4.7 LAND USE and PLANNING

4.7.1 Setting

a. Citywide Land Use. 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. Residential uses make up approximately 47.4% (16,060 acres) of developed land in the City, with low-density residential uses comprising about 77% of this total. Transportation, industrial, and utilities-related uses comprise 23.8% (8,071 acres), and commercial uses represent 8.6% (2,914 acres). Institutional uses, primarily government buildings and educational facilities, represent 6.6% (2,237 acres). Open space comprises 7.5% (2,530 acres). Water-covered areas and miscellaneous land uses account for the remaining land.

b. Site and Surrounding Land Uses. The project site encompasses two full city blocks in the North Long Beach Redevelopment Project Area. Atlantic Avenue bisects the approximately 6.3-acre 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. The majority of the site area is vacant, except for three one- to two-story commercial structures. All but one structure, the 8,245 square-foot Auto Zone at 5800 Atlantic Avenue, are 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.

The prevailing land 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.

c. Regulatory Setting. Development in the City is subject to the policies and development guidelines contained within several planning policy documents. Relevant planning policy documents are described below, including the Long Beach General Plan, the Citywide Strategic Plan (Long Beach 2010), and the North Long Beach Redevelopment Project Area Five-Year Implementation Plan. The project is also subject to the City's zoning regulations, including parking requirements.

General Plan. The General Plan is the fundamental planning policy document of the City, providing a "blueprint" for the location of land uses; the basic design and function of circulation, open space, and infrastructure; and public service needs, among other policy direction. The City of Long Beach prepared its first General Plan in 1958. The 1958 General Plan served the City for two decades, and in 1978 a new General Plan was prepared. Since that time, individual elements of the General Plan have been revised and updated based on the changing character of the City. Long Beach is currently in the process of a third comprehensive General Plan update, known as Long Beach 2030. Table 4.7-1 lists the General Plan elements and years of adoption.

The City of Long Beach General Plan provides goals, objectives, and policies that guide City decision makers in directing future growth and development. California law requires that the

General Plan contain at least seven elements: Land Use, Transportation, Housing, Conservation, Noise, Open Space, and Safety. The City of Long Beach has also adopted Seismic Safety and Air Quality elements, which are optional components of the General Plan. Each element contains official policies and programs that the City has adopted regarding each issue area.

Table 4.7-1
City of Long Beach General Plan Elements

Element	Year of Adoption
Land Use	1989
Local Coastal Program (LCP)	1980
Transportation	1991
Housing	2009
Open Space and Recreation	2002
Air Quality	1996
Public Safety	1975
Seismic Safety	1988
Noise	1975
Scenic Routes	1975
Conservation	1973

Land Use Element. At the heart of the General Plan is the Land Use Element, adopted in 1989 and revised April 1997. This element regulates the types of use and land use intensity within the City. The Land Use Element specifies various districts which comprise the land use portion of the General Plan. The Land Use Element incorporates the goals developed as part of an earlier citywide strategic planning process and implements them through a series of policies and General Plan land use designations. Goals of the Land Use Element that are applicable to the proposed North Village Center Redevelopment project include the following:

Managed Growth: *Guide growth to have an overall beneficial impact upon the City's quality of life.*

New Housing Construction: *Long Beach encourages the development of 24,000 new housing units through the year 2000, with emphasis on filling the gaps which exist or are anticipated in certain sectors of the City's housing market. In the immediate future, such emphasis should be upon for-sale housing for first-time homebuyers and upon upscale development in and around the downtown area.*

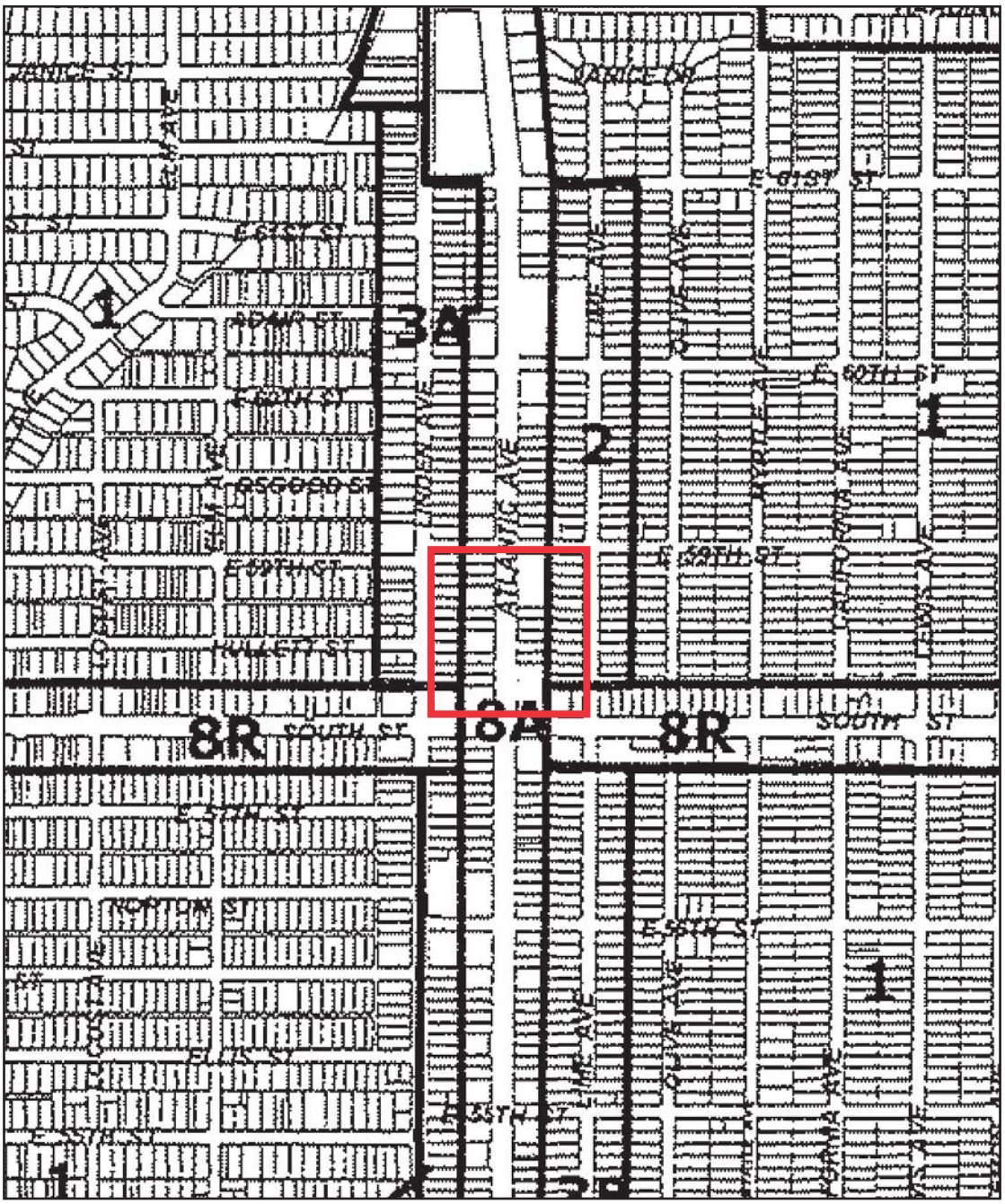
Neighborhood Emphasis: *Long Beach recognizes the strong neighborhood to be the essential building block of a City-wide quality living environment, and will assist and support citizen efforts to maintain and strengthen their neighborhoods.*

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.*

The Land Use Element states that "[o]f all the goals, the first, 'managed growth,' most clearly defines the direction and purpose of the 1988 General Plan…Increasingly, growth will require recycling and increased density…The way in which new development is designed and the manner in which the impacts of increased density are mitigated will determine the degree to which the quality of life in our City is preserved and enhanced."

The site is divided among four General Plan Land Use designations (see Figure 4.7-1). These are Townhomes (3A); Mixed Style Homes (2); Traditional Retail Strip Commercial (8A) and Mixed Retail/Residential Strip (8R). The corresponding Zoning Code designations are Townhouse or Row House Residential (R-3-T); Two-Family Residential (R-2-N); Neighborhood Automobile-Oriented Commercial (CNA) and Community Automobile-Oriented Commercial (CCA) (see Figure 4.7-2). The project site is within Parcel One of the ten non-contiguous subareas in the North Long Beach Redevelopment Project Area (see Figure 4.7-3). Additionally, the project site is located in the Dairy neighborhood. The Dairy neighborhood is described as consisting of older, mixed residential land uses with localized commercial shopping areas. Applicable policy language from the Land Use Element regarding the Dairy neighborhood includes the following statements (page 116):

> ***Land Use.*** *Maintaining the largely low density residential character of the area is recommended. Overall enhancement of the older, low-density residential structures should be encouraged. Home ownership opportunities should be provided. Remaining 25' wide lots should be merged…Single family and duplex units are encouraged…Some higher density areas are permitted along the arterials and Linden Avenue.*
>
> ***Design Controls/Architectural Compatibility.*** *Comprised of a mixture of architectural styles, architectural conformance here is considered unimportant. However, building types are overwhelmingly low scale, and this scale should be respected and maintained.*
>
> ***Neighborhood Services, Facilities and Amenities.*** *No park or recreational facilities exist in Dairy. Additional day care facilities should be built, inasmuch as young families have been attracted to the area by modest housing costs and rents. Schools are generally adequate with nearby Jordan High School serving the senior high school needs and Lindbergh School serving the junior high school population. Addams Elementary School, located one block to the south, is crowded and may need to be expanded. Atlantic Avenue, a commercially developed street adjoining the area on the east, provides adequately for the immediate shopping needs of residents.*



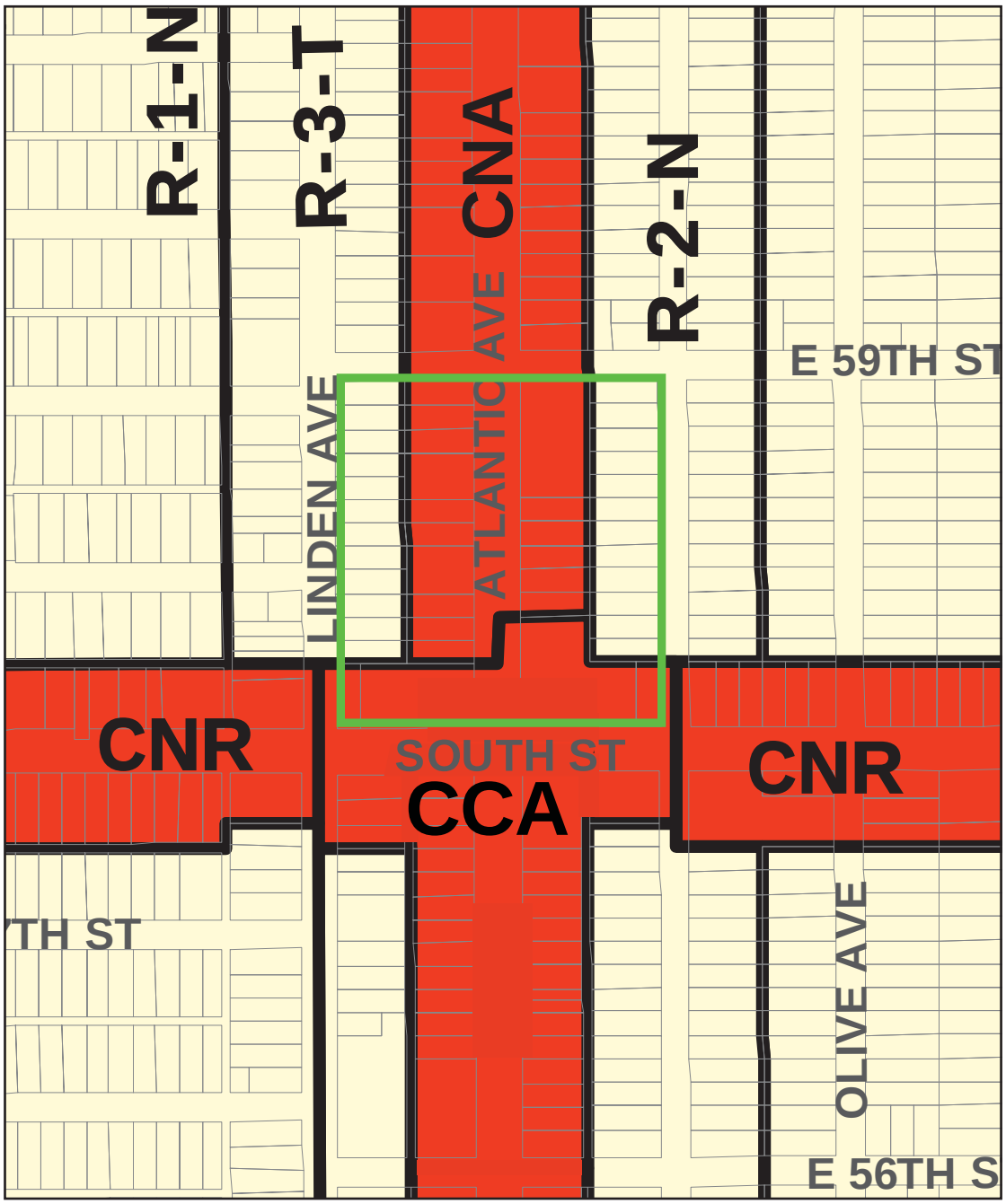
Source: City of Long Beach Department of Planning and Building, General Plan Maps and Descriptions, 1995.

Project Location

N

Site and Surrounding
Land Use Designations

Figure 4.7-1



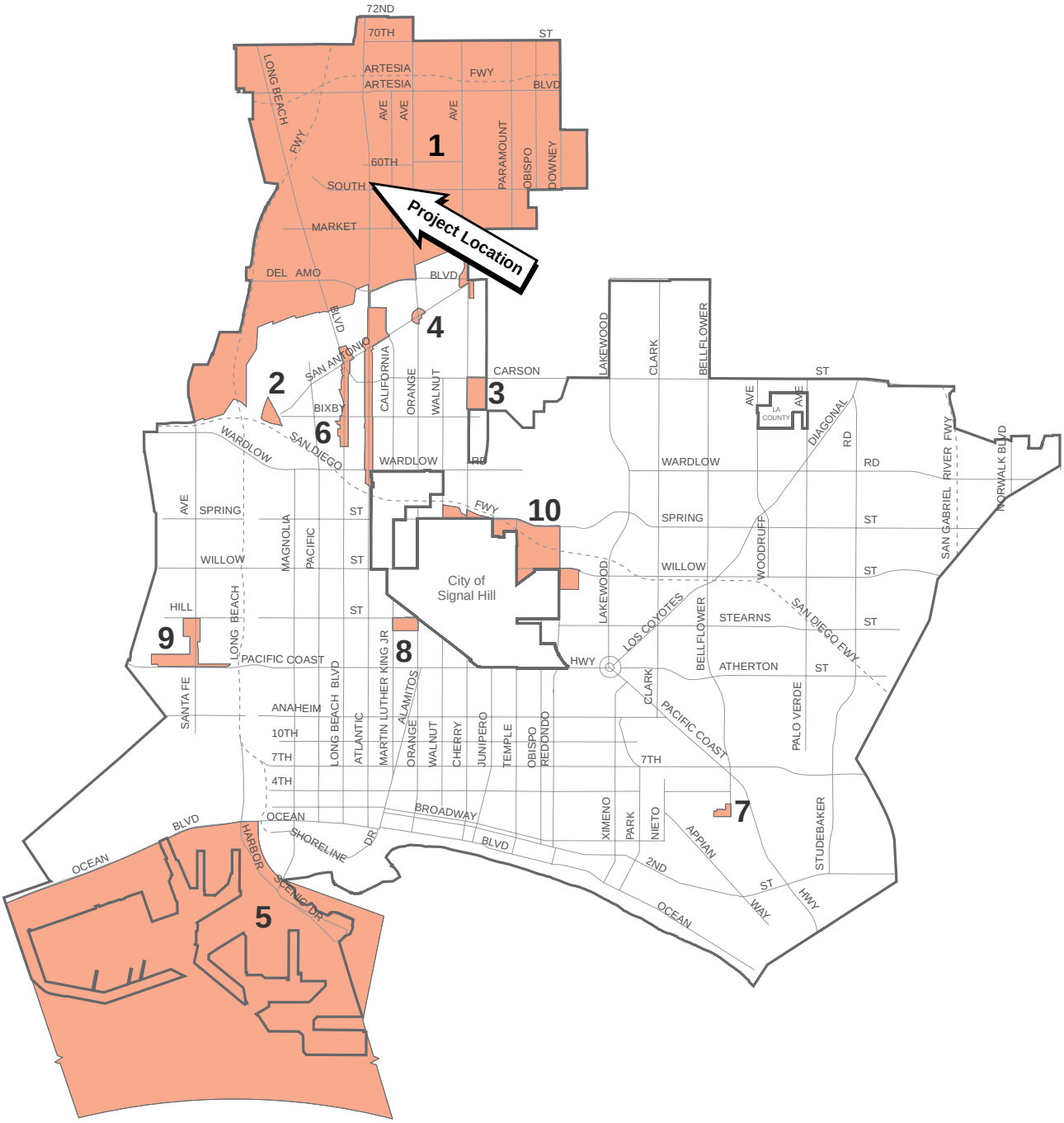
Source: City of Long Beach Department of Planning and Building, 2008.

Project Location

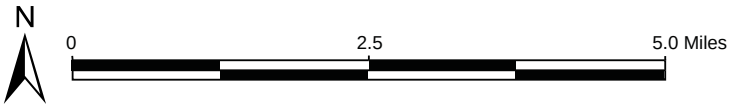
N

Site and Surrounding Zoning Designations

Figure 4.7-2



Basemap Source: City of Long Beach, 2008.



Redevelopment Area Boundaries

Figure 4.7-3

Generalized land use direction in the General Plan tends to be focused on areas of the City other than North Long Beach. The following language from the Land Use Element (page 48) pertains to those areas, such as the project location, where specific direction is not provided:

> *The largest areas on the map – those portions not encircled by dark outlines – are primarily residential in nature and are governed by the policy expression at the bottom of the map, namely "Maintain existing densities. Preserve and enhance neighborhood qualities."*
> *In such a broad generalization of long range policies in a complex, built-up city, it is to be expected that many important details will be omitted for the sake of simplicity. For example, there may be small areas of increased residential density recommended within the broad area labeled 'Maintain ... densities,' but these are not significant and do not, therefore, violate the overall policy. Similarly, certain arterials not shown on the map are programmed for some commercial development, but since it is not to be "concentrated" development, or significant in its retail impact, they are omitted from the generalization."*

The Urban Design discussions of the General Plan are also focused primarily on areas of the City other than North Long Beach, however the following guidance from the Land Use Element (page 43) is provided with respect to development along arterial roads such as Atlantic Avenue: "Positive design steps that should be taken to improve appearances along our streets include large setbacks along the frontages, more plant materials, fewer curb cuts, and better building design and signage. Additionally, recycled land uses should not be of the type which generate more traffic and friction."

In its discussion of land use issues associated with the Atlantic Avenue corridor, the Land Use Element (Page 252) states that "In that portion of [Atlantic] Avenue between Atlantic Plaza and Harding Street, mixed retail/residential is also recommended, with the residential being LUD No. 3A…"

Transportation Element. The Transportation Element defines the City's overall transportation system. This Element identifies and establishes standards for the design and operation of the City's existing and future roadway system, public transit and bicycle routes. Additionally, the City's Transportation Element discusses existing air transportation and the Port of Long Beach. The Transportation Element identifies goals and objectives to provide guidance and specific action to ensure the continued safe and efficient movement of people and goods within and through the City.

