

3.0 ENVIRONMENTAL SETTING

3.1 REGIONAL SETTING

The project site is located in the City of Long Beach, in southern Los Angeles County, within the greater Los Angeles metropolitan area (refer to Figure 2-1, Regional Location, and Figure 2-2, Project Vicinity, both of which can be found in Section 2.0, *Project Description*). The City of Long Beach is approximately 20 miles south of downtown Los Angeles and is located adjacent to the Pacific Ocean. The total area of the City of Long Beach is approximately 33,908 acres (53 square miles). Developed land comprises approximately 98.6% of the City, leaving only 473 acres, or 1.4%, of the City undeveloped. Water-covered areas and miscellaneous land uses account for the remaining land. The Mediterranean climate of the region and coastal influence produce moderate temperatures year round, with rainfall concentrated in the winter months. The region is subject to various natural hazards, including earthquakes, tsunami and flooding.

3.2 PROJECT SITE SETTING

The project site encompasses two full blocks comprising approximately 6.3 acres on the east and west sides of Atlantic Avenue north of South Street in the North Long Beach Redevelopment Project Area in the City of Long Beach, County of Los Angeles. The West Block, approximately 3.15 acres, is bounded on the south by South Street, on the west by Linden Avenue and on the north by 59th Street. The East Block, also approximately 3.15 acres, is bounded on the south by South Street, on the east by Lime Avenue and on the north by 59th Street.

All improvements on the West Block have been demolished (the structure at 5869 Atlantic Avenue was demolished subsequent to the Notice of Preparation public review period). All improvements on the East Block have been demolished except for three structures. One of these structures, an auto parts store, is presently occupied. The Long Beach Redevelopment Agency (RDA) owns the subject property in its entirety except for the parcel on the eastern block where the auto parts store is located.

The roughly square and generally flat site consists of 44 assessor's parcels and is currently developed with three one- to two-story structures totaling approximately 40,000 square feet of commercial building space. All but one structure, the 8,245 square-foot Auto Zone at 5800 Atlantic Avenue, are vacant. Among the remaining buildings, two have characteristics that render them potentially historic resources (see Section 4.3 *Cultural Resources* for a full discussion of this topic). On April 5, 2009, subsequent to the Notice of Preparation public review period for this EIR, a third potentially historic structure, at 5832-34 Atlantic Avenue, was destroyed in a fire. The City then issued an Abatement Notice dated April 14, 2009 that required removal of this entire structure.

The majority of the site area is vacant; the ground surface of the vacant portions is paved in some areas and open soil or gravel in others with sparse grassy vegetation in places and a number of trees of varying sizes and species. Vehicular access to the only currently occupied land use on the site, the Auto Zone at 5800 Atlantic Avenue, is taken from Atlantic Avenue and South Street. Historically, when the site was largely occupied, vehicular access was available from all streets fronting the two subject blocks.

The prevailing uses along Atlantic to the north and south of the Site are one- and two-story commercial buildings. The prevailing uses to the east and west of the site are mixed-density residential, including single-family and multi-family homes. The project site is within Parcel One of the ten non-contiguous subareas in the North Long Beach Redevelopment Project Area. The project site is also located in the Dairy neighborhood, which is characterized by older, mixed residential areas with localized commercial shopping areas.

3.3 CUMULATIVE PROJECTS SETTING

CEQA defines “cumulative impacts” as two or more individual events that, when considered together, are considerable or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, traffic impacts of two nearby projects may be insignificant when analyzed separately, but could have a significant impact when analyzed together. Cumulative impact analysis allows the EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

Cumulative impacts are discussed within each of the specific impact analysis discussions in Section 4.0, *Environmental Impact Analysis*. The cumulative analysis in this EIR considers currently planned and pending projects in the vicinity of the project site. The cumulative projects considered are those listed in Table 3-1, which total approximately 213,000 square feet of commercial development, 15,000 square feet of industrial development, and 61 units of senior housing.

**Table 3-1
 Cumulative Projects List**

Address and Description	Density	Land Use
4442-4446 Atlantic Ave: Commercial retail building of 34,689 sq. ft. along with 8,114 sq. ft. of attached retail shops in an existing shopping center (Bixby Knolls Shopping Center)	34.689 ksf*	Shopping Center
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899 E. San Antonio Blvd: 5,051 sq. ft. retail commercial building	5.051 ksf	Shopping Center
1313 E. Artesia Blvd: 28,000 sq. ft. supermarket	28 ksf	Supermarket



**Table 3-1
Cumulative Projects List**

2407 E. Artesia Blvd: 15,000 sq. ft. industrial warehouse	15 ksf	Warehousing
6108 Atlantic Ave: 4,000 sq. ft. retail building	4 ksf	Shopping Center
3290 E. Artesia Blvd: 61-unit senior housing facility; 89 on-site parking stalls	36 units/acre	Senior Housing
6750 Cherry Ave: 127,246 sq. ft. Target store; 6,000 sq. ft. commercial building with drive-thru; and 115 sq. ft. gas station; 795 on-site parking stalls	133,361 ksf	Shopping Center

* ksf = thousand square feet
Source: City of Long Beach, June 2009



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4.0 ENVIRONMENTAL IMPACT ANALYSIS

This section discusses the possible environmental effects of the proposed project for the specific issue areas that were identified through the Initial Study and NOP process as having the potential to experience significant impacts. “Significant effect” is defined by the *State CEQA Guidelines §15382* as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant.”

The assessment of each issue area begins with a discussion of the setting relevant to that issue area. Following the setting is a discussion of the project’s impacts relative to the issue area. Within the impact analysis, the first subsection identifies the methodologies used and the “significance thresholds,” which are those criteria adopted by the City, other agencies, universally recognized, or developed specifically for this analysis to determine whether potential impacts are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each impact under consideration for an issue area is separately listed in bold text, with the discussion of the impact and its significance following. Each bolded impact listing also contains a statement of the significance determination for the environmental impact as follows:

Class I, Significant and Unavoidable: An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved.

Class II, Significant but Mitigable: An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings to be made.

Class III, Not Significant: An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.

Class IV, Beneficial: An impact that would reduce existing environmental problems or hazards.

Following each environmental impact discussion is a listing of recommended mitigation measures (if required) and the residual effects or level of significance remaining after the implementation of the measures. In those cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed as a residual effect.

The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other future development in the area.



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4.1 AESTHETICS

4.1.1 Setting

a. Visual Character of the Project Vicinity. The project site is located in the northern portion of Long Beach, approximately seven miles from the Pacific Ocean and approximately 0.6 miles from the channelized Los Angeles River. The project site is not located along a designated scenic corridor. The project site encompasses two full blocks comprising approximately 6.3 acres on the east and west sides of Atlantic Avenue north of South Street in the North Long Beach Redevelopment Project Area. The western block, approximately 3.15 acres, is bounded on the south by South Street, on the west by Linden Avenue and on the north by 59th Street. The east block, also approximately 3.15 acres, is bounded on the south by South Street, on the east by Lime Avenue and on the north by 59th Street. Figures 2-1 and 2-2 in Section 2.0, *Project Description*, illustrate the location of the project site.

The project site is within Parcel One of the ten non-contiguous subareas in the North Long Beach Redevelopment Project Area. The surrounding area is built out with a variety of commercial and residential uses in buildings generally ranging from one to two stories. Properties surrounding the project site include a gas station, pharmacy, laundry-mat, dentist office and retail to the south; a church, one-story commercial building and one and two story single-family and multi-family residential to the north; and one and two-story residential development to the east and west. Photographs that show the existing visual character of the surrounding area are shown on Figures 4.1-1a and b.

b. Visual Character of the Project Site. The portion of the project site west of Atlantic Avenue consists of vacant, previously disturbed land. Development on the portion of the project site east of Atlantic Avenue currently consists of an automobile parts store fronting Atlantic Avenue, a parking lot, two vacant commercial buildings, and vacant land. With the exception of the on-site automobile parts store, the on-site structures are in a deteriorating condition and could generally be viewed as blighted. Commercial properties along Atlantic Avenue consist of aging commercial buildings that are characterized by physical deterioration and have generally low aesthetic value. Figures 2-3 and 2-4 in Section 2.0, *Project Description*, present aerial and street-level views of the project site and surrounding areas.

With respect to light and glare, the project area currently has street lighting and some exterior building lighting around the automobile parts store. The automobile parts store is the only on-site building with interior lighting. However, because of the relatively small surface area of the auto parts store devoted to windows, and the use of landscaping in front of the windows, interior lighting does not contribute substantially to nighttime light. The other abandoned buildings have a relatively small surface area devoted to windows and do not substantially contribute to glare. Land uses in the vicinity that would be most sensitive to night lighting are the residences on Linden Avenue west of the project site, residences north of the project site on East 59th Street and residences east of the project site on Lime Avenue.





Photo 1. Commercial development on Atlantic Avenue on and south of the project site.



Photo 2. Residential development (right) along Linden Avenue adjacent to the project site on the left.

Existing Visual Character
of Surrounding Land Uses





Photo 3. Residential development along Lime Avenue and 59th Street adjacent to the east block, as seen from the interior of the project site.



Photo 4. Commercial development along South Street adjacent to the east block, as seen from the interior of the west block of the project site.

Existing Visual Character
of Surrounding Land Uses



c. Existing Shadow Conditions. As indicated above, the project site currently consists of vacant land, one and two-story commercial buildings and surface parking lots. At these heights, morning and afternoon winter shadows do not fall on the residences surrounding the project site.

d. Regulatory Setting. Citywide policies on scenic vistas focus on protecting views of the City's natural resources as well as views along significant streets and boulevards. The Scenic Routes Element, adopted in 1975, proposed five scenic route systems within the City.

Neighborhood aesthetics and character are addressed in several City policies, especially those contained in the Urban Design Analysis, Conclusions and Policy Directions Section of the Land Use Element and several in the Conservation and Scenic Routes elements. These issues are further addressed in the City's Zoning Ordinance through a range of development standards that are applied by district. In addition, the North Long Beach Strategic Guide for Redevelopment identifies comprehensive strategies for the overall revitalization and redevelopment of the North Long Beach Project Area. These strategies suggest and prescribe changes in land use, specific development projects, changes in regulatory controls, and changes in public services. The North Long Beach Design Guidelines (Design Guidelines) apply to North Long Beach including the project site, and are intended to serve as a guide for property owners and developers who are planning new development projects or renovation of existing structures in North Long Beach and for City of Long Beach Redevelopment Agency and Planning staff who review those projects. The Design Guidelines implement the design principles in the North Long Beach Strategic Guide.

Policies and design standards related to aesthetics that are applicable to the proposed project are discussed below. This section primarily focuses on those requirements most applicable to the design of the proposed project for the purpose of assessing whether any inconsistency with these standards creates a significant impact on the City's visual resources. Consistency with selected applicable visual resources and design policies is discussed in Section 4.7, *Land Use and Planning*. The ultimate determination of whether this project is consistent with the General Plan, Specific Plan, and Zoning Ordinance resides exclusively with the decision-making bodies (Redevelopment Agency, Planning Commission, and City Council), and not with this environmental document.

The policies most applicable to the proposed project include the following:

Land Use Element

- *Atlantic Avenue: Land uses on the frontages of Atlantic Avenue serve a multitude of purposes, ranging from highly urbanized housing and offices in the downtown area to, a mixture of low density residential with retail uses in the Central Area, to a large scale public uses at the northern end of the street. Of primary concern are: The Central Area, where deteriorated and vacant store fronts should be replaced with mixtures of residential and retail. The residential density should be that of Land Use District No. 3A (Townhomes). There is not enough retail market in this part of the City to make solid retail along both Long Beach Boulevard and Atlantic Avenue economically viable; In that portion of the Avenue between Atlantic Plaza and*



Harding Street, mixed retail/residential is also recommended with residential being LUD No. 3A, should help to revitalize this declining strip commercial area (p. 252).

- *Neighborhood Emphasis: Long Beach recognizes a strong neighborhood to be the essential building block of a City-wide quality living environment and will assist and support the efforts of residents to maintain and strengthen their neighborhoods (p.18).*
- *Facilities Maintenance: 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 (p. 18).*

Conservation Element

- *To create and maintain a productive harmony between man and his environment through conservation of natural resources and protection of significant areas having environmental and aesthetic value (p.8).*
- *To identify and preserve sites of outstanding scenic, historic, and cultural significance or recreational potential (p. 11).*

North Long Beach Strategic Guide for Redevelopment

- *Housing on Major Commercial Corridors: One of the recommended land use changes that will significantly change the character of North Long Beach and serve its overall revitalization is the removal and replacement of blighted commercial corridors with housing. This serves two objectives: (1) existing blighted commercial areas are removed and (2) an overall need for additional quality housing in Long Beach is obtained. Conceptual site plan and development options are presented for three commercial corridors in North Long Beach: including Atlantic Avenue between Harding and Del Amo (p. 12).*
- *Village Center: A revitalized and intensified "Village Center" will constitute the symbolic and functional "heart" of North Long Beach, providing needed services and goods and serving as a "stage" for community events and celebrations (p. 27). It is envisioned that the area around the intersection of Atlantic Avenue and South Street be developed as the principal neighborhood center/town center for North Long Beach. Pedestrian oriented retail uses would be expanded along street frontages, streetscape and parking improvements would be implemented and public uses, arts and cultural facilities, and pocket parks would be developed as appropriate. The goal of developing a "Village Center" is to create a definable, unique "center" for North Long Beach to serve as the focal point for neighborhood identity and activity. The area has the potential to be a mixed-use area: a mix of shopping, restaurants, cafes, and community facilities, with housing located nearby or in the Village Center itself (p. 53).*

Scenic Routes Element. The Scenic Routes Element was adopted by the Long Beach City Council in 1975. The purpose of the Scenic Routes Element is to protect and enhance the



scenic resources of the City of Long Beach, by establishing a system of scenic routes along existing roadways that traverse areas of scenic beauty and interest. None of the scenic routes identified by the City are located near the project site.

4.1.2 Impact Analysis

a. Methodology and Significance Thresholds. The assessment of aesthetic impacts involves qualitative analysis that is inherently subjective in nature. Different viewers react to viewsheds and aesthetic conditions differently. This evaluation measures the existing visual resource against the proposed action, analyzing the nature of the anticipated change. The project site was observed and photographically documented, as was the surrounding area, to assist in the analysis.

An impact is considered significant if it can be reasonably argued that the project would:

- *Adversely affect a viewshed from a public viewing area (such as a park, scenic highway, roadway, or other scenic vista);*
- *Substantially damage an existing visual or scenic resource, including but not limited to trees, rock outcroppings or historic buildings;*
- *Substantially degrade the existing visual character or quality of the site and its surroundings; or,*
- *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.*

As discussed in the Initial Study (see Appendix A) project implementation would not significantly affect any scenic vistas or scenic resources (the first two criteria listed above). As such, impacts to scenic vistas and scenic resources would be less than significant and are not discussed in this section. The Initial Study determined that the proposed project could result in potentially significant impacts with regards to the third and fourth thresholds listed above. For that reason, the EIR analyzes the potential impacts to the existing visual character and quality of the site and its surroundings, as well as potential impacts relating to the light and glare.

As part of the analysis of potential impacts to the visual character and quality of the site, shadow effects were analyzed. In determining shadow effects, several factors are considered:

- *Affected land use (i.e., is it a light-sensitive use whereby sunlight is essential to its use);*
- *Duration (i.e., how many hours per day might a use be shadowed);*
- *Time of day (i.e., is it in shadow at a time of day when sunlight is most important);*
- *Season (i.e., what time of year might a particular use be in shadow);*
- *Extent (i.e., what percentage of a particular use may be in shadow);*
- *Nature of the shadows (i.e., is the shadow more solid or more dappled in nature);*
and,
- *Pre-existing conditions (i.e., are there existing buildings, landscaping or other features that currently shadow the use).*



In order for a project to generate a significant shadow impact, it must increase shadows cast upon shadow-sensitive uses. Shadow impacts are considered significant if shadow-sensitive uses would be shaded by project related structures for more than three hours between late October and early April (including Winter Solstice), or for more than four hours between early April and late October (including Summer Solstice). Facilities and operations sensitive to the effects of shading include: solar collectors; nurseries; primarily outdoor-oriented retail uses (e.g., certain restaurants); or, routinely useable outdoor spaces associated with recreational, institutional (e.g., schools), or residential land uses. These uses are considered sensitive because sunlight is important to their function, physical comfort, and/or commerce.

b. Project Impacts and Mitigation Measures.

Impact AES-1 **The proposed project would increase the intensity of on-site development over current conditions, which would alter the visual character of the project site. However, due to the low-to moderate existing visual character and quality of the site and the highly urbanized context, the change from relatively low-profile development and vacant, unimproved land to development of higher intensity and scale is considered a Class III, less than significant, impact for Option A or Option B.**

The project site is located in an urban area in the northern portion of Long Beach. Surrounding development consists primarily of one- to two-story structures. Existing on-site development consists of several buildings ranging from one- to two-stories and surface parking lots. The remainder of the site is vacant, with sparse weedy vegetation and several trees of varying sizes and species. With the exception of the on-site automobile parts store, existing on-site buildings are deteriorating and could be viewed as generally low to moderate in aesthetic value. Development of the proposed project would change the visual condition of the site through demolition of the existing structures and the construction of new structures of up to three stories along Atlantic Avenue and two stories along Linden Avenue. The project would also fill in surface parking and alley areas that are currently not occupied by structures. The proposed landscape plan includes a number of trees and other landscaping; overall, the tree coverage on the site would be increased over current conditions. Project renderings are shown on Figures 2-7 through 2-13 in Section 2.0, *Project Description*. In general Option A and Option B would be similar aesthetically; although two project components would switch locations on the site plan the overall aesthetic effect would be comparable, as would the massing and height in either location.

Two properties on-site (5870-74 Atlantic Avenue and 635 East South Street) are listed as eligible historic resources under the National Register of Historic Places or the Long Beach Landmarks listing (see Section 4.3, *Cultural Resources*, for detailed analysis of individual properties). A third structure, at 5832-34 Atlantic Avenue, was also an historic resource eligible for listing, but on April 5, 2009, subsequent to the publication of the Notice of Preparation for this EIR, it was destroyed in a fire and the City subsequently issued an Abatement Order dated April 14, 2009 that requires removal of this entire structure. These properties are known for their architectural significance and demolition of these properties would affect the aesthetics of North Long Beach. However, as the historic structures are in disrepair and have lost much of their original



aesthetic value, the aesthetic impact associated with demolition of these structures would be less than significant. (Impacts to potentially historic resources, discussed in Section 4.3 *Cultural Resources*, would be significant and unavoidable.)

Although the site is urbanized, the proposed project represents a change in the type of development on the site and would introduce a new scale of development to the immediate neighborhood, as it would include buildings of up to three stories in height. In addition, the new construction would introduce contemporary styles and materials to a neighborhood that is characterized primarily by residential areas composed mainly of single-family, owner-occupied homes that were constructed during the 1920s through 1970s and commercial properties consisting of aging buildings that are characterized by physical deterioration and have generally low to moderate aesthetic value.¹ This would change but not degrade the visual character of the site.

The existing and historic development on the site is a mix of styles and scales. As a whole, the site does not exhibit a unified aesthetic value that would be substantially degraded by the proposed project. The building heights of up to three stories along Atlantic Avenue would be among the taller buildings in North Long Beach, but at 22 to 38 feet would not tower over or be substantially out of scale with surrounding one- and two-story buildings. Development along adjacent residential streets would be limited to two stories, concentrating additional height along the Atlantic Avenue corridor, a commercial corridor more appropriate for taller buildings. The aesthetic quality of the design and aesthetic implications of the proposed new buildings would be addressed during the project's required Site Plan Review approval process. In accordance with Zoning Code Section 21.25.503, the Site Plan Review Committee considers all applications for Site Plan Review approval. For larger developments such as the proposed project, the Site Plan Review Committee typically refers the project to the Planning Commission for Site Plan Review approval using the procedures established for Planning Commission public hearings. The Planning Commission would then be charged with the authority to approve the Site Plan Review application and requested entitlements.

In summary, although the project would completely alter the visual character of the project site, this change in visual character would not be significantly adverse.

Mitigation Measures. None required for Option A or Option B.

Significance After Mitigation. With required approval through the site plan review process, impacts would be less than significant without mitigation. This is the case for either Option A or Option B, as the massing and design of the project would be similar in either configuration.

Impact AES-2 The proposed project would introduce new sources of light and glare on the project site, due to the increased height and scale of development as well as the larger proportion of glazing and potentially reflective materials shown in the conceptual renderings in contrast with the existing

¹ Long Beach Redevelopment Agency, North Long Beach Project Area, available at, <http://www.longbeachrda.org/projects/north.asp>.



development on the site. This is considered a Class II, significant but mitigable, impact for Option A or Option B.

Lighting. Implementation of the proposed project would eliminate some existing light and glare sources and introduce new ones. Potential sources of lighting include the windows of the residential units and ground floor commercial/institutional space and spillover of light onto the street from the illumination of structures and surface parking lots during the nighttime hours. Headlights of vehicles entering and exiting the parking areas at night would cast light onto roadways and surrounding properties. In addition, building signs including those used to identify the ground floor uses could result in light and glare impacts.

The project site vicinity is urban in character, with moderate to high levels of existing lighting in surrounding commercial areas and low to moderate levels of existing lighting in surrounding residential areas. Although the proposed project would not substantially alter this condition, mitigation measures are required to minimize the potential for project-generated nighttime lighting to adversely affect neighboring properties, particularly adjacent residences.

Glare. Potential sources of glare would consist of glazing (windows) and other reflective materials used in the façades of the proposed structures. Due to the increased height and scale of development, this potential would be greater than for other structures in the vicinity and would therefore be a substantial new source of glare when compared to overall development in the immediate area. Glare sources also include the sun's reflection from metallic or glass surfaces on vehicles parked in surface parking lots and along the roadways. Metallic surfaces of buildings can act as reflective materials and can be significant glare sources. Parking lot, site perimeter and street trees are proposed; these would reduce the effect of glare on outside observers.

As noted above, the project site is in an urban environment with several existing sources of glare. The proposed project, either Option A or Option B, would introduce new sources of glare but would not substantially alter glare conditions in the project vicinity. Nevertheless, mitigation measures are required to minimize the glare effects of proposed structures on neighboring properties, particularly for residences along Linden Avenue, Lime Avenue and 59th Street.

Mitigation Measures. The following mitigation measures would apply to Option A or Option B and would reduce potential lighting and glare impacts associated with the proposed project.

- AES-2(a) Lighting Plans and Specifications.** Prior to the issuance of any building permits, the applicant shall submit lighting plans and specifications for all exterior lighting fixtures and light standards to the Department of Development Services and the Police Department for review and approval. The plans shall include a photometric design study demonstrating that all outdoor light fixtures to be installed are designed or located in a manner as to contain the direct rays from the lights on-site and to minimize spillover of light onto surrounding properties or roadways. 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.

AES-2(b) Building Material Specifications. Prior to the issuance of any building permits, the applicant shall submit plans and specifications for all building materials to the Department of Development Services for review and approval. All structures facing any public street or neighboring property shall use minimally reflective glass and all other materials used on the exterior of buildings and structures shall be selected with attention to minimizing reflective glare. The use of glass with over 25% reflectivity shall be prohibited in the exterior of all buildings on the project site.

AES-2(c) Light Fixture Shielding. Prior to the issuance of any building permits, the applicant shall demonstrate to the Department of Development Services that 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. Additionally, all lighting shall comply with all applicable Airport Land Use Plan (ALUP) Safety Policies and FAA regulations.

AES-2(d) Window Tinting. Prior to the issuance of any building permits, the applicant shall submit plans and specifications showing that building windows are tinted in order to minimize glare from interior lighting.

Significance After Mitigation. With incorporation of recommended mitigation measures, impacts of the proposed project related to night lighting and glare would be reduced to a less than significant level for Option A or Option B.

Impact AES-3 The proposed structures would cast shadows onto portions of adjacent residential properties during both the summer and winter. Shadows from the project would fall on sensitive residential uses for less than three hours during the winter months and less than four hours during the summer months. Therefore, shadow impacts would be Class III, less than significant for Option A or Option B.

The project site consists of two full City blocks bordered to the west by Linden Avenue, to the east by Lime Avenue, to the north by 59th Street and to the south by East South Street, and bisected by Atlantic Avenue. Shadow-sensitive uses near the project site and within shadow range of the proposed project include residences to the north, west and east of the project site. The proposed project would include up to three-story buildings along Atlantic Avenue and two- and three-story buildings along Linden Avenue, South Street and 59th Street. As existing on-site buildings are one- and two-stories, proposed structures of up to three-stories would be taller than the existing buildings on the project site and the massing of structures on the entire site would be greater; therefore, the project would cast longer and broader shadows than do the



existing buildings. In general, shadows cast by buildings are longest at the winter solstice and shorten through the equinox seasons until their shortest length during the summer.

The projected summer solstice (June 21) shadows for the Option A project configuration are illustrated on Figure 4.1-2a. During the mornings and at midday in the summer months, shadows would fall primarily on the project site and surrounding streets and sidewalks. No residences or other shadow-sensitive uses would be shaded. The shadow pattern of Option B would be similar, as the heights and locations of the project components that would be changed would remain relatively similar. Therefore, impacts would not be significant on the summer solstice.

The estimated winter solstice (December 21) shadows generated by the proposed project are illustrated on Figure 4.1-2b. For Building Option A, shadows would be cast up to approximately 100 feet toward the northwest in the morning, approximately 40 feet to the north at midday, and up to approximately 100 feet toward the northeast in the afternoon. Under Option A or B, the front yards of residences along the north side of 59th Street opposite the project site may be partially shaded at 9:00 a.m. and again at 3:00 p.m. However, potential shading of these residential yards would not be significant as shadows would last for well under three hours. This is demonstrated by the shadows receding in the graphic depiction at noon and the sunset arriving before 5:00 p.m. This would be true under Option A or Option B, as the heights and locations of the project components that would be changed would remain relatively similar. In summary, shadows are projected to be cast upon the front yards of several adjacent residences during winter months, but would not fall upon light-sensitive uses for more than three hours during the winter season. Therefore, impacts would not be significant.

Mitigation Measures. Mitigation is not necessary. The extent and duration of shadow impacts to adjacent residences are not significant and would not require mitigation.

Significance After Mitigation. Shadows cast upon adjacent residential uses would only occur in the afternoon for less than four hours during the summer months and in morning and afternoon during winter months for less than three hours. Impacts would be less than significant without mitigation.

