%	516	0.19%	108,596	0.34%
Occupied Housing Units	4,144	0.26%	752	0.29%	144,250	0.48%

Source: PCR Services Corporation, January 2004, based on data from the California Department of Finance, Report No. E-5 City/County Population and Housing Estimates, 1991-2000 with 1990 Census Counts, and Tables 1 and 2: E-5 City/County Population and Housing Estimates with 2000 Census counts, 4/1/2000 DRU Benchmark, May 2003.

units in 2000, an increase of 3.4 percent. As indicated in Table 45, housing vacancy in 2000 was 5.0 percent in Long Beach, 1.7 percent in Lakewood and 4.2 percent in Los Angeles County.[302] These vacancy rates are considered low and represent a tight housing market.

According to the 2000 Census Profile of General Demographic Characteristics, home rental is somewhat more prevalent in Long Beach, with 59.0 percent of occupied housing units being rented, compared to 52.1 percent in Los Angeles County. Lakewood has comparatively less home rental, at 28.0 percent. In addition, as summarized in Table 45, detached single family housing is twice as prevalent in Lakewood (82.5 percent of the housing units) as it is in Long Beach (40.2 percent).

Existing housing stock in the City of Long Beach contains a substantial proportion of older housing, with 38 percent of the housing stock greater than 50 years old, 37 percent between 30 and 50 years old, and only 25 percent of the housing stock being less than 30 years old.[303] Long Beach has experienced a slow rate of home construction and home demolition.

The City of Long Beach reports somewhat more residential building permit activity over the 1990 to 2000 period compared with the California Department of Finance data.[304] Specifically, as shown in Table 46 on page 575, based on data within the City of Long Beach 2000-2005 Housing Element, a total of 2,524 net new housing units were constructed in the City of Long Beach between 1990 and 1999. As indicated by Figure 56 on page 576, housing growth slowed considerably in Long Beach through the 1990's. The annual increase in net housing units fell dramatically beginning in 1994. In addition, a net loss in housing occurred in the years 1998 and 1999. Based on data provided by Alfred Gobar Associates, approximately one-third of the new housing units constructed during the 1990s were single family, while the remaining units constructed were multi-family.

While a decline in housing is indicated by Table 46 and Figure 56, based on more recent data provided by Alfred Gobar Associates, annual housing development within the

[302] *California Department of Finance, Report No. E-5 City/County Population and Housing Estimates, 1991-2000 with 1990 Census Counts, and Tables 1 and 2: E-5 City/County Population and Housing Estimates, 4/1/2000 DRU Benchmark, May 2003.*

[303] *City of Long Beach, 2000-2005 Housing Element, April 2001.*

[304] *This variance is attributable to a difference between building permits drawn for housing units and actual units constructed.*

Table 46

LONG BEACH BUILDING PERMIT ACTIVITY

Year	New Units	Units lost to:		Net Change in Housing Units
		Demolition	Reconfiguration	
1990	911	184	3	724
1991	844	279	55	510
1992	741	82	12	647
1993	651	107	4	540
1994	233	124	19	90
1995	278	131	19	128
1996	140	89	24	27
1997	121	73	34	14
1998	85	111	84	(110)
1999	93	53	86	(46)
Total	**4,097**	**1,233**	**340**	**2,524**

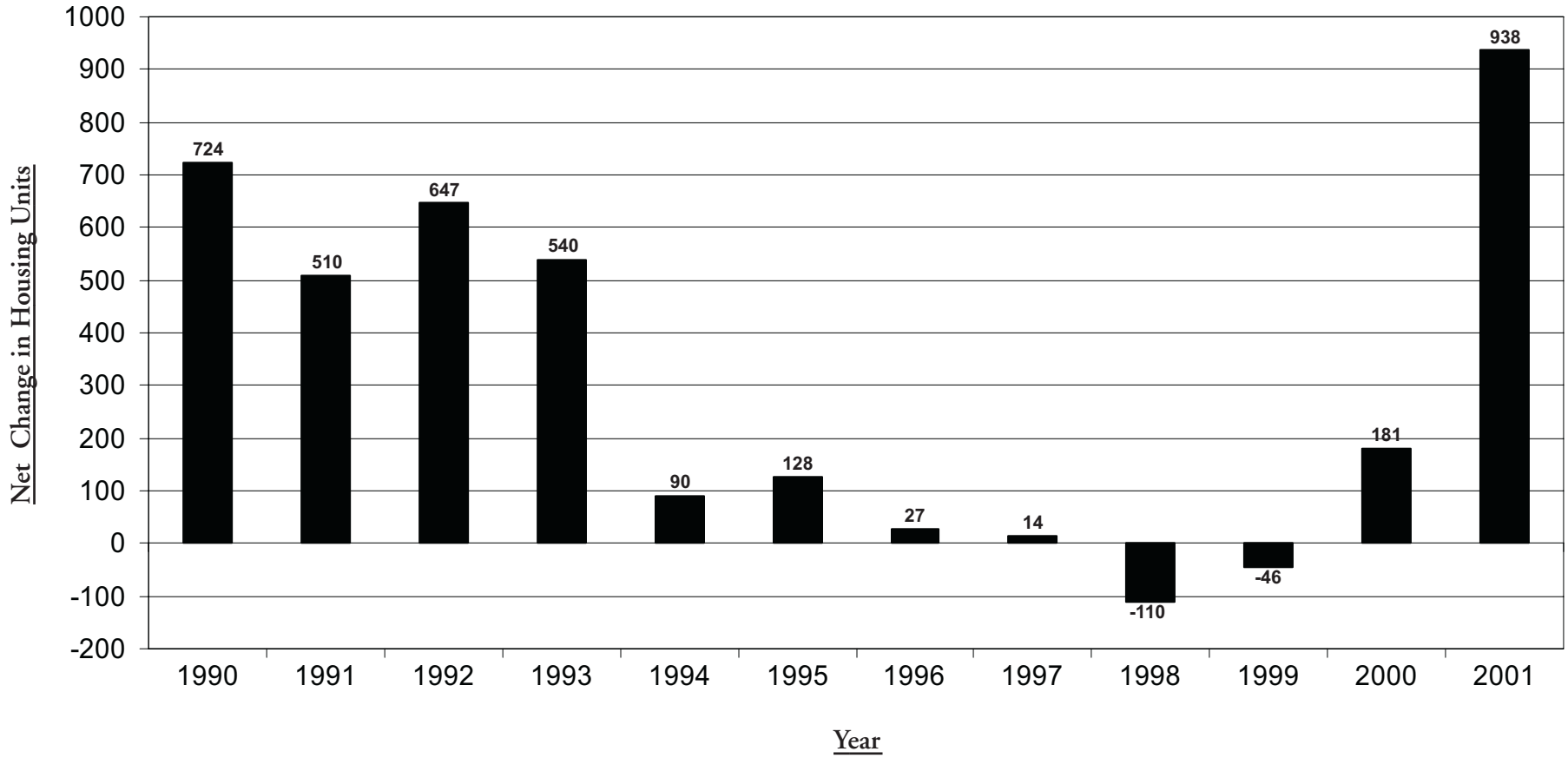
Source: City of Long Beach, 2000-2005 Housing Element, April 2001.