Housing Element. The Housing Element is a state-mandated General Plan element that "includes a comprehensive assessment of current and projected housing trends for all economic segments of the community. It embodies policy for providing adequate housing for all economic segments of the community, and includes a five-year action program." (Government Code 65302, et. seq.)

Open Space and Recreation Element. The Open Space and Recreation Element provides guidance for the development of park and recreation facilities and programs and for the preservation, management and use of open space lands within the City. This Element addresses current and future needs with recommendations for facility and program improvements.

Conservation Element. The Conservation Element focuses on the preservation and conservation of natural resources within the City. This element focuses on natural resources consisting of water, soils, vegetation, wildlife and mineral resources, in addition to scenic, historic and cultural resources.

Public Safety Element. The Public Safety Element identifies potential safety hazards and establishes policies to protect life and property from natural and man-made hazards. This Element is designed to identify areas where private and public decisions regarding land use need to be sensitive to hazardous conditions caused by geologic conditions, seismic activity, flood and inundation, fire and/or hazardous materials. It establishes a decision-making framework for City leaders to evaluate land use issues for their safety impact. The Public Safety Element provides recommendations for hazard mitigation and ensures that adequate emergency response can be provided when needed.

Seismic Safety Element. The Seismic Safety Element provides a comprehensive analysis of seismic factors to reduce loss of life, injuries, damage to property and social and economic impacts resulting from earthquakes. The Element serves as a guide for future development to encourage development that is responsive to seismic safety considerations.

Noise Element. The purpose of the Noise Element is to identify ambient noise levels and establish policies and programs designed to minimize the effects of noise on people living and working in Long Beach. Goals and policies related to the control of noise levels and the maintenance of appropriate noise levels are included to limit the noise generated from future projects as well as to abate existing noise problems. The Noise Element also serves as a guideline for compliance with the State's noise standards.

Scenic Routes Element. The Scenic Routes Element is an optional element that identifies goals and policies to protect and enhance aesthetic resources within the City. The Scenic Routes Element serves as a comprehensive plan for the development and protection of a system of scenic routes and corridors and identifies scenic assets of historical, cultural, recreational, industrial and aesthetic importance. This Element depicts scenic routes, which may have merit for inclusion in a designated system and establishes criteria and design standards to protect the scenic corridors.

Air Quality Element. The Air Quality Element is an optional element and consists of an inventory of existing air quality conditions and current rules and regulatory agencies involved in air quality. This Element identifies a series of policies, programs and strategies that encourage fewer vehicle trips, increase opportunities for alternative transportation modes and fuels, and land use patterns that can be efficiently served by a diversified transportation system.

Citywide Strategic Plan. The City of Long Beach has adopted a citywide Strategic Plan, "Long Beach 2010." The Strategic Plan includes goals and actions to achieve the long-range vision of the General Plan. The Strategic Plan focuses on goals in five areas: neighborhoods, youth and education, safety, economic opportunity, and the environment. In preparing "Long Beach 2010," a community survey, called the Community Scan, was conducted in 1997 to determine the key issues and concerns of residents, businesses, and community groups. The 2010 Strategic Plan incorporated the Community Scan input and set forth the following seven strategies:

- *Becoming a community of neighborhoods*
- *Focusing on youth and education*
- *Providing community safety for everyone*
- *Creating economic opportunity*
- *Enabling a progressive environmental community*
- *Empowering citizens and linking communities using technology*
- *Ensuring accountability by measuring and reporting progress*

In general, the Strategic Planning Process concluded that the restoration of neighborhoods as the center of community life is the City's most important long term goal. There are several specific Strategic Plan goals that are applicable to the proposed project. Most fall under the heading "Our Community of Neighborhoods:"

Goal 1: Build a strong network of healthy neighborhoods. We will identify our neighborhoods, determine their assets and weaknesses, and form strategies to meet community needs by reallocating resources, forming partnerships, distributing services at the neighborhood level, and leveraging technology to make the most of scarce resources.

Goal 3: Celebrate the diversity of our neighborhoods and residents, using arts and cultural programs to build mutual acceptance. By 2010, Long Beach will be much more diverse in age and ethnicity. Our diversity is a source of strength, but with diversity comes the challenge of appreciating different viewpoints. To realize the benefits of diversity, we must consciously and concertedly create ways to break down ignorance about other cultures and generations. Bringing arts and cultural programming to the neighborhoods is an ideal way to increase awareness, acceptance, and collaboration. All the city's major organizations must participate – schools, churches, public agencies, businesses, and community organizations.

Goal 5: Improve the quality and availability of housing. Home ownership in Long Beach is declining. In some areas, especially the southwest and central parts of the city that are home to low- and moderate-income families, housing is scarce and units are overcrowded. We will need to house 33,000 more residents by 2010. In order to improve neighborhood stability, we need to find locations for high density housing, where transportation and other public and private services can support it.

North Long Beach Redevelopment Project Area Five-year Implementation Plan. The North Long Beach Redevelopment Project Area consists of 10 non-contiguous areas referred to as parcels 1 through 10, totaling approximately 7,540 acres of land, and 4,967 acres of harbor waterfront property within the Port of Long Beach for a total size of 12,507 acres (Figure 4.7-3). The project site is located within Parcel 1, which is described as primarily residential in character, but "intersected with several major commercial and industrial corridors…For the most part, the residential areas are composed of relatively sound single-family neighborhoods with pockets of overcrowded and deteriorating structures. In contrast, the commercial properties along these corridors consist of aging strip commercial buildings characterized by physical deterioration, substandard design and a lack of adequate parking." Implementation goals for North Long Beach include the following:

Goal Number 1. *The elimination of blighting influences and the correction of environmental deficiencies in the Project Area, including, among others, removal or remediation of buildings in which it is unsafe or unhealthy for persons to live or work, reconciliation of incompatible and uneconomic land uses and the consolidation of small and irregular lots.*

Goal Number 2. *The assembly of land into parcels suitable for modern integrated development with improved pedestrian and vehicular circulation in the Project Area.*

Goal Number 3. *The re-planning, redesign and redevelopment of portions of the Project Area to enhance the image of the Project Area, to create a sense of identity, and to address areas which are stagnant or improperly utilized.*

Goal Number 4. *The strengthening of the economic base of the Project Area and the community by the installation of needed site improvements to stimulate new residential, commercial and industrial expansion, employment and social and economic growth.*

Goal Number 5. *The establishment and implementation of performance criteria to assure high site design standards and environmental quality and other design elements that provide unity and integrity to the entire Project.*

Goal Number 6. *The improvement of the community's supply of housing, particularly affordable housing available to low- and moderate-income persons and families with an emphasis on home ownership.*

City Of Long Beach Zoning Code. The Zoning Code Regulations (Title 21) of the City of Long Beach Municipal Code implement the goals, policies, plans, principles and standards of the General Plan. The purpose of the Zoning Code Regulations is to promote and preserve the public health, safety, comfort, convenience, prosperity and general welfare of the people of Long Beach.

As noted above, the project site is split among four zoning designations, Townhouse or Row House Residential (R-3-T), Two-Family Residential (R-2-N), Neighborhood Automobile-Oriented Commercial (CNA) and Community Automobile-Oriented Commercial (CCA) (Figure 4.7-1).

4.7.2 Impact Analysis

a. Methodology and Significance Thresholds. Land use impacts were assessed based upon the level of physical impact anticipated in the various issue areas that can affect land use compatibility (e.g., air quality, noise, aesthetics, shadows, hazards and traffic). Impacts are considered significant under any of the following conditions:

- *The project is markedly incompatible in scale or use characteristics with any adjacent (existing or planned) land uses;*
- *The project would disrupt or physically divide an established community; or*
- *The proposed project would conflict with any adopted land use plan, policy or regulation of an agency with jurisdiction over the project, adopted for the purpose of avoiding or mitigating an environmental effect.*

The first of these, potential incompatibility with surrounding development or land uses, was not discussed in the Initial Study for the project (Appendix A) as a potential impact. However, it is commonly used as an additional threshold in EIRs to determine whether projects will have significant land use impacts. The Initial Study determined that no impact related to the second criterion listed above, potential to divide an established community, would occur; therefore this issue is not addressed in the section. Impacts related to the first and third criteria listed above are discussed in this section.

b. Project Impacts and Mitigation Measures. EIR sections relating to aesthetics, air quality, noise, population and housing, shadows, hazards and traffic include issue-specific impacts and mitigation measures relative to land use. Land use impacts related to land use compatibility and any conflicts with the General Plan and Zoning Code are discussed below.

Impact LU-1 **The proposed North Village Center project would implement a number of City of Long Beach planning goals and policies, and with the requested amendments would be consistent with the project site's land use and zoning designations. However, the demolition of the Atlantic Theater (5870-74 Atlantic Avenue) and 635 E. South Street structures could be considered inconsistent with the General Plan's goals and policies related to preservation of historic resources. This is considered a Class I, *significant and unavoidable,* impact.**

The City of Long Beach General Plan is the primary policy planning document that guides land uses in the City. In order to approve a proposed project, the City Council must find that it is consistent with the Land Use Designation, goals, policies and objectives of the General Plan.

As discussed above, the site is split among four General Plan land use designations. Along Atlantic Avenue and South Street they are commercial, Traditional Retail Strip Commercial (8A) and Mixed Retail/Residential Strip (8R), respectively, and along Linden and Lime Avenues they are residential Townhomes (3A) and Mixed Style Homes (2), respectively. In general, the proposed mixed-use project is consistent with this mix of land uses. However, in order to implement the project as proposed, General Plan and Zoning Code amendments are required and are a part of the request for entitlements. This is to allow the mix of uses together (e.g., residential units over retail space along Atlantic Avenue and South Street; maximum heights of three levels rather than the two allowed under existing zoning; and additional residential density beyond what would be allowed under existing zoning. If the requested General Plan and Zoning Code amendments are approved, the project would be consistent with applicable land use and zoning designations. If the requested amendments are not approved, the project would be required to be revised to comply with existing General Plan and Zoning Code standards.

As discussed in Section 4.11, *Transportation and Circulation*, proposed project parking does not meet City code requirements. However, the applicant has requested an Administrative Use Permit for shared use of less than the Code required number of parking spaces. With approval of an Administrative Use Permit for shared parking, the project would be consistent with the provisions of the Zoning Code.

Consistent with the scope and purpose of this EIR, the discussion in this section primarily focuses on those General Plan and Zoning Code requirements that relate to avoiding or mitigating environmental impacts, and an assessment of whether any inconsistency with these standards creates a significant physical impact on the environment. The ultimate determination of whether the proposed project is consistent with the General Plan and Zoning Code lies with the decision-making bodies (Planning Commission and City Council). Table 4.7-2 contains a discussion of the proposed plan's consistency with applicable policies of the Long Beach General Plan.

Table 4.7-2 General Plan Policy Consistency

General Plan Goal, Objective or Policy	Consistency Discussion
Land Use Element	
Long Beach accepts the population and economic growth anticipated and intends to guide that growth to have an overall beneficial impact upon the City's quality of life.	Potentially Consistent. As indicated in Section 4.9, *Population and Housing*, the potential population, housing and jobs growth associated with the project would be consistent with the Southern California Association of Governments' updated projected population and housing forecasts. The Site Plan Review process, in addition to the discretionary nature of needed project approvals, would provide opportunities for the City to ensure project benefits to the City's quality of life.
Long Beach will continue to take the actions that are necessary to preserve an adequate supply of water for domestic, commercial and industrial purposes.	Potentially Consistent. As indicated in Section 4.12, *Utilities and Service Systems*, adequate water supply would be available to serve the proposed project.
Long Beach will maintain or improve the current ability to move people and goods to and from development centers while preserving and protecting residential neighborhoods.	Potentially Consistent. The project would place residential, commercial and institutional uses in close proximity to existing transit services, providing convenient opportunities for residents and patrons to utilize mass transit. As indicated in Section 4.11, *Transportation and Circulation*, project-related traffic impacts would be less than significant. Residential neighborhoods surrounding the site would not be significantly adversely affected by the project and its traffic/circulation effects.
Long Beach will support efforts aimed at preserving its significant historic and cultural places and buildings…	Potentially Inconsistent. The proposed project would not prevent the City from supporting efforts aimed at preserving historic buildings. However, as indicated in Section 4.3, *Cultural Resources*, development of the project includes demolition of two historic structures, a significant and unavoidable impact. Refer to Section 4.3 for a discussion of impacts and mitigation measures related to historic and cultural resources.
Maintaining the largely low density residential character of the [Dairy Neighborhood] area is recommended. Overall enhancement of the older, low-density residential structures should be encouraged. Home ownership opportunities should be provided. Remaining 25' wide lots should be merged…Single family and duplex units are encouraged…Some higher density areas are permitted along the arterials and Linden Avenue. *The largest areas on the map – those*	Potentially Consistent. The proposed project would have a residential density of approximately 9.6 units per acre. This is consistent with the density of the surrounding single-family neighborhoods, which are currently developed at a minimum of eight units per acre and may be developed up to 14 units per acre (e.g., in the R-3-T Zone District).

Table 4.7-2 General Plan Policy Consistency

General Plan Goal, Objective or Policy	Consistency Discussion
portions not encircled by dark outlines – are primarily residential in nature and are governed by the policy expression at the bottom of the map, namely "Maintain existing densities. Preserve and enhance neighborhood qualities." … there may be small areas of increased residential density recommended within the broad area labeled 'Maintain ... densities,' but these are not significant and do not, therefore, violate the overall policy. Similarly, certain arterials not shown on the map are programmed for some commercial development, but since it is not to be "concentrated" development, or significant in its retail impact, they are omitted from the generalization.	
Comprised of a mixture of architectural styles, architectural conformance here [Dairy Neighborhood] is considered unimportant. However, building types are overwhelmingly low scale, and this scale should be respected and maintained.	Potentially Consistent. The proposed project includes building heights of one to three stories. Three story buildings would be along Atlantic Avenue and on the interior of each block, and so although they would be one to two stories higher than surrounding residential development they would not overwhelm, contract starkly with or be visually incompatible as to scale with surrounding development.
Transportation Element	
To improve overall traffic carrying capacity and travel safety, and to reduce traffic conflicts as much as possible *…maintain or improve our current ability to move people and goods to and from activity centers while reinforcing the quality of life in our neighborhoods*	Potentially Consistent. As indicated in Section 4.11, *Transportation and Circulation*, traffic and circulation impacts would be less than significant. Refer to Section 4.11 for a discussion of impacts and mitigation measures related to traffic and transportation facilities, as well as consistency with the Transportation Element's quantitative service standards. The project includes public-realm improvements to facilitate pedestrian circulation, such as improved sidewalks and a mid-block crossing. Section 4.11 also includes recommendations to further reduce pedestrian-vehicle conflicts, which may be applied as conditions of approval to further enhance consistency with these policies.
To permit sufficient employment and residential densities along transit routes to encourage transit ridership *…To increase the amount and quality of moderate and higher density housing along selected corridors.*	Potentially Consistent. Implementation of the proposed project would result in the placement of residential uses in proximity to existing bus services along Atlantic Avenue and South Street.
…To improve the appearance of the corridors in general, recognizing that these streets provide most travelers through our City with their initial, and perhaps lasting, impression of Long Beach	Potentially Consistent. The project includes streetscape improvements to the surrounding streets including street trees, pedestrian plazas and street crossings, and new landscaped medians in Atlantic Avenue and South Street.
Housing Element	
Policy 3.2. Preserve and protect the character of established neighborhoods, with an emphasis on single-family neighborhoods	Potentially Consistent. Most of the development surrounding the project site is single-family residential. Although the project includes multi-family housing, the relatively low density and the

Table 4.7-2 General Plan Policy Consistency

General Plan Goal, Objective or Policy	Consistency Discussion
and those beginning to decline.	project design would not be incompatible with or conflict the the existing uses. No single-family housing would be displaced and the project generally would not have an adverse impact on the character of the surrounding community.
Policy 3.5. Continue to improve streets and drainage, sidewalks and alleys, green spaces and parks, street trees, and other public facilities, amenities and infrastructure.	Potentially Consistent. The project includes streetscape and infrastructure improvements to the surrounding streets including street trees, pedestrian plazas and street crossings, and new landscaped medians in Atlantic Avenue and South Street.
Policy 3.6. Continue to preserve and maintain the City's historical and architecturally significant buildings and neighborhoods by establishing and maintaining historical landmarks and districts.	Potentially Inconsistent. The proposed project would not itself prevent the City from preserving and maintaining historical and architecturally significant buildings and neighborhoods by establishing and maintaining historical landmarks and districts. However, as indicated in Section 4.3, *Cultural Resources*, development of the project includes demolition of two historic structures, a significant and unavoidable impact. Refer to Section 4.3 for a discussion of impacts and mitigation measures related to historic and cultural resources.
Policy 4.5. Encourage residential development along transit corridors, in the downtown and close to employment, transportation, and activity centers; and encourage infill and mixed-use developments in designated districts.	Potentially Consistent. The proposed project is a mixed-use project along Atlantic Avenue, a major arterial road.
Open Space and Recreation Element	
Policy 4.10. Require all new developments to provide usable open space tailored to the recreational demands they would otherwise place on public resources.	Potentially Consistent. The proposed project includes one courtyard and a tot lot for a combined square footage of 13,500 sf of open/recreational space. As discussed in Section 4.10 *Public Services*, project impacts on parks and schools would be less than significant.
Conservation Element	
Water Resource Management Goal 1. To assure adequate quantity and quality of water to meet the present and future domestic, agricultural and industrial need of the City.	Potentially Consistent. As indicated in Section 4.12, *Utilities*, adequate water supply would be available to serve the proposed project.
Soil Management Goal 3. To minimize those activities which will have a critical or detrimental effect on geologically unstable areas and soils subject to erosion.	Potentially Consistent. As discussed in Section 4.4, *Geology*, mitigation measures are available to ensure that risks associated with geologic and soil conditions on the site are reduced to the extent feasible. The project's final designs would be subject to compliance with applicable building codes. Additionally, implementation of erosion control measures as required by Chapter 18.95 of the Municipal Code and adherence to all requirements set forth in the National Pollutant Discharge Elimination System (NPDES) permit for construction activities would reduce potential impacts related to soil erosion.
Other Resources Goal 1. To identify and preserve sites of outstanding scenic, historic, and cultural significance or recreational potential.	Potentially Consistent. As indicated in Section 4.1, *Aesthetics*, the project would not obstruct as a scenic vista and is not visible from a State scenic highway. Although the project would involve demolition of two historic structures, resulting in a significant and unavoidable impact on historic resources, these structures have not been identified as "outstanding" sites from a scenic or

Table 4.7-2 General Plan Policy Consistency

General Plan Goal, Objective or Policy	Consistency Discussion
	historic perspective.
Other Resources Goal 2. To encourage citizen participation in the identification and preservation of historic and cultural sites.	Potentially Consistent. Citizen participation is welcomed by the City as part of the EIR public review process, the Cultural Heritage Commission process and the project hearing process.
Public Safety Element	
Development Goal 3. Provide an urban environment, which is as safe from all types of hazards as possible. *Development Goal 5. Use physical planning as a means of achieving greater degrees of protection from safety hazards.* *Development Goal 7. Assure continued safe accessibility to all urban land uses throughout the City.* *Development Goal 9. Encourage development that would augment efforts of other safety-related Departments of the City (i.e., design for adequate access for firefighting equipment and police surveillance.* *Development Goal 10. Strive to encourage urbanization patterns, which preserve and/or create greater safety for residents and visitors.* *Development Goal 11. Critically evaluate proposed public or private actions, which may pose safety hazards to residents or visitors.* *Protection Goal 2. Protect existing land uses from the intrusion of safety hazards.* *Protection Goal 3. Reduce public exposure to safety hazards.* *Protection Goal 10. Provide the maximum feasible level of public safety protection services.*	Potentially Consistent. The project site is located within an urbanized area of Long Beach. All development is subject to site-specific geotechnical analysis and would be designed in compliance with applicable building codes. As indicated in Section 4.5, *Hazards and Hazardous Materials*, implementation of recommended mitigation measures would reduce potential impacts from hazardous materials associated with historic and existing uses to a less than significant level. Additionally, the proposed project would not create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials. Consistent with applicable building and fire codes, the proposed structures would be required to include adequate access by fire and emergency service vehicles and equipment. Mitigation is included to ensure adequate safety lighting, and the LBPD would review site- specific development plans and provide recommendations for public safety and crime prevention for the project.
Noise Element	
The City desires to attain a healthier and quieter environment for all its citizens while maintaining a reasonable level of economic progress and development. *To protect and preserve both the property rights of owners and the right to quietness of the citizenry at large.* *To make the City a quieter, more pleasant place in which to live.* *To respond to demands for a reasonably quiet environment which is compatible with both existing ambient noise levels and continuing building and industrial*	Potentially Consistent. As indicated in Section 4.8, *Noise*, the project would result in less than significant impacts related to construction and operational project-generated noise with the incorporation of the identified mitigation measures.