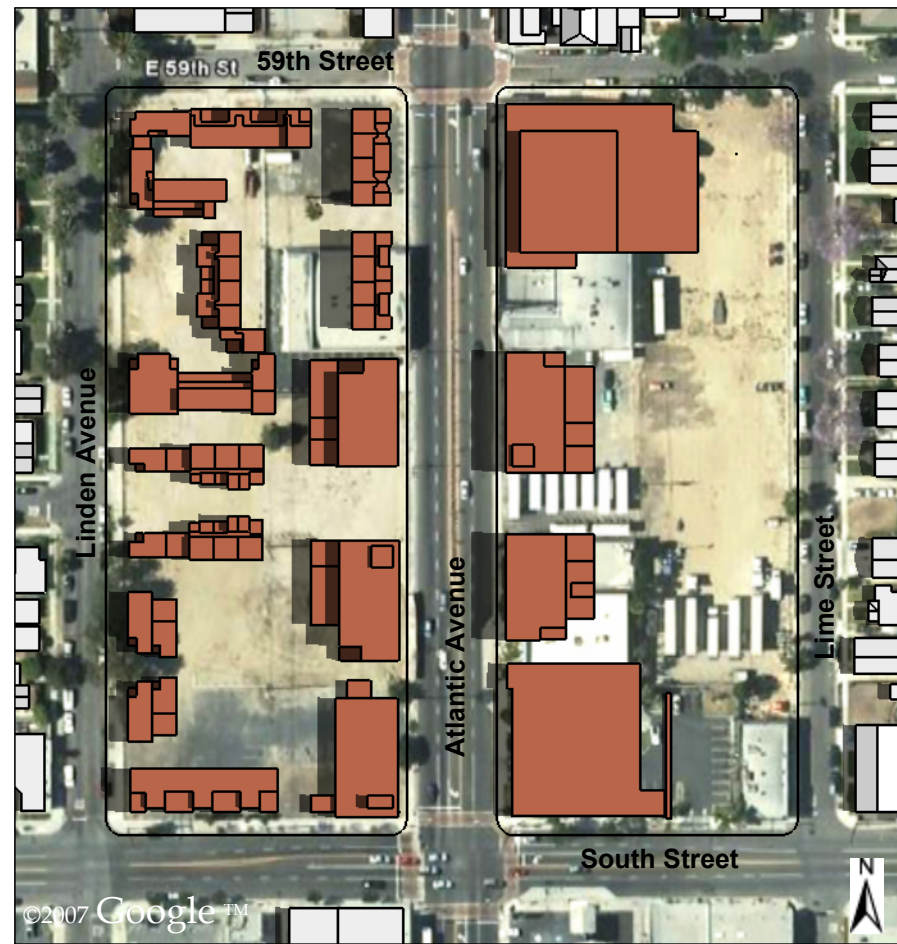
c. Cumulative Impacts. Future projects in Long Beach will be required to adhere to specific development standards in the City's Zoning Ordinance and General Plan designed to protect and enhance the area's aesthetic and visual resources. Though cumulative development will, over time, alter the visual character of North Long Beach to a somewhat denser urban environment, the overall visual effect of cumulative development in the area would be less than significant.

Cumulative development of buildings of greater height, including the proposed project, would generally increase shadowing throughout the City. The shadow effects of individual buildings would need to be addressed on a case-by-case basis since shadowing is dependent upon building height, massing, and location, as well as the immediately surrounding uses. In any event, shadow impacts associated with individual buildings are isolated in nature and do not contribute to additive effects on a particular geographic location.



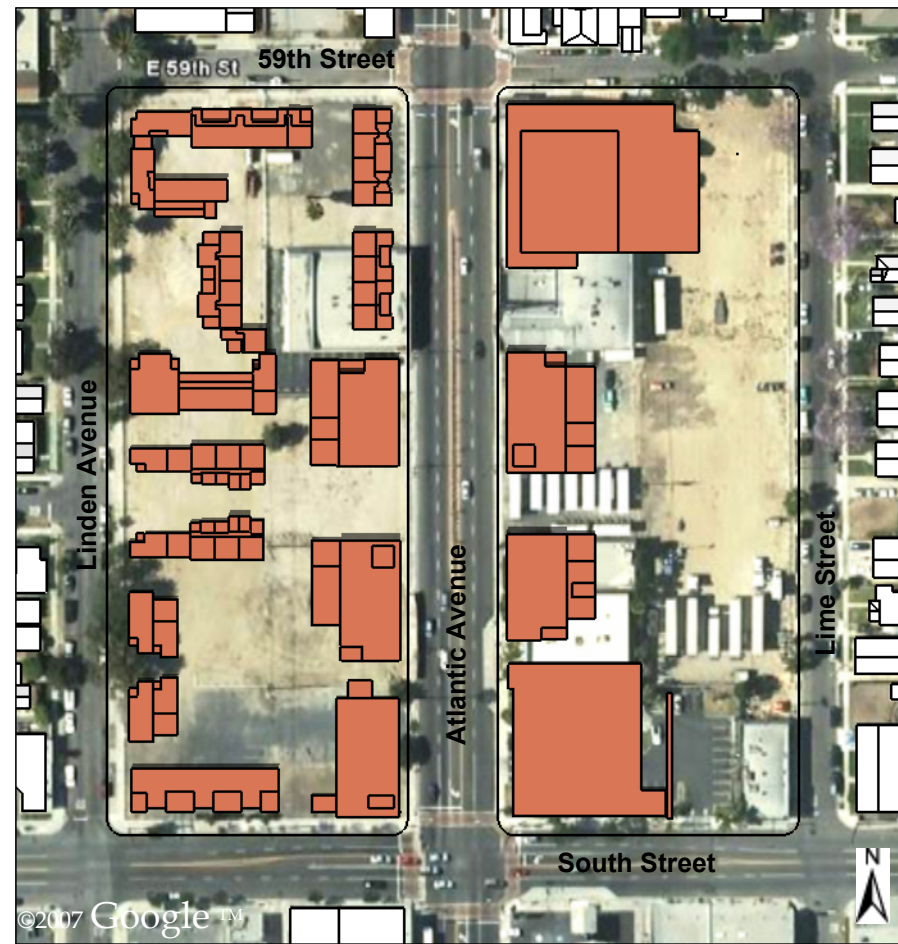
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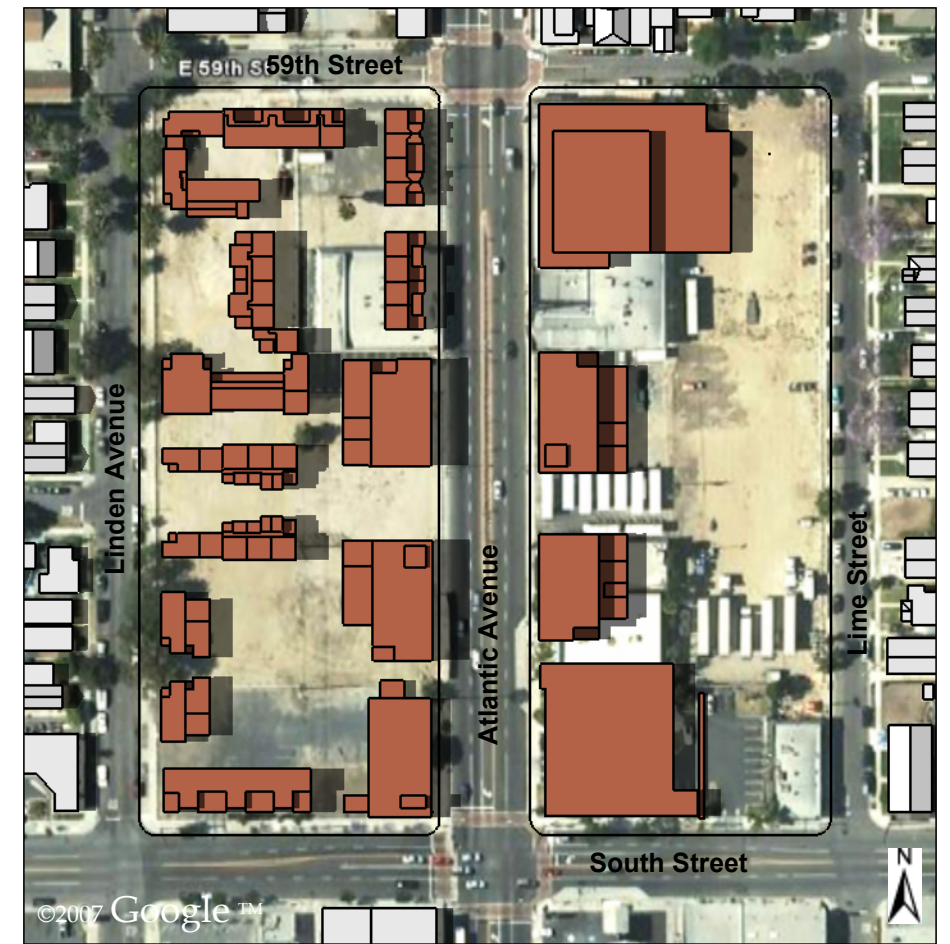
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12:00 pm

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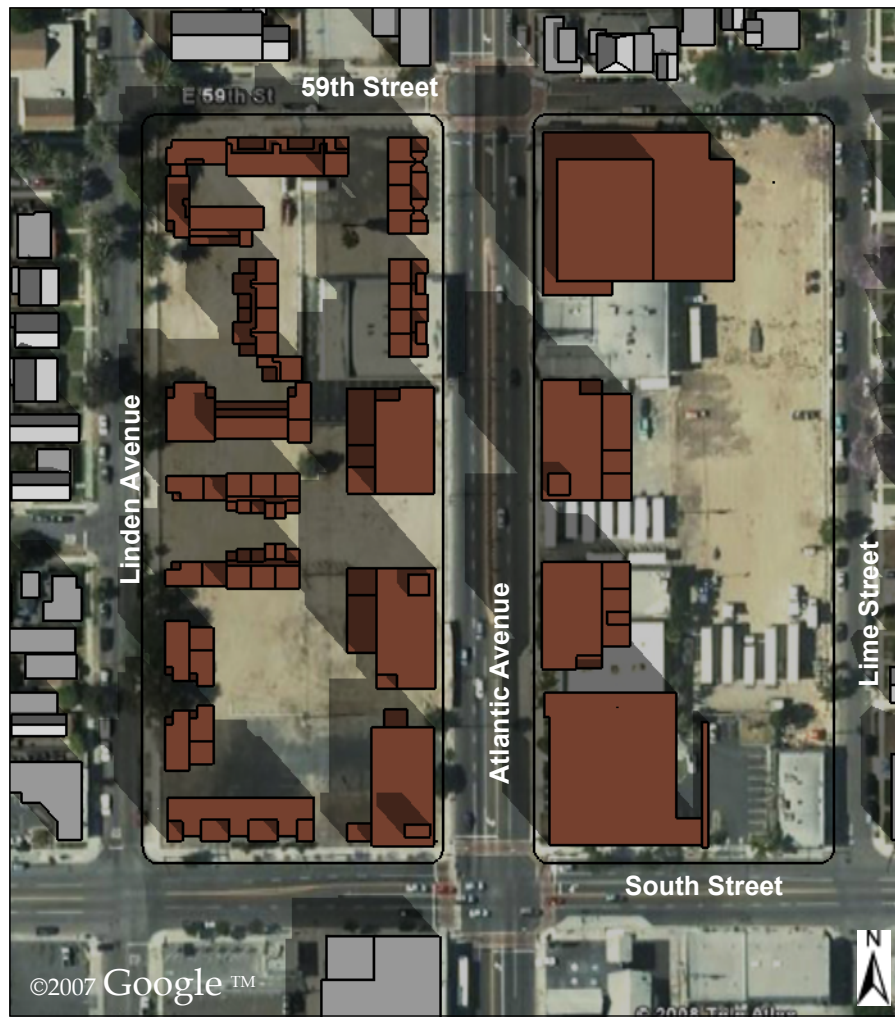


9:00 am - View looking northeast.

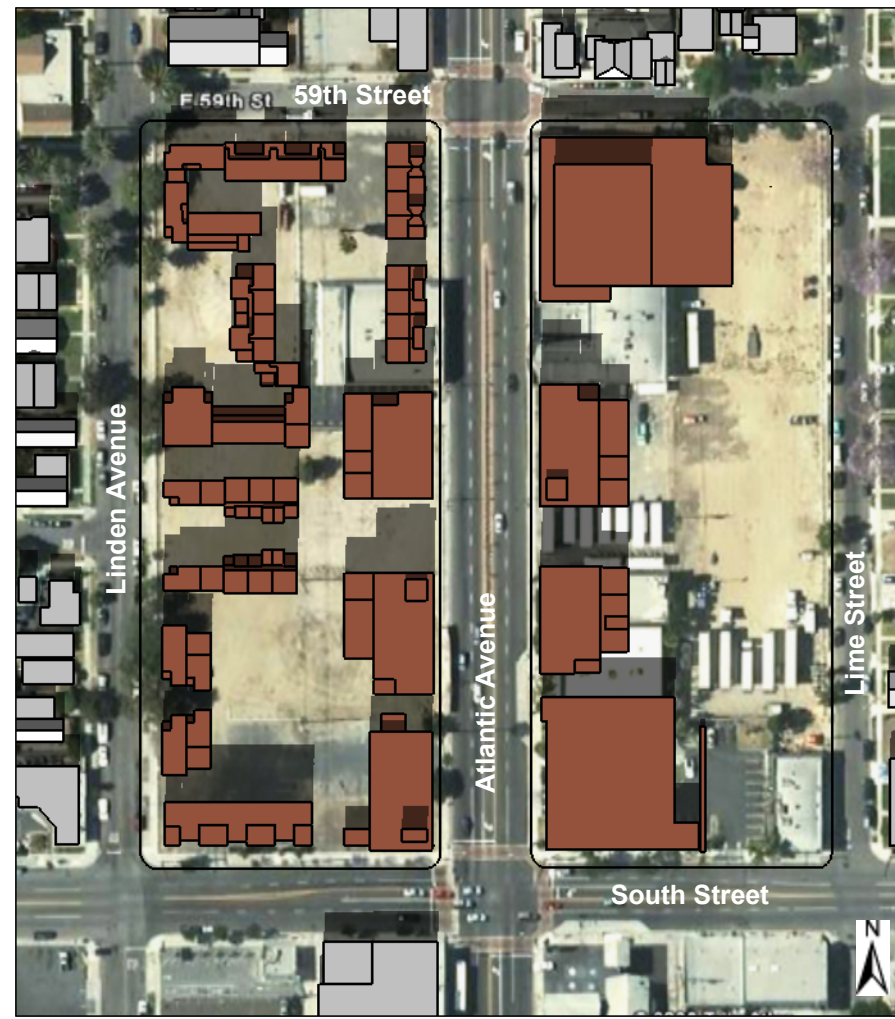
SCALE: 1" = 160'

Note: Views shown are Option A

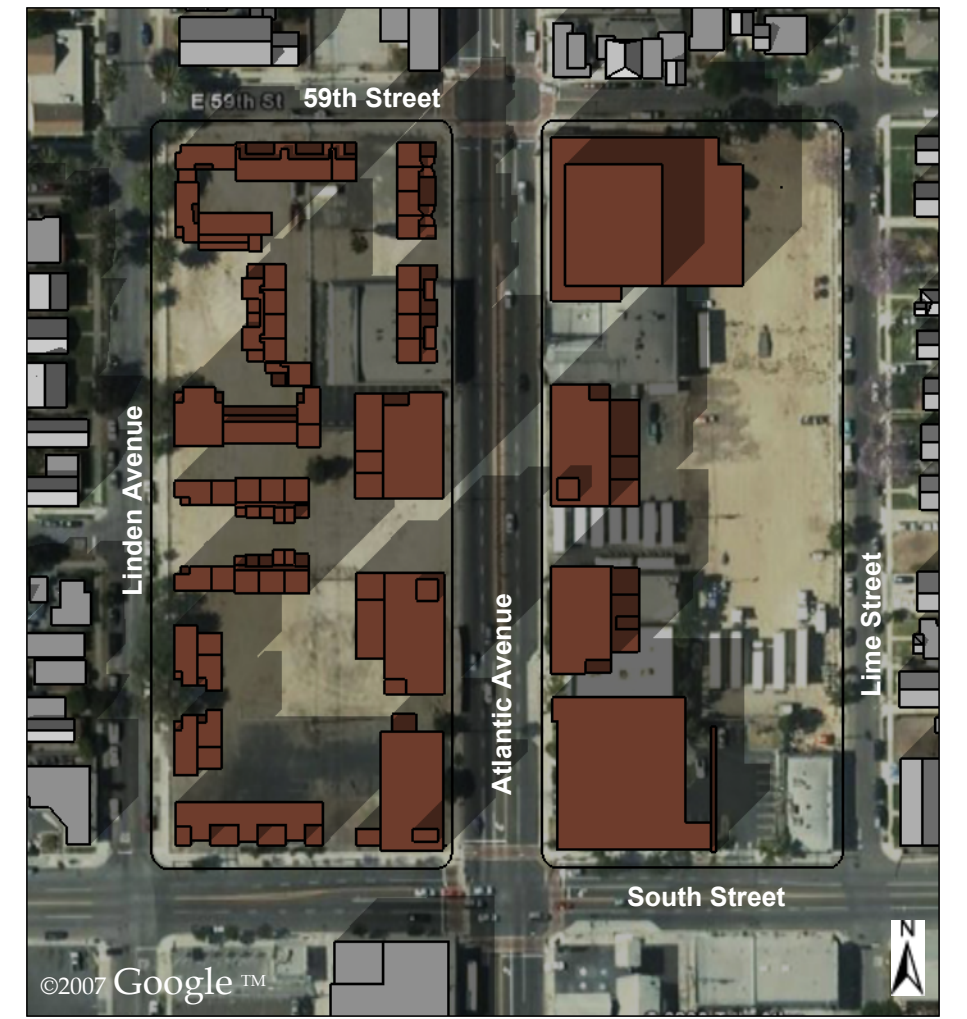
Summer Solstice Shadow - June 21st



9:00 am SCALE: 1" = 160'



12:00 pm SCALE: 1" = 160'



3:00 pm SCALE: 1" = 160'



3:00 pm - View looking northwest SCALE: 1" = 160'

Note: Views shown are Option A

Winter Solstice Shadow - December 21st

Aerial Source: Google Earth 2007,
 Rincon Consultants, Inc., January 2009.

4.2 AIR QUALITY

4.2.1 Setting

a. Climate and Meteorology. Long Beach is on the western edge of the Los Angeles Coastal Plain, immediately adjacent to Long Beach Harbor. The City is within the marine microclimate zone and the fog belt. The climate of the City is heavily influenced by its proximity to the Pacific Ocean, except during Santa Ana wind conditions. Winters are mild, and temperatures are above freezing. Spring and summer days are frequently cloudy, particularly during May and June, due to the presence of high fog. Summers are cool due to the moderating effect of sea breezes. Humidity tends to be higher than in adjacent communities further inland.

Average daytime temperatures range from highs of 74 degrees Fahrenheit in July and August to 57 degrees in January and February. The lowest temperature recorded in Long Beach was 25 degrees (January 1963); the highest was 110 degrees (September 1963). The moderating effects of the Pacific Ocean keep winter temperatures above freezing along the coastline and summer temperatures moderate. However, high temperatures occur when there are Santa Ana wind conditions creating an offshore flow. Santa Ana winds are strong northerly or northeasterly winds that originate from the desert of the Great Basin and predominantly occur from September through March. Usually warm, always dry, and often full of dust, these winds are particularly strong in passes and at the mouths of canyons. Sustained winds of 60 miles per hour, with higher gusts, are fairly common under these conditions. On average, Santa Ana wind conditions occur five to ten times a year, with each event lasting up to a few days.

Wind data collected between 1992 and 2002 show that westerly/northwesterly winds are the most frequent winds during all seasons. Westerly/northwesterly winds are most common during the fall and winter months. Southerly winds are the second most common directional winds at the Long Beach Airport Station. The average annual wind speed at the Long Beach Airport Station is approximately 5.8 miles an hour.

Annual precipitation in Long Beach averages around 12.4 inches. Rainfall occurs almost exclusively from late October to early April.

b. Air Pollution Regulation. Federal and state standards have been established for six criteria pollutants, including ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulates less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}), and lead (Pb). California has additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Table 4.2-1 lists the current federal and state standards for criteria pollutants.

The local air quality management agency, the South Coast Air Quality Management District (SCAQMD), monitors air pollutant levels to assure that the air quality standards are met and, in the event they are not, develops strategies to meet standards. Depending on whether or not pollutant concentrations exceed standards, the local air basin is classified as “attainment” or “non-attainment.” The South Coast Air Basin (Basin), in which the project site is located, is a non-attainment area for both the federal and state standards for ozone and particulate matter.



The basin is also classified as a non-attainment area for the federal carbon monoxide standard. The basin is in attainment for the state and federal standards for nitrogen dioxide, and the state standards for carbon monoxide. The Basin exceeded the federal CO standard once in 2002. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

**Table 4.2-1
 Current Federal and State Ambient Air Quality Standards**

Pollutant	Federal Standard	California Standard
Ozone	0.075 ppm (8-hr avg)	0.09 ppm (1-hr avg) 0.07 ppm (8-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	0.053 ppm (annual avg)	0.18 ppm (1-hr avg) .030 ppm (annual avg)
Sulfur Dioxide	0.03 ppm (annual avg) 0.14 ppm (24-hr avg) 0.5 ppm (3-hr avg)	0.04 ppm (24-hr avg) 0.25 ppm (1-hr avg)
Lead	1.5 $\mu\text{g}/\text{m}^3$ (annual avg)	1.5 $\mu\text{g}/\text{m}^3$ (30-day avg)
Particulate Matter (PM ₁₀)	150 $\mu\text{g}/\text{m}^3$ (24-hr avg)	20 $\mu\text{g}/\text{m}^3$ (annual avg) 50 $\mu\text{g}/\text{m}^3$ (24-hr avg)
Particulate Matter (PM _{2.5})	15 $\mu\text{g}/\text{m}^3$ (annual avg) 35 $\mu\text{g}/\text{m}^3$ (24-hr avg)	12 $\mu\text{g}/\text{m}^3$ (annual avg)

ppm= parts per million

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

Source: California Air Resources Board, <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>,

Accessed January 2009.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic compounds (ROC; also referred to as ROG or VOC). Nitrogen oxides are formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, persons with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide. Carbon monoxide is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.



Nitrogen Dioxide. NO₂ is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. Nitrogen dioxide is an acute irritant. A relationship between NO₂ and chronic pulmonary fibrosis may exist, and may increase bronchitis in young children at concentrations below 0.3 parts per million (ppm). Nitrogen dioxide absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM₁₀ and acid rain.

Suspended Particulates. PM₁₀ is particulate matter measuring no more than 10 microns in diameter, while PM_{2.5} is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM₁₀ and PM_{2.5} are by-products of fuel combustion and wind erosion of soil and unpaved roads, and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates (PM_{2.5}) can be different. Small particulates generally come from windblown dust and dust kicked up from mobile sources. Fine particulates are generally associated with combustion processes and are formed in the atmosphere as secondary pollutants through chemical reactions.

Fine particulate matter is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

c. Current Air Quality. The South Coast Air Basin monitoring station located nearest to the project site is the North Long Beach Monitoring Station, located at 3648 North Long Beach Boulevard, approximately three miles south of the site. This station monitors ozone, carbon monoxide, nitrogen dioxide, PM₁₀, and PM_{2.5}. Table 4.2-2 shows the number of days each of these standards have been exceeded at this station over the past three years. As indicated, the PM_{2.5} concentration exceeded federal standards 19 times over the three-year period; the PM₁₀ concentration exceeded state standards 12 times and federal standards once; and the ozone concentration exceeded state standards once, in 2007. No exceedances of either the state or federal standards for NO₂ or CO have occurred at the North Long Beach Station since 1991.

d. Air Quality Management. Under state law, the SCAQMD is required to prepare an Air Quality Management Plan (AQMP) for air quality improvement for pollutants for which the District is in non-compliance. Each iteration of the AQMP is an update of the previous AQMP and has a 20-year horizon. The SCAQMD has prepared several comprehensive updates to the AQMP, which was last updated in 2007. The 2007 AQMP is incorporated by reference and is available to download at www.aqmd.gov/aqmp/07aqmp/index.html.



**Table 4.2-2
Ambient Air Quality Data at the North Long Beach Monitoring Station**

Pollutant	2006	2007	2008
Ozone, ppm - Worst Hour	0.081	0.099	0.093
Number of days of State exceedances (>0.09 ppm)	0	1	0
Number of days of Federal exceedances (>0.12 ppm)	0	0	0
Carbon Monoxide, ppm - Worst 8 Hours	3.36	2.59	2.49
Number of days of State/Federal exceedances (>9.0 ppm)	0	0	0
Nitrogen Dioxide, ppm - Worst Hour	0.102	0.107	0.125
Number of days of State exceedances (>0.25 ppm)	0	0	0
Particulate Matter <10 microns, $\mu\text{g}/\text{m}^3$ Worst 24 Hours	78.0	232.0	62.0
Number of samples of State exceedances (>50 $\mu\text{g}/\text{m}^3$)	5	6	1
Number of samples of Federal exceedances (>150 $\mu\text{g}/\text{m}^3$)	0	1	0
Particulate Matter <2.5 microns, $\mu\text{g}/\text{m}^3$ Worst 24 Hours	58.5	82.8	39.4
Number of samples of Federal exceedances (>65 $\mu\text{g}/\text{m}^3$)	5	12	2

Source: CARB, 2006, 2007, & 2008 Annual Air Quality Data Summaries available at <http://www.arb.ca.gov>

The Southern California Association of Governments (SCAG) provides regional planning efforts for a six-county region, including Los Angeles County. SCAG's Regional Transportation Plan (RTP) is a long-range (minimum 20-year) plan that provides a blueprint for future transportation improvements and investments based on specific transportation goals, objectives, policies, and strategies. The RTP is based on federal transportation law requiring comprehensive, cooperative, and continuous transportation planning. SCAG meets these requirements by developing comprehensive transportation plans that include all surface transportation modes (multi-modal planning) to ensure the efficient movement of people and goods throughout the region. The Regional Transportation Improvement Program (RTIP) is a listing of all transportation projects proposed over a six-year period for the SCAG region. The projects include highway improvements, transit, rail, and bus facilities, high occupancy vehicle lanes, signal synchronization, intersection improvements, freeway ramps, etc. The RTIP is prepared to implement projects and programs listed in the RTP and is developed in compliance with state and federal requirements.

e. Sensitive Receptors in the Project Area. Certain population groups are more sensitive to air pollution than others. Sensitive groups include children, the elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases. Sensitive land uses would include those locations where such individuals are concentrated, such as hospitals, schools, residences, and parks with active recreational uses. Sensitive receptors in the vicinity of the project site include residences approximately 40 to 50 feet from the site on Lime Avenue to the east, Linden Avenue to the west and 59th Street to the north.



4.2.2 Impact Analysis

a. Methodology and Significance Thresholds. The air quality analysis conforms to the methodologies recommended in the South Coast Air Quality Management District *CEQA Air Quality Handbook* (1993). Pollutant emissions were quantified using the Air Resources Board's URBEMIS 2007 (Version 9.2.4) computer model using trip generation rates from Section 4.10, *Traffic and Circulation*. The project would result in significant impacts to air quality if implementation would:

1. *Conflict with or obstruct implementation of the applicable air quality plan;*
2. *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
3. *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);*
4. *Expose sensitive receptors to substantial pollutant concentrations; or*
5. *Create objectionable odors affecting a substantial number of people.*

Based on the analysis contained in the Initial Study (Appendix A), it was determined that the proposed project would have the potential to create significant impacts with respect to the first four thresholds listed above. As such, the EIR evaluates potential impacts related to these impacts. With regards to the last threshold listed above, the Initial Study determined that odor-related impacts associated with the proposed project would be less than significant. Below is a more detailed discussion of the thresholds used in the air quality analysis in the EIR.

A significant adverse air quality impact may occur when a project individually or cumulatively interferes with progress toward the attainment of the ozone standard by releasing emissions that equal or exceed the established long term quantitative thresholds for pollutants, or causes an exceedance of a state or federal ambient air quality standard for any criteria pollutant. Table 4.2-3 shows the significance thresholds recommended by the SCAQMD for projects within the SCAB.

In addition to the regional air quality thresholds shown in Table 4.2-3, SCAQMD has also developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the SCAQMD's CEQA Air Quality Handbook. LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), project size, and distance to the sensitive receptor. LSTs only apply to emissions within a fixed stationary location, including idling emissions during both construction and operation of the Project. LSTs have been developed for NO_x, CO, PM₁₀ and PM_{2.5}. LSTs are not applicable to mobile sources such as cars on a roadway (Final Localized Significance Threshold Methodology, SCAQMD, June 2003).