City of Long Beach has recently increased, with 938 housing units (primarily multi-family) permitted in 2001.

b. Projected Household Growth

Household growth projected for the Cities of Long Beach and Lakewood, the Gateway Cities subregion, and the County of Los Angeles in SCAG's 2001 RTP Growth Forecast is summarized in Table 47 on page 577. The City of Long Beach shows a projected growth of 26,889 households over the period from 2003 to 2020, representing an annual average growth rate of 1.0 percent. Lakewood, which has less growth capacity, is forecasted to grow at a slower rate of 0.1 percent per year, from 26,017 households in 2003 to 26,335 households in 2020. For the same period, Los Angeles County is projected to expand by 640,347 households, an annual average growth rate of 1.3 percent.

According to SCAG's Report "The State of the Region 2002—Measuring Progress in the 21st Century," Southern California's housing is in risk of "potential failure" as the imbalance in housing units to population increases. Specifically, SCAG's report states that construction of new housing units in the last decade has fallen behind population growth and that in addition to the current lack of housing, the projected growth for housing and population will expand to need two million new housing units for the six million new



Source: Years 1990 through 1999, City of Long Beach, 2000-2005 Housing Element, *April 2001*; Years 2000 and 2001- Alfred Gobar Associates.

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Figure 56
Housing Growth

Table 47

HOUSEHOLD GROWTH PROJECTED BY SCAG 2001RTP

Jurisdiction	2003 [a]	2020	Growth Increment	Average Annual Growth
City of Long Beach	161,835	188,724	26,889	1.0 %
City of Lakewood	26,017	26,335	318	0.1 %
Los Angeles County	3,204,774	3,845,121	640,347	1.3 %

[a] *Year 2003 forecasts were estimated by using a straight line interpolation between the 2000 and 2005 projections.*

Source: SCAG 2001 RTP Growth Forecasts, City Projections; PCR Services Corporation, January 2004.

residents expected in Southern California by 2025. The lack of housing units in turn also creates the problem of crowded housing with Southern California's rate among the highest rates of large metropolitan areas.[305]

c. Regulatory Framework

As indicated in Section V.J.1, Employment, of this EIR, SCAG's Regional Comprehensive Plan and Guide (RCPG), revised in April 2001, serves as a comprehensive planning guide, focusing on growth through the year 2015. The primary goals of the RCPG are to improve the standard of living, enhance quality of life, and promote social and economic equity. The SCAG RTP provides projections of population, households, and employment. Refer to Section V.H, for a list of relevant RCPG policies that are applicable to the project.

The 2000-2005 Housing Element of the Long Beach General Plan (April 2001) offers a comprehensive analysis of housing needs, including current population, employment, and housing stock characteristics. In addition, the 2000-2005 Housing Element identifies market and governmental constraints and opportunities, as well as available housing resources. The 2000-2005 Housing Element also acts as the City's Housing Plan, which includes the following relevant goals and policies:

[305] *"The State of the Region 2002—Measuring Progress in the 21st Century" Southern California Association of Governments, pages 34-39.and SCAG 2002 Annual Report pages 15 and 18.*

- Goal 2: Provide increased opportunities for the construction of high quality new housing.
  - Policy 2.1—Provide adequate sizes, zoned at appropriate densities, to facilitate the housing production and affordability goals set forth in the 1998-2005 Regional Housing Needs Assessment.
  - Policy 2.2—Encourage a balance of rental and homeownership opportunities, including high-quality apartments, townhomes, condominiums, and single-family homes.
  - Policy 2.3—Encourage new high quality rental and ownership housing through the implementation of design review guidelines and architectural standards.
  - Policy 2.5—Encourage new residential development along transit corridors, in the downtown, and close to employment, transportation, and activity centers; and encourage infill and mixed-use developments in designated districts.
  - Policy 2.8—Support the provision of quality rental and ownership housing opportunities, including those to accommodate larger families.
  - Policy 2.10—Utilize development agreements as a tool to achieve a mix of affordability levels in large-scale residential projects.
- Goal 3: Provide increased opportunities for home ownership.
  - Policy 3.1—Provide favorable home purchasing opportunities, with an emphasis upon affordable options for low- and moderate-income households.
- Goal 5: Mitigate governmental constraints, to the extent feasible, to housing investment and affordability.
  - Policy 5.3—Utilize Planned Developments (PD) as a tool to allow flexible residential development standards in designated districts.