Table 4.7-2 General Plan Policy Consistency

General Plan Goal, Objective or Policy	Consistency Discussion
development. *The City desires to reduce both noise exposure to the population and noise level outputs generated by the population.* *Attainment of the lowest possible level of harmful effects of noise on the people by the implementation of information, monitoring and advisory programs.*	
Seismic Safety Element	
Development Goal 1. Utilize seismic safety considerations as a means of encouraging and enhancing desired land use patterns. *Development Goal 2. Provide an urban environment, which is as safe as possible from seismic risk.* *Development Goal 3. Use physical planning as a means of achieving greater degrees of protection from seismic safety hazards.* *Development Goal 5. Strive to encourage urbanization patterns, which preserve and/or create greater safety for residents and visitors.*	Potentially Consistent. As discussed in Section 4.4 *Geology*, mitigation measures are available to ensure that risks associated with geologic and soil conditions on the site are reduced to the extent feasible. The site is not in an area of the City with substantially higher seismic risks than others. The project's final designs would be subject to compliance with applicable building codes. The project site is not located with flood prone lands or airport flight plans.
Air Quality Element	
Goal 2.0: A diverse and efficient ground transportation system that minimizes air pollutant emissions. *Goal 5.0: A pattern of land uses that can be efficiently served by a diversified transportation system and that directly and indirectly minimizes air pollutants.* *Goal 7.0: Reduce emissions through reduced energy consumption.*	Potentially Consistent. As discussed in Section 4.2, *Air Quality*, project operational air quality impacts would be less than significant. In addition, recommended mitigation measures requiring increased energy efficiency are included to reduce impacts to the extent feasible, thereby minimizing emissions. The project site is located in reasonable proximity to regional transportation corridors, and in close proximity to bus service. The project includes public-realm improvements to facilitate pedestrian circulation, such as improved sidewalks and a mid-block crossing. Thus, the project would provide opportunities for traffic reduction through encouragement of alternative transportation. As further indicated in Section 4.2, air quality impacts resulting from increased traffic would not exceed state or federal standards.
Goal 6.0: Minimize particulate emissions from the construction and operation of roads and buildings, from mobile sources, and from the transportation, handling and storage of materials.	Potentially Consistent. As indicated in Section 4.2, *Air Quality*, the proposed project would not result in significant temporary air quality impacts associated with construction.

North Long Beach Redevelopment Project Area Five-year Implementation Plan. Table 4.7-3 contains a discussion of the proposed plan's consistency with selected applicable policies of the North Long Beach Redevelopment Area's Five-Year Implementation Plan.

Table 4.7-3
Redevelopment Implementation Plan Policy Consistency

Implementation Plan Goal	Consistency Discussion
Goal 1: The elimination of blighting influences and the correction of environmental deficiencies in the Project Area, including, among others, removal or remediation of buildings in which it is unsafe or unhealthy for persons to live or work, reconciliation of incompatible and uneconomic land uses and the consolidation of small and irregular lots.. *Goal 2: The assembly of land into parcels suitable for modern integrated development with improved pedestrian and vehicular circulation in the Project Area.*	Potentially Consistent. The project would include consolidation of lots for the purposes of a comprehensively planned development.

Citywide Strategic Plan. Table 4.7-4 contains a discussion of the proposed plan's consistency with applicable policies of the Long Beach Citywide Strategic Plan, "Long Beach 2010."

Table 4.7-4
Citywide Strategic Plan Consistency

Strategic Plan Goal	Consistency Discussion
Our Community Neighborhoods	
Goal 3: Celebrate the diversity of our neighborhoods and residents, using arts and cultural programs to build mutual acceptance. By 2010, Long Beach will be much more diverse in age and ethnicity. Our diversity is a source of strength, but with diversity comes the challenge of appreciating different viewpoints. To realize the benefits of diversity, we must consciously and concertedly create ways to break down ignorance about other cultures and generations. Bringing arts and cultural programming to the neighborhoods is an ideal way to increase awareness, acceptance, and collaboration. All the city's major organizations must participate—schools, churches, public agencies, businesses, and community organizations.	Potentially Consistent. The project includes a library and community center for use by both project residents and the community at large.
Goal 5: Improve the quality and availability of housing. Home ownership in Long Beach is declining. In some areas, especially the southwest and central parts of the city that are home to low- and moderate-income families, housing is scarce and units are overcrowded. We will need to house 33,000 more residents by 2010. In order to improve neighborhood stability, we need to find locations for high density housing, where transportation and other public and private services can support it.	Potentially Consistent. The proposed project involves the development of 61 new for-sale housing units in the North Long Beach area. As attached units, they are expected to be relatively affordable to moderate-income and possibly lower income households.
A Sustainable City	
Goal 4: Improve air quality. Compared to the rest of	Potentially Consistent. Refer to consistency

Table 4.7-4
Citywide Strategic Plan Consistency

Strategic Plan Goal	Consistency Discussion
Southern California, Long Beach enjoys good air quality. But continued growth threatens it, and we have concerns about the coke dust drifting from the Ports of Long Beach and Los Angeles, as well as the pollution from trucks, buses, and cars.	discussion for the Air Quality Element in Table 4.7-1 above.

Conclusion. The project appears to be consistent with the majority of the goals, policies and objectives of the General Plan and other policy documents. However, potential inconsistency with goals and policies relating to preservation of historic resources would be considered significant and unavoidable.

Mitigation Measures. Mitigation measures CR-1 and CR-2, discussed in Section 4.3, *Historic Resources,* require documentation of the historic resources and preparation of interpretive plans. These would help to reduce the impact to historic resources, but would not reduce them to a less than significant level.

Significance After Mitigation. The proposed project appears to be consistent with the majority of City planning goals and policies. However, as potential impacts to historic resources cannot be mitigated to below a level of significance, the project could be found to be inconsistent with City policies relating to the preservation of historic resources. Impacts would be significant and unavoidable.

Impact LU-2 The proposed mixed use project would be generally compatible with existing adjacent commercial and residential uses, with incorporation of mitigation measures included in the noise section of this EIR. This is considered a Class II, *significant but mitigable,* impact.

The proposed land uses are generally similar to the surrounding existing land uses. As noted above, the proposed project would have a residential density of approximately 9.6 units per acre. This is consistent with the density of the surrounding single-family neighborhoods, which are currently developed at a minimum of approximately eight units per acre and may be developed up to 14 units per acre (e.g. in the R-3-T Zone District). Proposed commercial and institutional uses would be located along Atlantic Avenue and South Street, similar to the prevailing pattern surrounding the site. The primary differences between the surrounding development and the proposed project are the mix of uses together (e.g., residential units over retail space along Atlantic Avenue and South Street) and maximum heights of three levels for development along South Street, 59th Street and Atlantic Avenue, rather than the two allowed under existing zoning. These departures from the surrounding land use pattern are minor in nature; the proposed commercial space, library/community space and residential units would be compatible with the similar adjacent uses and no conflicts would result.

As discussed in Section 4.8, *Noise*, the increase in ambient noise due to project operation, including increased traffic levels, would be less than significant with the incorporation of

mitigation measures, and within what may be expected within an urban area. Increased noise levels would not be in conflict with surrounding uses.

Mitigation Measures. The mitigation measures recommended in Section 4.8 *Noise* to reduce traffic noise on adjacent streets would reduce impacts that could lead to land use conflicts to levels that would avoid significant land use compatibility impacts.

Significance After Mitigation. With implementation of recommended mitigation measures, compatibility conflicts would be reduced to below a level of significance.

Impact LU-3 The proposed North Village Center project is inconsistent with the requirements of the existing project site General Plan and Zoning Code designations, including those relating to height, density and mix of uses. However, with approval of the requested General Plan and Zoning Code amendments, this would be a Class III, *less than significant*, impact for either Option A or Option B.

As discussed above, the project site consists of four Zoning designations. Atlantic Avenue and South Street have commercial designations, Neighborhood Automobile-Oriented Commercial (CNA) and Community Automobile-Oriented Commercial (CCA), respectively, with residential designations along Linden and Lime Avenues, Townhouse or Row House Residential (R-3-T) and Two-Family Residential (R-2-N), respectively. At up to three levels and 38 feet, the tallest buildings within the proposed project exceed the allowable two-level/28 foot height limit of the existing zoning. In addition, mixed-use development such as that proposed is not permitted under the existing zoning. Finally, as less than half of the site is zoned for residential development, and the total proposed number of units exceeds the number of units that could be developed in those areas of the site under existing allowable densities, the proposed project exceeds existing density maximums for the site.

In order to implement the project as proposed, General Plan and Zoning Code amendments are required and are a part of the request for entitlements. These amendments would allow the mix of uses together, the proposed building heights, additional residential density for the site as a whole. With approval of the requested General Plan and Zoning Code amendments, the project would be consistent with applicable zoning designations and impacts would be less than significant. If the amendments are not approved by the City, the project would be revised to meet General Plan and Zoning Code standards.

Mitigation Measures**.** As impacts would be less than significant with approval of the requested General Plan and Zoning Code amendments, no mitigation is required.

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

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 conjunction with other related projects, would cumulatively result in an

overall intensification and recycling of land uses throughout Long Beach. Although some of the projects considered in the cumulative impact scenario may require General Plan Amendments, Zone Changes, Variances, Conditional Use Permits, Tract Map approvals, or other discretionary land use actions, the merits of each project would be considered on a case-by-case basis. Increased development densities from these projects would generate cumulative impacts with respect to traffic, air quality, noise, and public services. These impacts are discussed in their respective sections of this EIR and are less than significant.

4.8 NOISE

4.8.1 Setting

a. Overview of Sound Measurement. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dB, and a sound that is 10 dB less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3 dB change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while those along arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources such as industrial machinery. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dB per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dB per doubling of distance.

In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the daytime. Two commonly used noise metrics – the Day-Night average level (Ldn) and the Community Noise Equivalent Level (CNEL) - recognize the increased sensitivity to nighttime noise by weighting hourly Leqs over a 24-hour period. The Ldn is a 24-hour average noise level that adds 10 dB to actual nighttime (10 PM to 7 AM) noise levels to account for the greater sensitivity to noise during that time period. The CNEL is identical to the Ldn, except it also adds a 5 dB penalty for noise occurring during the evening (7 PM to 10 PM).

b. Noise-Sensitive Land Uses. The City of Long Beach designates the following land uses as being noise-sensitive: dwellings, schools, hospitals, hotels and health institutions (Long Beach General Plan Noise Element, 1975). The noise-sensitive land uses closest to the project site include: the residences and church along Linden Avenue to the west of the project site; the

residences along Lime Avenue to the east of the project site; and the residences to the north of the project site along 59th Street.

c. Regulatory Setting. The City of Long Beach adopted an updated General Plan Noise Element in 1975. The Noise Element was updated to provide a description of existing and projected future noise levels, and to incorporate comprehensive goals, policies, and implementing actions. The City Noise Ordinance (Municipal Code § 8.80) supports the goals and policies of the Noise Element. Consistent with the Noise Element, the Noise Ordinance requires that noise mitigation measures be followed in the siting and design of new development.

The Noise Ordinance prohibits any unnecessary, excessive, or annoying noise in the City. The Ordinance does not control traffic noise, but applies to all noise sources located on private property. As part of this ordinance, properties within the City are assigned a noise district based on their corresponding zoning district and uses. Predominantly residential districts with other land use types also present are designated as Noise District One; predominantly commercial districts with other land use types also present are designated as Noise District Two; predominantly manufacturing or industrial districts with other land use types also present are designated as Noise Districts Three and Four; and airports, freeways and waterways regulated by other agencies are designated as Noise District Five. The Ordinance also limits the amount of noise generated by uses during normal operation that may affect the surrounding areas. Table 4.8-1 shows the allowable noise levels and corresponding times of day for each of the five identified noise zones.

Table 4.8-1
Exterior Noise Standards

Noise District	Time Interval	Allowable Leq
One	10 PM to 7 AM 7 PM to 10 AM	45 dBA 50 dBA
Two	10 PM to 7 AM 7 PM to 10 AM	55 dBA 60 dBA
Three	Anytime	65 dBA
Four	Anytime	70 dBA
Five	Regulated by other agencies and laws	

Source: City of Long Beach Municipal Code § 8.80.160

Section 8.80.150 subsection (B) specifies that no person shall operate or cause to be operated any source of sound at any location within the incorporated limits of the city or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level when measured from any other property, either incorporated or unincorporated, to exceed:

1. *The noise standard for a land use district for a cumulative period of more than thirty minutes in any hour; or*
2. *The noise standard plus five decibels for a cumulative period of more than fifteen minutes in any hour; or*
3. *The noise standard plus ten decibels for a cumulative period of more than five minutes in any hour; or*
4. *The noise standard plus fifteen decibels for a cumulative period of more than one minute in any hour; or*
5. *The noise standard plus twenty decibels or the maximum measured ambient, for any period of time.*

Subsection (C) of Section 8.80.150 (Exterior noise limits-sound levels by receiving land use district) of the noise ordinance states, "If the measured ambient level exceeds that permissible within any of the first four noise limit categories in subsection B (listed above) of this section, the allowable noise exposure standard shall be increased in five decibel increments in each category as appropriate to encompass or reflect the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category in subsection B of this section, (listed above) the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level."

The City of Long Beach Municipal Code identifies the maximum allowable interior noise standards for noise sensitive receptors, as shown in Table 4.8-2.

Table 4.8-2
Interior Noise Standards

Type Of Land Use	Time Interval	Allowable Interior Noise Level (dBA)
Residential	10:00 PM - 7:00 AM	35
	7:00 AM - 10:00 PM	45
School	7:00 AM - 10:00 PM	45
Hospital, designated quiet zones and noise sensitive zones	Any time	40

Source: City of Long Beach Municipal Code § 8.80.170

d. Existing Noise Conditions and Sources. The most common sources of noise in the project vicinity are transportation-related, including automobiles, trucks, buses and motorcycles. Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create a sustained noise level, and because of its proximity to areas sensitive to noise exposure. The primary sources of roadway noise near the project site are Atlantic Avenue, which bisects the project site, and East South Street to the south of the project site.

Two 20-minute weekday morning noise measurements were taken in the site vicinity using an ANSI Type II integrating sound level meter on February 12, 2008. One measurement was taken at the western boundary of the site, approximately 25 feet from the center of Linden Avenue. This measurement indicated a noise level of about 60 dBA Leq. Another measurement was taken at the eastern boundary of the western portion of the project site, approximately 35 feet from the center of the Atlantic Avenue. This measurement indicated a noise level of about 67 dBA Leq.

4.8.2 Impact Analysis

a. Methodology and Significance Thresholds. Noise levels associated with existing and future traffic along area roadways were calculated using the Federal Highway Administration's Traffic Noise Model (TNM) 2.5 lookup tables (noise modeling data sheets can be viewed in Appendix F of this document). The model calculations are based on traffic data from the EIR traffic study (see Appendix G).

Impacts would be considered significant under any of the following conditions:

1. *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies*
2. *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels*
3. *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project*
4. *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project*
5. *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 expose people residing or working in the project area to excessive noise levels*
6. *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise.*

The Initial Study (see Appendix A) determined that impacts related to the first four criteria would be potentially significant; as such, analyses of these potential impacts are included in this section. As discussed in the Initial Study, the project site is located more than two miles from the nearest airport and no impact related to the fifth and sixth criteria listed above would occur. Therefore, further analysis of noise related to airport operation was not warranted.

For traffic-related noise, impacts are considered significant if traffic noise would cause the interior ambient noise levels in proposed multi-family residences to be above the 45 dBA CNEL noise standard. The 45 dBA CNEL interior noise standard for multi-family residential uses is set forth by California Noise Insulation Standards of the California Code of Regulations (CCR). The Title 24 standard applies when the forecast exterior noise level exceeds the compatibility threshold of 60 dBA CNEL for multi-family residential units set forth by the California Department of Health Services Office of Noise Control. Title 24 of the CCR does not set forth noise standards for libraries.

The Federal Interagency Committee on Noise (FICON) recommendations were used to determine whether or not increases in roadway noise would be significant. The FICON recommendations were developed as a result of studies that relate aircraft noise levels to the percentage of people highly annoyed by various noise levels. Although these recommendations were developed specifically for aircraft noise impacts, they are applicable to all noise sources that use noise exposure metrics such as the L_{dn} and CNEL. The level of significance changes with increasing noise exposure, such that smaller changes in ambient noise levels result in significant impacts at higher ambient noise levels. Table 4.8-3 shows the significance thresholds for increases in traffic related noise levels caused either by the project alone or by cumulative development.

Table 4.8-3
Significance of Changes in Operational Roadway Noise Exposure

Ambient Noise Level with Project (Ldn or CNEL)	Significant Impact
< 60 dB	+ 5.0 dB or more
60 – 65 dB	+ 3.0 dB or more
> 65 dB	+ 1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON), August 1993.

If residential development or other sensitive receptors would be exposed to traffic noise increases exceeding the above criteria, impacts would be considered significant. Impacts related to on-site activities are considered significant if project-related activities would be expected to create noise exceeding the standards as identified by the applicable noise zone for the project site (see tables 4.8-1 and 4.8-2).

Noise associated with construction activity was evaluated using construction equipment noise level estimates contained in the USEPA report *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (1971). The City's Noise Ordinance (Municipal Code § 8.80) prohibits noise associated with demolition and other construction activities that produce loud or unusual noise that annoys or disturbs a reasonable person of normal sensitivity between the hours of 7:00 PM and 7:00 AM on any weekday including federal holidays, except for authorized emergency work. On Saturdays, such activities are allowed only between the hours of 9:00 AM and 6:00 PM, and not allowed any time on Sunday unless for authorized emergency work or work authorized by the noise control officer. Impacts from construction noise would be considered significant if noise were to occur outside the allowable times without authorization.

b. Project Impacts and Mitigation Measures.

Impact N-1 **Project construction would intermittently generate high noise levels and groundborne vibrations on and adjacent to the site. These noise levels could adversely affect sensitive receptors near the project site. However, with adherence to the Municipal Code requirements and implementation of noise attenuating techniques contained in mitigation measures N-1 (a-c), temporary construction noise impacts would be Class II, *significant but mitigable*, for Option A or Option B.**

Nearby noise-sensitive land uses, including the residences about 50 feet west of the project site along Linden Avenue, residences about 50 feet east of the project site along Lime Avenue, and residences about 50 feet north of the project site along 59th Street, and the church on the northwest corner of Linden Avenue and 59th Street, would be exposed to temporary construction noise during development of the proposed project. Noise impacts are a function of the type of activity being undertaken and the distance to the receptor location.

Table 4.8-4 shows typical noise levels associated with activities during various phases of construction at a distance of 50 feet from the noise source. Typical construction noise levels range from about 78 to 88 dB. The grading/excavation phase of project construction tends to create the highest construction noise levels because of the operation of heavy equipment, although it should be noted that only a limited amount of equipment can operate near a given location at a particular time.