**Table 4.2-3
 SCAQMD Air Quality Significance Thresholds**

Mass Daily Thresholds		
Pollutant	Operation Thresholds (lbs/day)	Construction Thresholds (lbs/day)
NO _x	55	100
ROC	55	75
PM ₁₀	150	150
PM _{2.5}	55	55
SO _x	150	150
CO	550	550
Lead	3	3
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment) Hazard Index ≥ 3.0 (facility-wide)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants ^a		
NO ₂ 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
PM ₁₀ 24-hour average annual geometric average annual arithmetic mean	10.4 µg/m ³ (recommended for construction) ^b 2.5 µg/m ³ (operation) 1.0 µg/m ³ 20 µg/m ³	
Sulfate 24-hour average	1 ug/m ³	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

Source: SCAQMD CEQA Handbook (SCAQMD, 1993), accessed at <http://www.aqmd.gov/ceqa/hdbk.html>, 5/09

^a Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, unless otherwise stated.

^b Ambient air quality threshold based on SCAQMD Rule 403.

KEY: Lbs/day = pounds ppm = parts per ug/m³ = microgram ≥ greater than or
 per day million per cubic meter equal to



LSTs have been developed for emissions with areas of up to five acres in size. The SCAQMD provides lookup tables for project sites that measure one, two and five acres. The project site is located in Source Receptor Area 4 (SRA-4) which is designated by the SCAQMD as South Coastal Los Angeles County and includes the City of Long Beach. For the purposes of this EIR, it is assumed that construction activity would generally occur within a 3.15-acre or smaller area at any one time. This is consistent with proposed project phasing which would occur one 3.15-acre block at a time (see Section 2.0 *Project Description* for a description of project phasing). The LST construction emission thresholds shown in Tables 4.2-4 are from the LST lookup tables for a two-acre project. This approach is conservative in nature and consistent with SCAQMD’s guidelines for projects less than five acres in size (SCAQMD, February 2005).

**Table 4.2-4
 SCAQMD LSTs for Construction**

Pollutant	Allowable emissions as a function of receptor distance in feet from a two-acre site (lbs/day)				
	82	164	328	656	1,640
Gradual conversion of NO _x to NO ₂	66	64	70	85	121
CO	827	1,158	1,611	2,869	8,253
PM ₁₀	7	21	37	70	167
PM _{2.5}	5	7	13	30	101

Source: <http://www.aqmd.gov/CEQA/handbook/LST/appC.pdf>, accessed online May 2009.

As previously indicated, construction and operation emission associated with the proposed North Village Center project were calculated using the URBEMIS 2007 v. 9.2.4 computer program (see Appendix B for modeling results). Trip generation rates were applied based on data from the EIR traffic study (see Appendix G). The estimate of operational emission includes both emissions from vehicle trips and from electricity and natural gas consumption.

Impacts relating to CO concentrations are considered significant if the additional CO from a project creates a “hot spot” where either the California one-hour standard of 20 parts per million (ppm) carbon monoxide or the federal and state eight-hour standard of 9.0 (ppm) is exceeded.

b. Project Impacts and Mitigation Measures.

Impact AQ-1 Air pollutant emissions generated during project construction would not exceed SCAQMD construction thresholds for Option A or Option B. Temporary construction impacts would be Class III, less than significant.

As discussed in Section 2.0 *Project Description*, the North Village Center project would be constructed in two phases. Phase I would include construction of up to 54 units of housing, up to 8,600 square feet of retail space and up to 5,400 square feet of restaurant space on the West Block. Phase II would include construction of the remainder of the program. Phase II would be



completed within three years of the completion of Phase I. In summary, the first phase includes development of the West Block in its entirety and the second phase includes development of the East Block in its entirety. Phases would be implemented sequentially, i.e. construction would not begin on the East Block until completion of the West Block. The following construction emissions analysis examines each phase separately, and the impact determinations are based on the maximum daily emissions for each phase, consistent with SCAQMD CEQA methodology.

Table 4.2-5 shows maximum estimated daily emissions during demolition, grading and building construction tasks for Phase I of project construction. As indicated, emissions of all studied pollutants would be below SCAQMD thresholds.

**Table 4.2-5
 Estimated Maximum Daily Air Pollutant Emissions
 During Construction of Phase I (West Block)**

	Unmitigated Emissions (lbs/day)				
	ROC	NOx	CO	PM ₁₀	PM _{2.5}
Demolition	2.7*	26.3*	24.4	2.9	2.6
Site Preparation and Grading	4.4*	41.0*	32.5	6.2	3.9
Building Construction	1.4*	11.1*	13.4	1.7	1.6
Architectural Coating and Paving	17.5*	17.0*	18.8	2.5	2.3
Maximum lbs/day	17.5*	40.93*	32.5	6.2	3.9
SCAQMD Thresholds	75	100	550	150	55
Threshold Exceeded?	No	No	No	No	No
LSTs ¹	N/A	66	827	7	5
Threshold Exceeded?	N/A	No	No	No	No

Source: SCAQMD, *Sample Construction Scenarios for Projects Less than Five Acres in Size, Three-Acre Site Example, February 2005* (see Appendix B for calculations), Except as noted:

* Source: URBEMIS 2007, Version 9.2.4; see Appendix B for calculations.

¹LSTs are for a two acre project in SRA-4 at a distance of 82 feet from the site boundary.

Table 4.2-6 shows maximum estimated daily emissions during demolition, grading and building construction tasks for Phase II of project construction. Again, as indicated, emissions of all studied pollutants would be below SCAQMD thresholds. Construction emissions would be similar for the two different project options, as the same components are proposed although in different locations, as the amount of excavation and construction would be very similar. The impacts and mitigation measures would be generally the same for either option.

The nearest sensitive receptors with respect to the local significance thresholds (LSTs) are the residences that surround the site. Distances from the site to these residences range from approximately 40 to 80 feet, the closest being on the west side of Linden Avenue and the north side of 59th Street. The thresholds are relative only to those emissions that occur on the site



during construction, such as onsite grading emissions or stationary source emissions, and not to offsite mobile emissions. As demonstrated in tables 4.2-5 and 4.2-6 and the modeling results in Appendix B, comparison of emissions associated with all construction phases with the applicable thresholds for ROC, NO_x, CO, and PM indicates that no threshold would be exceeded. It should be noted that SCAQMD regulations for all construction sites would apply to the proposed project, including those for dust control and equipment emissions.

**Table 4.2-6
 Estimated Maximum Daily Air Pollutant Emissions During Construction of
 Phase II (East Block)**

	Unmitigated Emissions (lbs/day)				
	ROC	NO _x	CO	PM ₁₀	PM _{2.5}
Demolition	1.63*	14.4*	32.1	4.4	3.8
Site Grading	3.7*	33.6*	32.5	6.2	3.9
Building Construction	1.1*	7.4*	1.7	1.7	1.6
Architectural Coating and Paving	35.8*	14.9*	2.5	2.5	2.3
Maximum lbs/day	35.8*	33.6*	32.5	6.2	3.9
SCAQMD Thresholds	75	100	550	150	55
Threshold Exceeded?	No	No	No	No	No
LSTs ¹	N/A	66	827	7	5
Threshold Exceeded?	N/A	No	No	No	No

Source: SCAQMD, *Sample Construction Scenarios for Projects Less than Five Acres in Size, Appendix C Three-Acre Site Example, February 2005. Except as noted:*

* Source: URBEMIS 2007, Version 9.2.4; see Appendix B for calculations.

¹LSTs are for a two acre project in SRA-4 at a distance of 82 feet from the site boundary.

Mitigation Measures. As construction emissions would be below established thresholds, impacts would be less than significant and no mitigation is necessary for Option A or Option B.

Significance After Mitigation. Impacts would be less than significant without mitigation for Option A or Option B.

Impact AQ-2 **Operation of the proposed project would generate air pollutant emissions. However, emissions at full buildout of all phases would not exceed established thresholds of significance for any pollutant. Therefore, the project’s operational impact to regional air quality would be Class III, less than significant for Option A or Option B.**

Long-term operation of the project would generate air pollutant emissions due to increased vehicle traffic and energy consumption. Estimates of project emissions at full buildout of all



phases are shown in Table 4.2-7. As indicated, emissions would not exceed established thresholds of significance for any pollutant.

**Table 4.2-7
 Operational Emissions Associated with Proposed Project
 (lbs/day)**

Emission Source	ROC	NO_x	CO	PM₁₀	PM_{2.5}
Vehicle	26.9	27.0	268.7	57.7	11.3
Area	4.3	1.1	8.4	0.03	0.03
Total Emissions	31.2	28.1	277.1	57.8	11.4
<i>SCAQMD Thresholds</i>	<i>55</i>	<i>55</i>	<i>550</i>	<i>150</i>	<i>55</i>
Threshold Exceeded?	No	No	No	No	No

Source: URBEMIS 2007 calculations. See Appendix B for calculations.

Emissions would be the same for either Option A or Option B, as the project components and overall traffic generation would be the same for each.

Mitigation Measures. Operational emissions associated with Option A or Option B would not exceed SCAQMD thresholds. However, to further reduce emissions, the following measures is *recommended* for either option.

AQ-2 Energy Consumption. Onsite structures shall reduce energy consumption by at least 20% below current Federal guidelines as specified in Title 24 of the Code of Federal Regulations. Potential energy consumption reduction measures include, but are not limited to, the use of photovoltaic roof tiles, installation of energy efficient windows, and the use of R-45 insulation in the roof/attic space of all onsite structures.

Significance after Mitigation. Impacts would be less than significant without mitigation for Option A or Option B. Implementation of the recommended measures would further reduce impacts.

Impact AQ-3 Project traffic, together with cumulative traffic growth in the area, would not create carbon monoxide concentrations exceeding state or federal standards. Localized air quality impacts would therefore be Class III, less than significant for Option A or Option B.

Areas with high vehicle density, such as congested intersections, have the potential to create high concentrations of CO. These areas are known as CO “hot spots.” A project’s localized air quality impact is considered significant if CO emissions create a hot spot where either the



California one-hour standard of 20 ppm or the federal and state eight-hour standard of 9.0 ppm is exceeded. This typically occurs at severely congested intersections (level of service E or worse). As discussed in Section 4.11, *Transportation and Traffic*, all intersections in the project vicinity that were analyzed in the traffic study would operate at level of service C or better for both Option A and Option B, except for one forecast to operate at level of service D. Therefore, project-related CO impacts would be less than significant.

Mitigation Measures. As impacts related to CO “hot spots” would be less than significant for Option A or Option B, no mitigation measures would be required.

Significance after Mitigation. CO concentrations would not be expected to exceed state and federal thresholds, and would therefore be less than significant without mitigation for Option A or Option B.

Impact AQ-4 The proposed project would generate population growth, but such growth is within the population projections upon which the Air Quality Management Plan (AQMP) are based. Therefore, impacts associated with AQMP consistency for Option A or Option B would be Class III, less than significant.

A significant impact to air quality would occur if the proposed project would conflict with or obstruct implementation of the AQMP for the South Coast Air Basin. Although any development project would represent an incremental adverse impact on air quality in the basin, of primary concern is that project-related impacts have been properly anticipated in the regional air quality planning process and reduced whenever feasible.

According to the SCAQMD Handbook, the purpose of the consistency finding is to determine whether a project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus whether it would interfere with the region’s ability to comply with Federal and State air quality standards. If a project is inconsistent, local governments need to consider project modifications or inclusion of mitigation to eliminate the inconsistency. Consistency with the AQMP implies that a project is consistent with the goals, objectives and assumptions in the respective plan to achieve the Federal and State air quality standards.

Per the SCAQMD Handbook, there are two main indicators of a project’s consistency with the AQMP:

- *Whether the project would increase the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and*
- *Whether the project would exceed the AQMP’s assumptions for 2011 or yearly increments, based on the year of project buildout and phase.*

As indicated under Impact AQ-2, emissions associated with project operation would not exceed SCAQMD thresholds; therefore, the project satisfies the first criteria for consistency with the AQMP. In addition, implementation of the proposed project would not result in the formation of CO hotspots from the increase of LOS at study intersections (see Impact AQ-3).



A project may also be inconsistent with the AQMP if it would generate population, housing or employment growth exceeding the forecasts used in the development of the AQMP. The 2007 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates in part local city general plans and SCAG's Regional Transportation Plan socioeconomic forecast projections of regional population, housing and employment growth.

According to the SCAG growth forecasts, the City of Long Beach will have a population of 517,226 in 2015. Development of 61 dwelling units on the project site could cause a direct increase in the City's population. Using the California State Department of Finance average household size for Long Beach of 2.9 persons, the 61 dwelling units would generate an average resident population of 177 persons (61 units x 2.9 persons/unit). The current City population is approximately 492,682, according to the most recent (January 1, 2009) California Department of Finance estimate. Therefore, the proposed project would result in a total population of 492,859 persons (492,682 + 177). This increase in population is within the City's projected 2015 population of 517,226. Since the project would be consistent with the City's SCAG population growth forecasts, the project would be consistent with the AQMP. Impacts would be less than significant for Option A and Option B, both of which would generate the same number of residents and jobs.

Mitigation Measures. No mitigation measures are required for Option A or Option B.

Significance after Mitigation. Impacts would be less than significant without mitigation for Option A or Option B.

c. Cumulative Impacts. Any growth within the Los Angeles metropolitan area contributes to existing exceedances of ambient air quality standards when taken as a whole with existing development in the region. Planned and pending development in the City including the proposed project would add approximately 249,000 square feet of commercial development, 30,000 square feet of institutional development, 15,000 square feet of industrial development, and 122 housing units (see Table 3-1 in Section 3.0, *Environmental Setting*). Based on planned and pending development of approximately 122 residential units and a citywide average of 2.9 persons per household, the population in Long Beach would increase by about 354 persons. However, planned and pending development within Long Beach would not generate population growth beyond that envisioned in current SCAG forecasts, which contemplate projected population growth in the City of approximately 67,000 persons by 2030. Because local air quality planning is based on SCAG forecasts, planned and pending development in the City would not generate emissions exceeding that accounted for in the AQMP and cumulative development would not hinder attainment of state or federal air quality standards. Cumulative impacts would not be significant.



4.3 CULTURAL RESOURCES

4.3.1 Setting

a. Historic Resources Surveys. San Buenaventura Research Associates prepared an historical resources survey and report for the project (Historic Resources Technical Report for the North Village Center EIR) in August 2008 (revised October 2008). The purpose of this technical report was to identify and evaluate any historic resources that may be affected by implementation of the proposed North Village Center, to assess any potential impacts of the project on historic resources, and to recommend mitigation measures where appropriate. The report includes record searches for previous documentation of identified historic resources, including listings 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 Inventories. A site inspection was made to document existing conditions, identify character-defining features of those properties evaluated as significant, and define the historic resources study area. A reconnaissance survey, including photography and background research, was then made of the area. Additional background and site-specific research was conducted in order to evaluate the properties within their historic context. National Register of Historic Places and California Register of Historical Resources criteria were employed to assess the significance of the properties. The 2008 San Buenaventura Research Associates report is included in Appendix C.

b. Overview of Historical Context of the North Village Center Project Site. A summary of the area's history is provided below. The San Buenaventura Research Associates report in Appendix C provides a detailed overview of the historical context of the 5870-74 Atlantic Avenue, 5832-34 Atlantic Avenue, and 635 E. South Street buildings.

The study area is within the ethnographically recorded territory of the Gabrielino, a Shoshonean speaking group of American Indians who inhabited the area beginning approximately 500 BC and who were present in 1769 when the first Spanish land expedition passed through the area. The historic period begins in 1769, when the first Spanish land expedition, led by Gaspar de Portolá, left San Diego in an attempt to establish a trail to the Port of Monterey. Portolá's party entered present day Los Angeles County on July 30, 1769.

The Spanish Mission Period began with the first Spanish presence in the area (1769) until 1821, when Mexico gained independence from Spain. In California, only about 25 Spanish Mission Period land grants were made, and the project area is located within the *Rancho los Nietos* grant, one of the few grants made during this period. The *Rancho los Nietos* grant, the single largest Spanish or Mexican Period grant, was made in November 1784 by Governor Pedro Fages to Manuel Nieto for 68 square leagues, or over 300,000 square acres.

The period from 1821-1848 is known as the Mexican Rancho Period. During the Mexican Rancho Period, the original Spanish Mission Period *Rancho los Nietos* grant was divided among Nieto's five heirs by Governor Figueroa in May 1834 to become five separate ranchos including *Rancho Los Alamitos* and *Rancho Cerritos* on which Long Beach would later be established.



Rancho Cerritos was purchased in 1840 by real estate speculator and cattleman Abel Stearns. *Rancho Los Alamitos* was purchased in 1843 by Los Angeles merchant John Temple. Stearns and Temple were victims of the droughts of the early 1860s and eventually sold the two ranchos to Jotham Bixby. In 1880, William Erwin Willmore, president of the American Colony, initiated plans for a new town subdivided from *Rancho los Cerritos*, and named it Willmore City. Willmore's subdivision was too early to benefit from the enormous railroad-inspired Southern California land boom of the late 1880s and thus was undercapitalized. His efforts failed, but he had formed the precursor to modern Long Beach. The Long Beach Land and Water Company purchased the townsite in 1884 and began making improvements including the construction of a wharf and hotel, and connected the town to the Southern Pacific Railroad's Wilmington branch. The opening of a Pacific Electric line to the city in 1902 led to the explosive growth of the City. Long Beach became one of the region's premier seaside resorts and was incorporated as a city in 1908.

The City began to take on a more commercial and industrial character with the construction of harbor facilities and the relocation of the Craig Shipbuilding Company beginning in 1907. Oceanfronts were reclaimed and the Port of Long Beach continued to expand. In 1921, oil was discovered on Signal Hill, resulting in intense development and industrial growth in the area. Long Beach began to rival Los Angeles in the 1920s as its growth from tourism and commerce continued to boom.

The project site is located within an area known today as North Long Beach. The oil strike on Signal Hill led to the rapid growth of population in unincorporated North Long Beach, which was then commonly known as Virginia City, after the nearby Virginia Country Club. When the Virginia Country Club was relocated to this area in 1921, North Long Beach began to attract more prosperous residents. In response to residential growth, commercial districts sprung up along Atlantic Avenue and American Avenue (now Long Beach Boulevard), a process that continued through the 1940s. North Long Beach was annexed to the City in 1923.

c. Criteria for Evaluation of Historic Resources. CEQA requires evaluation of project impacts on historic resources, including properties "listed in, or determined eligible for listing in, the California Register of Historical Resources [or] included in a local register of historical resources or identified as significant in an historical resource survey." In analyzing the historic significance of properties located within the study area, various criteria for designation under federal, state, and local landmark programs were considered and applied, as described below. It should be noted, however, that pursuant to CEQA Section 15064.5(a)(4), "[t]he 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...or identified in an historical resources survey...does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1."

Federal Regulatory Setting. The criteria for determining eligibility for listing on the National Register of Historic Places (NRHP) have been developed by the National Park Service. Properties may qualify for NRHP listing if they:

- a. *Are associated with events that have made a significant contribution to the broad patterns of our history; or*



- b. Are associated with the lives of persons significant in our past; or*
- c. 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; or*
- d. Have yielded, or may be likely to yield, information important in prehistory or history.*

According to the NRHP guidelines, the “essential physical features” of a property must be present for it to convey its significance. Further, in order to qualify for the NRHP, a resource must retain its integrity, or “the ability of a property to convey its significance.”

The seven aspects of integrity are:

- 1. Location (the place where the historic property was constructed or the place where the historic event occurred)*
- 2. Design (the combination of elements that create the form, plan, space, structure, and style of a property)*
- 3. Setting (the physical environment of a historic property)*
- 4. Materials (the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property)*
- 5. Workmanship (the physical evidence of the crafts of a particular culture or people during any given period of history or prehistory)*
- 6. Feeling (a property’s expression of the aesthetic or historic sense of a particular period of time)*
- 7. Association (the direct link between an important historic event or person and a historic property).*

The relevant aspects of integrity depend upon the National Register criteria applied to a property. For example, a property nominated under Criterion A (events), would be likely to convey its significance primarily through integrity of location, setting and association. A property nominated solely under Criterion C (design) would usually rely primarily upon integrity of design, materials and workmanship.

The minimum age criterion for the NRHP is 50 years. Properties less than 50 years old may be eligible for listing on the NRHP if they can be regarded as “exceptional,” as defined by the NRHP procedures.

State of California Regulatory Setting. A resource is eligible for listing on the California Register of Historical Resources (CRHR) if it:

- 1. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;*
- 2. Is associated with the lives of persons important in our past;*



3. *Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or*
4. *Has yielded, or may be likely to yield, information important in prehistory or history.*

The California Register procedures include similar language to the NRHP with regard to integrity. The minimum age criterion for the CRHR is 50 years. Properties less than 50 years old may be eligible for listing on the CRHR “if it can be demonstrated that sufficient time has passed to understand its historical importance” (Chapter 11, Title 14, §4842(d)(2)).

By definition, the California Register of Historical Resources also includes all “properties formally determined eligible for, or listed in, the National Register of Historic Places,” and certain specified State Historical Landmarks. The majority of “formal determinations” of NRHP eligibility occur when properties are evaluated by the State Office of Historic Preservation in connection with federal environmental review procedures (Section 106 of the National Historic Preservation Act of 1966). Formal determinations of eligibility also occur when properties are nominated to the NRHP, but are not listed due to owner objection.

Historic resources as defined by CEQA also include properties listed in “local registers” of historic properties. A “local register of historic resources” is broadly defined in §5020.1 (k) of the Public Resources Code, as “a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.” Local registers of historic properties come essentially in two forms: (1) surveys of historic resources conducted by a local agency in accordance with Office of Historic Preservation procedures and standards, adopted by the local agency and maintained as current, and (2) landmarks designated under local ordinances or resolutions. These properties are “presumed to be historically or culturally significant... unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant.” (Public Resources Code §§ 5024.1, 21804.1, 15064.5)

Local Regulatory Setting. The City of Long Beach has a historic preservation ordinance that defines landmark criteria and a designation process for historically significant properties the community. According to the Long Beach Municipal Code (Chapter 2.63, Cultural Heritage Commission) landmark properties may be any site or improvement, manmade 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. The City's criteria for the identification or designation of landmarks, including landmark historic districts are as follows. A cultural resource may be recommended for designation if it manifests one of the following criteria:

- a. *It possesses a significant character, interest or value attributable to the development, heritage or cultural characteristics of the city, the southern California region, the state or the nation; or*
- b. *It is the site of a historic event with a significant place in history; or*
- c. *It is associated with the life of a person or persons significant to the community, city, region or nation; or*

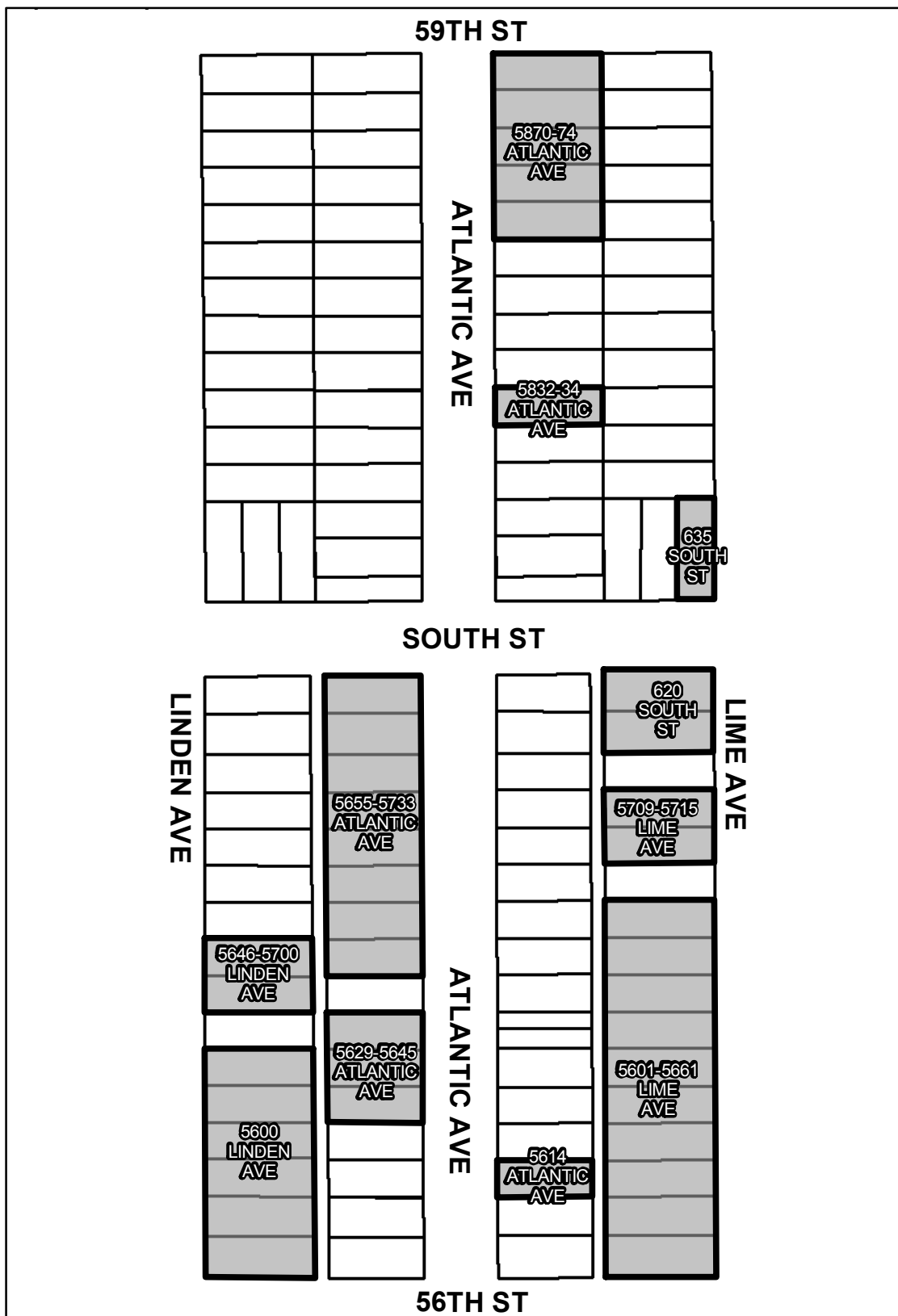


- d. *It portrays the environment in an era of history characterized by a distinctive architectural style; or*
- e. *It embodies those distinguishing characteristics of an architectural type or engineering specimen; or*
- f. *It is the work of a person or persons whose work has significantly influenced the development of the city or the southern California region; or*
- g. *It contains elements of design, detail, materials, or craftsmanship which represent a significant innovation or*
- h. *It is a part of or related to a distinctive area and should be developed or preserved according to a specific historical, cultural or architectural motif; or*
- i. *It represents an established and familiar visual feature of a neighborhood or community due to its unique location or specific distinguishing characteristic; or*
- j. *It is, or has been, a valuable information source important to the prehistory or history of the city, the southern California region or the state; or*
- k. *It is one of the few remaining examples in the city, region, state or nation possessing distinguishing characteristics of an architectural or historical type; or*
- l. *In the case of the designation of a tree(s) based on historic significance, that the tree(s) is (are) associated with individuals, places and/or events that are deemed significant based on their importance to national, state and community history; or*
- m. *In the case of the designation of a tree(s) based on cultural contribution, that the tree(s) is (are) associated with a particular event or adds (add) significant aesthetic or cultural contribution to the community. (Ord. ORD-05-0026 § 1, 2005; Ord. C-6961 § 1 (part), 1992).*

d. Specific History of the Surveyed Project Area Properties. Below is a discussion of properties surveyed within the project area. Figure 4.3-1 shows the location of the properties discussed below on the project site. Photographs of these properties are shown in Figure 4.3-2 and in Section 2.0, *Project Description*.