While not a part of the City's Housing Plan, Chapter 4, Housing Resources, of the 2000-2005 Housing Element provides a survey of potential housing opportunities within the City.[306] Specifically, Chart 47 indicates residential projects proposed and/or under

[306] *City of Long Beach Housing Element, April 2001, page IV-3.*

construction throughout the City as of 2000. This survey does not constitute formal City policy or regulation. Within Chart 47, the PacifiCenter project site is listed as being in the planning stages and the chart indicates that 2,200 moderate income residential units and 220 low-income units may be constructed on the site. The text following this table cites these units based on conceptual plans proposed by Boeing. The chart and associated text within the 2000-2005 Housing Element were drafted at a time when the Applicant proposed a different plan, which included small unit apartments. Subsequent to adoption of the 2000-2005 Housing Element, the Applicant made substantial changes to its plan for the project site. As indicated in Section III, Project Description, of this EIR, the residential component of the project now includes a mix of housing types including town homes, single-family detached homes, condominiums, and luxury apartments, all with a variety of unit sizes and bedroom counts. Approximately 60 percent of these units are now proposed as for-sale units. The changes to the residential component of the plan were made, in part, to encourage consistency and compatibility with the nearby residential uses north of the project site.

With regard to affordable housing, Division VI of the City of Long Beach Municipal Code includes provisions regarding housing for households of very low and low income in market rate projects. However, the provisions of Division VI set forth in the Municipal Code have not been placed into effect.

2. ENVIRONMENTAL IMPACTS

a. Methodology

The analysis of potential housing impacts includes: (1) a comparison of the housing supply proposed by the PacifiCenter project with housing growth projections for 2020 (the project build out year); (2) a comparison of the indirect demand for new housing resulting from employment associated with the project with the housing forecast for the County of Los Angeles and Cities of Long Beach and Lakewood to determine if substantial amounts of new housing development beyond that proposed at PacifiCenter should be expected; and (3) an evaluation of the project's consistency with applicable regulatory policies cited above. The indirect housing growth for the project has been evaluated by using the "worst-case" employment data (i.e., the maximum number of employees that could be generated) presented in Section V.J.1, Employment, of this EIR, 2000 Census data regarding commuting patterns in Los Angeles County, and the SCAG's 1999 "State of the Commute," a report addressing commuter habits in southern California.

b. Thresholds of Significance

A project will have a significant housing impact if its construction, operation, or associated indirect demand substantially alters the location, distribution, density, or growth rate of housing contemplated for the area by regional or local plans or if the project does not support relevant local or regional policies regarding housing.

c. Project Features

In recognition of the need for affordable housing in the City of Long Beach, the Applicant will contribute funds to the City for City-wide affordable housing programs. Payment of this fee will be made rather than the provision of affordable housing on-site. The fees will be included in the Development Agreement to be approved for the proposed project.

d. Analysis of Project Impacts

New Housing. As shown in Table 1, in Section III, Project Description, the project will add up to 2,500 new housing units to the City of Long Beach and Los Angeles County. Although a 23-acre portion of the PacifiCenter project site lies within the City of Lakewood, no housing development is planned in that area. Approximately 60 percent of the new housing units are slated as for-sale units and include single-family units, townhomes, townhomes/flats and condominiums. The remaining 40 percent of the housing units are proposed as apartments with varying bedroom counts.[307] As shown in Table 48 on page 581, the addition of 2,500 new housing units is well within the SCAG housing growth projections for the City of Long Beach, accounting for approximately 9 percent of forecasted growth. As the project-related addition to the housing supply is well within official forecasted estimates for 2020, the addition of project housing is considered a beneficial impact pursuant to regional and local housing policy.

Indirect Housing Demand. As shown in Table 42 on page 566 in Section V.J.1, Employment, depending upon the precise mix of uses that will be developed, the proposed project will create up to between 4,871 and 13,442 additional jobs in Long Beach and Lakewood, compared with 545 persons employed on-site in November 2002. As previously indicated, in order to provide a "worst-case" analysis of the potential impacts associated with demand for housing; the maximum of 13,442 additional employees has been used. In addition, since the demolition of the majority of existing on-site facilities is

[307] *Refer to Table 52 in Section V.J.3, Population, for a breakdown of the proposed housing unit mix.*

Table 48

LONG BEACH HOUSING GROWTH, 2003-2020

Forecasted Growth in Households	26,889
Maximum Housing Units Added by PacifiCenter Project	2,500
Percentage of Growth Attributable to Project	9.0%

Source: SCAG 2001 RTP Growth Forecasts, City Projections.

underway and will be completed as a separate project the maximum of 13,987 jobs estimated to be generated by the proposed project are considered new.

In order to evaluate the effect that this maximum on-site labor force could have on local housing demand relative to housing availability, it is necessary to approximate the fraction of future on-site employees that may be induced to move from their current residences to homes closer to the project site. It is estimated that up to 90 percent of the jobs created by the new uses within the Commercial land use category (with the exception of retail and hotel uses) may include compensation that will induce workers to move for employment reasons. It is further estimated that 20 percent of the new retail and hospitality jobs may be sufficiently desirable to induce employment-based relocation. The balance of jobs created by the new commercial activity is not expected to offer a sufficient wage to induce relocation to the area.