Table 4.8-4
Typical Noise Levels at Construction Sites

Construction Phase	Average Noise Level at 50 Feet	
	Minimum Required Equipment On-Site	All Pertinent Equipment On-Site
Clearing	84 dBA	84 dBA
Excavation	78 dBA	88 dBA
Foundation/Conditioning	88 dBA	88 dBA
Laying Subbase, Paving	78 dBA	79 dBA
Finishing and Cleanup	84 dBA	84 dBA

Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the U.S. Environmental Protection Agency, 1971.

Construction of the proposed project would generate temporary noise levels that could affect sensitive noise receptors near the project site, particularly the residences and church located approximately 50 feet from the project site.

Construction noise generally attenuates by about 6 dBA per doubling of distance. Therefore, the maximum noise level during excavation and foundation/conditioning activities at the exterior of the residential buildings located approximately 50 feet to the north, east and west of the project site would measure approximately 88 dBA. Given that the existing ambient noise level at the nearby residences is about 60 dBA (based on measured noise levels as discussed above in *Setting*), temporary construction noise would be audible at the nearby residences and the church. However, as discussed in *Methodology and Significance Thresholds*, pursuant to Section 8.80 of the City's Municipal Code, it is prohibited for noise associated with demolition and other construction activities to exceed the allowable exterior noise level for any zone outside the hours of 7:00 AM and 7:00 PM on any weekday including federal holidays, outside the hours of 9:00 AM and 6:00 PM on Saturday, and anytime on Sunday. Therefore, because the proposed project would be required to comply with the City's Municipal code requirements, impacts related to temporary construction noise would be less than significant.

Mitigation Measures. Impacts under both Option A and Option B would be less than significant without mitigation; however, the following mitigation measures are recommended to further reduce construction related noise impacts to nearby sensitive receptors.

N-1(a) **Diesel Equipment Mufflers.** All diesel equipment shall be operated with closed engine doors and shall be equipped with factory-recommended mufflers.

N-1(b) **Electrically-Powered Tools.** Electrical power shall be used to run air compressors and similar power tools.

N-1(c) **Additional Noise Attenuation Techniques.** For all noise-generating construction activity on the project site, additional noise attenuation techniques shall be employed to reduce noise levels. Such techniques shall include the use of sound blankets on noise generating equipment and the construction of temporary sound barriers between construction sites and nearby sensitive receptors.

Significance After Mitigation. Impacts would be less than significant without mitigation. The mitigation measures included would further reduce noise impacts.

Impact N-2 **Project-generated traffic would increase noise levels on area roadways. The change in noise levels would exceed applicable thresholds at one street segment (Lime Avenue between 59th Street and South Street) under Option A. However, implementation of Mitigation Measure N-2 would reduce noise levels on this street segment to a Class II, *significant but mitigable*, level.**

The proposed project would increase the amount of vehicle trips to and from the site, which would increase traffic noise on area roadways. The project could therefore increase noise at neighboring uses, including the residences and church along Linden Avenue to the west of the

project site, the residences along Lime Avenue to the east of the project site, and the residences to the north of the project site along 59th Street.

The traffic study for the project analyzed 18 study intersections (see Appendix G for the complete traffic study). Of these 18 study intersections, the following roadway segments were determined to have the potential for noise impacts due to their proximity to sensitive land uses and the estimated change in the roadway volume to capacity ratio resulting from the proposed project:

1. *Atlantic Avenue between 59th Street and 60th Street*
2. *59th Street between Atlantic Avenue and Lime Avenue*
3. *Linden Avenue between 59th Street and Hullet Street*
4. *Lime Avenue between 59th Street and South Street*
5. *South Street between Linden and Atlantic Avenues*
6. *South Street between Atlantic and Lime Avenues*
7. *Atlantic Avenue between 59th Street and South Street*
8. *Atlantic Avenue between South Street and 56th Street*

Existing noise levels for the street segments listed above were calculated by estimating existing volumes for each street segment analyzed. The existing volumes for street segments were estimated by taking the highest peak hour volume for the adjoining intersection (provided in the traffic study), and averaging the number of vehicles traveling the street segment in each direction during the peak hour. As shown in Table 4.8-5, existing traffic noise levels along these street segments range from about 52 to 68 dBA. The sensitive receptors closest to the project site are residential uses and a church.

The increase in peak hour volumes from the traffic study was used to model the change in noise level resulting from project-generated traffic along the eight roadway segments analyzed for noise. Noise model results for each roadway segment analyzed can be found in Appendix F.

As shown in Table 4.8-5, project-generated traffic noise increases would exceed FICON thresholds (see Table 4.8-3) at one analyzed street segment under Option A. Under Option A, project-generated traffic noise increases on the street segment of Lime Avenue between 59th Street and South Street would exceed the FICON noise threshold of 5.0 dBA for noise level ranges below 60 dBA by 0.1 dBA (note that under Option B, project-generated noise increases on this street segment would be 4.9 dBA, which is 0.1 dBA under the threshold). Therefore, because the project-generated traffic noise increase on the street segment of Lime Avenue between 59th Street and South Street would exceed FICON thresholds, impacts would be potentially significant.

Mitigation Measures. The following mitigation measure is required to mitigate the impact of traffic noise along Lime Avenue between 59th Street and South Street under Option A.

Table 4.8-5
Noise Levels Associated with Traffic on Area Roadways* (dBA CNEL)

Roadway	Existing	Existing Plus "Option A" Project	Existing Plus "Option B" Project	Existing Plus Cumulative (2016)	Existing Plus Cumulative (2016) Plus "Option A" Project	Existing Plus Cumulative (2016) Plus "Option B" Project	Change In Noise Level Due to "Option A" Project	Change in Noise Level Due to "Option B" Project	Change in Noise Level Due to All Future Growth** Plus "Option A" Project	Change in Noise Level Due to All Future Growth** Plus "Option B" Project
Atlantic Avenue between 59th Street and 60th Street	68.0	69.0	69.0	69.1	69.3	69.3	1.0	1.0	1.3	1.3
59th Street between Atlantic Avenue and Lime Avenue	54.1	57.5	57.4	54.8	57.8	57.7	3.4	3.3	3.7	3.6
Linden Avenue between 59th Street and Hullet Street	57.4	58.2	58.2	57.9	58.4	58.3	0.8	0.8	1.0	0.9
Lime Avenue between 59th Street and South Street	52.0	57.1	56.9	52.2	57.2	57.0	**5.1**	4.9	5.3	5.1
South Street between Linden and Atlantic Avenues	63.7	64.7	64.7	64.5	65.0	65.0	1.0	1.0	1.3	1.3
South Street between Atlantic and Lime Avenues	65.9	66.4	66.4	66.2	66.7	66.7	0.5	0.5	0.8	0.8
Atlantic Avenue between 59th Street and South Street	68.2	69.1	69.2	69.2	69.4	69.4	0.9	1.0	1.2	1.2
Atlantic Avenue between South Street and 56th Street***	64.6	65.8	65.8	65.7	66.1	66.1	1.2	1.2	2.7	2.7

** At a distance of 50 feet from roadway centerline.*
*** Future Growth includes Ambient Growth and Cumulative Projects for the year 2016.*
****Analyzed at a distance of 100 feet from roadway centerline.*
Source: Federal Highway Administration's Traffic Noise Model (TNM) 2.5 lookup tables (See Appendix F for noise calculations)

N-2 **Rubberized Asphalt.** Lime Avenue between 59th Street and South Street shall be re-surfaced with rubberized asphalt paving material in order to reduce roadway noise. Various studies[1] have shown that rubberized asphalt can reduce roadway noise by 3 dB or more as compared to conventional asphalt paving material.

Significance After Mitigation. Implementation of Mitigation Measure N-2 would be expected to reduce traffic noise on Lime Avenue between 59th Street and South Street by at least 3 dB. Therefore, the use of rubberized asphalt would reduce the project's 5.1 dBA increase on Lime Avenue between 59th Street and South Street under Option A to 2.1 dBA, which is below the FICON threshold of 5.0 for noise level ranges below 60 dBA (see Table 4.8-3). Therefore, with implementation of Mitigation Measure N-2, project-generated traffic noise increases would be below FICON thresholds and impacts would be less than significant.

Impact N-3 **On-site operations would generate noise levels that may periodically exceed the City's noise standards. However, with implementation of mitigation measures N-3(a) and N-3(b) operational noise would not exceed City Noise Ordinance standards. This is considered a Class II, *significant but mitigable*, impact for Option A and Option B.**

Residents near the project site may periodically hear noises associated with operation of the proposed project, including noise that is typical of residential developments (such as music, conversations, doors slamming, and children playing), as well as noise associated with the proposed library and commercial uses (such as shipping and receiving, security systems, doors slamming, and conversations). Typical noise levels associated with various commercial or parking lot activities are summarized in Table 4.8-6.

Under Option A and Option B, the proposed parking lot on the east block would be approximately 50 feet from the nearest existing residence on Lime Avenue. As shown in Table 4.8-6, noise levels associated with car alarms, horns and sweepers would be 63 to 66 dBA at a receptor located 100 feet from the noise source. Therefore, noise generated by the proposed commercial component and parking lot could reach 72 dBA at the nearest residences along Lime Avenue (noise from point sources can increase by 6 dB when the distance from the noise source to the receptor is halved).

As described above in *Regulatory Setting*, Section 8.80.150 of the City's Noise Ordinance prohibits noise to exceed "the noise standard plus twenty decibels or the maximum measured ambient, for any period of time." Because the measured ambient noise level was about 60 dBA, the daytime exterior noise standard for the nearby residences would be 80 dBA. The noise associated with car alarms, horns and sweepers would be about 72 dBA at nearby residences, which is less than the 80 dBA standard. It should also be noted that there is currently parking

[1] Sacramento County Department of Environmental Review and Assessment, *Report on the Status of Rubberized Asphalt Traffic Noise Reduction in Sacramento County*, November 1999.

Table 4.8-6
Parking Lot Noise Sources at 100 Feet

Source	Level (dBA)
Autos at 14 mph	44
Sweepers	66
Car Alarm Signal	63
Car Alarm Chirp	48
Car Horns	63
Door Slams or Radios	58
Talking	30
Tire Squeals	60

Source: Gordon Bricken & Associates, 1996. Estimates are based on actual noise measurements taken at various parking lots.

lot noise generated by the existing commercial use on the east block of the project site and such noise is not uncharacteristic of the urban setting in which the site and residences are located.

On-site operations would involve noise associated with rooftop ventilation and heating systems, delivery trucks, and trash hauling. Rooftop ventilation and heating systems would operate during the daytime and the nighttime. Daytime activities associated with the project are not expected to adversely affect nearby sensitive receptors due to their relatively low frequency and the lower noise level sensitivity during the day. However, an individual delivery truck can generate noise of up to 85 dB, which could be disruptive if it were to occur at night or in the early morning hours. In addition, the operation of rooftop ventilation and heating during the night or early morning hours could also be disruptive to nearby sensitive uses. As such, nighttime and early morning activities associated with operation of the proposed project could exceed City noise ordinance standards, which limit exterior noise to 45 dBA between the hours of 10 PM and 7 AM (see Table 4.8-1). Therefore, impacts would be potentially significant.

There would be some variations in the amount of operational noise associated with the two different project options, mostly due to the land uses proposed at the northwest and southwest corners of the east block for each option. Nevertheless, the impacts would be generally the same for either option.

Mitigation Measures. The following measures are required for Option A or Option B to minimize potential noise effects from the proposed project on nearby sensitive uses.

N-3(a) **Rooftop Ventilation.** Parapets shall be installed around all rooftop ventilation systems.

N-3(b) **Trash/Products Pick-Up and Deliveries.** All trash or product pickups and deliveries shall be restricted to daytime operating hours

(7:00AM to 10:00 PM Monday through Friday, and 8:00 AM to 10:00 PM on weekends).

Significance After Mitigation. Impacts related to noise levels would be less than significant after implementation of the above-listed mitigation measures for Option A or Option B.

Impact N-4 The proposed on-site residential uses could be subject to noise levels in exceedance of the thresholds established by Title 24 California Noise Insulation Standards due to transportation generated noise on roadways in the project site vicinity. However, with implementation of noise attenuating building materials, impacts would be Class II, *significant but mitigable*, for Option A or Option B.

Future (2016) traffic generated noise levels on roadways near the project site are identified in Table 4.8-5. Sensitive receptors on the project site would include residential and library uses. These uses would be adjacent to congested roadways and would be exposed to maximum noise levels of about 69 dBA CNEL.

For traffic-related noise, impacts are considered significant if project-generated traffic would cause the interior ambient noise levels in proposed residences to be above the 45 dBA CNEL noise standard set forth by the California Noise Insulation Standards of the California Code of Regulations. The Title 24 standard applies when the forecast exterior noise level exceeds compatibility threshold of 60 dBA CNEL for multi-family residential units set forth by the California Department of Health Services Office of Noise Control. As discussed in *Methodology and Significance Thresholds*, these thresholds do not apply to the proposed library.

The estimated exterior ambient noise level of 69 dBA CNEL associated with cumulative traffic in the project site vicinity would exceed the Title 24 exterior compatibility threshold of 60 dBA CNEL for proposed multi-family residential units on Atlantic Avenue and on South Street. Because exterior noise standards would be exceeded, and standard construction practices under the current Uniform Building Code reduces noise by only about 20 dB, interior noise levels at the proposed residences may exceed the Title 24 California Noise Insulation Standards threshold of 45 dBA. Therefore, impacts related to the exposure of proposed residents to noise levels in exceedance of interior noise standards would be potentially significant. The effects would be generally similar for either Option A or Option B. It should be noted that, as discussed under Impact N-2 above, the project's contribution to traffic generated noise after mitigation would be less than significant.

Although the abovementioned traffic-generated noise thresholds do not apply to library uses, it is acknowledged that a quiet interior noise environment is desirable for libraries. Interior noise levels at the proposed library, under Option A and Option B, would be similar to maximum interior noise levels of proposed residences under Option a and Option B. However, because there are no noise thresholds for library uses, mitigation for libraries is not included.

Mitigation Measures. As, discussed above, proposed residential uses on the project site could be subject to noise levels exceeding interior noise standards set forth by Title 24 of the

California Code of Regulations. In order to reduce impacts related to interior noise at proposed residences, mitigation measure N-4(a) and N-4(b) would be required for Option A or Option B.

N-4(a) **Building Material Guidelines.** Residences located within 100 feet of Atlantic Avenue or South Street shall be constructed to include sufficient noise attenuation to achieve an interior level of 45 dBA CNEL or lower. At a minimum, this would require the following design features or their equivalent based on an acoustical engineering study:

- Double-paned windows on all windows that face Atlantic Avenue and South Street.
- Windows that face Atlantic Avenue and South Street shall have a minimum laboratory standard transmission class (STC) of 45. The glass shall be sealed into the frame in an airtight manner with a non-hardening sealant or a soft elastomer gasket, or gasket tape. The window frames shall be correctly installed into the wall and insulated to avoid any air gaps.
- The total area of glazing facing Atlantic Avenue or South Street in rooms used for sleeping shall not exceed 20% of the wall area.
- Solid-core doors shall be used for those doorways facing Atlantic Avenue or South Street.
- Walls shall be insulated in conformance with California Title 24 requirements.
- Exterior wall facing material shall be stucco, or other surface with an STC rating of at least 45 for walls that face Atlantic Avenue and South Street.

N-4(b) **Building Design.** The living areas shall contain forced air ventilation. All duct work for ventilation shall include noise louvers at the exterior outlet and/or duct outlets shall be directed either opposite or perpendicular to Atlantic Avenue and South Street. Patio/deck areas shall not be positioned facing Atlantic Avenue or South Street.

Significance After Mitigation. The recommended mitigation measures would reduce noise impacts to on-site residences to a less than significant level for Option A or Option B.

c. Cumulative Impacts. Planned and pending development in the City including the proposed project would add approximately 249,000 square feet (sf) of commercial development, 30,000 sf of institutional development, 15,000 sf of industrial development, and 122 housing units (see Table 3-1 in Section 3.0, *Environmental Setting*). Traffic increases associated with cumulative development within the City would increase noise levels along roadways and would potentially expose sensitive receptors to noise exceeding City and state standards.

As shown in Table 4.8-5, project-generated traffic noise increases would exceed FICON thresholds at one analyzed street segments under Option A. Under Option A, project-generated traffic noise increases on the street segment of Lime Avenue between 59th Street and

South Street would exceed the FICON noise threshold of 5.0 dBA for noise level ranges below 60 dBA (see Table 4.8-3) by 0.1 dBA. However, implementation of Mitigation Measure N-2 would reduce the project's increase in traffic noise to below FICON thresholds and impacts would be less than significant.

When considering cumulative plus project generated traffic noise, the proposed project's contribution would make up the majority of the increase in roadway noise on all eight analyzed street segments (see Table 4.8-5). Cumulative plus project generated traffic noise on seven of the eight analyzed street segments would not exceed FICON thresholds. Cumulative plus project generated traffic noise on Lime Avenue between 59th Street and South Street (Option A only) would exceed FICON thresholds. However, as discussed under Impact N-2, with implementation of Mitigation Measure N-2, the increase in noise resulting from cumulative plus project generated traffic on this street segment would be below FICON thresholds. Therefore, no significant cumulative traffic noise impacts would occur.

4.9 POPULATION and HOUSING

4.9.1 Setting

a. Population and Housing. As part of its Regional Transportation Plan (RTP), the Southern California Association of Governments (SCAG) has produced population, household, and employment growth projections for all of the municipalities within its six-county region (which includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties). The City's population forecast was developed based on the local input, historical growth trends, household size trends, projected natural increase, projected migration and projected jobs.

Current and future population, housing, and employment estimates for Long Beach are shown in Table 4.9-1. The City's 2009 population is estimated at 492,682 residents (California Department of Finance, 2009). SCAG projects that this population will to grow to 503,251 by 2010 and 559,598 by 2030. This represents growth of about 11% over the 21-year period. The City currently has an estimated 175,164 housing units and is projected to add 15,412 housing units by 2030, according to SCAG projections. Employment in Long Beach is projected to grow by about 8% between 2009 and 2030, with a projected 198,860 jobs in 2030.

Table 4.9-1
Current and Projected Population, Housing and Employment in the City of Long Beach

	2005	2009	2010	2015	2020	2025	2030
Population	489,427	492,682[a]	503,251	517,226	531,854	545,980	559,598
Housing Units	165,359	175,164[a]	169,739	175,415	181,397	186,067	190,576
Employment	180,842	184,000[b]	185,938	189,987	192,573	195,614	198,860

Source: SCAG, 2008 RTP Baseline Growth Forecast, 2008.
[a] *California Department of Finance, 2009.*
[b] *Data interpolated from 2005 and 2010 data.*

Based on information from Table 4.9-1, the current jobs/housing ratio in the City of Long Beach is approximately 1.05:1 and is projected to stay constant through 2030. Jobs/housing ratios between about 1:1 and 1.5:1 are generally considered balanced, meaning that a community provides roughly the number of jobs needed for its population.

Residential development in Long Beach has been modest in recent years, with a net addition of 4,809 new units between 1990 and 2009 (California Department of Finance, 2009). Since the 1990s, the practice of demolition and reconstruction has become prevalent. As a mature and highly urbanized community, Long Beach has older buildings that are periodically demolished and replaced with new housing. Although the home-ownership rate has increased in Long Beach in recent years, Long Beach continues to have a relatively high percentage of renters. The City posted a 5% vacancy rate in 2009. A certain number of vacant housing units are needed in any community to moderate the cost of housing, allow for sufficient housing choices, and provide an incentive for landlords and owners to maintain their housing. SCAG considers the

optimal vacancy rate to range from 1.5% to 2% for single-family homes and 5% to 6% for multi-family units.

b. Regulatory Setting. The Housing Element of the Long Beach General Plan, recently updated in 2009, is the City's primary regulatory tool with respect to housing. The Housing Element includes several policies that are potentially relevant to the proposed project. These policies are discussed in Section 4.7, *Land Use and Planning*. It should be noted that none of the potential Regional Housing Needs Assessment (RHNA) development sites for new housing identified in the 2009 Housing Element update are located in North Long Beach.