5870-74 Atlantic Avenue. The property was constructed for Ivan C. Hanson in 1940 as the Atlantic Theatre Building. The ground was broken for construction in April 1941 and the building was finished in May 1942. The building was designed by the Los Angeles and Kansas City architectural firm of Carl Heinrich Boller. Shortly after its founding, the firm was expanded to include Robert Otto Boller, and became to be known as Boller Brothers, recognized for their expertise in theater design. Carl Boller relocated to Southern California and in addition to this property, his firm is credited with designs for the Inglewood Theatre (Inglewood, 1922), Ritz Theatre (Long Beach, 1924), Largo Theatre (Watts, 1924), Corona Theater (Corona, 1929), and Stadium Theater (Los Angeles, 1931). The firm also designed theaters in Montrose, Santa Ana, and Covina.





Source: Los Angeles County Assessor, (Map Book 7124, Sheet 32, Map Book 7125, Sheet 33, Map Book 7127, Sheets 6 and 7.

Location of Historic Structures
on and near the Project Site

Figure 4.3-1
City of Long Beach





Photo 1 - 5870 S. Atlantic Avenue, western and southern elevations.



Photo 2 - 5870 S. Atlantic Avenue, western and northern elevations.

Historic Structures on the Project Site





Photo 3 - 5834 S. Atlantic Avenue, western and northern elevations.



Photo 4 - 635 E. South Street, southern and eastern elevations.



The property at 5870-74 Atlantic Avenue consists of a one and two-story reinforced concrete commercial building and theater with a rectangular plan located on a corner parcel. The primary (western) elevation on Atlantic Avenue consists of a one-story commercial storefront wrapping the corner of 59th Street. The storefront features a band of display windows above a low bulkhead with a shallow projecting canopy above. The upper façade consists of a featureless parapet. The parapet steps upward to the south to meet the two-story western elevation of the theater. The street elevation of the theater is characterized by curved walls forming a deeply inset semi-circular forecourt that features a terrazzo floor. The upper façade features narrow vertical reveals and a projecting marquee. The primary architectural feature of the theater is the tower, which is characterized by stepped vertical fins terminating in an open metal-frame diamond-shaped lighting element set on a hexagonal base. The architectural style of the building is Moderne.

The design integrity of the property is generally good. Apparent alterations include the replacement or alteration of the original theater marquee in 1977 with a marquee that is evidently smaller than the original. A fountain located at the front of the forecourt replaced a freestanding ticket booth. The commercial storefront is somewhat altered, including the removal or enclosure of transom windows over the display windows and the removal of stepped fluted pylons that projected above the top of the parapet. This latter alteration is more significant, as this design element was originally intended to reinforce the verticality of the tower. The integrity of setting for the property is substantially diminished due to the loss of much of the historically related commercial and residential area.

A 2006 Jones & Stokes survey completed for the City of Long Beach Redevelopment Agency, Community Development Department found this property to be potentially eligible for the NRHP as the structure embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values or represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C). The structure embodies notable characteristics of the Art Deco style and is associated with a nationally recognized master architect of theatre design, Carl Boller. At the time, the City of Long Beach Redevelopment Agency and Community Development Department staff and the City of Long Beach Cultural Heritage Board reviewed and approved Jones & Stokes' assessment of 5870-74 Atlantic Avenue.

5832-34 Atlantic Avenue. This property is discussed here for background information only, as on April 5, 2009, subsequent to the publication of the Notice of Preparation for this EIR, the structure at 5832-24 Atlantic Avenue was destroyed in a fire. This property consisted of a one-story commercial building constructed in 1948. The primary western elevation featured a deep, cantilevered stucco-clad canopy with canted edges. The off-centered double door entrance was deeply recessed beneath the canopy and flanked by low concrete planters. Three storefront bays featured plate glass windows organized in a sawtooth pattern facing southwest. A large trapezoidal pylon sign was attached to the northwestern corner of the building supported by angled wood struts. A substantial addition was made to the rear of the building and the sign added in 1949. The main elevation was altered in 1951.

The building was originally constructed as a restaurant and later used as a tavern. The original building and the 1949 addition were designed by Long Beach architect Thomas J. Russell. No



architect was apparently utilized for the 1951 alterations. The architectural style was Late Moderne.

In a 2007 historic resources report prepared for the City of Long Beach by Moruzzi Historic Resources Consulting identified this property as a representative example of a post-war North Long Beach commercial building and as a scarce example of Late Moderne architecture in the area. The property was determined to be individually eligible for designation as a Long Beach City Landmark on this basis. Again, this structure was destroyed by fire during preparation of the Draft EIR and no longer exists at the site.

635 South Street. This property consists of a one-story commercial building constructed in 1948. The storefront façade of the principal southern elevation consists of three bays with a centered entrance flanked by plate glass display windows located above a moderately low bulkhead. A single bay display window wraps to the eastern elevation. Very narrow blind transoms are located above the display windows. The upper façade consists of a large, featureless soffit projecting over the sidewalk. Four small wood multi-paned windows are located on the eastern elevation. The windows and doors are defined by pilasters clad in pale artificial stone laid in a Roman brick pattern. These materials also clad the bulkhead on the eastern elevation. The balance of the building is clad in rough stucco. The roof behind the upper façade is apparently flat. The building's architectural style is mildly Modern. This property's integrity is generally good, although the current stucco cladding does not appear to be original, and the artificial stone cladding on the bulkhead below the east-facing display window suggests that this material was also originally found below the south-facing display windows. The integrity of setting for the property is substantially diminished due to loss of much of the historically related commercial and residential area.

A 2006 Jones & Stokes survey identified this property as a representative example of a post-war North Long Beach commercial building and determined the property to be individually eligible for designation as a Long Beach City Landmark.

e. Specific History of the Surveyed Project Vicinity Properties. Below is a discussion of properties surveyed within the vicinity of the project area. Pictures of the surveyed areas can be found in Section 2.0, *Project Description*.

620-630 E. South Street. This property is located to the south of the project site east of Atlantic Avenue along South Street. A 2006 survey by Jones & Stokes found this one-story commercial building constructed in 1934 in the Streamline Moderne style to be eligible for individual listing on the CRHR for being one of a dwindling number of this particular property type known to exist in Long Beach. The building is distinguished by its high integrity and subtle application of earlier Moderne style elements on an otherwise minimalist façade.

5600-5700 Block Atlantic Avenue. These grouping of properties are located to the south of the project site along the 5600 and 5700 blocks of Atlantic Avenue. The 2006 Jones & Stokes survey found the majority of the one-story commercial storefront buildings located along the west side of Atlantic Avenue between E. South and 56th Streets, including 5629, 5641, 5645, 5655, 5661, 5701, 5707, 5715, 5723, 5727, and 5733 Atlantic Avenue, to be eligible as contributing properties to a potential Long Beach City landmark district. This intact and cohesive commercial grouping is representative of the type and style of retail development along



Atlantic Boulevard in North Long Beach during the late 1940s and 1950s. In particular, several of the buildings, some built in the 1920s and 1930s, were updated to reflect the architectural style and materials of the Modernist era 1950s, a trend that was common during this period.

f. Eligibility of Historic Resources. Below is a discussion of the eligibility of properties located on the project site for the local, California, and National Registers.

5870-74 Atlantic Avenue. This property appears to be eligible for the NRHP under Criterion C as a building designed by the Boller Brothers, recognized for their expertise in theater design, and as a scarce remaining example of monumental commercial architecture of the period.

The integrity of location for this property is intact; it is located on the site of which it was originally constructed. The property's design criterion is generally good as alterations and replacements have occurred. Examples include the replacement of the original theater marquee in 1977 with a smaller marquee than the original. Also, the fountain located at the front of the forecourt replaced a freestanding ticket booth. Finally, the commercial storefront is somewhat altered, including the removal or enclosure of transom windows over the display windows and the removal of stepped fluted pylons which projected above the top of the parapet. This alteration is the most significant as this design element was originally intended to reinforce the verticality of the tower. The property's integrity of feeling and association has been diminished due to the loss of much of the historically related commercial and residential area.

This property appears to maintain integrity required for it to be eligible for listing on the NRHP. Therefore, it should be regarded as an historic resource for the purpose of CEQA.

635 E. South Street. This property does not appear to be associated with events of importance to the development of Long Beach criteria A, or with individuals known to be of significance to the City's history Criteria B. However, it should be regarded as potentially eligible as it is a representative example of post-war North Long Beach commercial building style of the 1940s; as it embodies those distinguishing characteristics of an architectural type or engineering specimen (Criterion E).

The integrity of location for this property is intact; the building is located on the site on which it was originally constructed. The integrity of design was somewhat compromised with the addition of stucco cladding. Also, artificial stone cladding on the bulkhead below the east-facing display window suggests that this material was also originally found below the south-facing display windows. The historical setting for the property is substantially diminished, with the loss of the related commercial and residential area. To the extent that the property is altered, its integrity of materials and workmanship have also been reduced.

On the whole, this property appears to retain a sufficient level of integrity to be eligible for listing Long Beach historic landmark. Therefore, the property is considered a historic resource for the purpose of CEQA.



4.3.2 Impact Analysis

a. Methodology and Significance Thresholds. In support of the EIR, San Buenaventura Research Associates prepared an historic resources technical report for the proposed project in August 2008 (revised October 2008).. The conclusions as to the significance of the effects of the proposed project on historic resources are based on the findings of this historic resources report, which is included in Appendix C.

Impacts created by the proposed project would be significant if project implementation would:

- *Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5;*
- *Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5;*
- *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or,*
- *Disturb any human remains, including those interred outside of formal cemeteries.*

According to PRC §21084.1, “a project that may cause a substantial change in the significance of an historical resource is a project that may have a significant effect on the environment.” This section broadly defines a threshold for determining if the impacts of a project on an historic property would be significant and adverse. By definition, a substantial adverse change means, “demolition, destruction, relocation, or alterations,” such that the significance of an historical resource would be impaired (PRC §5020.1(6)). For purposes of NRHP eligibility, reductions in a resource’s integrity (the ability of the property to convey its significance) should be regarded as potentially adverse impacts.

Further, according to the CEQA Guidelines, “an historical resource is materially impaired when a project... [d]emolishes or materially alters in an adverse manner those physical characteristics of an 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] 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 an 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.”

The lead agency is responsible for the identification of “potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource.” The specified methodology for determining if impacts are mitigated to less than significant levels are the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings and the Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), publications of the National Park Service. (PRC §15064.5(b)(3-4))



b. Project Impacts and Mitigation Measures.

Impact CR-1 The proposed North Village Center Redevelopment Project would involve the demolition of the structures at 5870-5874 Atlantic Avenue. This would result in a significant adverse impact to an historic resource. Impacts would be Class I, *significant and unavoidable* for Option A or Option B.

The property at 5870-5874 Atlantic Avenue appears to be eligible for individual listing on the NRHP and is therefore regarded as an historic resource. The proposed project involves demolition of the existing structure eligible for listing on the NRHP. Demolition is defined as a substantial adverse change that would impair the structure's ability to convey its integrity. A reduction in the structure's integrity would qualify as a potentially significant adverse impact.

Mitigation Measures. The following mitigation measures would apply to Option A or Option B to reduce impacts associated with demolition of the structures at 5870-5874 Atlantic Avenue:

CR-1(a) 5870-5874 Atlantic Avenue Recordation Document. Prior to the issuance of a demolition permit and in consultation with the Director of Development Services or their designee, an historic preservation professional qualified in accordance with the Secretary of the Interior's Standards shall be selected to complete Documentation Reports on the eligible properties to be demolished. The property shall be documented at HABS/HAER Level 2 standards. This recordation document shall be completed and approved by the Director or their designee. The approved document, along with historical background of the properties, shall be submitted to an appropriate repository approved by the Director or their designee.

CR-1(b) 5870-5874 Atlantic Avenue Interpretive Plan. In consultation with the Director of Development Services or their designee, an historic preservation professional qualified in accordance with the Secretary of the Interior's Standards shall be selected by the City to prepare an on-site interpretive plan, focusing on the significant historic themes associated with the properties to be demolished and the historical development of North Long Beach. The plan may consist of a public display or other suitable interpretive approaches, as approved by the Director or their designee, and be installed in an appropriate public location within the proposed Library-Community Center building. The interpretive plan shall be completed and approved prior to the issuance of building permits for the proposed Library-Community Center building, and shall be installed within one year of occupancy of the proposed Library-Community Center building. If the proposed Library-Community Center building is not occupied within two years after the issuance of demolition permits, another suitable temporary or permanent location for the interpretive display shall be



determined, subject to the approval of the Director or their designee. The interpretive display shall remain in public view for a minimum of five years, and if removed, appropriately archived.

Significance after Mitigation. Implementation of the above mitigation measures would reduce impacts relating to the demolition of 5870-74 Atlantic Avenue to the degree feasible. However, outside of preserving the structure, the impacts would be significant and adverse. Therefore, the impact to 5870-74 Atlantic Avenue would be Class I, significant and unavoidable. This would be the same for Option A or Option B, as all site structures would be demolished for either option. Section 6.0, *Alternatives*, considers alternatives that would preserve the structure at 5870-74 Atlantic Avenue.

Impact CR-2 The proposed project would involve the demolition of the structure at 635 E. South Street, which has been determined eligible for designation as a Long Beach City Landmark. This proposed activity would result in a significant adverse impact to an historic resource. Impacts would be Class I, significant and unavoidable for Option A or Option B.

The North Village Center Redevelopment Project would result in the demolition of the structure at 635 South Street, which has been determined to be eligible for designation as a Long Beach City Landmark. Demolition is a substantial adverse change that would impair the structure's ability to convey its integrity. A reduction in the structure's integrity would qualify as a potentially significant adverse impact.

Mitigation Measures. The following mitigation measures would apply to Option A or Option B to reduce impacts associated with demolition of 635 E. South Street to the extent feasible.

CR-2(a) 635 South Street Recordation Document. *Prior to the issuance of a demolition permit and in consultation with the Director of Development Services or their designee, an historic preservation professional qualified in accordance with the Secretary of the Interior's Standards shall be selected to complete Documentation Reports on the eligible property to be demolished. The property determined to be eligible for City Landmark listing shall be documented with archival quality photographs of a type and format approved by the Director or their designee. The recordation document shall be completed and approved to the satisfaction of the Director or their designee. The approved document, along with historical background of the properties prepared for this property, shall be submitted to an appropriate repository approved by the Director or their designee.*

CR-2(b) 635 South Street Interpretive Plan. In consultation with the Director of Development Services or their designee, an historic preservation professional qualified in accordance with the Secretary of the Interior's Standards shall be selected by the City to prepare an on-site



interpretive plan, focusing on the significant historic themes associated with the properties to be demolished and the historical development of North Long Beach. The plan may consist of a public display or other suitable interpretive approaches, as approved by the Director or their designee, and be installed in an appropriate public location within the proposed Library-Community Center building. The interpretive plan shall be completed and approved prior to the issuance of building permits for the proposed Library-Community Center building, and shall be installed within one year of occupancy of the proposed Library-Community Center building. If the proposed Library-Community Center building is not occupied within two years after the issuance of demolition permits, another suitable temporary or permanent location for the interpretive display shall be determined, subject to the approval of the Director or their designee. The interpretive display shall remain in public view for a minimum of five years, and if removed, appropriately archived.

Significance after Mitigation. Implementation of the above mitigation measures would reduce impacts relating to the demolition of the structure at 635 E. South Street to the degree feasible. However, outside of preserving the structure, the impact would be significant and adverse. Therefore, the impact to 635 E. South Street would be Class I, significant and unavoidable. This would be the same for Option A or Option B, as all site structures would be demolished for either option. Section 6.0, *Alternatives*, considers alternatives that would preserve the structure at 5870-74 Atlantic Avenue.

Impact CR-3 The proposed project would introduce new construction into the setting of the property at 620-630 E. South Street and properties located on the west side of the 5600-5700 block of Atlantic Avenue. However, the integrity of the historic setting for these properties has already been substantially diminished due to new construction and loss of commercial and residential buildings in the area. Furthermore, the scale and massing of the proposed project would be consistent with the historic scale of commercial development in the neighborhood. Impacts would be Class III, *less than significant*.

The North Village Center Redevelopment Project would introduce new construction into the setting of the property at 620-630 E. South Street which has been determined to be eligible for individual listing on the CRHR and to the properties along the west side of the 5600-5700 block of Atlantic Avenue have been determined eligible for listing as potentially contributing to a Long Beach City Landmark District. The scale, size, bulk and design of the proposed North Village Center Redevelopment Project would be markedly different from these nearby historic structures. Such a difference, in some situations, could have potentially adverse impacts on historic properties resulting from a reduction in the integrity of the historic setting. However, due to the extensive new construction and redevelopment that has occurred in this North Long Beach corridor, the existing historic setting for the designated landmarks has already been substantially altered. Therefore, the proposed project would not have a significant indirect impact on these properties.



Mitigation Measures. No mitigation is necessary for Option A or Option B. Indirect impacts to nearby historic properties would be less than significant.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact CR-4 The project would involve excavation that may disturb human remains interred outside of formal cemeteries or unrecorded cultural resources of significance. Potential impacts to previously unknown archaeological resources and human remains would be Class II, *significant but mitigable* for Option A or Option B.

The project site is located within an urbanized area and has been subject to extensive disturbance over the years due to previous development; thus, any surficial archaeological resources or human remains that may have been present at one time have likely been disturbed. However, the potential does exist for previously unknown resources or remains to be damaged during grading for site preparation. Potential impacts to previously unknown resources are mitigable, however, with standard mitigation measures and procedures to be followed if resources or remains are discovered during grading and site preparation.

Mitigation Measures. The following mitigation measures would apply to Option A or Option B to reduce the effects of excavation and ground disturbance to human remains and archaeological resources.

CR-4(a) Archaeological Resources. If archaeological resources, such as chipped or ground stone, dark or friable soil, large quantities of shell, historic debris, or human bone, are inadvertently discovered during ground disturbing activities, no further construction shall be permitted within 250 feet of the find until the City of Long Beach Department of Development Services has been notified and a qualified archaeologist can be secured to determine if the resources are significant per the Criteria of Eligibility in the NRHP regulations (36 CFR 60.4) and the California Register of Historical Resources eligibility criteria (Public Resources Code Section 5024.1; Title 14 CCR Section 4852). If the archaeologist determines that the find does not meet these standards of significance, construction shall proceed.

If the archaeologist determines that further information is needed to evaluate significance, the City of Long Beach Department of Development Services shall be notified and a Data Recovery Plan shall be prepared.

The Data Recovery Plan shall delineate a plan and timetable for evaluating the find. The Plan shall also emphasize the avoidance, if possible, of significant impacts to archaeological resources. If avoidance or preservation is not possible, the acquisition of data from the site or salvage through excavation that produces qualitative and quantitative data sets of scientific value may be considered an effective mitigation measure damage to or



destruction of the deposit or components of it (Public Resources Code Section 21083.2(d)). Upon approval of this Plan by the City staff, the plan shall be implemented prior to reactivation of any project activities within 250 feet of the resource boundary.

- CR-4(b) Human Remains.** If human remains are encountered, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County coroner has made a determination of the origin and disposition of the remains pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a most likely descendant (MLD). With the permission of the landowner or an authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and non-destructive analysis of the human remains and items associated with Native American burials.

Significance After Mitigation. Implementation of the above mitigation measures would reduce the effects of project excavations and ground disturbing activities to human remains and archaeological resources to a less than significant level. This would be the same for Option A or Option B, as the general project footprint and amount/depth of excavation would be similar for either option.

c. Cumulative Impacts. Planned and pending development in the City including the proposed project would add approximately 249,000 square feet of commercial development, 30,000 square feet of institutional development, 15,000 square feet of industrial development, and 122 housing units (see Table 3-1 in Section 3.0, *Environmental Setting*). Implementation of the proposed project, in combination with past, present, and potential future cumulative development in the area, could continue to alter the historic character of the City and result in substantial loss of extant historic resources to the community. Specifically, cumulative impacts would involve projects affecting local resources with the same level or type of evaluation or designation; projects affecting other properties located within similar federal, state, or locally evaluated or designated groupings or historic districts; or projects that involve resources that are significant within the same historic context as the resources associated with the North Village Center project. Where historic properties have been demolished or degraded, mitigation measures such as those proposed in this EIR are not always sufficient to reduce project specific impacts to less than significant levels. In addition, approval of projects with significant and unavoidable impacts to historic resources could be seen as establishing a pattern of development/ redevelopment that includes continued loss of historic resources. Cumulative impacts would therefore be significant and unavoidable, as would the project's contribution to the cumulative impact.



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4.4 GEOLOGY

A geotechnical evaluation of the western portion of the site was conducted for the proposed project by Geotechnologies, Inc. The following analysis is partially based on that report, dated March 5, 2008, which can be found in its entirety in Appendix D.

4.4.1 Setting

a. Regional Geology. The project site is located in the northwest portion of the City of Long Beach, California. Long Beach lies in the southwestern portion of a geographic area known as the Los Angeles Basin. The portion of the basin nearest the ocean is known as the Coastal Plain, while the portion of the City directly adjacent to the shoreline is designated specifically as the Long Beach Plain. The landward portion of the Los Angeles Basin is bounded to the north by the Santa Monica Mountains, Elysian Hills and Repetto Hills, to the east by the Merced Hills, Puente Hills, and Santa Ana Mountains, and to the south and west by the Pacific Ocean. The City is within the northern Peninsular Ranges Geomorphic Province, which is characterized by northwest-southeast trending valleys, folds and mountain ranges, subparallel to faults branching from the San Andreas Fault. This province is highly active seismically.

The project site is located at the northern end of the Peninsular Range geomorphic province, a 900-mile (1,450 km) northwest-southeast trending structural block that extends from the tip of Baja California to the Transverse Ranges and includes the Los Angeles Basin (Norris and Webb 1976). The total width of the province is approximately 225 miles (362 km), with a maximum landbound width of 65 miles (105 km) (Sharp, 1976). It contains extensive pre-Cretaceous (> 65 million years ago) igneous and metamorphic rock covered by limited exposures of post-Cretaceous sedimentary deposits.

Specifically, the project site is located within the Los Angeles coastal plain at the northwest extremity of a ridge-like topographic high that extends for approximately three miles across the cities of Signal Hill and Long Beach. This topographic high reaches a maximum elevation of 340 feet at the crest of Signal Hill to the southeast. It is part of a larger northwesterly trending alignment of low hills and mesas that extend across the Los Angeles coastal plain between Newport Beach and Beverly Hills. These hills were formed by tectonic forces associated with the Newport-Inglewood structural/fault zone that caused these sediments to be uplifted. On the northeast side of the Newport-Inglewood structural/fault zone, the Los Angeles coastal plain is underlain by Recent or Holocene age alluvial sediment. These sediments were deposited less than 10,000 years ago and have a typical thickness of about 100 to 200 feet. These alluvial sediments consist of sand, gravel, silt, and clay that were deposited in layers, lenses, and/or channels by the Los Angeles, San Gabriel, and Santa Ana rivers. This Recent alluvium is in turn underlain by a much thicker succession of sedimentary strata and unconsolidated sediments of Pleistocene age (1.8 million to 10,000 years ago), locally up to 3,000 feet thick (Poland and Piper 1956).

The topography of Long Beach is generally flat, with elevations of less than one hundred feet. However, geologic uplifts occur which interrupt the plain in different areas and result in prominent folds and hills. The Signal Hill, Reservoir Hill and Bixby Knolls areas provide the greatest relief within the City. The project site is located approximately eight miles north of the



Pacific Ocean at an elevation of approximately 50 feet above mean sea level, with essentially flat topography.

The faulting and seismicity of Southern California is dominated by the compressional regime associated with the “Big Bend” of the San Andreas Fault Zone. The San Andreas Fault Zone separates two of the major tectonic plates that comprise the Earth’s crust. West of the San Andreas Fault Zone lies the Pacific Plate, which is moving in a northwesterly direction relative to the North American Plate east of the San Andreas Fault Zone. This relative movement between the two plates is the driving force of fault ruptures in western California. The San Andreas Fault generally trends northwest-southeast. However, north of the Transverse Ranges Province, the fault trends more in an east-west direction (the Big Bend), causing the fault’s right-lateral strike-slip movement to produce north-south compression between the two plates. This compression has produced rapid uplift of many of the mountain ranges in Southern California. North-south compression in southern California has been estimated from 5 to 20 millimeters per year (SCEC, 1995).

Associated with the rapid uplift of the mountains surrounding the Coastal Plain of the Los Angeles Basin is rapid sedimentation of the basin. Quaternary age (within the last 1.6 million years) unconsolidated and semi-consolidated sediments are over 1,000 feet thick in some localities of the Coastal Plain. The Quaternary sediments are underlain by Tertiary (1.6 to 65 million years old) age rocks. The Tertiary material is principally composed of marine sediments of the Pico, Repetto, Monterey and Topanga formations that filled the basin when it was below sea level.

The Coastal Plain of the Los Angeles Basin is sub-divided into several distinct groundwater basins. The divisions of these groundwater basins are caused by geologic features such as non-water bearing bedrock, faults and other features that impede the flow of groundwater such as folds and groundwater mounds. The project area is within the West Coast sub-basin, which is bounded on the west and south by the Pacific Ocean, on the north by the Ballona Escarpment and on the east by the Newport - Inglewood Fault. This fault forms a natural barrier to groundwater flows from the adjacent Central Basin. Groundwater in this basin is primarily recharged from two remaining barrier projects and from limited Central Basin underflow.

The major aquifers beneath Long Beach are known as the 400-foot Gravel, the 200-foot Sand, and the Gaspur Zone. Until the 1920’s these beds contained fresh water. However, withdrawals inland, in addition to pollution by percolation of industrial wastes, caused the water to become polluted or to be replaced by seawater (salt water intrusion). In 1970, approximately 30 injection wells were put into operation in Long Beach for the purpose of fresh water injection along the Gaspur Zone. This created a barrier against further salt-water intrusion.

b. Site Geology. The project site is located in the northwest portion of Long Beach. The City is located on a broad, slightly elevated coastal terrace flanked by two flood plains on the east and west. Faults associated with the Newport-Inglewood Fault Zone cut diagonally across these features. In general, Long Beach is of low relief with a lack of significant slopes. The project site is located at an elevation of approximately 50 feet above mean sea level with essentially flat topography. The geotechnical report states that the western portion of the site is underlain by artificial fill and alluvium (Geotechnologies, Inc., March 5, 2008). The fill material



was found to vary from 1 to 2½ feet in depth and consists of silty sands that are yellowish brown, moist, medium dense, medium grained and contain asphalt fragments and gravel. The alluvial deposits consist of silty sands, sandy and clayey silts, and occasional clays and sands. The unconsolidated alluvial sediments were deposited by river and stream action.

Based on information from the California Division of Mines and Geology (now the California Geological Survey - 1998, revised 2006), the historic high groundwater level in the site vicinity is estimated to be on the order of 30 feet beneath the existing ground surface. Based on information in the Geotechnical Report by Geotechnologies, Inc. (March 5, 2008), borings in the western portion of the site encountered ground water at depths between 29 and 37 feet.

c. Seismic Hazards. The U.S. Geological Survey defines active faults as those that have had surface displacement within Holocene time (about the last 11,000 years). Surface displacement can be recognized by the existence of cliffs in alluvium, terraces, offset stream courses, fault troughs and saddles, the alignment of depressions, sag ponds, and the existence of steep mountain fronts. Potentially active faults are ones that have had surface displacement during the last 1.6 million years. Inactive faults have not had surface displacement within the last 1.6 million years.