With these conservative assumptions, it is calculated that a maximum of 12,062 employees could relocate to a project-related commute shed due to project employment opportunities. Table 49 on page 582 details the derivation of the project employment projection and expected commute distance of the employees. It should be recognized, however, that this indicated "mover" estimate is highly conservative because it is based on the maximum number of employees that could be generated by the project site and assumes that all new employees currently live beyond a reasonable commute distance from the project site (refer to Table 42 on page 566, in Section V.J.1, Employment). These assumptions do not account for the fact that a relatively large labor pool already resides within a reasonable commute distance. The 2000 Census indicates that 42 percent of the labor force employed in Long Beach also resided in Long Beach, indicating a high potential for the hiring of existing residents. Nonetheless, these conservative or “worst-case” assumptions are utilized in order to test the significance of indirect project-generated housing demand on available housing.

Table 49

PACIFICENTER ESTIMATED EMPLOYEE RELOCATION
BASED ON MOST INTENSIVE EMPLOYMENT DEVELOPMENT SCENARIO

Proposed Land Use	Employment Factor: Sq.Ft. per Employee	Sq.Ft.	Max. Employees	Expected Rate of Employment-Induced Relocation	Expected Employee Relocations
Commercial					
Office	225	2,790,000	12,400 [b]	90%	11,160
Research and Development	425	360,000	847	90%	162
Retail	500	150,000	300	20%	60
Hospitality	1.1 per room	400 rooms	440	20%	88
TOTAL			**13,987**		**12,062**
New Employees Moving for Job		12,062 [a]			
Moving into 5-mile radius (20.6 %)		2,485			
Moving into 5 to 10-mile radius (34.6 %)		4,173			
Moving into 10 to 20-mile radius (33.8 %)		4,077			
Moving outside 20-mile radius (11.0 %)		1,327			

[a] This number is an overestimation as it does not account for employees who may live within the proposed PacifiCenter housing units.

Source: PCR Services Corporation, January 2004, employment factors provided by Robert Charles Lesser & Co.

For the purposes of this analysis, it is assumed that each employee represents a family in need of a housing unit. These employees will logically disperse themselves across the local area or region, seeking a neighborhood that best fits their lifestyles. SCAG's "State of the Commute" report for 1999 indicates that Los Angeles County residents have a commute which averages 14.9 miles in length and 34 minutes in duration. This yields an average trip speed of 26.3 miles per hour. However, in order to provide a conservative "worst-case" analysis, an average trip speed of 20.0 miles per hour was used. The 2000 Census provides a distribution of Los Angeles County commuters according to their travel time to work, as summarized in Table 50 on page 584. By applying a trip speed to the Census travel time to work distribution, a "commute shed" relative to the project site can be defined in which a large majority of employees at PacifiCenter can be expected to be distributed.

As indicated above, the PacifiCenter project includes up to 2,500 housing units. Although a percentage of on-site employees are expected to live within PacifiCenter housing, in order to provide a "worst-case" analysis, the availability of these new housing units to accommodate PacifiCenter employees is not accounted for. Using the 2000 Census distribution of travel times for Los Angeles County provided in Table 50 and based on an average commute speed of 20.0 miles per hour, 20.6 percent of project employees could be expected to live within five miles of the project site.[308] As shown in Table 49, this yields as many as 2,485 employees of the project relocating within five miles of the project site. Following the same parameters, 34.6 percent of the employees (4,173 new employees) can be expected to live between 5 and 10 miles; another 33.8 percent (4,077 new employees) can be expected to live between 10 and 20 miles of the site; and the remaining 11.0 percent (1,327 new employees) can be anticipated to live more than 20 miles from the project site. Therefore, a total of approximately 2,485 new project employees could be induced to move to the Long Beach/Lakewood area (inside the five-mile radius) by the time the project is fully occupied in 2020, resulting in average growth of 155 households per year. Figure 57 on page 585 illustrates this five-mile radius area.

This "worst-case" estimate of average annual demand for housing by potential project employees wishing to move to the Long Beach/Lakewood area needs to be compared with the expected availability of housing. Available housing includes: (1) existing housing units that are already vacant, primarily within the rental stock; (2) housing turnover through resales; and (3) new housing that is expected to be built unrelated to the PacifiCenter project.

[308] *As indicated by the data in Table 50, 20.6 percent of Los Angeles County commuters have a commute of less than fifteen minutes. A vehicle speed of 20 miles per hour over a fifteen minute period will allow one to travel an estimated 5 miles.*