4.9.2 Impact Analysis

a. Methodology and Significance Thresholds. Impacts related to population are generally social or economic in nature. Under CEQA, a social or economic change generally is not considered a significant effect on the environment unless the changes can be directly linked to a physical change. Impacts related to population and housing would be potentially significant if the project would:

- *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure), or*
- *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere, or*
- *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.*

As discussed in the Initial Study for the project (see Appendix A to the EIR), the proposed North Village Center Redevelopment Project would have no impact with respect to the second and third items listed above as the project would not displace any existing residents or housing. For additional discussion of impacts related to the project's potential to induce growth, please refer to Section 5.0, *Other CEQA-Required Discussions*. For consistency with General Plan and Housing Element policies regarding population and housing, please refer to Section 4.7, *Land Use and Planning*.

b. Project Impacts and Mitigation Measures.

Impact PH-1 The proposed project would add 61 housing units, an estimated 177 residents and 126 jobs within the City. This would not exceed population, housing unit or employment projections for Long Beach. Additionally, the project would not contribute to a jobs/housing imbalance in the City. Therefore, impacts related to population growth for either Option A or Option B would be Class III, *less than significant.*

The proposed project involves the development of 61 residential units, up to 36,000 square feet of neighborhood-serving commercial/retail/restaurant space, and a public library and community center totaling approximately 30,000 square feet. Based on the citywide average of

2.90 persons per household (California Department of Finance, 2008), the 61-unit residential component of the proposed project would generate a net increase of approximately 177 residents. Based on the estimated 2009 citywide population of 492,682 residents, the addition of 177 residents would increase Long Beach's population by about a 0.04%. The estimated 2009 number of housing units in the City was 175,164. The addition of 61 housing units would increase the number of housing units in the City by about 0.03%.

Table 4.9-2 compares project-generated population and housing growth to growth projections for Long Beach. As indicated, the 177 new residents associated with project buildout would make up approximately 0.7% of the projected citywide population growth through 2015 and 0.3% of projected citywide population growth through 2030. The 61 housing units associated with project buildout would constitute approximately 24% of the projected citywide housing growth through 2015 and approximately 0.4% of projected citywide housing growth through 2030.

Table 4.9-2
Comparison of Project Population and Housing Growth to SCAG Projections

	Projected Growth Compared to Existing Levels [a]			Project Development as a % of Overall Growth	
	Proposed Project	SCAG Projections for Long Beach		City of Long Beach	
		2015	2030	2015	2030
Housing **	61 units	251 Units	15,412 units	24.3 %	0.4%
Population	177 residents	24,544 residents	66,916 residents	0.7%	0.3%

[a] *Citywide projections are taken from Table 4.9-1.*

The disparity between the percentages of projected 2015 and 2030 housing growth, particularly in light of the percentage of projected population growth, indicates that the 2015 housing projections are not consistent with the overall growth projections. This should therefore be considered a statistical anomaly among the benchmarks used for assessing the project's contribution to overall growth. (Clearly the projected 24,544 new residents forecasted by 2015 as indicated in Table 4.9-2 would not be accommodated by 251 new residential units.) This is supported by the much lower percentage contribution the project would make to both population projections and the 2030 housing projections. The projections are for planning purposes and an exceedance of the projections would not result in environmental impacts, particularly since population projections would not be exceeded. It should be noted that the City's 2009 Housing Element update identifies that the City's Regional Housing Needs Assessment (RHNA) allocation is 9,583 housing units. This demonstrates that although SCAG's 2015 projection for housing units is likely inaccurate, the City's projection of the demand for housing more closely corresponds to the projected population increase through 2015.

The proposed project includes 36,000 square feet of ground floor retail/restaurant space and 30,000 square feet of public library and community center. Using the SCAG employment generation factor of 2.36 employees per 1,000 square feet for retail uses and 1.37 employees for 1,000 square feet for public institutional space, the project would generate approximately 126 jobs (Natelson Company, 2001). The project-generated employment opportunities would represent approximately 0.06% of the employment growth forecast for the City through 2030 (198,860 jobs). Therefore, project-generated employment growth would be well within projected employment growth within for the area.

As mentioned in the *Setting*, Long Beach currently has a job-housing ratio of 1.05:1, indicating that there are 1.05 jobs for every housing unit. A job-housing ratio over 1.5:1 is considered high and may indicate an increasing imbalance between jobs and housing (i.e., new residential construction has not kept up with job creation). A ratio below 1:1 is considered low. With the introduction of 126 jobs and 61 housing units associated with the proposed project, the City's jobs-housing ratio would change from approximately 1.051:1 to 1.052:1, thus remaining within the target range of between 1:1 and 1.5:1. Therefore, impacts relating to the jobs-housing ratio would be less than significant. This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space would be the same for either option.

Mitigation Measures. As impacts would be less than significant, no mitigation is 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. 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. 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. Therefore, cumulative development, including the proposed project, would be within the SCAG growth projections for the City (see tables 4.9-1 and 4.9-2). In addition, planned and pending development would not substantially alter the ratio of jobs and housing in the City. Therefore, cumulative impacts relating to population and housing would not be significant.

4.10 PUBLIC SERVICES

This section analyzes potential impacts to public schools, police and fire protection, and parks.

4.10.1 Setting

a. Schools. The project site is within the boundaries of the Long Beach Unified School District (LBUSD). The LBUSD operates 52 elementary schools, 25 middle and K-8 schools, and 12 high schools. Total district (K-12) enrollment for the 2007-08 school year is estimated at approximately 88,242 students (California Department of Education, 2008). Table 4.10-1 lists the schools that serve the project area and their capacities.

Table 4.10-1
Long Beach USD School Capacity and Enrollment in Project Area

School Name	Address	Grade Level	Capacity	Enrollment as of Feb 2008
Bret Harte Elementary	1671 E. Phillips St.	K-5	1,275	1,031
Colin Powell Academy	150 Victoria St.	K-8	1,455	1,248
Charles Lindbergh Middle School	1022 E. Market St.	6-8	1,668	1,010
David Starr Jordan Freshman Academy	171 Bort St.	9	1,170	983
David Starr Jordan High School	6500 Atlantic Ave.	9-12	4,038	3,040
Total			***9,606***	***7,312***

Source: Long Beach Unified School District, written response to IS/NOP, Carrie Matsumoto, 2008.
Note: Capacity number is an estimate only and may be affected by site utilization.

Operating revenue provided to school districts is funded by local property tax revenue accrued at the state level and then allocated to each school district based on the average daily student attendance. Because state funding for capital improvements has lagged behind enrollment growth, physical improvements to accommodate new students come primarily from assessed fees on development projects and local facility bonds. In 1986, the State Legislature approved AB 2926 (Chap. 887), which authorized school districts to levy school impact fees on new development projects, and at the same time placed a cap on the total amount of fees that could be levied. California Government Code (§ 65995) School Facilities Legislation was enacted to generate revenue for school districts for capital acquisitions and improvements. Subsequently, SB 50 prohibited cities and counties from requiring development fees in excess of statutory maximums. This legislation combined with SB 50 allows one-time fees on new development projects titled Level 1, 2, and 3 fees. Fee levels identified by SB 50 include different requirements based on enrollment and financial/funding criteria (See Govt. Code § 65995 for level criteria). The LBUSD has set its Level One fees at $2.63/square foot (sf) for residential development and $0.42/sf for commercial development. Level Two fees are set at $3.28/sf for residential development. Level Three fees would require the developer to pay the full cost of housing the students in new schools and would be implemented at the time the funds available

from Proposition 1A are expected. Proposition 1A funding provides a means for funding of school facilities and upgrades to meet demands. In order to achieve Level Three funding, the State Allocation Board (SAB) must not be approving apportionments for new school construction and the school districts must demonstrate to the state their long-term facilities needs and costs based on long-term population growth in order to qualify. Once qualified, the districts may impose fees as calculated per SB 50. The LBUSD has been determined eligible for Proposition 1A funding under the provisions of SB 50.

b. Fire Protection Service. The Long Beach Fire Department (LBFD) provides fire protection service throughout Long Beach. The LBFD maintains 23 fire stations in addition to its headquarters and beach operations. The LBFD employs a total of 411 fire fighters, with 137 suppression fire fighters on duty each day (Kady, LBFD, 2008). Based on a total population of 492,682 persons for Long Beach (California Department of Finance, 2008), the LBFD provides about 0.83 firefighters per 1,000 residents.

The fire stations closest to the project site are Station #11, located at 160 E. Market Street (approximately 0.85 miles from the project site) and Station #12, located at 6509 Gundry Avenue (approximately 1.3 miles from the project site). Station #11 staffs 10 members daily and includes an engine, ladder truck, and a rescue unit. Station #12 staffs eight members daily and includes a pumper and a rescue unit.

Structural fire suppression on the project site would immediately receive response from three engines, one ladder truck, one paramedic, and a battalion chief (Kady, LBFD, 2008). The average response time is below five minutes (Kady, LBFD, 2008).

Development impact fees are in place and apply to new projects in Long Beach. Fire facility impact fees are $378-unit for multi-family residential and $0.267/sf for commercial uses, based on $0.325 per square foot of office space and $0.132/sf of industrial space (City of Long Beach, 2009).

c. Police Protection Service. The City of Long Beach Police Department (LBPD) provides police protection services to the City and maintains mutual assistance programs with the Los Angeles County Sheriff's Department and the Signal Hill Police Department. The police station closest to the project site is the North Patrol Division Station, located at 4891 Atlantic Avenue, approximately one mile north of the project site.

The LBPD divides the City into eight beats and patrols these beats on a 24-hour basis. The LBPD currently maintains 133 sworn officers at the North Patrol Station divided among three divisions. The LBPD currently employs 986 sworn officers (Jauregui, LBPD, 2008). Based on a total population of 492,682 persons for Long Beach (California Department of Finance, 2009), this is approximately two officers per 1,000 residents. The LBPD does not use a formula for determining whether staffing levels are adequate to serve the current population. Rather, staffing needs are based on calls for service, identification of area-specific requirements, community input, and other means (Gomez, LBPD, 2008).

The Patrol Bureau is the department's largest bureau, encompassing over 40% of the organization's budget and more than 50% of its personnel. The City of Long Beach is organized into quadrants. The Patrol Bureau includes one specialized and four geographical divisions to

patrol these quadrants: North, South, East, West and Field Support. The average response time for Priority 1 (emergency) calls is approximately four minutes (Gomez, LBPD, 2008).

The LBPD and City of Long Beach levies development fees on new development to pay for increased needs due to the implementation of projects. Fees that apply to the proposed project would be $537/unit for multi-family residential and $0.442 per square foot for commercial developments ($0.538 per square foot office; $0.218 per square foot for industrial).

d. Parks and Recreational Facilities. The City of Long Beach Parks, Recreation, and Marine (PRM) Department administers and maintains the City's parks and recreational facilities. PRM operates 111 parks, 25 community centers, and two major tennis centers in Long Beach, with 2,750 acres of the City's 50 square miles developed for recreation (City of Long Beach PRM website, 2008). Parks include mini, neighborhood, and community parks; regional parks, including 6 linear miles of beach; and greenway parks. In addition to parks, the City has a number of specialty facilities that provide recreational and leisure opportunities. These include a riverfront campground, two historic ranchos, the Long Beach Museum of Art, two marine biological preserves, two special events parks, the park at Colorado Lagoon, Shoreline, Santa Cruz and Victory parks, and the El Dorado Nature Center Park and trail. The City also manages water recreation areas, including five public boat launches, the Alamitos Bay, and Marine Stadium, and five public golf courses.

Parks within a one mile radius of the project site include Houghton Park, Coolidge Park, DeForest Park, Atlantic Plaza Park, and Jackson Park.

Based on the current city population of 492,682 (California Department of Finance, 2009), the existing City parks and recreation acreage of 2,750 equates to approximately 5.6 acres for every 1,000 residents. The 2003 Parks, Recreation and Marine Strategic Plan establish a target of eight acres of park land for every 1,000 Long Beach residents, which would mean a target of 3,940 acres based on current population. Thus, approximately 1,190 acres of parkland would be needed to meet the eight-acre/thousand population target for the current population, with an additional 80 acres of park land needed by 2010 to keep pace with projected population growth.

In order to pay for the maintenance and the development of new facilities, the Long Beach PRM collects development impact fees. Park fees are $3,260 per unit of multi-family housing. Commercial uses are exempt from park impact fees.

4.10.2 Impact Analysis

a. Methodology and Significance Thresholds. Information from the Long Beach Unified School District was used to characterize existing conditions related to the current enrollment in the City's educational facilities and the student generation rate for residential development. Information from the Long Beach Fire Department and Police Department was used to characterize existing conditions related to Fire and Police protection. Information from the PRM and the 2008 PRM Strategic Plan was used to characterize existing conditions related to parks and recreational facilities.

Public service impacts are considered potentially significant if the proposed project would result in substantial adverse physical impacts associated with the provision of new or physically

altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response time, or other performance objectives for:

- *Schools*
- *Fire protection*
- *Police protection*
- *Parks and recreational facilities*
- *Other public facilities*

The Initial Study (see Appendix A) determined that impacts related to schools, fire protection, police protection and parks and recreational facilities would be potentially significant. As such, this section provides further analyses of these impacts. As discussed in the Initial Study, the proposed project is not expected to adversely affect any public services of facilities other than those described above. The project includes a new public library branch, which is expected to result in a beneficial impact to library services.

b. Project Impacts and Mitigation Measures.

Impact PS-1 The proposed project would generate an estimated 25 school-age students. This could adversely affect school facilities. However, with payment of required school impact fees, impacts would be reduced to a Class III, *less than significant*, level for Option A or Option B.

Table 4.10-2 shows the projected number of students that would be generated by the proposed project based on a student generation factors supplied by the LBUSD to estimate students generated by new development. As indicated, the proposed project would generate an estimated 25 new students at the LBUSD, including 12 elementary school students, 6 middle school students, and 7 high school students.

Table 4.10-2
Long Beach Unified Generation Factors and Student Generation

Grade Level	Generation Factor (Students/Household) [a]	Students Generated by the Proposed Project
Elementary School	0.1956	12
Middle School	0.1018	6
High School	0.1206	7
Total		**25**

Source: Carri Matsumoto, Long Beach Unified School District, March 18, 2008.
[a] *Based on 61 residential units*

Table 4.10-3 compares projected enrollment at the schools serving the project site to the current capacity of those schools. Based on the current enrollment and projected number of students generated by the proposed project, implementation of the project would not cause an exceedance of the design capacity at any LBUSD schools. In addition, as a condition of development, the developer would be required to pay the applicable required State-mandated school impact fees under the provisions of SB 50. Pursuant to Section 65995 (3)(h) of the California Government Code (Senate Bill 50, chaptered August 27, 1998), the payment of statutory fees "...is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization." Therefore, impacts to schools resulting from the proposed project would be less than significant. This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space would be the same for either option.

Table 4.10-3
Projected Enrollment at Schools Serving the Proposed Project

Schools	Projected Enrollment with Project	School Capacity	Projected Capacity Utilization with Project
Bret Harte Elementary	1,037	1,275	81%
Colin Powell Academy	1,254	1,455	86%
Charles Lindbergh Middle School	1,016	1,668	61%
David Starr Jordan Freshman Academy	985	1,170	84%
David Starr Jordan High School	3,045	4,038	75%

Note: Projected enrollment is derived by adding the current enrollment (from Table 4.10-1) to the students generated by the proposed project (from Table 4.10-2).

Bret Hart Elementary and Colin Powell Academy figures were utilized by dividing the project generated enrollment in half

High School figures were adjusted to have 25% of the project projected enrollment to attend David Starr Jordan Freshman Academy and 75% attending David Star Jordan High School

Mitigation Measures. No mitigation is necessary for Option A or Option B. The applicable required State-mandated school impact fees would be collected at the time of building permit issuance.

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

Impact PS-2 The proposed project would incrementally increase demands on the Long Beach Fire Department. However, this increase would not require the construction of new fire protection facilities and the applicant would be required to pay development fees. Therefore, this is considered a Class III, *less than significant,* impact for Option A or Option B.

The current department ratio of the number of firefighters to population is approximately 0.84 firefighters per 1,000 residents. Based on the citywide average of 2.90 persons per household (California Department of Finance, 2009), the 61-unit residential component of the proposed project would generate a net increase of approximately 177 residents (61 units x 2.9 persons = 177). These new units along with the proposed 66,000 square feet of non-residential development along the Atlantic Avenue corridor would generate additional demand for fire protection and emergency response services. This increased demand would incrementally contribute to the service responsibilities of the Fire Department. However, the site was fully developed in the recent past and is already served by the LBFD.

The proposed project would include fire alarm systems, fire sprinklers, fire outlets on every floor, smoke detection systems, enunciator panels, and a Knox box entry system, as required by the LBPD Fire Prevention Bureau and the Uniform Fire Code (Long Beach Municipal Code Section 18.48, Fire Code). In addition, the Fire Prevention Bureau reviews every new development proposal and may suggest additional fire prevention features to be included in project design.

The City of Long Beach allocates funding to the LBFD during the annual budget process, the amount of which is based on cumulative development and the changing needs of the City. Through this process, funding for additional staffing and equipment needs would be addressed as the needs arise. The LBFD does not expect additional or expanded facilities to be required to serve the proposed project (Zinnen, LBFD, 2008). Provided that additional funding is provided to the LBFD as needed, the proposed project would not significantly affect fire protection or emergency services in Long Beach (Kady, LBFD, 2008). This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space would be the same for either option.

Mitigation Measures. As described above, all new structural development would be required to comply with applicable Fire Code standards as indicated in the Long Beach Municipal Code Section 18.48. Furthermore, as mentioned above, no new fire protection facilities would be needed as a result of the proposed project (Zinnen, LBFD, 2008). The LBFD Fire Prevention Bureau would review development plans and inspect construction prior to occupancy. No mitigation beyond these standard requirements is necessary for Option A or Option B.

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

Impact PS-3 The proposed project would incrementally increase demands on the Long Beach Police Department. This increase would not require the construction of new police protection facilities. However, site design that includes walkways not visible from public streets may create public safety concerns. Therefore, this is a Class II, *significant but mitigable*, impact for Option A or Option B.

The current department ratio of the number of officers to population is approximately 2 officers per 1,000 residents. Based on the City average of 2.90 persons per household (California Department of Finance, 2009), the 61-unit new residential component of the proposed project would generate a net increase of approximately 177 residents. These new residents, in combination with the 66,000 sf of non-residential development along the Atlantic Avenue corridor, would generate additional demand for police services. Due to this increase, there could be an increase in police calls for service. However, the project would not require a need for additional police officers or facilities (Minikus, LBPD, 2008).

Funding for additional staffing and equipment is allocated to the LBPD through the City's budget process and is not directly tied to individual development projects but rather based on need. The growth of the City over time will require that increased funding be allocated to the LBPD to maintain adequate levels of service. The applicant would be required to pay police facilities impact fees to reduce the project's impact on police services (Long Beach Municipal Code Chapter 18.22). Provided that additional funding is provided to the LBPD to support new personnel as required, the proposed project would not significantly affect police protection services in Long Beach (Gomez, LBPD, 2008).

The proposed project includes pedestrian walkways and alcoves that, if not properly lit at night, may result in public safety hazards. This may require increased patrolling within the project area. Therefore, mitigation is proposed that would reduce safety impacts in the project vicinity and reduce the need for additional police services.