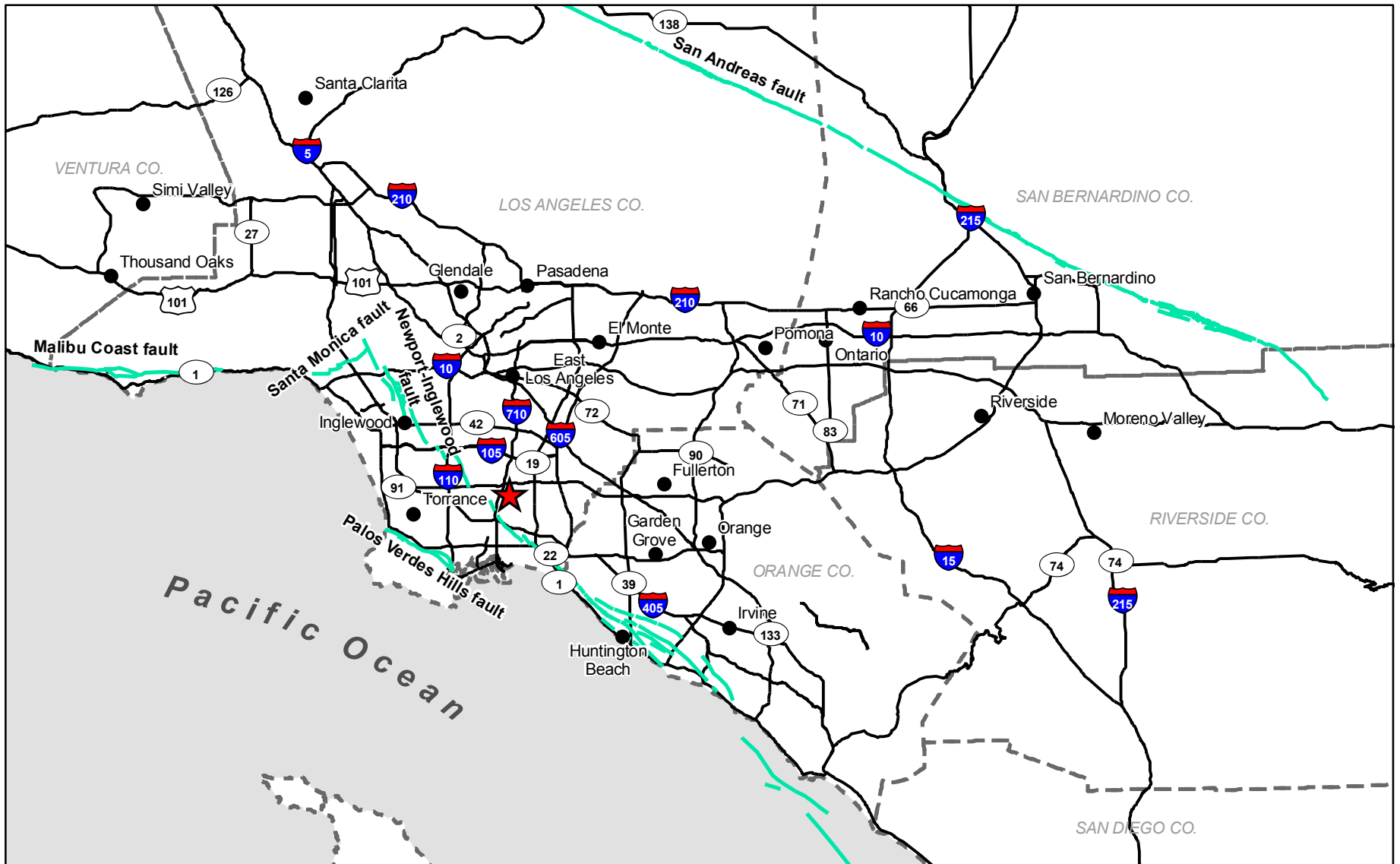
Earthquake magnitude varies logarithmically with the wave amplitude or seismic moment recorded by a seismograph. Each whole number step in magnitude represents an increase of ten times in the amplitude of the recorded seismic waves, and the energy release increases by a factor of about 31 times. The size of the fault rupture and the fault's displacement (movement) also increase logarithmically with magnitude.

Several active and potentially active faults are located in the general site vicinity, as shown on Figure 4.4-1. Table 4.4-1 shows the nearest faults with the distance in miles between the nearest point on the fault and the site, the maximum magnitude, and the slip rate for some of these nearby faults. In addition to these nearby faults, other large faults in the Southern California area have the potential to seismically affect the site. These include the San Gabriel Fault, the San Andreas Fault Zone, and the probable existence of other large blind thrust faults.

Faults generally produce damage in two ways: ground shaking and surface rupture. Seismically induced ground shaking covers a wide area and is greatly influenced by the distance of the site to the seismic source, soil conditions, and depth to groundwater. Surface rupture is limited to very near the fault. Other hazards associated with seismically-induced ground shaking include earthquake-triggered landslides and tsunamis.

Ground Surface Rupture and Shaking. Seismically induced ground rupture occurs as the result of differential movement across a fault. An earthquake occurs when seismic stress builds to the point where rocks rupture. As the rocks rupture, one side of a fault block moves relative to the other side. The resulting shock wave is the earthquake. If the rupture plane reaches the ground surface, ground rupture occurs.

North Village Center Redevelopment Project EIR
 Section 4.4 Geology



Source: Bryant, W.A. (compiler), 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0: California Geological Survey Web Page, <http://www.consrv.ca.gov/CGS/information/publications/QuaternaryFaults_ver2.htm>; (1/31/07).
 Note: information regarding site specific faults/concealed faults can be found on the Dibblee Map 1993 as referenced in the document.

★ Project Location

— Fault Lines



0 5 10 Miles

Regional Earthquake Fault Map

Figure 4.4-1
 City of Long Beach

**Table 4.4-1
Major Active Named Faults Near the Project Site**

Fault (increasing distance)	Maximum Magnitude	Type	Slip Rate (mm/yr)	Distance from Site (miles)	Direction from Site
Newport-Inglewood Zone	7.1	Strike Slip	1.5	2.0	SW
Palos Verdes	7.3	Strike Slip	3.0	6.0	SW
Puente Hills Thrust	7.1	Blind Thrust	0.7	10	NNE
San Joaquin Hills Thrust	6.6	Blind Thrust	0.5	14	SE
Upper Elysian Park Thrust	6.4	Reverse Oblique	1.3	17	NE
Whittier	7.3	Strike Slip	2.0	17	NE
San Jose	6.4	Reverse Oblique	0.5	20	NE
Santa Monica	6.6	Reverse Oblique	1.0	21	NW
Raymond	6.5	Reverse Oblique	1.5	21	N
Hollywood	6.4	Reverse Oblique	1.0	21	NNW
Verdugo	6.9	Reverse Oblique	0.5	24	NW
Malibu Coast	6.7	Reverse Oblique	0.3	26	NW

Source: California Geological Survey, 2003

Ground rupture is potentially damaging to any structure that straddles the fault trace. Structures cannot readily withstand the effect of differential movement of its foundation. Buildings typically collapse or suffer significant damage as a result of differential movement through a foundation.

No active faults have been mapped on the project site (Long Beach Seismic Safety Element, 1998). The nearest active fault to the site is the Newport – Inglewood Fault, which runs in a northwest-southeasterly direction approximately two miles southwest of the site. Therefore, the fault rupture hazard at the project site is considered low.

The Alquist-Priolo Earthquake Fault Zone (formerly known as a Special Studies Zone) is an area within 500 feet from a known active fault trace that has been designated by the State Geologist. Per the Alquist-Priolo legislation, no structure for human occupancy is permitted on the trace of an active fault. The term “structure for human occupancy” is defined as any structure used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year. Unless proven otherwise, an area within 50 feet of an active fault is presumed to be underlain by active branches of the fault.

The Alquist-Priolo Earthquake Fault Zone nearest to the project site is located approximately



two miles to the southwest of the site (Long Beach Seismic Safety Element, 1998). This zone is associated with the active Newport-Inglewood Fault Zone.

Ground shaking covers a wide area and is greatly influenced by the distance of the site to the seismic source, soil conditions, and depth to groundwater. The ground shaking is a result of the seismic waves produced by a fault rupture event. Secondary hazards associated with seismically induced ground shaking include liquefaction, seismically induced settlement, earthquake-triggered landslides, tsunamis and seiches.

The following is a list of the seismic sources most likely to affect the project site:

- *Newport-Inglewood Fault*
- *Palos Verdes Fault*
- *Whittier Fault*
- *Santa Monica-Malibu Coast Fault Zone*
- *Elsinore Fault Zone*
- *Blind Thrust Faults*

Newport-Inglewood Fault. The Cherry Hill segment of the Newport-Inglewood Fault is located about 2 miles southwest of the site and is considered active due to historically recorded movement (Jennings, 1994). The entire trace of the fault is mapped as an Alquist Priolo Earthquake Fault Zone. The 1920 Inglewood earthquake (estimated magnitude 4.9) and the 1933 Long Beach earthquake (estimated magnitude 6.3) are thought to be the result of movement of this fault (CDMG, 1974). The Newport-Inglewood Fault is the principal fault crossing the middle of the Los Angeles Basin. The trace of this fault is evident through the topographic highs through the basin, including the Baldwin, Cheviot, Rosecrans, Dominguez, and Signal Hills. This fault zone is composed of a series of discontinuous northwest-trending en echelon faults extending from Ballona Gap southeastward past the Santa Ana River in Newport Beach, where it trends off-shore. This zone is reflected at the surface by a line of geomorphically young anticlinal hill and mesas formed by the folding and faulting of a thick sequence of Pleistocene age sediments and Tertiary age sedimentary rocks (Barrows, 1974).

Palos Verdes Fault. The northwest-southeast trending Palos Verdes Fault is located immediately offshore of the City of Long Beach, approximately 8.0 miles southwest of the site. Studies by Stephenson et al. (1995), which included geophysical studies, aerial photograph interpretation, and limited fault trenching, indicate that there are several active on-shore splays of the Palos Verdes fault zone. It extends offshore from Santa Monica Bay (northern extent) and passes through the Palos Verdes Peninsula and into the Los Angeles Harbor area (southern extent). Based on geophysical data, the dip of the fault is interpreted to be near vertical to 55 degrees to the southwest. Vertical separation up to about 5,900 feet occurs across the fault at depth. However strike-slip movement is indicated by the configuration of the basement surface and lithologic changes in the Tertiary age rocks across the fault. The fault has right lateral strike slip displacement. Offsets along the ancestral Los Angeles River have been attributed to this fault. No historic large magnitude earthquakes are associated with this fault, however, the fault is considered active by the California Geological Survey (CGS). The active portions of the fault are offshore and are not mapped as Alquist-Priolo Zones, with the closest splay of the active Palos Verdes fault zone to the site located approximately 4.5 miles off-shore to the southwest.

Whittier Fault. The active Whittier fault is located approximately 17 miles northeast of the project site. The northwest-trending fault extends along the south flank of Puente Hills from the Santa Ana River on the southeast to Whittier Narrows on the northwest. According to Yeats, at Whittier Narrows the Whittier fault turns more northwesterly becoming the East Montebello fault. The main Whittier fault trace is a high-angle reverse fault, with the north side uplifted over the south side at an angle of approximately 70 degrees, although late Quaternary movement has been nearly pure strike slip and total right displacement may be around 8 to 9 kilometers (Yeats, 2004). In the Brea-Olinda Oil Field, the Whittier fault displaces Pleistocene age alluvium and Carbon Canyon Creek is offset in a right lateral sense by the Whittier fault.

Santa Monica-Malibu Coast Fault Zone. This fault zone is comprised of a series of east-west trending, north dipping left-lateral reverse oblique faults (having both strike-slip and reverse displacement components) that are generally located along the southern flank of the Santa Monica Mountains. The zone extends from the City of Sierra Madre at the base of the San Gabriel Mountains westward to offshore of Point Mugu. The Santa Monica and Malibu Coast segments are discussed below.

Santa Monica Fault. The Santa Monica Fault is located approximately 21 miles north of the site according to the City of Long Beach Seismic Safety Element (1998) and is considered potentially active (Jennings, 1994). Recent studies of the fault indicate that it could possibly be considered active (City of Santa Monica, 1999). However, it has not been designated as an Alquist-Priolo Fault Zone. The Santa Monica Fault extends from approximately the City of Glendale westward through the northern portion of the City of Santa Monica and extends offshore where it is structurally linked to the Malibu Coast Fault. This fault is thought to be predominately a reverse fault and is treated as such for the seismic evaluation in this EIR.

Malibu Coast Fault. The Malibu Coast Fault is located 26 miles northwest of the project site and is considered potentially active with active segments near Malibu (Jennings, 1994). These active segments are mapped as Alquist Priolo Earthquake Fault Zones. The Malibu Coast Fault extends from west of Point Dume near the Ventura-Los Angeles County line, eastward towards the City of Santa Monica where it is structurally linked to the Santa Monica Fault. Activity along the Malibu Coast Fault is thought to have occurred during the Late Quaternary and Holocene periods. The Malibu Coast Fault is thought to be predominately a left-lateral strike slip fault and is treated as such for the seismic evaluation in this EIR.

Elsinore Fault Zone. The active Elsinore fault zone is located approximately 22 miles northeast of the project site. This fault zone extends south-southeastward at least 110 miles along the northeastern flank of the Santa Ana Mountains. The fault zone dips steeply toward the southwest and displacement is both right-lateral and reverse-dip faulting. The fault zone contains several parallel to subparallel fault segments, and characteristically occupies a trough-like depression. The CGS considers the Glen Ivy Segment to be capable of a Magnitude 6.8 earthquake and estimated an annual slip rate of 5.0 millimeters per year.

San Gabriel Fault. The San Gabriel Fault is located approximately 37 miles northeast of the project site and is considered active (Jennings, 1994). A portion of this fault, east of the site, is mapped as an Alquist Priolo Earthquake Fault Zone. This large fault extends from near Frasier Mountain to the north, to near the Tejon Pass, near the city of San Bernardino. The San Gabriel Fault is a right lateral strike-slip fault that is structurally associated with the "Big Bend"



of the San Andreas Fault.

San Andreas Fault Zone. The Mohave segment of the San Andreas Fault is located 47 miles northeast of the project site and is considered active (Jennings, 1994). Much of the trace of this fault is mapped as an Alquist Priolo Earthquake Fault Zone. The San Andreas Fault Zone is the dominant active fault in California, and the most prominent structural feature, trending in a general northwest direction for almost the entire length of the state. It is the primary surface boundary between the Pacific and the North American plates. The fault is divided into several different segments. These segments include the North Coast, San Francisco Peninsula, Santa Cruz Mountains, Central Creeping, Parkfield, Cholame, Carrizo, Mojave, San Bernardino, and Coachella segments. The southern segment of the fault is approximately 450 kilometers long and extends from the Transverse Ranges west of Tejon Pass on the north to the Mexican border and beyond on the south. The last major earthquake along the San Andreas Fault zone in Southern California was the 1857 magnitude 8.3 Fort Tejon earthquake.

Blind Thrusts. In addition to the nearby faults, there is the potential for ground shaking from blind thrust faults. Blind thrust faults are low angle detachment faults that do not reach the ground surface. Recent examples of blind thrust fault earthquakes include the 1994 Northridge (Magnitude 6.7), 1983 Coalinga (Magnitude 6.5), and 1987 Whittier Narrows (Magnitude 5.9) events. As described in Dolan et al (1995), much of the Los Angeles area is underlain by blind thrust faults. In their seismic model for Los Angeles, blind thrust faults are found at a depth of about six to ten miles below ground surface and have the ability to produce magnitude 7.5 earthquakes. Blind thrust faults with potential to affect the project site include: the Puente Hills Thrust fault located approximately 12 miles to the north-northeast of the site; the San Joaquin Hills Thrust fault located approximately 17 miles southeast of the site; and the Upper Elysian Park Thrust fault located approximately 19 miles northeast of the site.

Seismic Potential. The 1997 Uniform Building Code (UBC) defines different regions of the United States and ranks them according to their seismic hazard potential. There are four types of these regions. These are designated as seismic zones 1 through 4, with Zone 1 having the least seismic potential and Zone 4 having the highest seismic potential. Per Figure 16-2 in Chapter 16 of the UBC (1997), the project site is located within Seismic Zone 4.

Seismically-induced ground acceleration is the shaking motion that is produced by an earthquake. Probabilistic modeling is done to predict future ground accelerations. Probabilistic modeling generally considers two scenarios, design basis earthquake ground motion or upper-bound earthquake ground motion. Design basis earthquake ground motion calculations are typically applied for residential and commercial sites. This ground motion is defined as a ground motion that has a 10% chance of exceedance in 50 years. Upper-bound earthquake ground motion calculations are applied to public schools, hospitals, skilled nursing facilities, and essential services buildings, such as police stations, fire stations, city hall, and emergency communication centers. Upper-bound earthquake ground motion is defined as the ground motion that has a 10 percent chance of exceedance in 100 years.

As shown in the Seismic Shaking Hazard Maps of California (California Division of Mines and Geology, 2003), the area near the project site has a 10% probability of experiencing 0.4-0.5 g peak horizontal ground acceleration within the next 50 years.



The California Building Code (1998, Chapter 16A, Division V) defines five occupancy categories for structures. These are:

1. *Essential facilities- including emergency treatment areas, fire and police stations, municipal, county, and state government disaster operation and communications centers, garages and shelters for emergency vehicles.*
2. *Hazardous facilities- including structures for toxic or explosive chemicals*
3. *Special Occupancy structures- including covered structures whose primary occupancy is public assembly-capacity greater than 300 persons, buildings with a capacity greater than 300 students, occupancies with 50 or more incapacitated residents, all structures with an occupancy greater than 5,000 persons.*
4. *Standard occupancy structures*
5. *Miscellaneous structures*

The seismicity of the region surrounding the site was determined from research of a computer catalog of seismic data (Southern California Seismographic Network, 2006). This database includes earthquake data compiled by the California Institute of Technology for 1932 to January 2006. This analysis also utilized data from 1812 to 1932 compiled by Richter and the U.S. National Oceanic Atmospheric Administration (NOAA). The search for earthquakes that occurred within 60 miles of the project site indicates that 66 earthquakes of Magnitude 5.0 and greater occurred between 1800 and 2008; 13 earthquakes of Magnitude 6.0 or greater occurred between 1812 and 1994; and three earthquake of Magnitude 7.0 or greater occurred between 1812 and 1858. A list of these earthquakes can be found in Table II of the geotechnical report in Appendix D.

Ground shaking that an area is subject to is primarily a function of the distance between an area and the seismic source, the type of material underlying a property, and the motion of fault displacement. In addition, the 1994 Northridge earthquake showed how peculiarities in basin effects could play a role in ground accelerations at particular areas. For instance, ground accelerations exceeding 1 g were recorded at areas far from the epicenter of the Northridge earthquake. It is possible that accelerations near or over the upper bound earthquake ground motion could occur anywhere within or adjacent to Long Beach's city limits, including the project area.

Groundshaking can also cause seismic settlement and subsidence, lurch cracking, and lateral spreading. The seismic settlement and subsidence is caused by the compaction of low-density alluvium and soils. Lurch cracking is the development of ground fractures, cracks, and fissures produced by groundshaking, settlement, compaction, and sliding that can occur due to seismic ground acceleration. These features can occur if high ground accelerations affect an area. Lateral spreading is the horizontal movement or spreading of soil towards an open slope face, such as a stream bank. Lateral spreading is most likely to occur where inappropriately designed artificial fill slopes have been built.

d. Secondary Seismic Hazards and Soil Hazards.

Liquefaction. Liquefaction is a temporary, but substantial, loss of shear strength in granular solids, such as sand, silt, and gravel, usually occurring during or after a major



earthquake. This occurs when the shock waves from an earthquake of sufficient magnitude and duration compact and decrease the volume of the soil; if drainage cannot occur, this reduction in soil volume will increase the pressure exerted on the water contained in the soil, forcing it upward to the ground surface. This process can transform stable granular material into a fluid-like state. The potential for liquefaction to occur is greatest in areas with loose, granular, low-density soil, where the water table is within the upper 40 to 50 feet of the ground surface. Liquefaction can result in slope and foundation failure.

Other effects of liquefaction include lateral spread, flow failures, ground oscillations, and loss of bearing strength. Liquefaction is intrinsically linked with the depth of groundwater below the site and the types of sediments underlying an area. Table 4.4-2 lists the general relationship between liquefaction hazard and groundwater depth.

**Table 4.4-2
Liquefaction Zone Criteria**

Geologic Unit	Depth to Groundwater	
	Greater than 40 feet	Less than 40 feet
Qa	Low	High
all other	Low	Low

Source: CDMG, 1995.

CDMG prepared Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, 1997. This document describes reasonable recommendations to ascertain the degree of risk that may exist on a site relative to seismic hazards, such as from landslides, liquefaction, and ground shaking. For liquefaction, CDMG recommends that the following be performed:

- *Screening investigations for liquefaction potential*
- *Qualitative evaluation of liquefaction potential*
- *Evaluation of potential liquefaction hazards*
- *Mitigation of liquefaction hazards*

According to the California Division of Mines and Geology (1999), the project site is not within an area identified as having a potential for liquefaction. The Seismic Safety Element of the General Plan (1988) depicts the site as having a minimal liquefaction hazard. Based on information from the California Division of Mines and Geology (2001), the historic high groundwater level is 30 feet below the existing ground surface. Groundwater was encountered between 29 and 37 feet below grade by Geotechnologies, Inc. (March 5, 2008) during their geotechnical investigation. Geotechnologies, Inc. performed a liquefaction analysis for the subject property using the spreadsheet template LIQZ_30.WQ1 developed by Thomas Blake in 1996 (Geotechnologies, March 5, 2008). Using the Design Based Earthquake parameters calculated for the site of a magnitude 7.1 earthquake with a peak horizontal acceleration of 0.48 g, the liquefaction analysis indicated that the site would not be prone to liquefaction during the ground motion expected during the design based earthquake, and therefore the potential for



liquefaction to occur beneath the site is low.

Subsidence and Settlement. Subsidence involves deep-seated settlement due to the withdrawal of fluid (oil, natural gas, or water). Seismically induced settlement occurs in loose to medium dense unconsolidated soil above groundwater. These soils compress (settle) when subject to seismic shaking. The settlement can be exacerbated by increased loading, such as from the construction of on-site buildings. Settlement can also result solely from human activities including improperly placed artificial fill, and structures built on soils or bedrock materials with differential settlement rates. This settlement can be mitigated prior to development through the removal and recompaction of loose soils.

The City of Long Beach Seismic Safety Element states that large-scale subsidence, primarily related to petroleum production from the Wilmington Oil Field, has taken place in the Long Beach Harbor area. Nearly 30 feet of subsidence has occurred at the center of the basin near the Navy dry-dock on Terminal Island, located approximately seven miles southwest of the project site. According to Seismic Safety Element maps, no subsidence has occurred in the vicinity of the project site. Elevation changes of 6 feet or more are primarily confined to the harbor area (Seismic Safety Element, 1988).

Seismic-induced settlement is often caused by loose to medium-dense granular soils densified during ground shaking. Uniform settlement beneath a given structure would cause minimal damage; however, because of variations in distribution, density, and confining conditions of the soils, seismic-induced settlement is generally non-uniform and can cause serious structural damage. Dry and partially saturated soils as well as saturated granular soils are subject to seismic-induced settlement. The alluvial deposits are generally uniform and excessive differential settlements are not expected to occur (Geotechnologies, Inc., March 5, 2008).

Expansive Soils. Expansive soils are soils that are generally clayey, swell when wetted and shrink when dried. Wetting can occur in a number of ways (i.e., absorption from the air, rainfall, groundwater fluctuations, lawn watering, broken water or sewer lines, etc.). Expansive soils located beneath structures can result in cracks in foundations, walls, and ceilings. Expansive soils located on slopes can cause slope failure.

The 1998 California Building Code states that foundations constructed on soils with an expansion index greater than 20 need special design considerations to accommodate the expected expansion and contraction. Geotechnologies, Inc. performed Expansion Index tests on three soil samples from 5 feet below grade from their borings numbers 2, 6 and 14. The Expansion Index tests indicated that the alluvial deposits have a very low expansion index and character (Appendix D).

Landslides and Slope Instability. Landslides occur when slopes become unstable and masses of earth material move down slope. Landslides are generally considered to be rapid events, often triggered during periods of rainfall or by earthquakes. Mudslides and slumps are a more shallow type of slope failure compared to landslides. These typically affect the upper soil horizons, and are not bedrock features. Historically, mudslides and slumps occur during or soon after periods of rainfall. Erosion can occur along manufactured slopes that are improperly designed or not adequately re-vegetated.



The size of a landslide can vary from minor rock falls to large hillside slumps. The underlying bedrock bedding planes, degree of water saturation of a material, steepness of a slope and the general strength of the soil all contribute to the stability of a hillside. Basal erosion caused by water or human-induced modifications to the natural contour of a hill, including grading, have the potential to destabilize a hillside.

Stability of a soil is influenced by many factors. Some of these factors include grain size, moisture content, organic matter content, degree of slope, and soil type. Unstable soils can produce landslides, debris flows, and rock falls. All of these phenomena are manifestations of gravity driven flows of earth materials due to slope instability. Hill slopes naturally have a tendency to fail. Unless engineered properly, development in hillside areas tends to increase the potential for slope failures. Slope modifications by grading, changes in infiltration of surface water, and undercutting slopes can create unstable hill slopes, resulting in landslides or debris flows. Rock falls occur in virtually all types of rocks and especially on slopes steeper than 40 degrees where the rocks are weakly cemented, intensely fractured, or weathered.

Landslides and rock falls are usually triggered by seismically-induced ground shaking or by erosional destabilization of a hill slope, but can also be caused by undercutting of slopes during grading operations. The City of Long Beach Seismic Safety Element (1988) states that slopes within the City are not high (less than 50 feet) or steep (generally sloping flatter than 1-1/2:1, horizontal to vertical), and that slope instability has not been a significant problem. Only minor slope failures were noted during the 1933 Long Beach Earthquake. The potential for seismically induced slope instability that is not associated with liquefaction or dikes is low (Seismic Safety Element, 1988).

The project site is relatively level. There are no known landslides at the site, nor is the site in the path of any known or potential landslides. The site is not within an area identified as having a potential for slope instability in the City of Long Beach Safety Element of the General Plan (1988). The site is not within a California Division of Mines and Geology (1998) Seismically Induced Landslide Hazard Zone. The alluvial deposits are generally uncemented and susceptible to erosion. If constructed at angles greater than approximately 2:1 (horizontal to vertical), temporary cut slopes may be susceptible to sloughing and failure.

Tsunamis and Seiches. Tsunamis are large ocean surges that are created as a result of a subsea earthquake or landslide. The waves created by the subsea earthquake or landslide travel across the ocean at high speeds (several hundreds of miles per hour). As the waves reach shore, their amplitudes increase. Once the waves reach land, they can cause widespread flooding. The areas susceptible to tsunamis are those near to the ocean and along low-lying river channels.