Table 50

2000 CENSUS TRAVEL TIME TO WORK
LOS ANGELES COUNTY
WORKERS 16 YEARS AND OVER

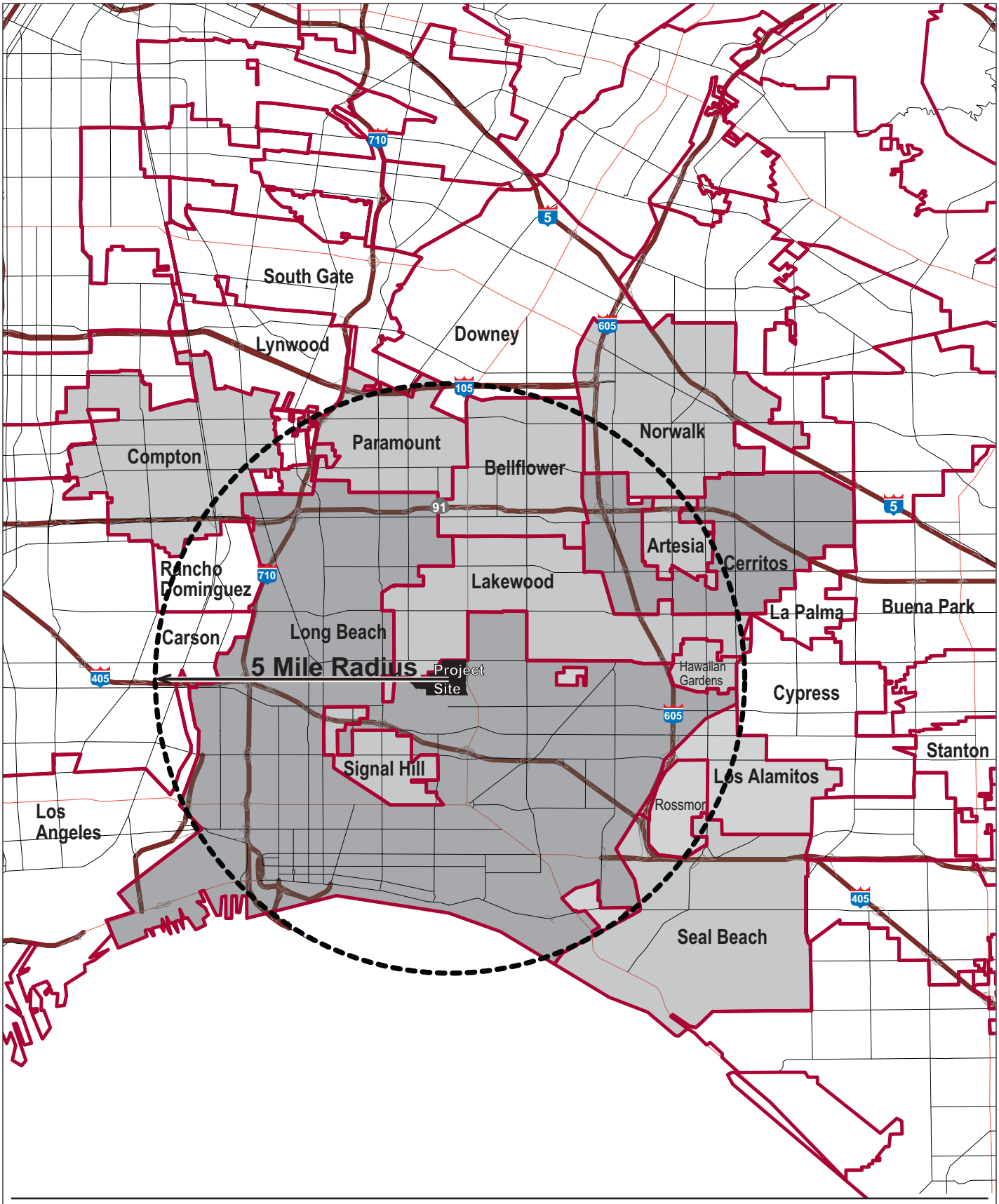
	Number of Employees	Percentage
< 5 minutes	57,417	1.5%
5 to 9 minutes	265,372	7.1%
10 to 14 minutes	447,538	12.0%
15 to 19 minutes	547,333	14.7%
20 to 24 minutes	532,606	14.3%
25 to 29 minutes	210,383	5.6%
30 to 34 minutes	624,474	16.8%
35 to 39 minutes	106,670	2.9%
40 to 44 minutes	165,115	4.4%
45 to 59 minutes	360,152	9.7%
60 to 89 minutes	283,292	7.6%
90 or more minutes	123,755	3.3%
Total	**3,858,750***	**100.0%**

**Excludes 134,643 employees who worked from home.*

Source: 2000 Census of Population and Housing, Summary Tape File 3.

Within a five-mile radius, the City of Long Beach will provide the dominant fraction of housing in 2020, or approximately 68 percent of the total. Lakewood is projected to provide another 10 percent of the five-mile total. Together both cities comprise 78 percent of the total housing supply within the five-mile radius.[309] Of this total housing supply, the 2000 US Census indicated that within the Cities of Long Beach and Lakewood combined 54.7 percent is rental stock, and since the housing forecasts do not disaggregate rental and ownership components, it is assumed that the rental proportion will not change through 2020. In 2000, the Census reported that 4.2 percent of the Long Beach rental housing stock was vacant and that 1.9 percent of Lakewood's rental housing was also vacant. Applying these relatively low vacancy rates to the rental proportions of the existing

[309] *The five-mile radius encompasses parts of other cities, primarily Signal Hill, Rancho Dominguez, Bellflower, Paramount, and Artesia. However, in an effort to perform the most rigorous analysis possible, all employees induced to move within five miles of the project site have been assumed to move to the Cities of Long Beach and Lakewood. The intent is to demonstrate that Long Beach and Lakewood have sufficient resources to accommodate more than their share of project employees and their families.*



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Scale Not Provided

Figure 57
Jurisdictions within 5-Miles of Project Site

(Year 2000) housing stock in both cities indicates 4,398 units in both cities combined are regularly vacant. In addition, an estimated 2,000 ownership housing units, or 2.8 percent of the existing Long Beach ownership housing stock, become available for sale in Long Beach each year. If this same relatively low percentage is applied to Lakewood's existing ownership stock, an estimated 551 homes in Lakewood come on the market each year. Collectively, a total of approximately 6,949 existing housing units can be expected to be available each year in the Cities of Long Beach and Lakewood (4,398 rental and 2,551 ownership units). This figure does not include the number of new housing units that may be constructed in the future in Long Beach or the limited number of units that may be constructed in Lakewood, which would increase housing availability.[310] This figure also excludes the housing opportunities within the PacifiCenter, which will also be available to accommodate some of the housing demand resulting from employment growth.