Mitigation Measures. The following mitigation measure would apply to Option A or Option B and would reduce potential safety impacts as a result of increased lighting of pedestrian areas.

PS-3 Pedestrian Lighting. The proposed project shall include lighting in pedestrian corridors and alcoves from one hour before sunset until one hour after sunrise. Lighting shall be designed so that it properly illuminates the appropriate areas, but also to reflect downward so that other project uses are not impacted by the security lighting. The applicant shall provide photometric plans for review and approval by the Long Beach Police Department prior to the issuance of a building permit.

Significance after Mitigation. Inclusion of the above mitigation measure would reduce impacts related to personal safety in project pathways and alcoves. Impacts would be reduced to a less than significant level. This would be the case for Option A or Option B, as the number of housing units, quantity of non-residential space and general configuration of the site plan would be similar for either option.

Impact PS-4 The increase in residents associated with the proposed project would generate demand for parks. However, the applicant would be required to pay parkland in-lieu fees in the amount established by the City of Long Beach. With collection of these fees, the City could provide additional facilities to meet project-generated demand. Impacts would therefore be Class III, *less than significant* for Option A or Option B.

Based on the citywide average of 2.9 persons per household (California Department of Finance, 2008), the 61-unit residential component of the proposed project would generate a net increase of approximately 177 residents. Based on the PRM standard of eight acres of parkland per 1,000 residents, the project would generate demand for about 1.4 acres of parkland. The proposed project includes one courtyard and a tot lot for a combined square footage of 13,500 sf of park space. The tot lot open space would be about 9,520 sf, located on the corner southwest of 59th St and Lime Avenue for Option A and the northwest corner of South Street and Lime Avenue for Option B. The courtyard would be about 4,000 sf and would serve the residential units along Linden Avenue. See Figures 2-5 and 2-6 for locations of the open space on the project site for Options A and B. In addition, several parks are located in the vicinity of the project site that would serve project residents, including Houghton Park, Coolidge Park, DeForest Park, Atlantic Plaza Park, and Jackson Park.

As discussed in the *Setting*, the City is currently deficient in parkland by about 1,190 acres. The additional 177 residents generated by the proposed project would add to this deficiency. Therefore, the increased demand for recreational opportunities associated with project residents would place additional stress on the City's recreation system. As noted above, project features would include approximately 13,500 square feet (0.31 acres) of activity/gathering and playground space in addition to vegetated open space proposed between buildings. As a condition of project approval, the applicant would be required to pay an in-lieu park and recreation facilities impact fee, as determined by the City of Long Beach PRM Department. This fee would be used to develop new park facilities that would offset the project's contribution to the existing parkland deficit. With collection of required fees, potential impacts to park and recreation facilities resulting from the proposed project would be less than significant. This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space would be the same for either option.

Mitigation Measures. No mitigation is necessary for Option A or Option B as payment of in-lieu park fees would address the project's park and recreation requirements.

Significance after Mitigation. Impacts to parks and recreational facilities would be less than significant without mitigation for Option A or Option B.

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*). Planned and pending development would increase enrollment by an estimated 50 students in the Long Beach Unified School District. As noted above, project area schools are not operating at student capacity. However, as projects are approved, they would be required to pay the full statutory fees allowed by the provisions of SB 50. With collection of these fees for all new developments, cumulative impacts to schools would be mitigated to a less than significant level.

Projected population and employment growth in the City would add new residents and workers to the existing population in Long Beach. 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. The cumulative increase in

population would increase demand for protection services from the fire and police departments and may require the need for new or expanded facilities. However, all developers in the City would be required to pay City-mandated impact fees to address facility needs generated by new development. Collection of impact fees would address cumulative impacts to fire and police service.

The cumulative increase in population would also increase the demand for parks and recreational facilities. However, all developers in the City area required to either provide on-site park facilities or pay in-lieu fees to offset the increase in demand associated with their projects. With collection of required fees on all new development and use of these fees to provide needed new facilities, cumulative impacts to parks and recreation would be reduced to a less than significant level.

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4.11 TRANSPORTATION AND CIRCULATION

This section analyzes the proposed project's impacts to the local transportation and circulation system. The analysis is based upon a traffic study prepared for the proposed project by Iteris, Inc. and dated May 2009. The traffic study is included in its entirety in Appendix G.

4.11.1 Setting

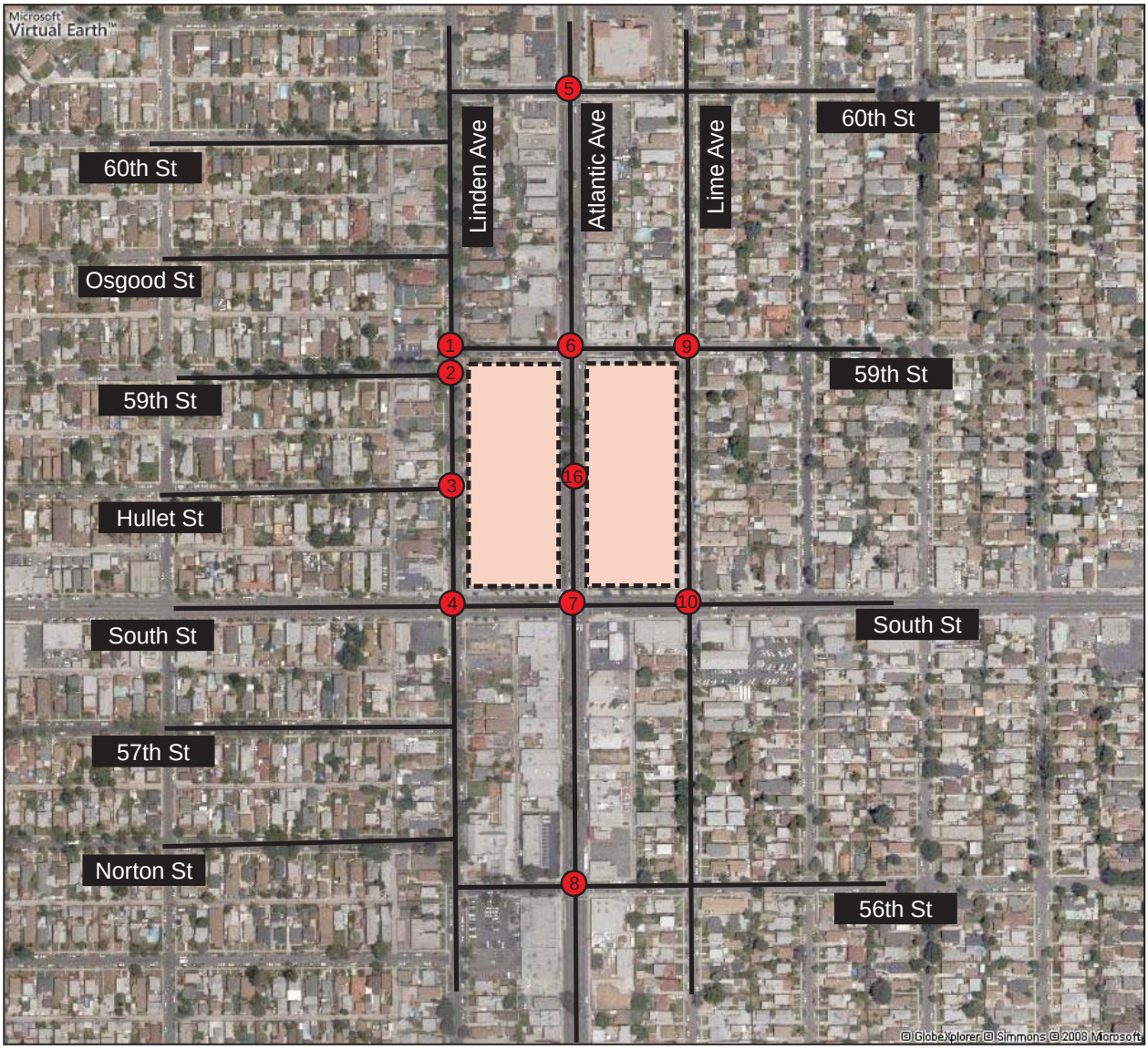
a. Study Area. The project site encompasses two full city blocks in the North Long Beach Redevelopment Project Area in the City of Long Beach. Atlantic Avenue bisects the approximately 6.3-acre site. The "West Block," approximately 3.15 acres, is bounded on the south by South Street, on the west by Linden 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. As shown on Figure 2-1 (Regional Vicinity) and Figure 2-2 (Project Location) in Section 2.0, *Project Description*, the project site area is accessible from Interstate 710 (the Long Beach Freeway), Interstate 405 (the San Diego Freeway) and State Route 91 (the Artesia Freeway).

Figure 4.11-1 depicts the study area, the locations of the analyzed intersections, and the location of the project site. Based on consultation with the City of Long Beach traffic engineering staff, 10 key intersections were selected for analysis. These are intersections deemed most likely to experience significant impacts from the project and therefore warranting detailed analysis. Of the 10 study intersections, four intersections are signalized and the other six intersections are unsignalized and stop-controlled. The 10 study are intersections are listed below.

1. *Linden Avenue/59th Street –north (unsignalized)*
2. *Linden Avenue/59th Street – south (unsignalized)*
3. *Linden Avenue/Hullet Street (unsignalized)*
4. *Linden Street/South Street (unsignalized)*
5. *Atlantic Avenue/60th Street (signalized)*
6. *Atlantic Avenue/59th Street (signalized)*
7. *Atlantic Avenue/South Street (signalized)*
8. *Atlantic Avenue/56th Street (signalized)*
9. *Lime Avenue/59th Street (unsignalized)*
10. *Lime Avenue/South Street (unsignalized)*

b. Key Roadway Descriptions. The following describes key study area roadways.

- *Atlantic Avenue is a four lane, north-south Major Arterial per the City of Long Beach General Plans, that extends north from Ocean Boulevard to north of Artesia Freeway. On-street parking is allowed along most of Atlantic Avenue in the study area. In the study area, the Average Daily Traffic (ADT) ranges between 20,000 and 25,000 vehicles per day.*



Basemap Source: Iteris, May 2009,
Aerial Source: GlobeExplorer 2008

Legend

- Street
- Proposed Site Location
- 8 Study Intersection Location

N

NOT TO SCALE

Study Area Intersections

Figure 4.11-1

- *South Street is a four lane, east-west street with a General Plan designation of local street west of Atlantic Avenue, Minor Arterial between Atlantic Avenue and Cherry Avenue, and Major Arterial east of Cherry Avenue. On-street parking is allowed along South Street in the study area. In the study area, the ADT east of Cherry Avenue ranges between 15,000 and 20,000 vehicles per day. South Street to the west of Atlantic Avenue is classified as a local street and the ADT ranges between 10,000 and 15,000 vehicles per day.*

- *60th Street is a four lane, east-west Minor Arterial that extends east from Atlantic Avenue to Cherry Avenue. On-street parking is allowed along 60th Street in the study area. In the study area, the ADT east of Cherry Avenue ranges between 5,000 and 10,000 vehicles per day.*

- *59th Street is a two lane, east-west local street with on-street parking allowed on either side.*

- *Linden Avenue and Lime Avenue are north-south local streets with parking along on either side.*

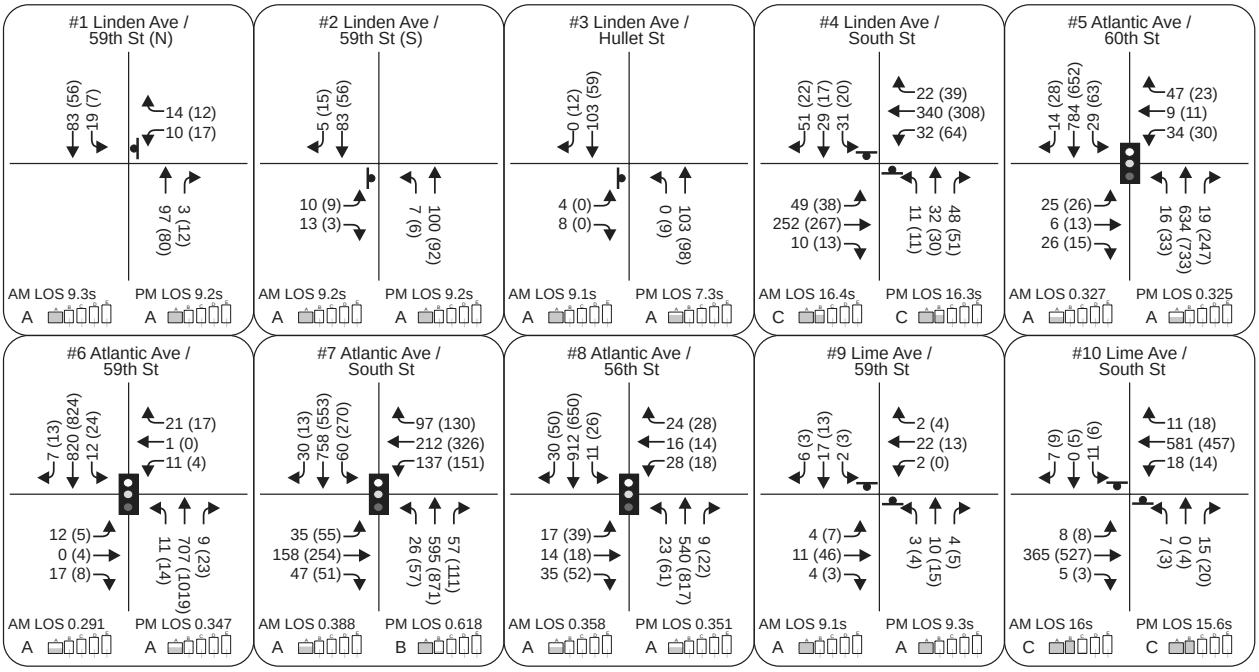
c. Existing Conditions.

Traffic Data Collection. Existing year (2008) peak hour turning movement traffic volumes for the Atlantic Avenue/South Street intersection were obtained from the City of Long Beach. Based on conversations with City staff, existing intersection AM (morning) and PM (afternoon) peak hour traffic volumes were collected at the following study intersections:

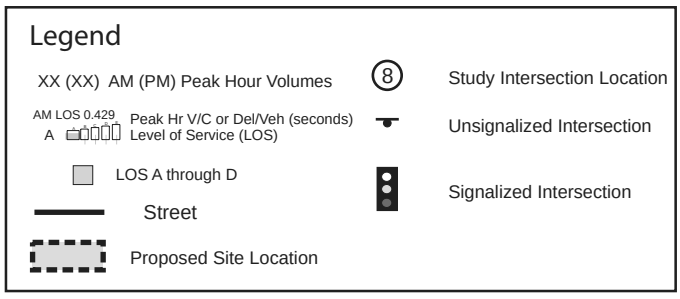
- *Linden Avenue/59th Street –north (un-signalized)*
- *Linden Avenue/59th Street – south (un-signalized)*
- *Linden Avenue/Hullett Street (un-signalized)*
- *Linden Street/South Street (un-signalized)*
- *Atlantic Avenue/60th Street (signalized)*
- *Atlantic Avenue/59th Street (signalized)*
- *Atlantic Avenue/South Street (signalized)*
- *Atlantic Avenue/56th Street (signalized)*
- *Lime Avenue/59th Street (un-signalized)*
- *Lime Avenue/South Street (un-signalized)*

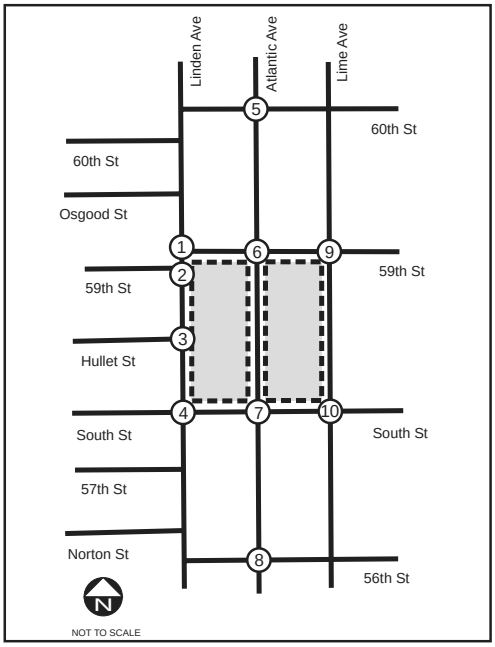
An AutoZone store currently operates on the eastern block of the project. Therefore, the existing counts at the study intersections include trips associated with the AutoZone store. The peak hour intersection turning volumes at the study intersections were collected in September 2008 between 7:00 – 9:00 AM and 4:00 – 6:00 PM. An extensive field review was conducted, which included establishing existing traffic operations and conditions and observing travel patterns and on-street parking operations. The status of the existing buildings and building sites within the Project site and influence area was also noted. A summary of the existing intersections' traffic volumes is illustrated on Figure 4.11-2.

Traffic Operations Analysis Methodology. Consistent with City of Long Beach guidelines for traffic impact analyses, traffic conditions in the vicinity of the project site were



*Note: The traffic volumes at intersections #6 & #7 have been modified to show balancing of traffic volumes between the intersections.





Existing (2008) Peak-Hour Traffic Volumes and Level of Service

Source: Iteris, May 2009,

Figure 4.11-2

analyzed using intersection capacity-based methodology known as the "Intersection Capacity Utilization Methodology," which is referred to hereinafter as the ICU Methodology.

The efficiency of traffic operations at a location is measured in terms of Level of Service (LOS). Level of service is a description of traffic performance at intersections. The level of service concept is a measure of average operating conditions at intersections during an hour. It is based on volume-to-capacity (V/C) ratio. Levels range from A to F with A representing excellent (free-flow) conditions and F representing extreme congestion. The ICU methodology compares the level of traffic during the peak hours at an intersection (volume) to the amount of traffic that the intersection is able to carry (capacity). Intersections with vehicular volumes that are at or near capacity (V/C≈ 1.0) experience greater congestion and longer vehicle delays.

Analysis of unsignalized intersections is conducted differently from signalized intersections due to different operating characteristics. Stop-controlled intersections are analyzed using the delay-based Highway Capacity Manual (HCM) method of determining level of service, which measures average vehicle delay to affected vehicles.

Table 4.11-1 describes the LOS concept and the operating conditions for signalized intersections and Table 4.11-2 describes the LOS concept and operating conditions for stop-controlled intersections.