A seiche is a wave or series of waves that are produced within an enclosed or partially enclosed body of water (such as a lake or bay). Most seiches are created as landslides fall into the body of water and displace the water. The water then sloshes out of the bay or lake, creating the seiche. If a seiche overtops a dam, the water can erode the dam face to the point where the dam can fail. According to the Seismic Safety Element of the General Plan (1988), and the County of Los Angeles Seismic Safety Element (1990), the project site is not located in an area that could be affected by a tsunami or seiche. The site is located approximately eight miles from San Pedro Bay and topography at the site is 35 feet above sea level. Therefore, the risk from tsunamis or seiches



at the project site is considered low.

4.4.2 Environmental Impact Analysis

a. Methodology and Significance Thresholds. This evaluation is based on review of existing information that has been developed for the project site, including a geotechnical evaluation and report prepared for a portion of the project by Geotechnologies, Inc., the City of Long Beach General Plan Seismic Safety Element (1998), and other available regional sources.

Impacts related to geology and soils would be significant if the project would:

- *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;*
 - *Seismic-related ground failure, including liquefaction;*
 - *Landslides;*
- *Result in substantial soil erosion or the loss of topsoil;*
- *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 landslide, lateral spreading, subsidence, liquefaction, or collapse;*
- *Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property; or*
- *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.*

The Initial Study (see Appendix A) that was prepared for the proposed project determined that project could result in significant impacts with respect to the first, second, third and fourth thresholds listed above, with the exception of the potential for landslides included under the first threshold. The Initial Study determined that because proposed development would be connected to the City sewer system and would not use on-site septic systems for wastewater treatment, no impact related to the fifth threshold listed above would occur and further analysis of this issue in an EIR was not warranted.

Therefore, impacts are considered significant if the proposed development would be exposed to a high potential for such seismic hazards as ground shaking, liquefaction, and settlement, and soil hazards such as expansive soils, based on regional or site-specific conditions.

b. Project Impacts and Mitigation Measures.

Impact GEO-1 **Seismically-induced ground shaking could damage proposed structures and infrastructure, potentially resulting in loss of property or risk to human health and safety. However, required compliance with the Uniform Building Code and California Building Code would reduce impacts to Class II, significant but mitigable for Option A or Option B.**



As discussed under Section 4.4.1, design basis earthquake ground motion calculations are typically applied for residential and commercial sites. This ground motion is defined as a ground motion that has a 10% chance of exceedance in 50 years. As discussed in Section 4.4.1c, the design level ground acceleration (10% probability of exceedance in 50 years) for the project site is estimated at 0.4 -0.5 g. Earthquakes of this magnitude could potentially damage buildings and pose risks to human health and safety. The proposed project involves up to 61 units of housing, 36,000 square feet of retail/commercial, a 30,000 square foot public library and community center that would be susceptible to ground shaking impacts.

Upper-bound earthquake ground motion calculations are applied to public schools, hospitals, skilled nursing facilities, and essential services buildings, such as police stations, fire stations, city halls and emergency communication centers. Upper-bound earthquake ground motion is defined as ground motion that has a 10% chance of exceedance in 100 years.

The faults discussed in Section 4.4.1 are not the only faults in the area that can produce earthquakes, but they are the faults most likely to affect the project site according to the latest data. Earthquakes along these faults could produce potentially significant impacts to structures on-site. Although nothing can ensure that structures do not fail under seismic stress, proper engineering, including the measure identified below, can minimize the risk to life and property.

In addition to the calculated expected ground accelerations, there is the possibility that basin and sediment effects may amplify site ground accelerations. Potential basin effects are earthquake specific. Local building codes and the Uniform Building Code (UBC) do not require any mitigation for possible amplifications resulting from these effects.

Mitigation Measures. The following measure would apply to Option A or Option B and would reduce seismic hazard impacts associated with the proposed project.

- GEO-1 UBC and CBC Compliance.** Design and construction of the buildings proposed for the North Village Center Redevelopment project shall be engineered to withstand the expected ground acceleration that may occur at the project site. The calculated design base ground motion for the site shall take into consideration the soil type, potential for liquefaction, and the most current and applicable seismic attenuation methods that are available. All on-site structures shall comply with all applicable provisions of the most recent Uniform Building Code and the California Building Code.

Significance after Mitigation. Any structure built in California is susceptible to failure due to seismic activity. However, structural failure due to seismic ground shaking would be reduced to less than significant by implementing the most recent industry standards for structural designs. This would be the same for Option A or Option B, as the proposed structural development would be generally similar for either option.

- Impact GEO-2 Seismic activity could produce ground shaking that results in liquefaction. Liquefaction could potentially cause structural failure, resulting in loss of property or risk to human health**



and safety. However, geotechnical studies at the site indicate that the site is not prone to liquefaction. This is a Class III, less than significant impact for Option A or Option B.

The findings of the geotechnical study (Geotechnologies, Inc., 2008) completed for the western portion of North Village Center Redevelopment site indicates that the site is not prone to liquefaction, and therefore the liquefaction potential at the site is low. In addition, the City of Long Beach Safety Element (1988) indicates the site has a low liquefaction potential.

Mitigation Measures. With required implementation of all applicable building code regulations and implementation of mitigation measure GEO-1, risk from seismically-induced liquefaction would be less than significant; mitigation is not required for Option A or Option B.

Significance after Mitigation. Impacts would be less than significant without mitigation measures. This would be the same for Option A or Option B, as the development footprint would be generally similar for either option.

Impact GEO-3 Seismic activity could produce ground shaking that results in seismic settlement of material underlying the site. Settlement potential at the site is low; however, if the underlying material is improperly compacted, it can settle during earthquakes or due to construction-related loading and could expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. Impacts relating to settlement would be Class II, significant but mitigable for Option A or Option B.

The proposed project includes the demolition of existing structures and construction of new structures. Through the course of this development, soil would be excavated to make room for footings and, possibly, underground stormwater detention facilities, and fill would be emplaced to contour the site to control the grade of buildings. The City of Long Beach Safety Element states that most of the areas within the City have a low settlement hazard, except for the areas near former clay pits, which have a high potential for settlement. The project site is not near any of the former clay pits and according to Geotechnologies, Inc. (March 5, 2008) the alluvial deposits underlying the site are generally uniform and excessive differential settlements are not expected to occur.

The proposed project may require excavation for footings. After the area is excavated, portions would need to be backfilled. Improper backfilling could produce a potential settlement hazard for the future buildings at this site. As such, impacts related to settlement would be a potentially significant impact.

Mitigation Measures. The following measures would apply to Option A or Option B and would address settlement hazard impacts.

GEO-3(a) Construction Fill Material Certification. All fill material used for construction shall be approved by a geotechnical or civil engineer, and all backfill and foundation sub-grade shall be certified by a



geotechnical or civil engineer for proper compaction.

- GEO-3(b) Backfill Material Certification.** All fill material used for backfill of any below-grade levels within the project area shall be approved by a geotechnical or civil engineer. In addition, the backfill shall be certified by a geotechnical or civil engineer for proper compaction.

Significance after Mitigation. Implementation of Mitigation Measures GEO-3(a) and GEO-3(b) would reduce impacts related to soil settlement to a less than significant level. This would be the same for Option A or Option B, as the development footprint and quantity/depth of excavation would be generally similar for either option.

- Impact GEO-4 Impacts would be significant if the project is 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 landslide, lateral spreading, subsidence, liquefaction, or collapse. The proposed project may require excavation for footings, deep foundations and deep utilities. The alluvial deposits underlying the site may be susceptible to sloughing and failure during excavation. This would be a Class II, significant but mitigable, impact for Option A or Option B.**

The proposed project may require excavation for footings and possibly deep foundations, and deep utilities. The alluvial deposits underlying the site are generally uncemented and susceptible to erosion. If constructed at angles greater than approximately 2:1 (horizontal to vertical), temporary cut slopes may be susceptible to sloughing and failure. During construction, the sidewalls of the excavations could potentially become unstable and fail if not properly designed or shored. Failure during excavation could pose a safety risk for on-site and offsite personnel, the general public, and nearby buildings, streets, and utility lines. The proposed excavation would extend to a maximum of 10 to 12 feet below grade. Provided the proposed project parameters do not change to include deeper excavations, the proposed project is not anticipated to encounter groundwater. However, impacts related to failure of subterranean structures would be potentially significant.

Mitigation Measures. The following measures would apply to Option A or Option B and would reduce hazard impacts associated with the subterranean excavation and operation of subterranean structures to a less than significant level.

- GEO-4(a) Adherence to Geotechnical Recommendations and City Requirements.** All grading activities, including but not limited to excavations, placement of backfill, placement of structural fill, and cut and fill slopes shall adhere to the recommendations in the March 5, 2008 Geotechnologies, Inc. report.
- GEO-4(b) Temporary Shoring.** If constructed at angles greater than approximately 2:1, temporary cut slopes in alluvial deposits are susceptible to sloughing and failure. Temporary or permanent



shoring shall be designed to protect the temporary or permanent excavations, structures to remain in place, and adjacent properties. This shoring shall be designed to the satisfaction of the project civil engineer and shall take into account all lateral load parameters and the possible presence of groundwater at the base of the shoring soldier piles (if used).

Significance after Mitigation. Implementation of Mitigation Measures GEO-4 (a-b) would reduce impacts related to hazards associated with the grading and construction of the proposed buildings to a less than significant level. This would be the same for Option A or Option B, as the development footprint and quantity/depth of excavation would be generally similar for either option.

c. Cumulative Impacts. Planned and pending development in the City including the proposed project would add approximately 249,000 square feet of commercial development, 30,000 square feet of institutional development, 15,000 square feet of industrial development, and 122 housing units (see Table 3-1 in Section 3.0, *Environmental Setting*). Proposed development, in conjunction with other cumulative projects proposed in the City of Long Beach, would expose additional people and property to seismically related hazards that are present throughout the region. Cumulative impacts related to seismically-related ground shaking, liquefaction, and soil settlement would be similar to what is described for project-specific impacts, and would be addressed on a project-by-project basis through compliance with existing building codes and any site-specific mitigation measures for individual projects. Compliance with applicable code requirements and the recommendations of site-specific geotechnical evaluations on a case-by-case basis would reduce cumulative impacts relating to geologic hazards to a less than significant level.

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4.5 HAZARDS and HAZARDOUS MATERIALS

This section analyzes potential impacts associated with the use of hazardous materials, including impacts relating to ongoing industrial activities in the site vicinity and possible historic soil and groundwater contamination on-site. The analysis relies in part on a *Phase I Environmental Site Assessment (ESA)*, prepared by Rincon Consultants, Inc., dated August 21, 2008 and included in its entirety in Appendix E.

4.5.1 Setting

a. Project Site Vicinity. The project site encompasses two full city blocks in the North Long Beach Redevelopment Project Area in the City of Long Beach, County of Los Angeles. Atlantic Avenue bisects the approximately 6.3-acre project site. The western block, approximately 3.15 acres, is bounded on the south by South Street, on the west by Linden Avenue and on the north by 59th Street. The east block, also approximately 3.15 acres, is bounded on the south by South Street, on the east by Lime Avenue and on the north by 59th Street. As shown in Section 2.0, *Project Description*, Figure 2-1 (Regional Vicinity) and Figure 2-2 (Project Location), the project site is accessible from Interstate 710 (the Long Beach Freeway), Interstate 405 (the San Diego Freeway) and State Route 91 (the Artesia Freeway). In addition, Figure 2-3 presents an aerial view of the project site and surrounding areas; and Figure 2-4 (a and b) provides street-level photographs of the site.

b. Regulatory Setting. The federal government defines hazardous materials as substances that are toxic, flammable/ignitable, reactive, or corrosive. Extremely hazardous materials are substances that show high or chronic toxicity, carcinogenic, bioaccumulative properties, persistence in the environment, or that are water reactive.

Soil Contamination Health Risk Assessment. Regulatory agencies such as the United States Environmental Protection Agency (EPA), Department of Toxic Substance Control, and Department of Environmental Health Hazard Assessment set forth guidelines that list at what point concentrations of certain contaminants pose a risk to human health. The EPA combines current toxicity values of contaminants with exposure factors to estimate what the maximum concentration of a contaminant can be in environmental media before it is a risk to human health. These concentrations set forth by the EPA are termed Preliminary Remediation Goals (PRGs) for various pollutants in soil, air, and tap water (USEPA Region IX, Preliminary Remediation Goals Tables, 2002). PRG concentrations can be used to screen pollutants in environmental media, trigger further investigation, and provide an initial cleanup goal. PRGs for soil contamination have been developed for both industrial sites and residential sites. Residential PRGs are more conservative and take into account the possibility of the contaminated environmental media coming into contact with sensitive receptor sites such as nurseries and schools. PRGs consider exposure to pollutants by means of ingestion, dermal contact, and inhalation, but do not consider impacts to groundwater.

Soil Contamination and Groundwater Protection. The Los Angeles Regional Water Quality Control Board (RWQCB) has developed an interim guidance document that contains numerical site screening levels to determine the need for remediation of gasoline and volatile organic compound (VOC) contaminated soils (Los Angeles RWQCB, 1996). The guidance document has been used to determine when a site may require remedial action or to establish



an acceptable clean up standard for a particular constituent. The document was developed to simplify the remediation process by facilitating the selection of soil cleanup levels for gasoline and VOC affected sites.

Drinking Water Protection. Both the EPA and the California Department of Health Services (DHS) regulate the concentration of various chemicals in drinking water. The DHS thresholds are generally stricter than the EPA thresholds. Primary maximum contaminant levels (MCLs) are established for a number of chemical and radioactive contaminants (Title 22, Division 4, Chapter 15 California Code of Regulations). MCLs are often used by regulatory agencies to determine cleanup standards when groundwater is affected with contaminants.

Recognized Environmental Conditions. A "Recognized Environmental Condition" (REC) is defined pursuant to the American Society of Testing and Materials (ASTM) as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the project site or into the ground, groundwater, or surface water of the property." The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Hazardous Materials. State and Federal governmental agencies regulate the use, storage, and transport of hazardous materials through numerous legal and regulatory requirements. State and Federal government regulations require businesses that store, use, or manufacture specific amounts of hazardous materials to report the quantities and types of materials to the local administering agency. Long Beach Municipal Code Chapters 8.85-8.87 designates the Long Beach/Signal Hill Certified Unified Program Agency (CUPA) as the Unified Program Agency for the cities of Long Beach and Signal Hill and requires that this CUPA oversee the installation, operation and removal of above ground and underground storage tanks and hazardous materials releases and hazardous waste control. The Unified Program combines both Fire Department and Health Department programs to manage hazardous materials.

Lead and Asbestos. The South Coast Air Quality Management District (SCAQMD) regulates asbestos emissions. The SCAQMD rule applicable to the proposed project is Rule 1403, Asbestos Emissions from Demolition/ Renovation Activities. Compliance with SCAQMD Rule 1403 requires that the owner or operator of any demolition or renovation activity to have an asbestos survey performed prior to demolition. Lead-based materials exposure is regulated by California Occupational Safety and Health Administration (CalOSHA) regulations. California Code of Regulations, §1532.1, requires testing, monitoring, containment, and disposal of lead-based materials such that exposure levels do not exceed CalOSHA standards.

c. Phase I ESA. Rincon Consultants, Inc. completed an Environmental Site Assessment (ESA) for the site in August 2008. Rincon performed the Phase I ESA in conformance with ASTM E 1527-05. The Phase I also included a review of previous Phase I and Phase II reports for the project site dated 2002 and 2004-2005. The Phase II ESA conducted by SCS Engineers in 2005, analyzed soil and groundwater for possible contamination associated with the removal of



two on-site Underground Storage Tanks (USTs).

The additional reports are listed below:

- *Phase I ESA, North Library Site- Alternative D, Long Beach California (APNs 7125-033-008 through -013, -022 through -025, and -030), SCS Engineers, October 17, 2002,*
- *Phase I ESA, 5893 Atlantic Avenue (APN 7125-033-016), Long Beach, California, SCS Engineers, May 27, 2004,*
- *Phase I ESA, 5887 Atlantic Avenue, Long Beach, California, 90805, Tait Environmental Management, Inc., December 17, 2004,*
- *Phase I ESA, 5843/5845/5847 Atlantic Avenue, Long Beach, California, 90805, Tait Environmental Management Inc., December 17, 2004,*
- *Phase I ESA, 5855 Atlantic Avenue (APN 7125-033-021), Long Beach, California, SCS Engineers, April 13, 2005,*
- *Phase I ESA, Kindermann Property, 5869 Atlantic Avenue (APN 7125-033-019), Long Beach California 90805, Tait Environmental Management Inc., July 18, 2005,*
- *Phase II ESA, 5801 Atlantic Avenue (APN 7125-033-030), Long Beach, California, SCS Engineers, October 28, 2005,*
- *Phase I ESA, 5852-5892 Linden Avenue (APNs 7125-033-001 through -007), Long Beach, California, 90805, SCS Engineers, October 31, 2005,*
- *Phase I ESA, 5879 Atlantic Avenue (APN 7125-033-018), Long Beach, California, 90805, SCS Engineers, July, 2006, and*
- *Phase I ESA, North Long Beach Library Project and Community Center (APNs 7124-032-001 through -06, -009 through -020, and -028 through -029), Long Beach, California, SCS Engineers, April 7, 2005.*

Historic Land Use. The historic records reviewed for Rincon's 2008 Phase I ESA included aerial photographs, topographic maps, and fire insurance maps. In addition, the ESA preparers provided an interview questionnaire to the property owners. Existing and recently demolished structures included approximately 24 residential properties and approximately 20 commercial properties. The residential properties included single-family residences and multi-family residences. The majority of the residences were constructed between the 1920s and the 1950s. All of the residential structures have been demolished and the properties have since been graded and are vacant. The oldest on-site commercial properties were constructed in the 1920s and development continued through at least the 1980s. Historical uses of these properties include automotive repairs, a gasoline service station, a beauty salon, a paint shop, a furniture store, a bank, dental and doctor offices, a cycle shop, a shoe store, an insurance company, a men's clothing store, a TV and appliance store, a printing facility, cleaners, a movie theater, a church, parking lots, a liquor store, a cocktail lounge, a bakery, a restaurant, and an auto parts supply store. The majority of these structures have been demolished and those that remain are vacant. The only active property is an auto supply store. The gasoline service station that was previously located on the auto supply store site has had underground storage tanks removed from the property. In addition, a leaking underground storage tank (LUST) case was reported for this site.

Field Reconnaissance Findings. There are only three existing structures on the project site, all located on the eastern block. The one occupied building is the one-story AutoZone



retail store in the southwest corner of the block. It is bordered to the south by an asphalt paved parking lot accessed from South Street and Atlantic Avenue. A gasoline station previously occupied the current AutoZone site, and while the tanks were removed, the site may not have been fully remediated. The remaining two structures on the eastern block are unoccupied. The largest unoccupied structure is in the northwest corner of the east block and consists of two joined buildings, one a former two-story movie theater and the second is a former furniture retail showroom with a mezzanine level. The final unoccupied structure is a one story building located in the southeast corner of the eastern block that was formerly used as an art gallery. No other structures are present at the project site. A fire on April 5, 2009 destroyed a one-story unoccupied building formerly used as an adult bookstore. The City issued an Abatement Order on April 14, 2009 that required the demolition of this entire structure.

An unidentified concrete structure, which appeared to have the same dimensions as a typical sump, was observed in the middle of the western block of the site. No liquid or evidence of stained concrete was observed. Several areas of staining on the asphalt paved parking area to the north of the 635 E. Street Site building were observed. The staining appears to be from automobiles parked in the parking lot and in the vicinity of a former heating system. All of the stains appeared dry and no active source was identified. During the site reconnaissance Rincon personnel observed two rows of soil and gravel stockpiles in the north portion of the western block of the site. The origin of the stockpiles is unknown. The piles were likely generated during demolition activities of the previous structures at the site.

The surrounding land use has been primarily residential and commercial since the 1900s. The adjacent property to the west of the site contains residential and commercial development. North of the site is residential and commercial development. South of the project site is commercial development and a gasoline station. East and west of the project site are residential uses.

Environmental Records Review. Rincon contracted Environmental Data Resources, Inc. (EDR) to provide a database search of public lists of sites that generate, store, treat or dispose of hazardous materials or sites for which a release or incident has occurred. The EDR search was conducted for the project site on March 17, 2008 and included data from surrounding sites within a specified radius of the property. The EDR report specifies the ASTM search distance for each public list. Federal, State and County lists were reviewed as part of the research effort. Several of the subject properties were listed on the CORTESE, LUST, UST, EDR Historical Auto Stations, EDR Historical Cleaners and HAZNET databases in the EDR report. In addition, several of the adjacent properties to the south and west were listed on the CORTESE, LUST, UST, EDR Historical Auto Stations, HIST UST, SWEEPS UST, and CA FID databases in the EDR database (see explanation of acronyms below).

Ca. FID: California Facilities Inventory Database contains active and inactive underground storage tank locations as provided by the California State Water Resources Control Board.

CORTESE: Identified Hazardous Waste and Substance Sites. This database (from the CAL EPA/Office of Emergency Information) identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned



site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration.

DRYCLEANERS: A list of dry cleaning related facilities that have EPA ID Numbers. These are facilities with certain SIC codes as follows: power laundries, family and commercial, garment pressing and cleaners' agents, linen supply, coin-operated laundries and cleaning, dry cleaning plants except rugs, carpet and upholsterer cleaning, industrial launderers, laundry and garment services.

EDR Historical Auto Stations: A collection of potential gas station/filling station/service station sites searched by EDR from a national collection of business directories.

EDR Historical Cleaners: A collection of potential dry cleaner sites searched by EDR from a national collection of business directories.

HAZNET: Hazardous Waste Information System. Data that is extracted from the copies of hazardous waste manifests received each year by the DTSC (information is provided by the Department of Toxic Substances Control).

HistUST: The Hazardous Substance Storage Container Database is a historical listing of UST sites. This database is maintained by the State Water Resources Control Board.

LUST: LUST records contain an inventory of reported leaking underground storage tank incidents. This database is maintained by the State Water Resources Control Board.

RCRA-(TSD, LQG, SQG): RCRAInfo is U.S. EPA's comprehensive information system providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data and recording abilities of the Resource Conservation and Recovery Information System (RCRIS). The RCRAInfo database includes selected information on sites that generate, store, treat, or dispose of hazardous waste as defined by RCRA. Conditionally exempt small quantity generators (CESQG) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQG) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQG) generate over 1,000 kg of hazardous waste or over 1 kg of acutely hazardous waste per month. Transporters move hazardous wastes from the generator off-site to a facility that can recycle, treat, store or dispose of the waste. TSDFs treat store or dispose of the waste.

SWEEPS UST: This underground storage tank listing was updated and maintained by a company contacted by the State Water Resources Control Board in the early 1980s. This listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.



UST: The UST database contains registered USTs. This database is maintained by the State Water Resources Control Board.

Sites that were identified within a one-eighth mile radius of the project site are listed in Table 4.5-1. A total of 23 sites are located within one-eighth mile of the project site. Sites appear in the following databases:

**Table 4.5-1
EDR Summary Listing of Sites**

Site Name	Site Address	Distance from Project Site	Database Reference
Long Beach Redevelopment Agency	5822 Linden Avenue	Project site	Haznet
Sears Savings Bank / Former Shell Parts USA Gibson Shell Service	5800 Atlantic Avenue	Project site	CORTESE, LUST, UST, EDR HISTORICAL AUTO STATIONS,
NLB Cleaners	5823 Atlantic Avenue	Project site	EDR Historical Cleaners
Beyer Paul	5885 Atlantic Avenue	Project site	EDR Historical Auto Stations
Larry's Speed D-Service	5801 Atlantic Avenue	Project site	EDR Historical Auto Stations, UST
76 Products Station #1112 Atlantic Union Service	5740 Atlantic Avenue	Adjacent 0-1/8 South	CORTESE, LUST, CA FID UST, HIST UST, SWEEPS UST, and EDR Historical Auto Stations
Shipley's Flying A Service	495 South Street	Adjacent 0 to 1/8 West	EDR Historical Auto Stations, UST
South Street Junior Market South Liquor North Long Beach Radiator Service Joel Hammon Garage	494 South Street	Catty Corner Adjacent 0-1/8 West	CORTESE, LUST, CA FID UST, UST, HIST UST, SWEEPS UST, and EDR Historical Auto Stations
MTF Photo Labs	5714 Atlantic Avenue	0-1/8 South	RCRA-SQG
H&H Motors	455 South Street	0-1/8 West	RCRA-SQG
Danny	5990 Atlantic Avenue	0 to 1/8 North	UST,
Rosita Cleaners	5647 Atlantic Avenue	0 to 1/8 South	DRYCLEANERS
Huddleston	5921 Atlantic Avenue	0 to 1/8 North	EDR Historical Auto Stations
Quality Transmission	5966 Atlantic Avenue	0 to 1/8 North	EDR Historical Auto



**Table 4.5-1
EDR Summary Listing of Sites**

Site Name	Site Address	Distance from Project Site	Database Reference
			Stations
Cliff's Flying A Service	5990 Atlantic Avenue	0 to 1/8 North	EDR Historical Auto Stations
Miller's Texaco Service	6001 Atlantic Avenue	0 to 1/8 North	EDR Historical Auto Stations
Wood, E.H.	486 South Street	0 to 1/8 West	EDR Historical Auto Stations
Port Bros. Union Service	5738 Atlantic Avenue	0 to 1/8 South	EDR Historical Auto Stations
A&H Motors	455 South Street	0 to 1/8 West	EDR Historical Auto Stations
Davis Automatic Laundry	5932 Atlantic Avenue	0 to 1/8 North	EDR Historical Cleaners
Paramount Cleaners	5999 Atlantic Avenue	0 to 1/8 North	EDR Historical Cleaners
Levine Morris	5729 Atlantic Avenue	0 to 1/8 South	EDR Historical Cleaners
Dodge Cleaners	5618 Atlantic Avenue	0 to 1/8 South	EDR Historical Cleaners

EDR listings on the Project Site. The project site is listed in several of the databases searched by EDR. The following is a brief summary of each listing:

Long Beach Redevelopment Agency- 5822 Linden Avenue - This site is listed on the HAZNET database and is located in the southwestern portion of the west block (Map ID #12). The site was previously a single-family residence and has been demolished. According to the EDR report the waste generated at the site was 1.68 tons of asbestos containing material. No further information was provided. It is likely that this material was generated during the demolition of the structure. This known contaminated material was most likely disposed at a licensed facility and is not anticipated to impact the subject site. Based on the known quantities and disclosed nature of the waste, the listing at 5822 Linden Avenue is not anticipated to pose an environmental concern to the project site.

Sears Savings Bank/Former Shell Parts USA/Gibson Shell Service- 5800 Atlantic Avenue - This facility is listed on the CORTESE, LUST, UST, and the EDR Historical Auto Stations databases and is located in the southwest corner of the eastern block of the site (Map ID #31). The site has been redeveloped and is occupied by an AutoZone retail car parts facility. The site was formerly occupied by a Shell gasoline service station which reported a leaking underground storage tank on March 17, 1989. The gasoline leak impacted groundwater and several site assessments were



conducted in 1989 and 1991. A release case was opened with the Los Angeles Regional Water Quality Control Board (Case Number 908050252). Remediation was conducted in 1991 and verification monitoring was conducted in 1995. The case was closed on July 19, 1996. Further discussion of this facility is provided in the Review of Agency Files portion of this report.

NLB Cleaners- 5823 Atlantic Avenue - This facility is listed on the EDR Historical Dry Cleaners database and was located in the southeastern portion of the western block of the site (Map ID # 24). The structure which housed this facility is no longer present. The historical cleaner occupied the site between 1948 and 1952. A previous Phase I assessment indicated the possible presence of a former dry cleaning facility but could not distinguish whether it was a dry cleaning or a simple clothes laundry facility. No subsurface investigation was performed and no further information was provided. The lack of definitive information about this facility's practices is an environmental concern, as more fully discussed below.