Against this annual availability, the project could generate an average of as many as 155 local "movers" to the five-mile commute radius each year. Assuming the low 2000 vacancy rates will continue in the Cities of Long Beach and Lakewood, 6,949 housing units are predicted to be available on an annual basis in Long Beach and Lakewood, which together comprise only 78 percent of the total five-mile housing stock. The demand for 155 housing units would represent only 2.2 percent of the 6,949 housing units expected to be available. Thus, although the vacancy rates within Lakewood and Long Beach are expected to remain low, the indirect demand for housing units would be expected to be accommodated by existing housing units. Even when considered against the estimated cumulative growth in housing demand in Long Beach and Lakewood of approximately 1,412 housing units per year through 2020 (a value considered largely inclusive of potential project "movers"), housing to accommodate project "movers" on an annual basis is expected to be available.[311] This conclusion would be reached even if all 12,062 new employees who might be expected to move after taking jobs at PacifiCenter actually moved to Long Beach or Lakewood. At a rate of 753 "movers" per year, the total PacifiCenter workforce will only absorb 10.8 percent of annually available rental and ownership housing. Therefore, the indirect demand for housing generated by employees of the project will not substantially alter the location, distribution, density, or growth rate of housing contemplated for the area by regional or local plans.

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[310] *While the number of new housing units to be constructed in the future cannot be accurately predicted using available data, SCAG's growth projection of 28,248 new households in Long Beach and Lakewood by 2020 suggests that the amount of expected future housing would be substantial. Housing development in Lakewood, however, is expected to be limited since that city is currently 99.5 percent built out.*

[311] *Figure represents the City of Long Beach and City of Lakewood yearly household growth increments from 2000-2020. The housing demand estimate of 1,412 units per year conservatively assumes that each new SCAG projected household for Long Beach and Lakewood generates demand for a single housing unit.*

Consistency with Plans and Policies. By creating new housing stock the PacifiCenter project will support applicable housing polices of SCAG's RCPG. The project will also helps to relieve some of the existing and expected imbalance of housing units to population described in SCAG's "The State of the Region 2002" report. In addition, as discussed in Section V.H., Land Use, of this EIR, the project will be developed as a master-planned community with employment, residential, and recreational opportunities, thus supporting SCAG's policies regarding reducing the number of auto trips and vehicle miles generated and supporting SCAG's polices regarding providing mixed-use clusters along transportation corridors.

The new housing created by the project also supports the relevant Citywide goals and policies set forth by the 2000-2005 Housing Element of the Long Beach General Plan that are identified above. The provision for new housing within the City will facilitate the housing production goals set forth by Policy 2.1. In addition, the fee for affordable housing to be provided as part of the project will support the City's affordability goals set forth by Policies 2.1, 2.10, and 3.1. Specifically, while the project itself will not directly provide affordable housing, in accordance with a development agreement, it will provide fees to the City that will be used to contribute to affordable housing of varying affordable levels on a Citywide basis. The project will also provide a mix of rental and homeownership opportunities and a mix of housing products in response to a variety of market needs, in support of Policy 2.2 of the 2000-2005 Housing Element. In addition, the project will provide diverse sizes and types of housing units, including three and four bedroom units that will accommodate larger families, in accordance with Policy 2.8 of the 2000-2005 Housing Element. The project will also provide high quality housing and incorporate design guidelines, which will include architectural standards, in furtherance of Policies 2.2 and 2.3 of the 2000-2005 Housing Element. The project complies with Policy 2.5 in that the project will locate housing along transit corridors and within an area designated as an activity center (see Section V.H, Land Use and Planning). The project also constitutes infill and mixed-use development, which is encouraged by Policy 2.5 of the 2000-2005 Housing Element. Goal 3 of the 2000-2005 Housing Element is to provide an increase in home ownership opportunities, which the project will achieve through the offering of approximately 60 percent of the proposed units for sale representing over 80 percent of the net residential acreage. Finally, consistent with Policy 5.3 of the 2000-2005 Housing Element, the project will be located in a new Planned Development District, which will create flexible development standards, necessary to the ensure implementation of a balanced planned community.

Housing Impact Conclusion. On the basis of the foregoing analyses, it is concluded that: (1) the housing component proposed within the PacifiCenter project is consistent with household growth forecast in the Long Beach area by 2020; (2) the

maximum potential indirect housing demand attributable to new project employees wishing to move locally is well within the housing supply expected to be available to such "movers" in Long Beach and Lakewood; and (3) the project is consistent with regional and local regulatory policies regarding the provision of housing. On these bases, it is determined that the PacifiCenter project will not substantially alter the location, distribution, density, or growth rate of housing contemplated for the area by regional or local plans and will not be inconsistent with the relevant policies set forth in the City's 2000-2005 Housing Element and the RCPG.

3. CUMULATIVE IMPACTS

The impact analysis provided above includes assessments of the direct increase in new housing and the indirect increase in housing demand resulting from implementation of the PacifiCenter project in comparison with local and regional growth forecasts. Such forecasts account for planned or reasonably foreseeable development within each jurisdiction in the local area and the region. Therefore, the analysis performed is both a project-level and cumulative analysis. As stated above, the net direct increase in housing associated with the project will be well within the household growth forecast for Long Beach and Los Angeles County. Similarly, the indirect increase in housing demand associated with PacifiCenter employment could be accommodated by projected housing supplies in Long Beach and Lakewood. Furthermore, the project will help to relieve a regional housing shortage that exists within southern California. Therefore, implementation of the project will not result in any significant cumulative impacts associated with housing.