Table 4.11-1
Level of Service Definitions

LOS	Interpretation	Volume to Capacity Ratio
A	Excellent operation - free-flow	0.000 - 0.600
B	Very good operation - stable flow, little or no delays	0.601 - 0.700
C	Good operation - slight delays	0.701 - 0.800
D	Fair operation – noticeable delays, queuing observed	0.801 - 0.900
E	Poor operation - long delays, near or at capacity	0.901 - 1.000
F	Forced flow – congestion	Over 1.000

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington D.C., 1985 and Interim Materials on Highway Capacity, NCHRP Circular 212, 1982

Existing Traffic Operations Analysis. AM and PM peak-hour LOS analyses were conducted for the 10 study intersections based on the measured traffic volumes, geometries, signal timings, and the previously described methodologies. All intersection analyses were performed using the TRAFFIX (Traffic Impact Analysis) software program. The existing conditions LOS analyses results are summarized in Table 4.11-3. LOS D is generally considered to be the lowest acceptable LOS. LOS E and F are considered to be unacceptable operating conditions that warrant mitigation. The results, shown in Table 4.11-3, indicate that all of the

Table 4.11-2
Level of Service Criteria for Unsignalized Intersections

Level of Service (LOS)	Highway Capacity Manual Average Control Delay (sec/veh)	Level of Service Description
A	< 10	Little or no delay
B	> 10 and < 15	Short traffic delays
C	> 15 and < 25	Average traffic delays
D	> 25 and < 35	Long traffic delays
E	> 35 and < 50	Very long traffic delays
F	> 50	Severe congestion

Table 4.11-3
Existing (Year 2008) Operating Conditions at Study Area Intersections

Study Intersection		AM Peak		PM Peak	
		LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]
1	Linden Ave & 59th St (N) (unsignalized)	A	9.3	A	9.2
2	Linden Ave & 59th St (S) (unsignalized)	A	9.2	A	9.2
3	Linden Ave & Hullet St (unsignalized)	A	9.1	A	7.3
4	Linden Ave & South St (unsignalized)	C	16.4	C	16.3
5	Atlantic Ave & 60th St (signalized)	A	0.327	A	0.325
6	Atlantic Ave & 59th St (signalized)	A	0.291	A	0.347
7	Atlantic Ave & South St (signalized)	A	0.388	B	0.618
8	Atlantic Ave & 56th St (signalized)	A	0.358	A	0.351
9	Lime Ave & 59th St (unsignalized)	A	9.1	A	9.3
10	Lime Ave & South St (unsignalized)	C	16.0	C	15.6

City of Long Beach Standards:
[a] Signalized Intersection - ICU Methodology - Volume-to-Capacity Ratio (V/C)
[b] Unsignalized Intersection - 2000 HCM Methodology - Delay per Vehicle in seconds
Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

study intersections are currently operating at LOS C or better during the AM and PM peak hour. The level of service analysis worksheets are provided in the appendix to the traffic study which is contained in Appendix G.

Parking. Parking for the existing automobile parts store located in the eastern block of the site is provided in onsite surface parking lots.

Existing Transit Service. Long Beach Transit (LBT) provides service around the project site. LBT operates several bus routes near the boundaries of the project site, as described below:

- *Long Beach Transit Line 61 (Atlantic Avenue to Artesia Station)*
- *Long Beach Transit Line 62 (Atlantic Avenue to Alondra Boulevard)*
- *Long Beach Transit Line 63 (Atlantic Avenue to Artesia Boulevard)*
- *Long Beach Transit Line 66 (ZAP Atlantic)*
- *Long Beach Transit Line 192 (Santa Fe/South Street)*

d. Future Year Without Project Conditions. To evaluate the potential impact of the proposed project on local traffic conditions, it is first necessary to develop a forecast of future traffic volumes in the study area under conditions without the project. This provides a basis against which to measure the project's traffic impacts.

The projection of future traffic consists of existing traffic plus ambient traffic growth (general background regional growth) plus growth in traffic generated by specific cumulative projects expected to be completed by 2011 for Phase I and 2016 for Phase II (buildout of the project). The following describes the two growth components.

Background Traffic Growth. Ambient growth is regional background growth from development and growth located outside the study area and increased activity at current development within the study area. An annual background growth rate of 1.00% was factored into the future traffic volumes. This is also consistent with Los Angeles County CMP guidelines for ambient growth.

Growth from Cumulative Projects. Adjacent projects in the area would generate AM and PM trips that would affect the study area. It was recognized that additional traffic growth would occur from cumulative development projects in the study area vicinity. The list of projects considered in the cumulative impact analysis is contained in Table 3-1 in Section 3.0, *Environmental Setting*.

Morning and evening peak-hour trip estimates for cumulative projects were developed based on rates published in the Institute of Transportation Engineer's *Trip Generation, 7th Edition.* Adjustments for pass-by and transit reductions were not included in order to produce a conservative assessment of project impacts. Therefore, the trip estimates may be considered a "worst-case" projection. Depending on the proximity of the cumulative projects to the site as well as the geographical location with respect to the project site, a total of 376 AM and 1,297 PM trips would be generated by the cumulative developments in the study area.

The routes people would use traveling to and from the related project sites was determined based on the patterns of existing area traffic for similar types of developments and on patterns listed in previous traffic studies for the area. The trips generated by the related projects were assigned to the area street system based on this directional distribution.

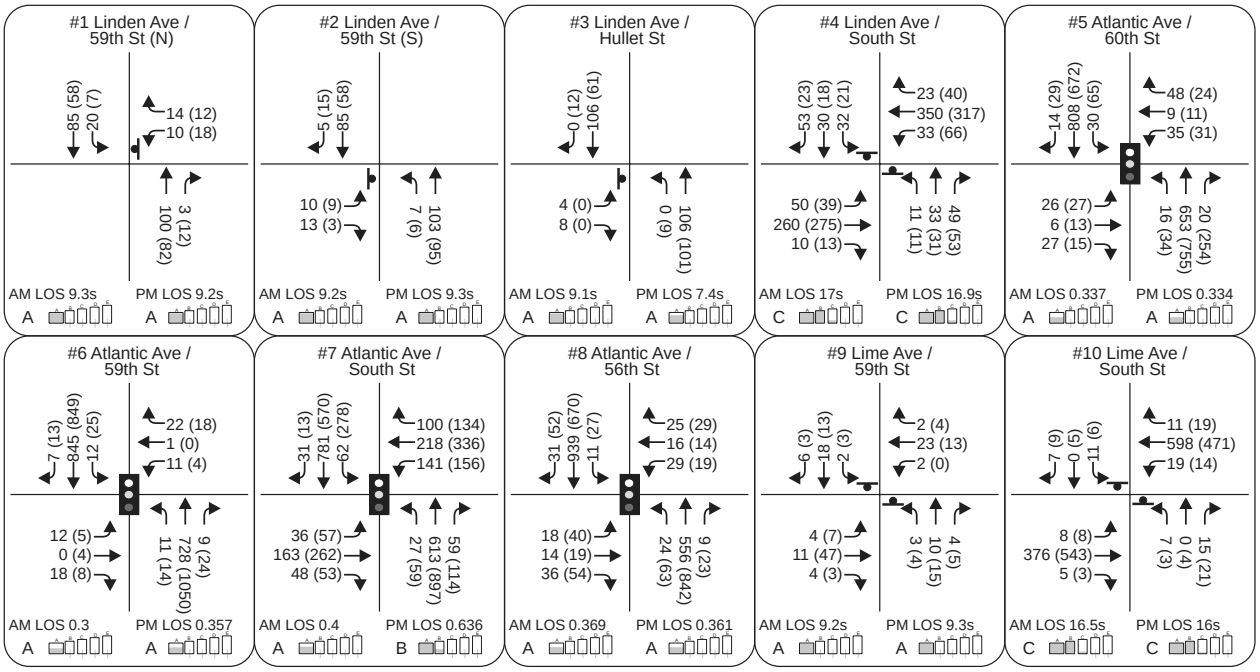
Year 2011 Without-Project Traffic Operations. Phase I of the project is anticipated to be completed by 2011. The projection of Year 2011 Without-Project traffic consists of existing traffic plus ambient traffic growth and traffic generated by the related projects, all of which were assumed to be completed by the Year 2011. The total Year 2011 Without-Project traffic volumes are illustrated on Figure 4.11-3. Based on these traffic forecasts, all of the study intersections would operate at LOS C or better during the AM and PM peak hour traffic conditions. Table 4.11-4 shows the capacity analysis results.

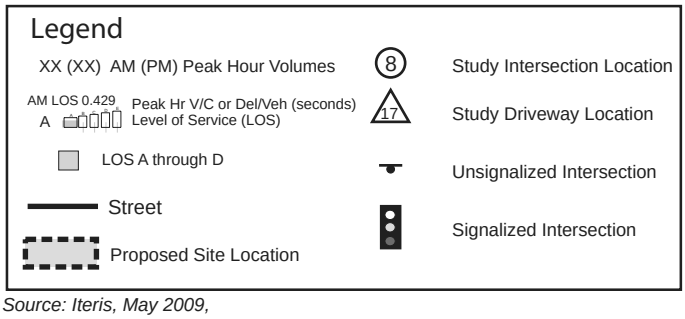
Table 4.11-4
Year 2011 Without-Project Traffic Conditions at Study Area Intersections

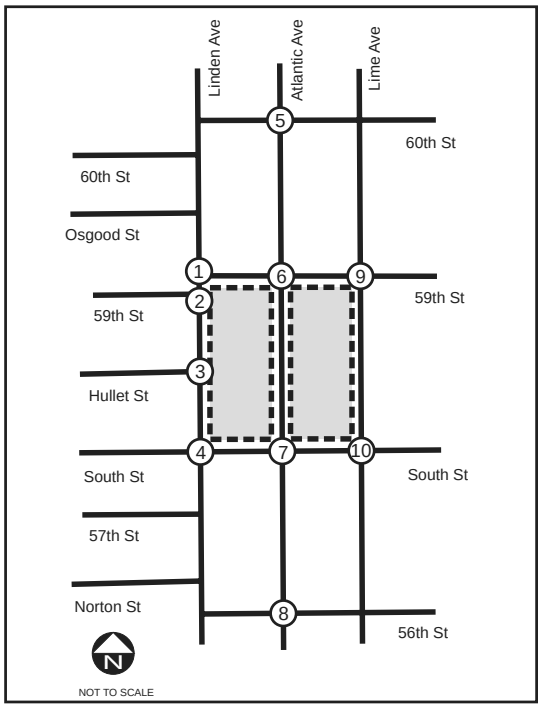
Study Intersection		AM Peak		PM Peak	
		LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]
1	Linden Ave & 59th St (N) (unsignalized)	A	9.3	A	9.2
2	Linden Ave & 59th St (S) (unsignalized)	A	9.2	A	9.3
3	Linden Ave & Hullet St (unsignalized)	A	9.1	A	7.4
4	Linden Ave & South St (unsignalized)	C	17.0	C	16.9
5	Atlantic Ave & 60th St (signalized)	A	0.337	A	0.334
6	Atlantic Ave & 59th St (signalized)	A	0.300	A	0.357
7	Atlantic Ave & South St (signalized)	A	0.400	B	0.636
8	Atlantic Ave & 56th St (signalized)	A	0.369	A	0.361
9	Lime Ave & 59th St (unsignalized)	A	9.2	A	9.3
10	Lime Ave & South St (unsignalized)	C	16.5	C	16.0

City of Long Beach Standards:
[a] Signalized Intersection - ICU Methodology - Volume-to-Capacity Ratio (V/C)
[b] Unsignalized Intersection - 2000 HCM Methodology - Delay per Vehicle in seconds
Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

Year 2016 Without-Project Traffic Operations. Phase II of the project is anticipated to be completed by 2016. The projection of Year 2016 Without-Project traffic consists of existing traffic plus ambient traffic growth and traffic generated by the related projects, all of which were assumed to be completed by the Year 2011. The total Year 2016 Without-Project traffic volumes are illustrated on Figure 4.11-4. Based on these traffic forecasts, all of the study intersections would operate at LOS C or better during the AM and PM peak hour traffic conditions. Table 4.11-5 shows the capacity analysis results.



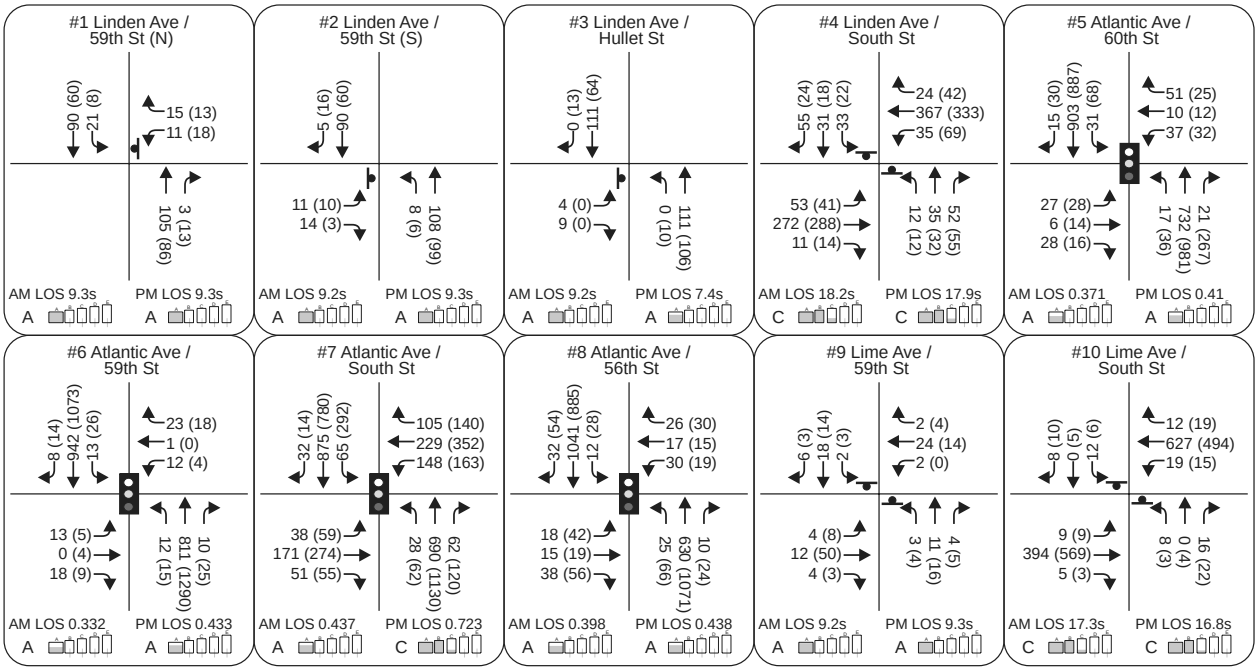


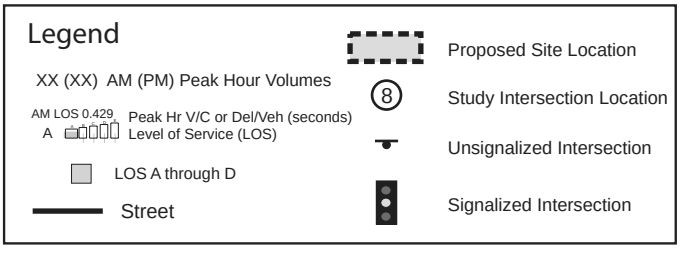


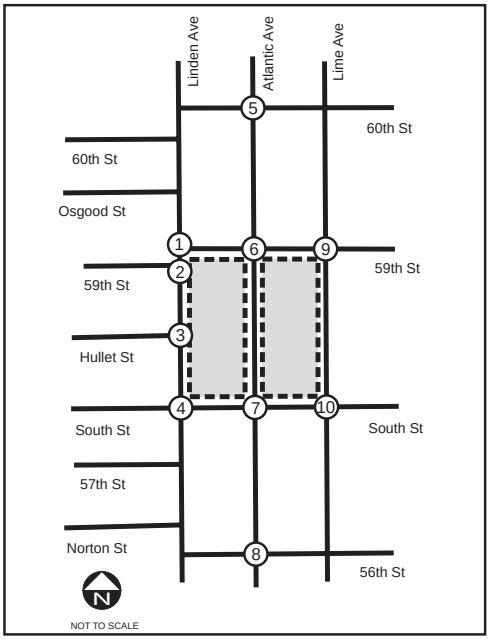
Source: Iteris, May 2009,

Without-Project Peak-Hour Traffic Volumes and Level of Service - Year 2011

Figure 4.11-3







Source: Iteris, May 2009,

Without-Project Peak-Hour Traffic Volumes and Level of Service - Year 2016

Figure 4.11-4

Table 4.11-5
Year 2016 Without-Project Traffic Conditions at Study Area Intersections

Study Intersection		AM Peak		PM Peak	
		LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]
1	Linden Ave & 59th St (N) (unsignalized)	A	9.3	A	9.3
2	Linden Ave & 59th St (S) (unsignalized)	A	9.2	A	9.3
3	Linden Ave & Hullet St (unsignalized)	A	9.2	A	7.4
4	Linden Ave & South St (unsignalized)	C	18.2	C	17.9
5	Atlantic Ave & 60th St (signalized)	A	0.371	A	0.410
6	Atlantic Ave & 59th St (signalized)	A	0.332	A	0.433
7	Atlantic Ave & South St (signalized)	A	0.437	B	0.723
8	Atlantic Ave & 56th St (signalized)	A	0.398	A	0.438
9	Lime Ave & 59th St (unsignalized)	A	9.2	A	9.3
10	Lime Ave & South St (unsignalized)	C	17.3	C	16.8

City of Long Beach Standards:
[a] Signalized Intersection - ICU Methodology - Volume-to-Capacity Ratio (V/C)
[b] Unsignalized Intersection - 2000 HCM Methodology - Delay per Vehicle in seconds
Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

4.11.2 Impact Analysis

a. Methodology and Significance Thresholds.

Study Methodology. The first step in analyzing future traffic conditions with the proposed project is to estimate trip generation from the project. Trip generation rates from the Institute of Transportation Engineer's *Trip Generation, 7th Edition,* were used to estimate future project-related trips. For this analysis, it was assumed that the proposed project would be completed in two phases, with the completion of Phase I occurring in 2011 and the completion of Phase II occurring in 2016. Adjustments for pass-by and transit reductions were not included in order to produce a conservative assessment of project impacts. Since the existing AutoZone located on the eastern portion of the project site would be replaced by the proposed project in Phase II, trips associated with the AutoZone were isolated and removed from the future Phase II trip generation calculation.

Phase I. Phase I includes the development of the West Block, which would include 54 residential units, 8,600 square feet of shopping center and 5,400 square feet of restaurant space. All primary automobile access to interior block parking would be accessed via:

- *One right-in-right-out access along South Street*
- *Three full access driveways along Linden Avenue*

- *One right-in-right-out access along 59th Street and*
- *One right-in-right-out access along Atlantic Avenue*

Phase I Trip Distribution. The routes people would use traveling to and from the project site were determined based on the patterns of existing area traffic for similar types of developments and patterns listed in previous traffic studies for the area. For the proposed project, the trip assignment is primarily based on the site access points and parking. Figure 4.11-5 shows the distribution of traffic on roadways surrounding the project site.

Phase I Trip Assignment. The trips generated by Phase I of the project were assigned to the area street system using the directional distribution described above. The overall "project only" trip assignment for Phase I is illustrated on Figure 4.11-6.