Paul Beyer- 5885 Atlantic Avenue - This facility is listed on the EDR Historical Auto Stations Database and was located in the northeast corner of the western block of the site (Map IDs #15, 16, and 17). The facility was a gasoline service station in 1939. No further information was provided. The lack of definitive information about this facility's practices is an environmental concern as more fully discussed below.

Larry's Speed D-Service-5801 Atlantic Avenue - This facility is listed on the EDR Historical Auto Stations database and was located in the southeast corner of the west block of the site (Map ID# 14). This facility reportedly occupied the site from 1931 through 1948 under a variety of different owners. As previously noted, a Phase II site investigation was conducted at this site by SCS Engineers and is described in a report dated October 28, 2005. In this report SCS indicated that soil samples from seven borings to depths of up to 20 feet below grade and soil vapor samples from four locations were collected at this property. Concentrations of TPH in diesel and oil ranges were reported but at concentrations below RWQCB soil screening levels. Further, concentrations of lead were reported in several samples at concentrations that exceeded residential PRG values. Concentrations of VOCs were not reported at the site. SCS recommended that if the property was to be used for residential uses in the future, or if soil was to be removed from the property, additional soil sampling and characterization should be conducted. No further information was provided. As a former gasoline service station with a known release and known residual contaminated soil, this facility is an environmental concern as more fully discussed below.

EDR listings adjacent to the Project Site. The following three facilities are listed on the CORTESE, LUST, CA FID, UST, HIST UST, SWEEPS UST, and EDR Historical Auto Stations databases:

76 Products Station #1112/Atlantic Union Service - 5740 Atlantic Avenue (Adjacent to the South) - This facility is located adjacent to the south of the eastern block of the subject site, across East South Street. According to the EDR report, a release of



gasoline from a UST was discovered on July 5, 1988 and Case # 908050198 was opened with the Los Angeles Regional Water Quality Control Board. According to the online Geotracker database maintained by the State Water Resources Control Board, the case status is currently open and assessment is underway. Several assessment reports were reviewed as a part of this investigation. These reports indicated that twelve (10 on-site and 2 off-site) groundwater monitoring wells are present at this facility. The closest groundwater monitoring wells to the project site are monitoring wells BC-3 and BC-6 along the northern property line of the site and adjacent to the sidewalk bordering East South Street. The historic groundwater flow gradient has consistently been to the south and west. From a December 3, 2007 groundwater sampling event, well BC-3 had concentrations of 160,000, 20,000, 25,000, 3,800, and 7,200, micrograms per liter ($\mu\text{g}/\text{l}$) of TPHg, benzene, toluene, ethylbenzene, and MTBE, respectively. Well BC-6 had reported concentrations of 18,000, 2,700, 1,100, 170, and 190 $\mu\text{g}/\text{l}$ of TPHg, benzene, toluene, ethylbenzene, and MTBE, respectively. The northerly extent of the plume has yet to be delineated and a September 21, 2007 workplan prepared by Delta Consultants proposed to install three off-site groundwater monitoring wells in the parking lot of the AutoZone store to evaluate this concern. Due to reported difficulties in obtaining off-site access to the AutoZone property, several extensions for the Site Assessment report have been requested. To date it is unclear if the additional assessment work has been conducted. As a gasoline service station with a known release affecting groundwater with potential migration northward towards the subject site, this facility is an environmental concern, as more fully discussed below.

Shipley's Flying A Service- 495 South Street (Adjacent to the West) - This facility was listed in the EDR Historical Auto Stations Database and was also listed in the city directories reviewed for the site. The EDR report indicates that the site was a gasoline service station from at least 1952 to 1963. This facility is located adjacent to the west of the west block of the site. As a former gasoline service station with a known release and known residual contaminated soil, this facility is an environmental concern as more fully discussed below.

South Street Junior Market/South Liquor/North Long Beach Radiator Service/Joel Hammon Garage- 494 South Street (Adjacent to the southwest) - This facility is located adjacent to the southwest of the western block of the project site. According to the EDR report a gasoline release was discovered on December 2, 1992 and impacted groundwater beneath the site. Case # 908050334 was opened with the Los Angeles RWQCB and according to the online Geotracker database maintained by the State Water Resources Control Board, the case was closed on July 25, 1996. As a former gasoline service station with a known release, this facility is an environmental concern as more fully discussed later in this report. Further discussion of this facility is provided in the Review of Agency Files portion of this report.

SCS Engineers 2005 Phase II ESA. A Phase II ESA was conducted by SCS Engineers in October 2005. This study was conducted based on results from a Phase I ESA conducted by SCS Engineers dated October 17, 2002. The Phase I ESA indicated that a gas station at 5801/5803 Atlantic Avenue was present from at least 1925-1955 when two USTs were removed from the



property. No records were available regarding soil sampling or analysis for the tank removal. In addition, historical information identified two auto repair shops located on the property. One shop listed at 509 South Street was on the property from at least 1940 though 1968 and the second shop listed at 521 S. Street was on the property from at least 1927 though 1953. These shops and the gas station were identified in the October 2002 Phase I ESA as recognized environmental conditions. Based on this conclusion, a Phase II site assessment was conducted.

On October 21, 2005, seven borings B1-B7 were advanced at the site using a Geoprobe drill rig. Samples from borings B1 through B5 were collected at 1-, 5-, 10-, 15-, and 20- feet below grade. Samples from Boring B6 and B7 were collected at 1-,5-, and 10-feet below grade. Nineteen soil samples were analyzed for Volatile Organic Compounds (VOCs) and one sample (B2-10') had concentrations of benzene and toluene at concentrations of 11.4 and 10.3 micrograms per kilogram (ug/Kg), respectively. Three of the 19 soils samples contained concentrations of Total Petroleum Hydrocarbons (TPH) in the diesel range and heavy hydrocarbon ranges. Samples B1-5', B3-5', and B6-5' contained concentrations of diesel at 27.39, 12.4 and 13 mg/kg and heavy hydrocarbons at concentrations of 256, 159, and 54.2 mg/kg, respectively. In addition, four samples were analyzed for metals. These samples were compared to background levels and EPA established Preliminary Remediation Goals (PRG's). Three metals - zinc, arsenic, and lead - had concentrations that exceeded the background ranges typical for California soils. Concentrations of zinc were below the EPA PRGs and thus indicated that there is no significant human health risk. Further, arsenic concentrations were above PRGs but within background levels typical of California soils. Lead was detected in three of the four shallow soil samples at concentrations ranging from 243 to 421 mg/kg, which is above the California-modified PRG of 150 mg/kg.

On October 21, 2005, SCS conducted a soil vapor investigation of the site. Four VOC samples were collected and analyzed. None of the four samples contained detectable concentrations of VOCs. SCS concluded that there had been no significant impact to the property from VOCs and further investigation is not recommended with regard to VOCs at the property. Further, SCS concluded that the concentrations of TPH are below the Los Angeles Regional Water Quality Control Board's (RWQCB) soil screening levels for petroleum hydrocarbons; and thus, further investigation is not recommended with regards to TPH. Because lead concentrations are above the residential PRGs, additional sampling is recommended if the property is to be used for residential use in the future. Further investigation is not recommended for any future commercial or industrial use of the project site. Finally, SCS recommended that with regard to disposal of soils from the property, the lead concentrations were ten times above the STLC limit that is used as a trigger to conduct further waste characterization analysis. Therefore, prior to removal of any soil from the project site, additional analytical characterization should be conducted on representative soils to determine appropriate disposal options.

Agency File Reviews. As a follow-up to the database search and the site reconnaissance, we filed a request with the Los Angeles Regional Water Quality Control Board (RWQCB) to review documents pertaining to available files for the project site and an adjacent property of concern. The following is a brief summary of the documents that were reviewed:

Sears Savings Bank/Former Shell Parts USA/Gibson Shell Service - 5800 Atlantic Avenue (on-site) - The records for this site indicated that a Shell gasoline service station occupied the site address of 5800 Atlantic Avenue from 1970 to 1980. The station had five underground storage tanks (USTs) that were removed from the site in



December of 1980. In 1982 the site was redeveloped as an Allstate Savings Bank. The records indicate that environmental investigation of the former gasoline service station began in June of 1987 when three borings (B-1, B-2, and B-3) were drilled in and adjacent to the former underground tank area. Soil samples and one groundwater sample were collected and analyzed for petroleum hydrocarbons. Analytical results indicated that petroleum hydrocarbons were present in soil and groundwater beneath the site. Later in the fall of 1989 borings B-4 through B-10 were drilled and borings B-4 through B-8 were converted to groundwater monitoring wells. Concentrations of petroleum hydrocarbons were limited to soil directly adjacent to the former tank area and groundwater down gradient of the former tank area. In December of 1990 two additional borings (HB-1 and HB-2) were drilled to 15 feet below grade through the floor of the bank building and soil samples were collected for analysis. The soil samples indicated that petroleum hydrocarbons existed only at 5 feet below ground surface and at concentrations less than 100 mg/kg. In 1991 groundwater monitoring wells B-11, B-12, and B-13 were drilled and sampled. Petroleum hydrocarbons were detected in well B-11 in groundwater and in B-12 in soil and groundwater. It is believed that the petroleum hydrocarbons detected in B-12 are related to the release from the Unocal station to the south of the subject site. Also, in 1991 vapor extraction wells VEW-1, VEW-2, and VEW-3 were drilled/installed in the former tank area. TPH concentrations were detected in soil between 10 and 20 feet below grade in the former tank area. Later, in 1992 groundwater extraction wells (WV-1 and WV-2) and vapor extraction wells VEW-4, VEW-5, VEW-6, and VEW-7 were drilled/installed. The soil vapor extraction system began operation in April of 1993 and operated to May 1994. SVE removed an estimated 29,910 pounds of petroleum hydrocarbons from the soil. Vapor concentrations decrease from 3,470 parts per million volume to 25 ppmv. The groundwater pump and treat system recovered approximately 5 million gallons of groundwater while in operation between March 10, 1993 and May 6, 1994 which resulted in the removal of approximately 32.5 gallons of gasoline. The treatment of groundwater ceased in May 1994 when it was determined that the system was pulling contaminated groundwater from the Unocal station south of the site into the down gradient wells. The reports show that groundwater generally flowed south-southwesterly in direction at about 30 feet below grade.

In August of 1994, ESE conducted confirmation soil sampling (borings CB-1 and CB-2) and TPH was detected at 10 and 20 feet below grade at concentrations up to 115 mg/kg. CB-2 was then converted into a vapor extraction well to remove contamination. In June of 1995 ESE conducted additional confirmation sampling (borings CB-3 through CB-6) where no TPH was found but low concentrations of BTEX were detected between 0.006 and 0.437 mg/kg between 20 and 35 feet below grade. ESE believes that the BTEX concentrations remaining at the site are trapped in fine-grained soil and are not easily extracted and thus do not pose a significant environmental threat. Based on the soil remediation data, the results of general minerals analysis and groundwater usage, and the proximity of the site to the Unocal plume, ESE believed that no additional work was necessary and requested closure on behalf of Shell. Immediate closure was not granted by the RWQCB and additional rounds of groundwater sampling were conducted.



ESE prepared a groundwater monitoring report dated July 15, 1996 for the 2nd quarter of 1996 and requested case closure from the RWQCB. The report indicated that wells B6, B11, B12, B13, and WV-3 were sampled. Analytical results indicated that no concentrations of TPH were present and low concentrations of benzene, toluene, ethylbenzene, and total xylenes (0.072, 0.021, 0.007, 0.017 mg/L, respectively) were reported. ESE again requested case closure from the RWQCB.

In a July 19, 1996 letter from the RWQCB to Shell, RWQCB confirmed the completion and case closure of the site investigation and remedial action for the underground storage tanks formerly located at the site. No further action was mandated or requested by the RWQCB. The remaining five groundwater monitoring wells were abandoned as documented in the Wayne Perry report dated September 30, 1996. No further information was provided in the documents reviewed.

South Street Junior Market/South Liquor/North Long Beach Radiator Service/Joel Hammon Garage- 494 South Street (Adjacent to the southwest) - The records for this site indicate that it was originally a convenience market and gas station that operated at the subject site and was known as Eddie's Liquor & Jr. Market. They reportedly had two 10,000-gallon underground gasoline storage tanks that were installed in 1973. The tanks were removed from the site on December 2, 1992 and soil samples were collected in the vicinity of the former tanks. In February of 1993 six borings (borings B1 through B6) were advanced to determine the vertical and lateral extent of hydrocarbon contamination in the soil beneath the site. Laboratory analysis indicated that petroleum hydrocarbon, benzene, and total xylenes impacted soil was present at the site. Further, the vertical extent of benzene impacted soil had not been fully defined with the borings to 25 feet below grade.

Three additional soil borings (B7, B8, and B9) were advanced to 55 below grade on July 7, 1993. Boring B7 was converted to a groundwater monitoring well and subsequently sampled. Laboratory results indicated that benzene was present in the soil from boring B7 at 30 and 35 feet below grade. No other samples had concentrations above the laboratory detection limits. In addition, the groundwater sample had no reported concentrations above the laboratory detection limits. As a precaution, the consultant recommended performing additional groundwater sampling for four consecutive quarters to assess the potential for benzene migration to groundwater. Three groundwater monitoring wells were also installed in January of 1994. Four groundwater sampling events were conducted at this facility. With the exception of the February 1994 groundwater sampling event, there was no evidence of contaminated groundwater. This groundwater sampling event reported traces of benzene, toluene, ethyl benzene, and total xylenes (BTEX). The concentrations were below maximum contaminant levels (MCLs) for all constituents with the exception of benzene. The next groundwater sampling event, conducted in June of 1994, did not have any detectable benzene concentrations. With this groundwater information the consultant requested formal site closure from the RWQCB. In a letter dated July 25, 1996 the RWQCB issued case closure for the site.



d. Environmental Conditions.

Site Conditions.

Recognized Environmental Conditions. Based on the findings of the Phase I ESA, four recognized environmental conditions (RECs) were identified on the project site. A REC is defined, pursuant to ASTM E 1527-05, as “the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.” The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The four RECs associated with the project site include the following:

- **5801 Atlantic Avenue** - The facility located at 5801 Atlantic Avenue in the southeast corner of the west block was historically used as a gasoline station and auto repair shop. The site is a closed LUST case and has known residual soil contamination, including TPH as diesel and oil and lead above regulatory thresholds.
- **5800 Atlantic Avenue** - The facility located at 5800 Atlantic Avenue had a historic gasoline service station at the site from 1969 to 1981. A release was reported which impacted soil and groundwater in the vicinity of the site. Remediation was conducted and case closure was granted in July of 1996. However, based on sampling (CB-1 through CB-5) conducted by Environmental Science & Engineering, Inc. (ESE) concentrations of petroleum hydrocarbons and BTEX were identified and remain in the soil beneath the site. Based on the known concentrations of gasoline and BTEX present in the soil, this site represents a recognized environmental condition.
- **5740 Atlantic Avenue** - The adjacent 76 Service Station (5740 Atlantic Avenue) to the south of the eastern block has an open LUST release case with the RWQCB.
- **Northwest portion of the West Block** - The soil and concrete stockpiles in the northwest portion of the western block are reportedly from road maintenance conducted by the City. Since the source location of the soil is unknown, the soil could potentially be impacted with contaminants.

Potential Environmental Conditions. Based on the findings of the Phase I ESA, six potential environmental conditions (PECs) were identified on the project site. The following possible indicators of a hazardous materials release, or subgrade structures where releases may have occurred but have gone undetected, are considered suspect, or PECs associated with the site include the following:

- **501 E. South Street** - The facility located at 501 E. South Street in the southwest corner of the west block was historically used for sign painting and as an automotive repair facility.
- **5885 Atlantic Avenue** - The facility located at 5885 Atlantic Avenue and known as “Paul Beyer” was listed on the Historical Auto Station database searched by EDR.



- A series of unidentified pipes were observed by TEM in 2004 along the southern exterior wall of the building. The origin and use of these pipes were not determined.*
- **5869 Atlantic Avenue** - *Two former boring locations (marked B8 and B9) were observed that are from an unknown subsurface investigation.*
 - **5823 Atlantic Avenue** - *The facility located at 5823 Atlantic Avenue was listed on the EDR Historic Dry Cleaners database and was identified as NLB Cleaners which was at the site in 1952.*
 - **495 South Street** - *The west adjacent former Shipley's Flying A Service station (495 South Street) was listed on the EDR Historical Auto Stations database searched by EDR.*
 - **South Street Junior Market** - *The southwest adjacent facility known as the South Street Junior Market (494 South Street) had a LUST release case.*

Phase I Recommendations. To evaluate the potential on-site impacts associated with the four RECs mentioned above, the Phase I report provided the following recommendations:

- **Northwest Portion of the West Block** - *The observed soil and concrete stockpiles in the northwest portion of the west block of the site are reportedly from roadwork conducted by the City in the vicinity of the site. The exact source of the excavated soil is unknown. Soil samples from each stockpile are recommended to characterize the stockpiles as impacted or not and will aid in coordinating proper disposal.*
- **5801 Atlantic Avenue** - *The facility located at 5801 Atlantic Avenue in the southeast corner of the west block was historically used as a gasoline station and auto repair shop. The site is a closed LUST case and has known residual soil contamination including TPH as diesel and oil and lead above regulatory thresholds. The concentrations of petroleum hydrocarbons and lead in soil are recommended to be delineated to determine the extent of impacted soil at the former gasoline service station site prior to on-site redevelopment. Under the direction of the regulatory agencies, contaminated soil should be removed and disposed at an appropriately licensed facility.*
- **5800 Atlantic Avenue** - *The facility located at 5800 Atlantic Avenue had a historic gasoline service station at the site from 1969 to 1981. A release was reported which impacted soil and groundwater. Although the case is closed with the RWQCB, residual TPH and BTEX contamination exist in the subsurface soil based on confirmation borings advanced by ESE. To further identify the concentrations of petroleum hydrocarbons and BTEX and to delineate the extent of impacted soil at the former gasoline service station site prior to on-site redevelopment, additional soil samples are recommended. In addition, conducting a soil vapor survey to identify the potential health risks to future occupants may need to be conducted. Additional sampling and analysis will allow development of appropriate remediation and disposal strategies (if necessary).*
- **5740 Atlantic Avenue** - *The south adjacent 76 gasoline service station (5740 Atlantic Avenue) has an open LUST release case. Concentrations of petroleum hydrocarbons from this facility may want to be evaluated for potential impacts to the*



project site. Conducting groundwater sampling along the south site boundary of the east block would help determine if on-site groundwater beneath the project site is impacted from an off-site source.

To evaluate the potential on-site impacts associated with the potential six PECs mentioned above, the Phase I report provided the following recommendations:

- **501 East South Street** - *The facility located at 501 E. South Street in the southwest corner of the west block was historically used for sign painting and as an automotive repair facility. A geophysical survey to possibly locate an underground storage tank is recommended. In addition, boring and soil sampling beneath the former building to assesses the possible presence of TPH or VOC impacted soil at the site may is recommended.*
- **5885 Atlantic Avenue** - *The facility located at 5885 Atlantic Avenue (interpreted to be at Map ID# 16) and known as "Paul Beyer" was listed on the EDR Historical Auto Station database searched by EDR. Further, the TEM Phase I report dated December 17, 2004 noted that during the site reconnaissance a series of unidentified pipes along the southern exterior wall of the building were observed. The origin and use of these pipes were not determined. No known releases have been reported to regulatory agencies and it appears that no assessment work has been conducted at this facility. A geophysical survey to possibly locate an underground storage tank associated with the possible former gasoline service station is recommended. In addition, boring and soil sampling activities at the site to assesses the possible presence of TPH or VOC impacted soil at the site is recommended.*
- **5869 Atlantic Avenue** - *Two former boring locations (marked B8 and B9) were observed that are from an unknown subsurface investigation which was not conveyed to Rincon. Analytical data from all previous site owners should be evaluated as to whether the subsurface was found to be impacted based on the previous assessment work conducted at the site. In the absence of receipt of the analytical data, additional boring and soil sampling activities in the vicinity of the borings to assess the site are recommended.*
- **5823 Atlantic Avenue** - *The facility located at 5823 Atlantic Avenue was listed on the EDR Historic Dry Cleaners database as NLB Cleaners. To evaluate a potential release, soil sampling to assess the possible presence of VOCs in the soil beneath the former potential dry cleaning facility are recommended.*
- **494 and 495 South Street** - *To evaluate if the adjacent former Shipley's Flying A Service station (495 South Street, west of the site) has had a release that impacts the subject site; and to evaluate if the release from the South Street Market site (494 South Street, southwest of the site) has impacted the project site, soil and groundwater sampling along the west block property boundaries to the south and west are recommended.*



4.5.2 Impact Analysis

a. Methodology and Thresholds of Significance. The findings of this analysis are based upon the *Phase I Environmental Site Assessment (ESA)*, prepared by Rincon Consultants, Inc., dated August 21, 2008.

This report included a review of relevant agency databases and files, review of historic site photographs and site reconnaissance. For the purpose of this analysis, a significant impact would occur if the project would:

- *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 ¼ mile of an existing or proposed school*
- *Be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment*
- *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, would the project result in a safety hazard for people residing or working in the project area*
- *For a project in the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the area*
- *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan*
- *Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.*

The Initial Study (see Appendix A) determined that impacts related to the fifth, sixth, seventh and eighth criteria would be less than significant; therefore, the analysis focuses on the first, second, third and fourth criteria, which relate primarily to the presence of or exposure of people to hazardous materials.

b. Project Impacts and Mitigation Measures.

Impact HAZ-1 **The proposed project would require the demolition of buildings and structures that could contain asbestos. Therefore, there is potential for a significant hazard to the public or the environment through the release of hazardous materials. However, compliance with state and federal regulations regarding the handling and disposal of these asbestos containing materials would reduce impacts to a Class II, *significant but mitigable*, level for either Option A or Option B.**



Beginning in the late 1970s, asbestos was banned for building and construction purposes due to its toxicity. Buildings constructed prior to that time, including most of the project site structures, have the potential to include asbestos-containing materials. Construction on the project site may involve the demolition of all or portions of the existing buildings, which, due to their age, may contain asbestos. Therefore, impacts related to the release of asbestos into the environment would be potentially significant.

Mitigation Measures. The following measure would apply to Option A or Option B and is required to mitigate potential impacts relating to asbestos release during building demolition.

HAZ-1 Asbestos. Prior to issuance of a demolition permit for any structure, an asbestos survey shall be performed by a qualified and appropriately licensed professional. All testing procedures shall follow recognized local standards as well as established California and Federal assessment protocols and SCAQMD Rule 1403. The asbestos survey report shall quantify the areas of asbestos containing materials.

Prior to any demolition or renovation, on-site structures that contain asbestos must have the asbestos containing material removed according to proper abatement procedures recommended by the asbestos consultant. All abatement activities shall be in compliance with California and Federal OSHA, and with the South Coast Air Quality Management District requirements. Only asbestos trained and certified abatement personnel shall be allowed to perform asbestos abatement. All asbestos containing material removed from on-site structures shall be hauled to a licensed receiving facility and disposed of under proper manifest by a transportation company certified to handle asbestos. Following completion of the asbestos abatement, the asbestos consultant shall provide a report documenting the abatement procedures used, the volume of asbestos containing material removed, where the material was moved to, and include transportation and disposal manifests or dump tickets. The abatement report shall be prepared for the property owner or other responsible party, with a copy submitted to the City of Long Beach.

Significance After Mitigation. With implementation of Mitigation Measure HAZ-1, impacts related to exposure of workers to asbestos during demolition of existing on-site buildings would be reduced to a less than significant level. This would be the same for Option A or Option B, as the same structures would be demolished for both options.

Impact HAZ-2 **The proposed project would require the demolition of buildings and structures that could contain lead-based paints. Therefore, there is potential for a significant hazard to the public or the environment through the release of hazardous materials. However, compliance with state and federal regulations regarding the handling and disposal of**



these materials would reduce impacts to a Class II, significant but mitigable, level for Option A or Option B.

Construction on the project site may involve the demolition of all or portions of the existing buildings, which, due to their age, may contain lead. If present, the lead-based paint requires abatement prior to demolition or renovation of any existing buildings. If not properly abated in advance of demolition or renovation, workers could be exposed to lead. Therefore, impacts related to the release of lead into the environment would be potentially significant.

Mitigation Measures. The following measure would apply to Option A or Option B and is required to mitigate potential impacts relating to lead based paint release during building demolition.

HAZ-2 Lead-Based Paint. Prior to the issuance of a permit for the renovation or demolition of any structure, a licensed lead-based paint consultant shall be contracted to evaluate the structure for lead-based paint.

If lead-based paint is discovered, it shall be removed according to proper abatement procedures recommended by the consultant. All abatement activities shall be in compliance with California and Federal OSHA requirements. Only lead-based paint trained and certified abatement personnel shall be allowed to perform abatement activities. All lead-based paint removed from these structures shall be hauled and disposed of by a transportation company licensed to transport this type of material. In addition, the material shall be taken to a landfill or receiving facility licensed to accept the waste. Following completion of the lead-based paint abatement, the lead-based paint consultant shall provide a report documenting the abatement procedures used, the volume of lead-based paint removed, where the material was moved to, and include transportation and disposal manifests or dump tickets. The abatement report shall be prepared for the property owner or other responsible party, with a copy submitted to the City of Long Beach.

Significance After Mitigation. With implementation of Mitigation Measure HAZ-2, impacts related to the exposure of workers to lead would be reduced to less than significant levels. This would be the same for Option A or Option B, as the same structures would be demolished for both options.

Impact HAZ-3 Current and historic activity on-site and in the project vicinity may have adversely affected soil and groundwater quality at the project site. Impacts relating to potential contamination would be Class II, significant but mitigable for Option A or Option B.



The Phase I ESA completed by Rincon indicated that several areas on-site have recognized environmental conditions (RECs) or potential environmental conditions (PECs) that could pose a health and safety risk to site construction workers and future occupants of the proposed development. The Phase I ESA report concluded that four RECs and six PECs may have affected the project location.

Recognized Environmental Conditions:

- **5801 Atlantic Avenue** - The facility located at 5801 Atlantic Avenue in the southeast corner of the west block was historically used as a gasoline station and auto repair shop. The site is a closed LUST case and has known residual soil contamination, including TPH as diesel and oil and lead above regulatory thresholds.
- **5800 Atlantic Avenue** - The facility located at 5800 Atlantic Avenue had a historic gasoline service station at the site from 1969 to 1981. A release was reported which impacted soil and groundwater in the vicinity of the site. Remediation was conducted and case closure was granted in July of 1996. However, based on sampling (CB-1 through CB-5) conducted by Environmental Science & Engineering, Inc. (ESE) concentrations of petroleum hydrocarbons and BTEX were identified and remain in the soil beneath the site. Based on the known concentrations of gasoline and BTEX present in the soil, this site represents a recognized environmental condition.
- **5740 Atlantic Avenue** - The adjacent 76 Service Station (5740 Atlantic Avenue) to the south of the eastern block has an open LUST release case with the RWQCB.
- **Northwest portion of the West Block** - The soil and concrete stockpiles in the northwest portion of the western block are reportedly from road maintenance conducted by the City. Since the source location of the soil is unknown, the soil could potentially be impacted with contaminants.