4. MITIGATION MEASURES

Based on the above analysis no significant impacts associated with alteration of the location, distribution, density, or growth rate of housing contemplated for the area by regional or local plans will occur. In addition, with implementation of the project feature regarding payment of a fee for affordable housing, no inconsistencies with relevant local or regional policies regarding housing will occur. Therefore, no mitigation measures are required.

5. IMPACTS AFTER MITIGATION

No significant impacts associated with alteration of the location, distribution, density, or growth rate of housing contemplated for the area by regional or local plans or inconsistencies with relevant local or regional policies regarding housing will occur. Therefore, no mitigation measures are required.

The California Environmental Quality Act (CEQA) focuses on the physical effects of a project and states that economic and social changes resulting from a project shall not be treated as physical effects on the environment. Although population impacts are typically economic or social in nature, the analysis of such impacts is provided herein to support other impact analyses prepared for this EIR.

The analyses presented in this section focus on the local and regional context in which the project site is located. The geographic areas of analysis included the Cities of Long Beach and Lakewood and Los Angeles County. Similar to Sections V.J.1, Employment, and V.J.2, Housing, of this EIR, SCAG 2001 RTP Growth Forecasts and 2000 census data have been used in this analysis. Also refer to Section VII.D, Growth Inducing Impacts, of this EIR for a discussion of impacts associated with population growth generated by the project.

1. ENVIRONMENTAL SETTING

a. Existing Conditions

Table 51 on page 591 presents population characteristics from the 1990 and 2000 Census for the Cities of Long Beach and Lakewood and Los Angeles County. As indicated by Table 51, the population in Long Beach grew from an estimated 429,433 persons in 1990 to 461,522 persons in 2000, representing an increase of 32,089 and an average annual growth rate of 0.8 percent. The population of the City of Lakewood grew from 73,557 in 1990 to 79,345 in 2000, representing an increase of 5,788 persons and an average annual growth rate of 0.8 percent. The average annual growth rate from 1990 to 2000 in Los Angeles County was 0.7 percent, with an increase from 8,863,164 in 1990 to 9,519,338 persons in 2000.

b. Projected Population Growth

Table 52 on page 592 shows the population growth projected for the Cities of Long Beach and Lakewood and Los Angeles County in the SCAG 2001 RTP Growth

Table 51

POPULATION CHANGES: 1990-2000

Jurisdiction	1990	2000
City of Long Beach	429,433	461,522
City of Lakewood	73,557	79,345
Los Angeles County	8,863,164	9,519,338
1990-2000 Population Growth Analysis	**Incremental Growth**	**Average Annual Growth Rate**
City of Long Beach	32,089	0.8%
City of Lakewood	5,788	0.8%
Los Angeles County	656,174	0.7%

Source: 1990 and 2000 Census of Population.

Projections. As indicated by Table 52, the population of the City of Long Beach is projected to increase to 518,349 persons by 2020, representing an annual average growth rate of 0.62 percent. Lakewood is projected to have a lower growth rate of 0.16 percent annually, resulting in a population of 83,255 by 2020. Los Angeles County is projected to have the highest projected population growth rate, at 0.9 percent per year, resulting in a growth increment of 1,558,686 persons from 2003 to 2020.

c. Regulatory Framework

City of Long Beach. The City's Land Use Element of the General Plan, adopted in July 1989, serves as a long-term planning guide for future development throughout the City. The Land Use Element specifically states “citations of a population forecast are not to be construed as constituting a “cap” on development beyond which proposed housing developments would be denied for the reason of having exceeded the population estimate.” Refer to Section V. H. Land Use and Planning of this EIR for a detailed discussion of the City’s Land Use Element.

City of Lakewood. The City’s Land Use Element of the General Plan, adopted in November 1996, serves as the framework for future physical, social, and economic development in the City of Lakewood. The Land Use Element topics include the identification of existing land uses by type, analysis of building trends and anticipated population intensities.

Table 52

POPULATION GROWTH PROJECTED BY SCAG

Jurisdiction	2000	2003 [a]	2020
City of Long Beach	456,378	469,201	518,349
City of Lakewood	79,801	80,988	83,255
Los Angeles County	9,846,681	10,155,352	11,714,038
Population Growth Increments		**2003-2020**	
City of Long Beach		49,148	
City of Lakewood		2,267	
Los Angeles County		1,558,686	
Average Annual Growth Rates		**2003-2020**	
City of Long Beach		0.62%	
City of Lakewood		0.16%	
Los Angeles County		0.90%	

[a] *Year 2003 forecasts were estimated by using a straight line interpolation between the 2000 and 2005 projections.*

Source: SCAG 2001 RTP Growth Forecasts, City Projections; PCR Services Corporation, January 2004.

Southern California Association of Governments. As previously discussed in Sections V.J.1, Employment, and V.J.2, Housing, of this EIR, SCAG's Regional Comprehensive Plan and Guide (RCPG), revised in April 2001, serves as a comprehensive planning guide, focusing on growth through the year 2015. The primary goals of the RCPG are to improve the standard of living, enhance quality of life, and promote social and economic equity. Within the RCPG, issues related to population and growth are primarily addressed in Chapter 2, The Economy, and Chapter 3, Growth Management. Specifically, these chapters analyze growth patterns, provide economic forecasts, recommend strategies for economic prosperity and equity, and specify growth management policies. SCAG's Regional Transportation Plan provides forecasts of population, households, and employment levels for counties, subregions, cities, and Census tracts within SCAG's jurisdiction.