Potential Environmental Conditions:

- **501 E. South Street** - The facility located at 501 E. South Street in the southwest corner of the west block was historically used for sign painting and as an automotive repair facility.
- **5885 Atlantic Avenue** - The facility located at 5885 Atlantic Avenue and known as "Paul Beyer" was listed on the Historical Auto Station database searched by EDR. A series of unidentified pipes were observed by TEM in 2004 along the southern exterior wall of the building. The origin and use of these pipes were not determined.
- **5869 Atlantic Avenue** - Two former boring locations (marked B8 and B9) were observed in the south parking lot of 5869 Atlantic Avenue site building. The borings are from an unknown subsurface investigation.
- **5823 Atlantic Avenue** - The facility located at 5823 Atlantic Avenue was listed on the EDR Historic Dry Cleaners database and was identified as NLB Cleaners which was at the site in 1952.
- **495 South Street** - The west adjacent former Shipley's Flying A Service station (495 South Street) was listed on the EDR Historical Auto Stations database searched by



EDR.

- **South Street Junior Market** - *The southwest adjacent facility known as the South Street Junior Market (494 South Street) had a LUST release case.*

Recommendations discussed in the Phase I ESA include additional soil and groundwater sampling and analysis to further identify the extent, if any, of contamination.

Activities on-site and in the site vicinity, including the demolition of buildings, soil stockpiling and an adjacent open LUST release case from an active gasoline station, may have adversely affected subsurface soil or groundwater. Therefore, in addition to the known contaminants on-site, the potential exists that further contaminants are present, or have been introduced. Although there is no evidence of groundwater contamination on-site, contaminants are present in soil at this location. The ground surface would be disturbed during development of the project as site excavation and re-grading would be required to construct the proposed new structures. If surface- or near-surface contaminants are present at the site, these contaminants would likely be disturbed during site development. If appropriate remedial action is not taken, excavation and transport of such contaminants could potentially result in exposure of workers or the public to health hazards, and impacts would be potentially significant.

Mitigation Measures. The following mitigation measures would apply to Option A or Option B and are required to address on-site soil and groundwater quality.

HAZ-3(a) Excavation and Demolition Contingency Plans. All excavation and demolition activities conducted within the project site shall have a contingency plan to implement in the event that contaminants or structural features associated with contaminants or hazardous materials are discovered. The contingency plan shall be submitted to the City with the grading plans, and must be approved by the City prior to the issuance of a grading permit. The contingency plan shall identify appropriate measures to follow if contaminants are found or suspected. The appropriate measures shall identify personnel to be notified, emergency contacts, and a sampling protocol to implement. The excavation and demolition contractors shall be made aware of the possibility of encountering unknown hazardous materials, and shall be provided with appropriate contact and notification information. The contingency plan shall include a provision stating at what point it is safe to continue with the excavation or demolition, and identify the person authorized to make that determination.

HAZ-3(b) Soil Remediation. If concentrations of contaminants warrant site remediation, contaminated materials shall be remediated either prior to construction of structures or concurrent with construction. The contaminated materials shall be remediated under the supervision of an environmental consultant licensed to oversee such remediation. The remediation program shall also be approved by a regulatory oversight agency, such as the Long Beach/Signal Hill Certified Unified Program Agency CUPA, Los Angeles Regional Water Quality Control Board, or the State of California Environmental Protection



Agency Department of Toxic Substances Control. All proper waste handling and disposal procedures shall be followed. Upon completion of the remediation, the environmental consultant shall prepare a report summarizing the project, the remediation approach implemented, and the analytical results after completion of the remediation, including all waste disposal or treatment manifests. Soil remediation would likely include the excavation and proper disposal of contaminated areas during grading on-site for redevelopment. Removal of contaminated soil beyond the proposed 10 feet of excavation is not warranted, provided any residual contamination left beneath the proposed construction does not pose a health risk to future occupants.

HAZ-3(c) Groundwater Sampling and Remediation. If groundwater contamination is suspected, or if soil contamination is detected at depths at or greater than 30 feet below grade, then the applicant shall perform a groundwater sampling assessment. If contaminants are detected in groundwater at levels that exceed maximum contaminant levels for those constituents in drinking water, then the results of the groundwater sampling shall be forwarded to the appropriate regulatory agency Long Beach/Signal Hill Certified Unified Program Agency CUPA, Los Angeles Regional Water Quality Control Board, or the State of California Environmental Protection Agency Department of Toxic Substances Control. The agency shall review the data and sign off on the property or determine if any additional investigation or remedial activities are deemed necessary. It is important that any proposed groundwater remediation options be discussed with the appropriate regulatory agencies prior to site redevelopment. The agencies may require ongoing groundwater monitoring and sampling, which would require incorporation of groundwater monitoring well locations into the project site. In addition, if groundwater remediation is required, in-situ remediation systems, including but not limited to, soil vapor extraction systems, groundwater pump and treat systems, or bioremediation systems, may need to be installed and incorporated into the overall site redevelopment plans.

HAZ-3(d) Health Risk Assessments. If residual soil or groundwater contamination is present and would remain below proposed buildings and excavated areas, a human health risk assessment shall be performed for those areas. The health risk assessment shall include vapor transport and risk calculations in an environmental fate and transport analysis for specified chemicals. The calculations shall be performed to evaluate the inhalation exposure pathway for future building occupants, and if deemed to exist, calculations shall also be prepared for exposure pathways for dermal contact and ingestion. A commercial exposure scenario shall be used for those areas to be redeveloped with commercial uses, and a residential exposure



scenario shall be used for those areas to be redeveloped with residential uses. The human health risk assessment model used shall include site-specific VOC soil vapor concentrations for all contaminants identified in soil and groundwater beneath the proposed redevelopment areas, and for all reported concentrations beneath these areas. The assessment shall be submitted to the City with the grading plans and must be approved by the City prior to the issuance of a grading permit. The assessment shall contain recommendations for design features, which shall be implemented if warranted, to avoid exposure.

Significance After Mitigation. With implementation Mitigation Measures HAZ-3(a-d), impacts related to contaminated soil and potential groundwater contamination would be reduced to a less than significant level. This would be the same for Option A or Option B, as excavation and project footprint would be similar for both options.

c. Cumulative Impacts. Cumulative development in Long Beach would have the potential to expose future area residents, employees, and visitors to chemical hazards by developing and redeveloping areas that may have previously been contaminated. Planned and pending development in the City including the proposed project would add approximately 249,000 square feet of commercial development, 30,000 square feet of institutional development, 15,000 square feet of industrial development, and 122 housing units (see Table 3-1 in Section 3.0, *Environmental Setting*). The magnitude of hazards for individual projects would depend upon the location, type, and size of development and the specific hazards associated with individual sites. Therefore, hazard evaluations would need to be completed on a case-by-case basis. If lead and asbestos are found to be present in buildings planned for demolition or renovation, or in the case that soil and groundwater contamination were found to be present on sites of planned and future development, these conditions would require appropriate mitigation. Implementation of appropriate mitigation measures, including remedial action on contaminated sites, would avoid potential hazard impacts associated with cumulative development in the City. Therefore, cumulative impact related to hazards and hazardous material would be less than significant.

4.6 HYDROLOGY and WATER QUALITY

This section assesses potential impacts to hydrological conditions on-site and in the site vicinity, as well as impacts to water quality. The project's potential impacts to groundwater resources are discussed in Section 4.12, *Utilities and Service Systems*.

4.6.1 Setting

a. Hydrology and Storm Drain Facilities. The project site is located within Los Angeles River watershed basin, and lies just west of the San Gabriel River basin. The Los Angeles and San Gabriel Rivers both originate in mountainous areas including a large portion of the Angeles National Forest. They flow through the mountains into the San Fernando and San Gabriel Valleys, both of which are underlain by rich groundwater basins. The rivers then continue on over the coastal plain of Los Angeles into the Los Angeles/Long Beach Harbor and into the Pacific Ocean. The Los Angeles River is located approximately $\frac{3}{4}$ miles west of the project site. The river flows southward in a concrete flood control channel that delivers rainwater drainage to the Pacific Ocean during the rainy season. These waters come from the Santa Monica Mountains, the Verdugo Mountains, the Santa Susana Mountains, and the San Gabriel Mountains, collecting urban runoff from the Los Angeles area along its path south through Long Beach and eventually into the sea. The City of Long Beach has fifteen pump stations that discharge into the Los Angeles River (City of Long Beach Stormwater Monitoring Report, 2007).

The City of Long Beach is divided into 30 major drainage basins. Within each major basin there are sub-basins for major drains 36 inches in diameter or larger that have their outfall to a regional drain, regional retention basin or the Long Beach Harbor (Long Beach Storm Water Management Program [LBSWMP], 2001). The project site exists within one of the largest drainage basins, Basin 14. Basin 14 is 3,374 acres and is made up of 2,445 acres of residential land, 392 acres of commercial land, 148 acres of industrial land, 273 acres of institutional land and 116 acres of open space. The basin is located in the northwestern portion of Long Beach just east of the Los Angeles River and is bound on the north, south, east and west by Artesia Boulevard, Roosevelt Road, the railroad and the Los Angeles River, respectively. A small area to the east of the basin lies within the City of Lakewood. The drainage pattern is to the south and west. There are two main storm drain systems that have a total of 21 major storm drain lines contributing runoff. Both systems outfall into the County's Dominguez Gap Retention Basin that runs along the east side of the Los Angeles River from the San Diego Freeway to 59th Street (just west of the project site). The retention basin is drained by the Dominguez Gap Pump Station which has a maximum capacity of 586 cubic feet per second (cfs). There is a split flow at 59th Street and Walnut Avenue that brings a 48 inch reinforced concrete pipe (RCP) into sub-basin 1401 and a 48 inch RCP into sub-basin 1402 (LBSWMP, 2001).

b. Water Quality (Federal, State, and local regulations). Direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the National Pollutant Discharge Elimination System (NPDES) program established in Section 402 of the Clean Water Act (CWA). The major purpose of the NPDES program is to protect human health and the environment by protecting the quality of water. California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board



(SWRCB) and the Regional Water Quality Control Board (RWQCB) broad powers to protect water quality and is the primary vehicle for implementation of California's responsibility under the federal CWA. The Porter- Cologne Act grants the SWRCB and RWQCBs the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require clean up of discharges of hazardous materials and other pollutants.

The protection of water quality in the watercourses within the City of Long Beach is under the jurisdiction of the Los Angeles RWQCB (SWRCB District 4). The RWQCB establishes requirements prescribing discharge limits and establishes water quality objectives through the City of Long Beach Municipal Storm Water National Pollutant Discharge Elimination System (NPDES) Permit¹. The Long Beach Storm Water Management Plan (LBSWMP), which is part of the NPDES Permit, addresses specific stormwater pollution requirements for new developments. The LBSWMP is a comprehensive program containing several elements, practices and activities aimed at reducing or eliminating pollutants in storm water to the maximum extent practicable. The LBSWMP provides the methods for implementing the requirements of the City's Municipal NPDES Permit.

The City's NPDES permit specifies that all new development and redevelopment projects that fall under specific priority project categories must comply with the Los Angeles County Standard Urban Storm Water Mitigation Plan (SUSMP) (March 2000). These categories of development are considered "priority" because the RWQCB determined that they have the greatest potential to degrade water quality. The proposed project is considered a "priority project" and is therefore subject to the SUSMP requirements because the project involves construction of more than ten housing units and parking areas larger than 5,000 square feet. These regulations are set forth in Chapter 18.95 of the City of Long Beach Municipal Code. The SUSMP includes requirements for Site Design Best Management Practices (BMPs), Source Control BMPs, and Treatment Control BMPs. Site Design BMPs are BMPs that are incorporated into the design of the project such as conserving natural areas and properly designing trash storage areas. Source Control BMPs are pollution prevention BMPs that can be structural or nonstructural practices. Treatment Control BMPs are physical devices that remove pollutants from storm water.

The specific requirements as described in Section 18.95.040 of the Long Beach Municipal Code are as follows:

- *Post development peak storm water runoff discharge rates shall not exceed the estimated predevelopment rate for developments where the increased peak storm water discharge rate will result in increased potential for downstream erosion.*
- *For new development, twenty five percent (25%) of required landscape areas shall be vegetated with xeriscape.*
- *During the subdivision design and approval process, the following items shall be implemented to the maximum extent practicable:*
 - *Clustering*
 - *Native Vegetation*

¹ *Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the City of Long Beach, Order No. 99-060 (NPDES No. CAS004003).*



- *Additional Vegetation*
- *Wetlands*
- *Protect slopes and channels from erosion.*
- *Provide storm drain stenciling and signage.*
- *Properly design trash storage areas.*
- *Provide proof of ongoing BMP maintenance.*
- *Minimize storm water pollutants of concern. This requires the incorporation of a BMP or combination of BMPs best suited to maximize the reduction of pollutant loadings in that runoff to the maximum extent practicable.*
- *Design post-construction structural or Treatment Control BMPs (unless specifically exempted) to mitigate (infiltrate or treat) a set volume of runoff using any of four methods (in general, the 85th percentile storm in a 24-hour period).*

The proposed project would also be subject to state requirements regarding stormwater discharges during construction activities. In accordance with NPDES regulations, the State of California requires that any construction activity disturbing one or more acres of soil must comply with the State General Construction Activity Storm Water Permit (Water Quality Order 99-08-DWQ) and must submit a Notice of Intent (NOI) to the SWRCB. In accordance with Section 18.95.050 C, D of the Long Beach Municipal Code, to obtain authorization for proposed storm water discharges pursuant to this permit, the applicant is also required to prepare a Storm Water Pollution Prevention Plan (SWPPP), and implement BMPs detailed in the SWPPP during construction activities. The applicant is required to submit the SWPPP to both the City and the RWQCB.

4.6.2 Impact Analysis

a. Methodology and Significance Thresholds. Hydrology and water quality effects of project development are considered significant if the project would:

- *Violate any water quality standards or waste discharge requirements*
- *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)*
- *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 which 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 which would result in flooding on- or off-site*
- *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff*
- *Otherwise substantially degrade water quality*
- *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*
- *Place within a 100-year flood hazard area structures which would impede or redirect flood flows*
- *Expose people or structures to a significant risk of loss, injury, or death involving flooding,*



- including flooding as a result of the failure of a levee or dam
- [Result in] inundation by seiche, tsunami, or mudflow.

As discussed in the project Initial Study (Appendix A to this EIR), the proposed project could result in significant impacts related to the first through sixth criteria listed above. As such, analyses of impacts related to water quality and drainage are included in this section of the EIR and an analysis of impacts to groundwater supply is included in Section 4.12, *Utilities and Service Systems*. The Initial Study determined that the project site is located outside the 100-year flood zone and is not in the vicinity of a dam, levee or landlocked water or in an area that would be inundated by a tsunami. The Initial Study found that no impacts from flooding, dam or levee failures, seiches, or tsunamis are anticipated. Thus, the seventh, eighth, ninth and tenth criteria listed above would not apply, and these issues are not further discussed in this section.

b. Project Impacts and Mitigation Measures.

Impact H-1 Construction of the proposed mixed use project could subject the downstream watershed to discharges of various pollutants. This is a Class II, significant but mitigable impact, for both Option A and Option B.

As noted in the *Setting*, the RWQCB establishes requirements prescribing discharge limits and establishes water quality objectives through the City of Long Beach Municipal Storm Water National Pollutant Discharge Elimination System (NPDES) Permit. The NPDES permit is issued by the Regional Board and defines the Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the City of Long Beach, Order No. 99-060 (NPDES No. CAS004003). The NPDES permit conditions apply to the proposed project as it involves construction or development activities as defined in the City of Long Beach Municipal Code Section 18.95 that are required to comply with the NPDES permit and the subsequent requirements of the standard urban storm water mitigation plan (SUSMP) mandated by the Los Angeles region RWQCB. As part of the requirements, since more than five acres will be disturbed, the project developer must submit to both the RWQCB and the City a storm water pollution prevention plan (SWPPP).

Mitigation Measures. The following mitigation measure would apply to Option A or Option B to reduce development-related water quality impacts.

- H-1 Stormwater Pollution Prevention Plan.** Prior to issuance of a grading permit, the developer shall prepare a Stormwater Pollution Prevention Plan (SWPPP) for the site for review and approval by the City Building Official prior to the issuance of any grading or building permits. The SWPPP shall fully comply with City and RWQCB requirements and shall contain specific BMPs to be implemented during project construction to reduce erosion and sedimentation to the maximum extent practicable (CA-1 through CA-40 and ESC-1 through ESC-56 as published in *California Stormwater BMP Handbook – Construction Activity, 2003*). At a minimum, the following BMPs shall be included within the Plan:



Pollutant Escape: Deterrence

- *Cover all storage areas, including soil piles, fuel and chemical depots. Protect from rain and wind with plastic sheets and temporary roofs.*

Pollutant Containment Areas

- *Locate all construction-related equipment and related processes that contain or generate pollutants (i.e. fuel, lubricant and solvents, cement dust and slurry) in isolated areas with proper protection from escape.*
- *Locate construction-related equipment and processes that contain or generate pollutants in secure areas, away from storm drains and gutters.*
- *Place construction-related equipment and processes that contain or generate pollutants in bermed, plastic-lined depressions to contain all materials within that site in the event of accidental release or spill.*
- *Park, fuel and clean all vehicles and equipment in one designated, contained area.*

Pollutant Detainment Methods

- *Protect downstream drainages from escaping pollutants by capturing materials carried in runoff and preventing transport from the site. Examples of detainment methods that retard movement of water and separate sediment and other contaminants are silt fences, hay bales, sand bags, berms, silt and debris basins.*

Erosion Control

- *Conduct major excavation during dry months. These activities may be significantly limited during wet weather.*
- *Utilize soil stabilizers.*
- *Reduce fugitive dust by wetting graded areas with adequate, yet conservative amount of water. Cease grading operations in high winds.*

Recycling/Disposal

- *Develop a protocol for maintaining a clean site. This includes proper recycling of construction-related materials and equipment fluids (i.e., concrete dust, cutting slurry, motor oil and lubricants).*
- *Provide disposal facilities. Develop a protocol for cleanup and disposal of small construction wastes (i.e., dry concrete).*

Hazardous Materials Identification and Response

- *Develop a protocol for identifying risk operations and materials. Include protocol for identifying spilled-materials source, distribution; fate and transport of spilled materials.*



- *Provide a protocol for proper clean-up of equipment and construction materials, and disposal of spilled substances and associated cleanup materials.*
- *Provide an emergency response plan that includes contingencies for assembling response team and immediately notifying appropriate agencies.*

Significance After Mitigation. Implementation of the SWPPP and required BMPs during construction would reduce temporary water quality impacts associated with construction on the project site to a less than significant level. This would be the same for Option A or Option B, as the amount of site coverage and general site plan would be similar for both options.

Impact H-2 Implementation of the proposed project may increase surface water runoff during storm events. However, the existing storm drain infrastructure and off-site facilities are adequate to handle flows from the site once developed. In addition, with the development of LEED Neighborhood Development strategies, the overall amount of impermeable surface could be reduced compared to historical use. Therefore, impacts related to site drainage would be Class III, less than significant for Option A or Option B.

The proposed project involves the demolition of all existing structures and the construction of residential buildings, surface parking areas, retail/restaurant space, public library, community center, and a tot lot. Since much of the site is currently vacant and unpaved, the project is expected to result in an overall increase in impervious surfaces and thus potentially increase quantities of stormwater runoff. Although much of the site is currently vacant and unpaved, Figure 2-3 (Section 2.0 *Project Description*) provides an aerial view of the project site when nearly the entire site contained impermeable surfaces. Since the project site was at one time developed with a variety of uses including residential and commercial buildings, storm drain infrastructure is already in place to accommodate land uses similar to the proposed mixed use project. In addition, the project designs would require approval from the Long Beach Public Works Department to verify that proposed drainage would not exceed the capacity of existing or planned stormwater drainage systems. The proposed project would implement drainage improvements to direct stormwater flows to the existing storm drain system in a similar manner as it previously existed when the site was fully developed with residential and commercial structures and parking areas. These improvements would not alter drainage such that it would result in erosion or siltation nor would they substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. As discussed in Impact H-3, the proposed project would be required to implement a Stormwater Management Plan that would incorporate BMPs that properly design and treat surface runoff.

Finally, as part of a LEED Neighborhood Development strategy, the entire project would utilize green design measures including stormwater management strategies that would place landscaping and vegetation between buildings and in the courtyard, plaza, and children's play area.



Mitigation Measures. With required review and approval of drainage plans by City staff; implementation of mitigation measure H-3 (Stormwater Management Plan); and the proposed implementation of LEED Neighborhood Development strategies, impacts would be less than significant and no further mitigation measures are required. This would be the case for Option A or Option B, as the general footprint of the proposed project would be similar for either option.

Significance After Mitigation. Impacts to the area drainage system would be less than significant for Option A or Option B.

Impact H-3 **The proposed project would generate various urban pollutants such as oil, herbicides and pesticides, which could adversely affect surface water quality. This would be a Class II, significant but mitigable impact for either Option A or Option B.**

The project site is currently partially developed with several structures and some paved areas, but is largely unpaved and unused. The proposed project would introduce additional impervious surfaces such as parking areas, rooftops and pavement, as well as urban uses and additional vehicle activity. The proposed new impermeable surfaces would accumulate deposits of oil, grease, and other vehicle fluids and hydrocarbons. Proposed new landscaping would introduce chemical inputs such as pesticides and herbicides.

As discussed in the *Setting*, the City of Long Beach Municipal Code (Section 18.95.040) provides regulations and a variety of requirements consistent with the NPDES permit issued to the City and the subsequent requirements of the SUSMP which is mandated by the Los Angeles RWQCB. The proposed project involves construction of more than 10 residential units and parking areas of over 5,000 square feet. The project is therefore considered a “priority development” as defined by the Municipal Code. As such, the project would be required to comply with the requirements in the Municipal Code for the NPDES permit and the SUSMP.

Mitigation Measures. The following mitigation measure would apply to Option A or Option B and would ensure compliance with federal, state and local surface water quality requirements.

H-3 Stormwater Management Plan. A Stormwater Management Plan that incorporates Best Management Practices (BMPs) for the long term operation of the site shall be developed and implemented by the applicant to minimize the amount of pollutants that are washed from the site. The plan shall be developed in accordance with the requirements of the City of Long Beach including the NPDES permit and the subsequent requirements of the SUSMP. BMPs shall follow the applicable source control BMPs (SC-1 through SC-14) and treatment control BMPs (TC-1 through TC-8) published in the *California Stormwater BMP Handbook—Industrial/Commercial, 2003*. Examples of BMPs that apply to both initial development of the site and to long-term operation of the project are listed below.



Minimization of Storm Water Pollutants of Concern

Source-control and treatment BMPs are needed to assure that pollutants are removed to the maximum extent practicable. At a minimum a Stormwater Management Plan shall include:

- *A program for the routine cleaning and maintenance of streets, parking lots, catch basins and storm drains, especially prior to the rainy season, to help reduce the level of gross pollutants being discharged from the plan area*
- *Other BMPs incorporated in project design so as to minimize, to the maximum extent practicable, the introduction of pollutants of concern to receiving waters. Such BMPs may include, but are not limited to:*
 - *Use of permeable materials where feasible for sidewalks and patios*
 - *Directing rooftop runoff to pervious surfaces, such as yards and landscaped areas*
 - *Use of biofilters, including vegetated swales and strips*
 - *Trees and other vegetation shall be maximized by planting additional vegetation, clustering tree areas, and the use of native and/or drought tolerant plants. In addition, parking lots shall incorporate landscaped islands*
 - *25% of required landscape shall be vegetated with xeriscape.*
 - *Energy dissipaters, such as riprap, shall be installed at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels.*

Informational Materials, including Storm Drain System Stenciling and Signage

The following informational materials shall be provided:

- *Educational flyers for each new building unit regarding toxic chemicals and alternatives for fertilizers, pesticides, cleaning solutions and automotive and paint products (the flyers should also explain the proper disposal of household hazardous waste)*
- *Stenciling of all storm drains inlets and post signs along channels to discourage dumping by informing the public that water flows to the Pacific Ocean*
- *Maintenance of the legibility of stencils and signs*

Proper Design of Trash Storage Areas in Commercial Zoned Area

All trash container areas shall meet the following Structural or Treatment Control BMP requirements:

- *Trash container areas shall have drainage from adjoining roofs and pavement diverted around the area(s).*



- *Trash container areas shall be screened or walled to prevent off-site transport of trash.*
- *Trash container areas shall be roofed to prevent rain water from entering trash and becoming contaminated.*
- *Trash enclosures that serve restaurants, grocery stores, or other establishments that requires a grease interceptor be constructed with a drain inlet within the enclosure that collects all enclosure wash water or drippings and conveys them to the sewer system via the grease interceptor.*

Ongoing BMP Maintenance

The applicant shall provide a plan to ensure ongoing maintenance for permanent BMPs. This shall include the developer's signed statement accepting responsibility for all structural and treatment control BMP maintenance until the time the property is transferred. All future transfers of the property to a private or public owner shall have conditions requiring the recipient to assume responsibility for the maintenance of any structural or treatment control BMP. The condition of transfer shall include a provision requiring the property owner to conduct maintenance inspection at least once a year and retain proof of inspection. In addition, printed educational materials indicating locations of storm water facilities and how maintenance can be performed shall accompany first deed transfers. For residential properties where the BMPs are located within a common area to be maintained by the homeowners' association, the project's conditions, covenants and restrictions (CC&Rs) shall include the maintenance requirements.

Proper Design and Treatment of Runoff from Parking Lots

Parking lots may accumulate oil, grease, and water insoluble hydrocarbons from vehicle drippings and engine system leaks. To minimize the potential impacts of parking lots, the following shall be required:

- *Impervious Area.* The parking area shall be designed to infiltrate runoff to the maximum extent practicable before it reaches the storm drain system and to treat the remaining runoff before it reaches the storm drain system.
- *Maintenance.* The developer shall ensure adequate operation and maintenance of treatment systems, particularly sludge and oil removal, and system fouling/plugging prevention control.

Significance After Mitigation. Implementation of the above mitigation measure and appropriate BMPs would ensure compliance with the Los Angeles County Standard Urban Stormwater Mitigation Plan (SUSMP) and would therefore reduce water quality impacts associated with long-term operation of the project to a level considered less than significant. This would be the same for Option A or Option B, as the amount of site



coverage and general site plan would be similar for both options.

c. Cumulative Impacts. Planned and pending development in the City including the proposed project would add approximately 249,000 square feet of commercial development, 30,000 square feet of institutional development, 15,000 square feet of industrial development, and 122 housing units (see Table 3-1 in Section 3.0, *Environmental Setting*). This would generally increase impermeable surface area, thereby potentially increasing peak flood flows and overall runoff volumes. However, both the City of Long Beach and the Los Angeles RWQCB require that post-development peak discharges are reduced to at or below pre-development peak discharge rates for individual developments. Implementation of this requirement on all new development would reduce cumulative impacts to area hydrology to a less than significant level. The proposed project would be designed to detain and treat post-development stormwater, such that releases are at or below pre-development rates. Thus, the project would not contribute to any potential cumulative increases in peak runoff or associated flooding impacts.

With respect to surface water quality, construction activity associated with cumulative development would increase sedimentation relating to grading and construction. In addition, new development would increase the generation of urban pollutants that may adversely affect water quality in the long term. However, like the proposed project, all future significant development would be subject to implementation of appropriate Best Management Practices (BMPs) in accordance with NPDES permit and RWQCB requirements. The NPDES Permit and the SUSMP are specifically designed to develop, achieve, and implement a timely, comprehensive, and cost-effective stormwater pollution control program. The ultimate goal is to reduce pollutants in Long Beach stormwater discharges to the Maximum Extent Practicable (MEP). Thus, implementation of applicable requirements on all development in the area would reduce cumulative impacts to a less than significant level. With implementation of the BMPs recommended in Measure H-3, the project's contribution to increased pollutant loads in area surface water would not be cumulatively considerable.