2. ENVIRONMENTAL IMPACTS

a. Methodology

The analysis of potential population impacts includes an evaluation of the project's consistency with applicable policies described above and a comparison of the population growth resulting from direct increases in the City of Long Beach and Los Angeles County housing supply, as well as an influx of population induced by PacifiCenter employment.[312] The estimate of the PacifiCenter project's indirect population growth is calculated based on the anticipated demand for housing resulting from employment growth described in Section V.J.2, Housing.

b. Thresholds of Significance

A project will have a significant impact on population if the construction and operation of the project substantially alters the location, distribution, density, or growth rate of population planned for the area by local and regional plans.

c. Analysis of Project Impacts

(1) Consistency with Plans and Policies

The SCAG Regional Comprehensive Plan and Guide, along with the Land Use Elements of the Cities of Long Beach and Lakewood, offer little guidance for population growth beyond setting the general goal that population growth not exceed the most recent growth forecasts. This goal is somewhat diluted by the City of Long Beach Land Use Element, which specifically states that population forecasts do not constitute a restriction on population growth or development.

(2) Consistency with Projections

As shown in Table 53 on page 594, the PacifiCenter project will add up to 2,500 additional housing units within the City of Long Beach and therefore within Los Angeles County. As shown in Table 53, based on factors provided by Robert Charles Lesser and

[312] *Direct population growth associated with the project is not evaluated for the City of Lakewood, since all of the proposed housing will occur in the City of Long Beach.*

Table 53

Estimated Unit Mix and Occupancy For Proposed Residential Development Schemes

Unit Type	Approximate Units	Approximate Acreage	Typical Density	Density Range	RCLCO/US Census Household Estimates	
					Persons/Unit	Total Population
Single-Family Detached	200 DU	19.0 acres	11 DU/AC	6-12 DU/AC	2.99	598
Townhomes	360 DU	20.0 acres	18 DU/AC	14-20 DU/AC	2.12	763
Towns/Flats	560 DU	24.0 acres	23 DU/AC	16-24 DU/AC	1.75	980
Condominiums	380 DU	12.0 acres	40 DU/AC [a]	25-50 DU/AC	1.56	593
Subtotal	**1,500**	**75.0 acres**				**2,934**
Apartments	1,000	17.5 acres		40-60 DU/AC	1.85	1,850
Subtotal	**1,000**	**17.5 acres**				**1,850**
Total	**2,500**	**92.5 (excludes park acreage)**	**27 DU/AC**			**4,784**

Note: RCLCO/U.S. Census household size estimates are based upon 2000 U.S. Census data for the City of Long Beach for average number of persons by number of units in a structure and by tenure.

[a] *Within the Low to Medium Housing Area, the maximum density for condominiums would be limited to 25 dwelling units per acre.*

Source: PCR based on data from Robert Charles Lesser & Co., January 2004.

Company that were derived based on 2000 census data, approximately 4,784 new residents will be generated by the estimated residential unit mix proposed by PacifiCenter. As indicated by the data provided in Table 52, between the years 2003 and 2020, the population of the City of Long Beach is expected to increase by 49,148 persons. Based on this number, direct population growth resulting from development of the proposed residential uses will account for 9.7 percent of the population growth expected between 2003 and 2020 within the City of Long Beach. In addition, the estimated population generated by the proposed residential uses will represent well under one percent of the population growth anticipated within Los Angeles County.

As discussed in Table 49 on page 582 in Section V.J.2, Housing, of this EIR, employment associated with the project's commercial activities is anticipated to induce as many as 2,485 persons to move within five-miles of the project site, which includes the Cities of Long Beach and Lakewood. Assuming that these new employees who choose to live in Long Beach and Lakewood have similar demographic characteristics to the existing residents of Long Beach, the induced movers should have a similar household size, or 2.77 persons per household.[313] This yields 6,883 new residents induced to relocate into Long Beach and Lakewood. This indirect population generated by the proposed commercial uses will represent approximately 13 percent of the population growth expected within the Cities of Long Beach and Lakewood by 2020.

Together, the direct and indirect population growth within the Cities of Long Beach and Lakewood will total approximately 11,667 persons. This estimated growth will represent 23 percent of the population growth forecast by SCAG within the Cities of Long Beach and Lakewood from 2003 through 2020. The estimated total population resulting from implementation of the project will also represent 0.7 percent of the population growth forecast for Los Angeles County. These increases are well within the forecasted growth set forth by SCAG. As the additional population attributable to the PacifiCenter project will not substantially alter the location, distribution, density, or growth rate of population planned and forecast in Long Beach, Lakewood or Los Angeles County, the proposed project will not result in a significant population impact.

3. CUMULATIVE IMPACTS

The impact analysis provided above includes an assessment of the population resulting from a direct increase in housing associated with the PacifiCenter project and

[313] *2000 Census of Population and Housing.*

induced indirect population growth resulting from project development. As these estimated population increases were compared with local and regional growth forecasts, which account for planned or reasonably foreseeable development within each jurisdiction in the local area and the region, the analysis is both a project-level and cumulative analysis. As discussed above, the net population increase associated with the project will be well within the growth forecasts for Long Beach, Lakewood, and Los Angeles County. Therefore, implementation of the PacifiCenter project will not result in any significant cumulative impacts associated with population.

4. MITIGATION MEASURES

No significant impacts associated with population growth have been found, therefore no mitigation is required. However, as indicated in other sections of this EIR , the increase in population will result in impacts in other issue areas that require mitigation.

5. IMPACTS AFTER MITIGATION

No significant impacts will result from project implementation and no mitigation measures will be required. However, as indicated in other sections of this EIR, the increase in population will result in impacts in other issue areas.