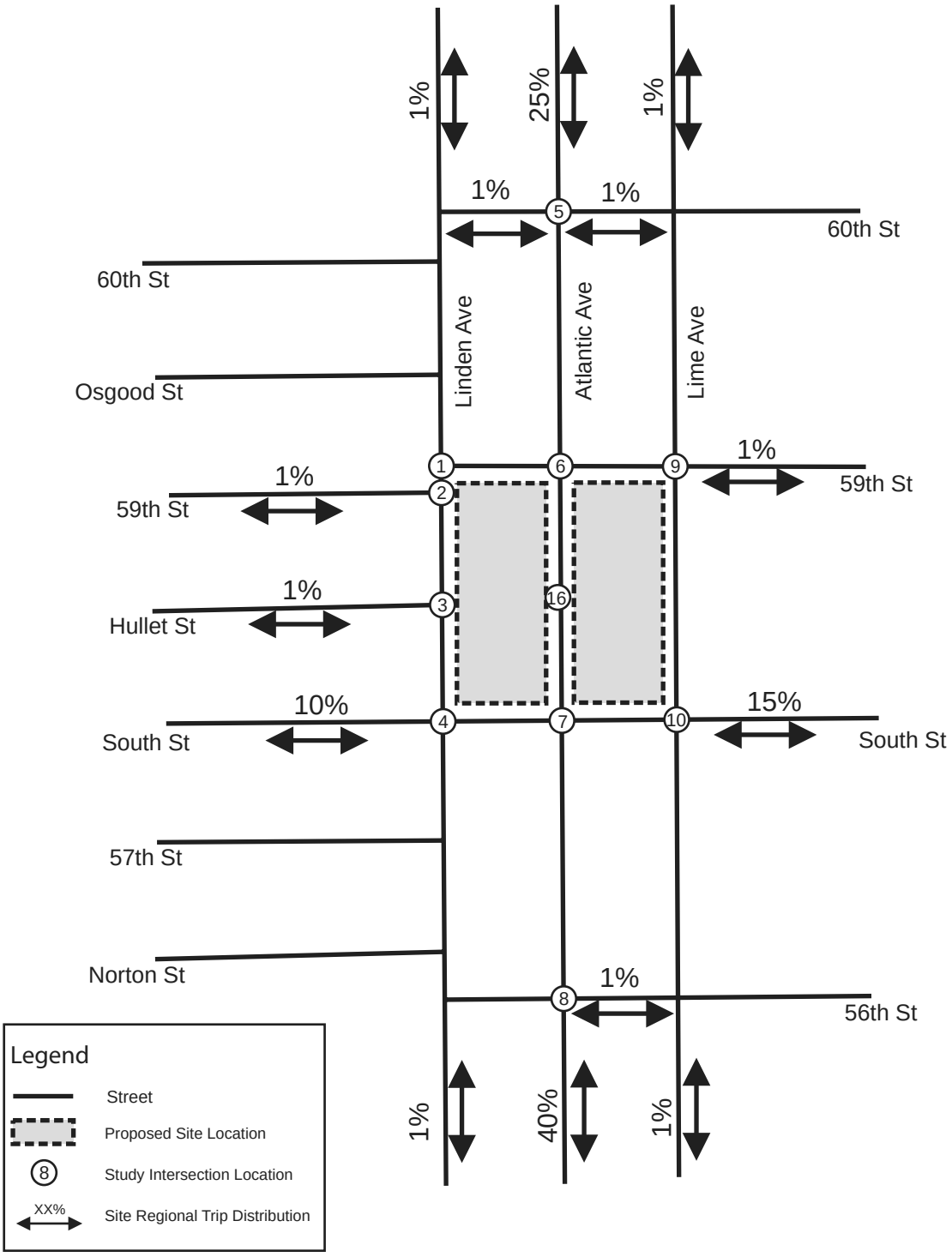
Phase II. Phase II includes the development of the East Block, which would include seven residential units, 22,000 square feet of shopping center and 30,000 square feet of library/ community center. There are two project options for the East Block, both of which have similar space programs. The first option, Option A, would place the proposed library/community center uses at the southeast corner of 59th Street and Atlantic Avenue and commercial/mixed uses at the northeast corner of South Street and Atlantic Avenue. The second option, Option B, would reverse this arrangement, placing proposed commercial mixed uses at the southeast corner of 59th Street and Atlantic Avenue and the library/community center uses at the northeast corner of South Street and Atlantic Avenue. The trip generation would be the same for both options. The traffic analysis of both Phase II options includes the full project (Phase I and Phase II) trips. Thus, the measured incremental impacts are for the full project (Phase I and Phase II). The overall "project only" trip assignments for Phase II Option A and Phase II Option B are illustrated on figures 4.11-7 and 4.11-8, respectively.

Phase II – Option A Project Trip Distribution. The routes people would use traveling to and from the proposed project were determined based on the patterns of existing area traffic for similar types of developments and patterns listed in previous traffic studies for the area. For the project, the trip assignment is primarily based on the site access points and parking. All primary automobile access to interior block parking with Option A would be accessed via:

- *One right-in-right-out access driveway along South Street*
- *One right-in-right-out access driveway along Atlantic Avenue*
  One full access driveway along Lime Avenue

Phase II – Option A Project Trip Assignment. Trips generated under Option A were assigned to the area street system using the directional distribution described above and illustrated on Figure 4.11-5.

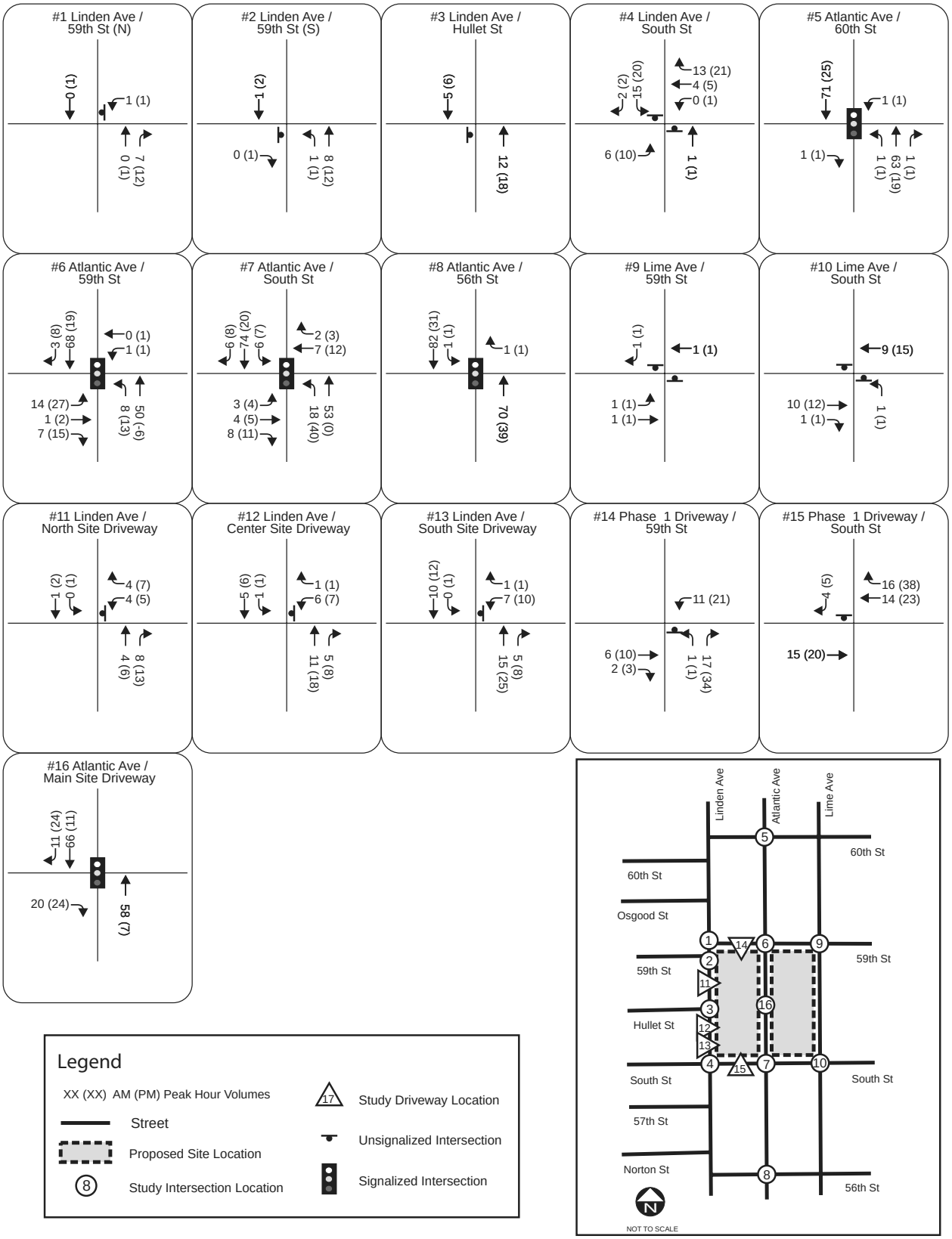
Phase II – Option B Project Trip Distribution. The routes people would use traveling to and from the proposed project were determined based on the patterns of existing area traffic for similar types of developments and patterns listed in previous traffic studies for the area. For the project, the trip assignment is primarily based on the site access points and parking. The site traffic distribution is consistent with the Phase I regional distribution as illustrated on



Project Traffic Distribution

Source: Iteris, May 2009,

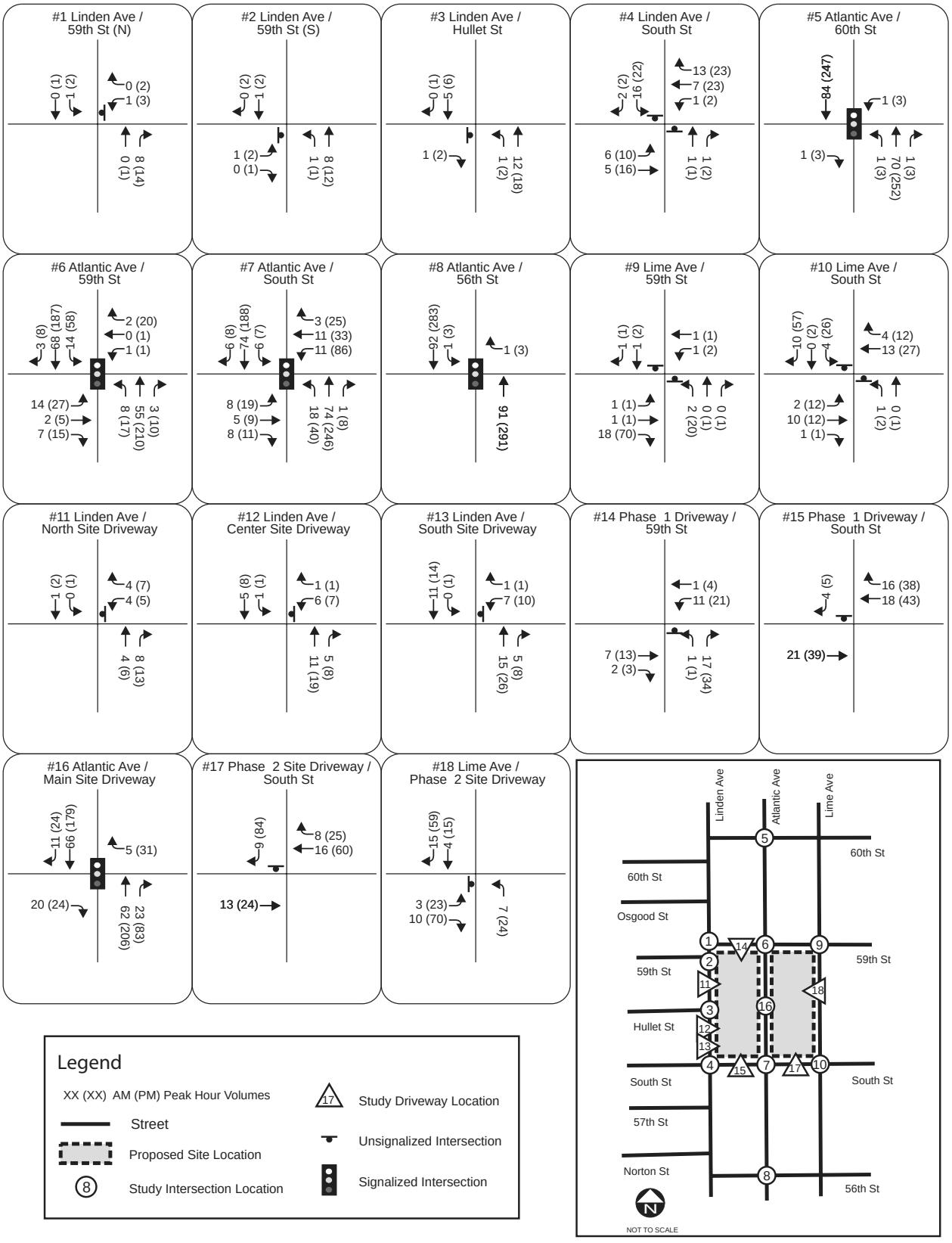
Figure 4.11-5



Project Peak Only Hour Traffic Volumes
2011 Phase I

Source: Iteris, May 2009,

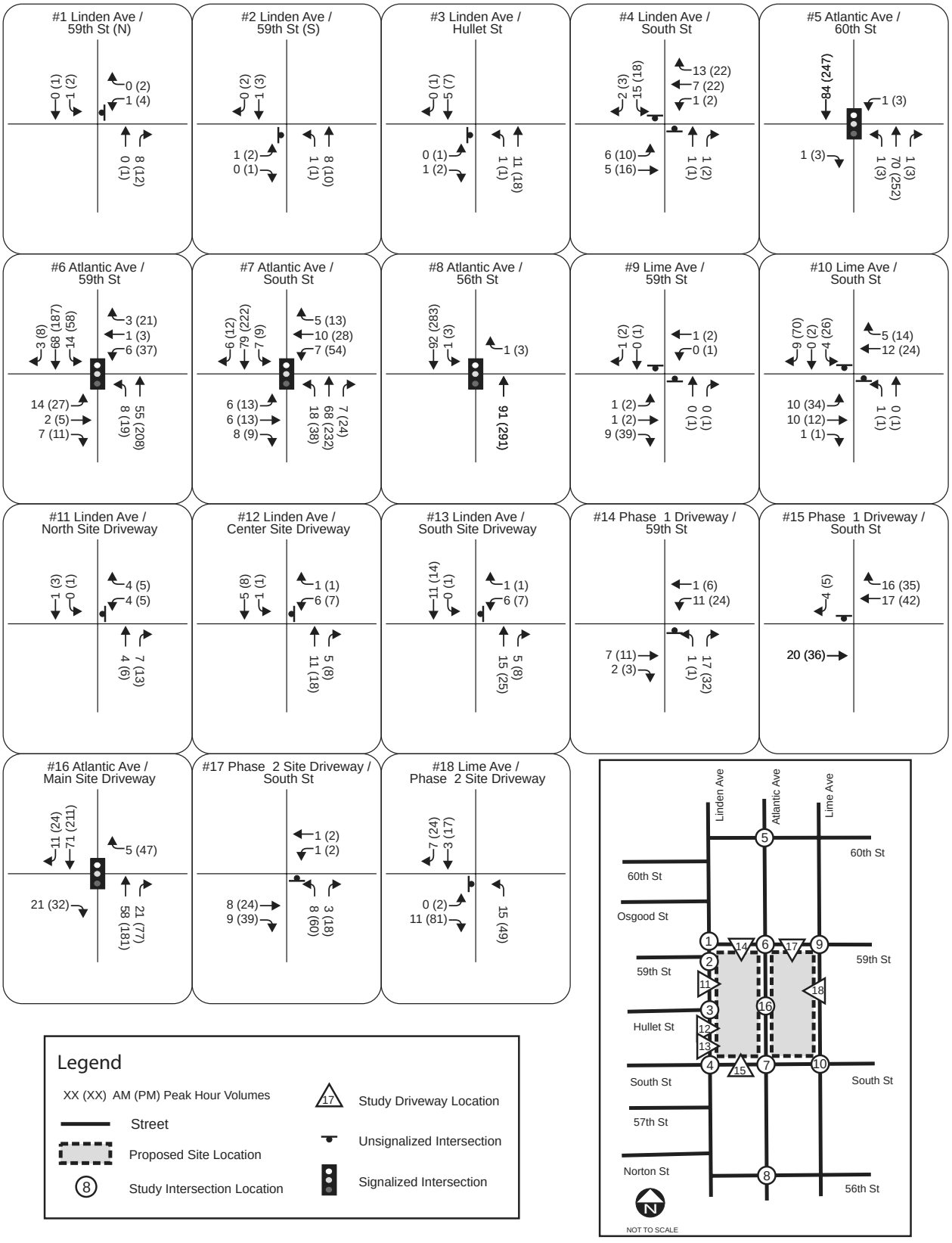
Figure 4.11-6



Project Only Peak-Hour Traffic Volumes
2016 Phase II (Option A)

Figure 4.11-7

Source: Iteris, May 2009,



Project Only Peak-Hour Traffic Volumes
2016 Phase II (Option B)

Source: Iteris, May 2009,

Figure 4.11-8

Figure 4.11-5. All primary automobile access to interior block parking with Option B would be accessed via:

- *One right-in-right-out access along Atlantic Avenue*
- *One full access driveway along 59th Street*
- *One full access driveway along Lime Avenue*

Phase II – Option B Project Trip Assignment. The trips generated by the Phase II – Option B scenario were assigned to the area street system using the directional distribution described above and illustrated on Figure 4.11-5 (directional distribution would be the same for Option A and Option B).

Thresholds of Significance. Traffic impacts generated by the proposed project would be significant if the project would:

1. *Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);*
2. *Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;*
3. *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;*
4. *Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible use (e.g. farm equipment);*
5. *Result in inadequate emergency access;*
6. *Result in inadequate parking capacity; or*
7. *Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).*

As discussed in the Initial Study (see Appendix A), no impact related to the third and fourth criteria would occur and impacts related to the seventh criteria would be less than significant. Therefore, this section focuses on the potential impacts related to the first, second, fifth and sixth criteria listed above.

Intersection Operation Thresholds. Based on the City of Long Beach Traffic Impact Guidelines, an impact is considered significant when the resulting level-of service with project traffic is E or F and project related traffic contributes a V/C of 0.020 or more to the critical movements. At unsignalized intersections, a significant adverse traffic impact is defined as a project that adds 2% or more traffic to delay (seconds per vehicle) at an intersection operating at LOS E or LOS F.

Congestion Management Plan (CMP) Traffic Impact Criteria. The 2004 *Congestion Management Program for Los Angeles County* (Los Angeles County Metropolitan Transportation Authority, 2004) requires that, when an environmental impact report is prepared for a proposed project, traffic and transit impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use these facilities. The CMP guidelines require that the geographic scope of the study area to be analyzed is the first issue to be addressed. The criteria

for determining the study area for CMP arterial monitoring intersections and for freeway monitoring locations are:

- *All CMP arterial monitoring intersections where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours of adjacent street traffic.*
- *All CMP mainline freeway monitoring locations where the proposed project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.*

The CMP traffic impact analysis guidelines indicate that a significant project impact occurs when the following threshold is exceeded:

- *The increase in traffic demand generated by a proposed project at a monitoring intersection exceeds 2% (i.e., the increase in the V/C ratio is equal or greater than 0.02 with the addition of project traffic), causing or worsening LOS F conditions (i.e., the V/C ratio is greater than 1.00 with the addition of project traffic).*

Emergency Access Thresholds. Significant impacts related to emergency access could occur if: (a) the proposed access does not comply with applicable provisions of the most recent Uniform Building Code, California Building Code and Uniform Fire Code; or (b) the City of Long Beach Fire Department and Traffic Engineer determine the emergency access is inadequate.

Parking Impact Thresholds. Significant impacts to parking supply could occur if: (a) the proposed project does not meet the City code requirements for on-site parking; or (b) the proposed project would result in a deficiency in parking in the project vicinity that could not be accommodated by surplus available parking.

b. Project and Cumulative Impacts and Mitigation Measures.

Impact T-1 Project-generated traffic under both Option A and Option B, in combination with cumulative traffic growth, would not result in a significant impact at any of the study area intersections based on City of Long Beach significance criteria. Therefore, the project and cumulative impact at study area intersections would be Class III, *less than significant*.

As indicated in Table 4.11-6, the proposed project would generate an estimated 6,070 net new daily vehicle trips, including 202 AM peak hour trips and 610 PM peak hour trips. As described in Section 2.0, *Project Description*, the proposed project involves two development phases (Phase I and Phase II) and there are two options for the design of Phase II development. As such, the three traffic scenarios that were analyzed include the following:

- *2011 baseline traffic + Phase I traffic*
- *2016 baseline traffic + Phase I traffic + Phase II Option A traffic*
- *2016 baseline traffic + Phase I traffic + Phase II Option B traffic*

The total intersection volumes for the three traffic scenarios are illustrated on figures 4.11-9 through 4.11-11. Tables 4.11-7 through 4.11-9 summarize the level of service (LOS) results for the three traffic scenarios.

As shown in tables 4.11-7 and 4.11-9, nine of the ten study area intersections would operate at LOS C or better during the AM and PM peak hours under each traffic scenario. The intersection of Atlantic Ave and South Street would operate at LOS D under the PM peak hour 2016 baseline traffic + Phase II Option A traffic scenario. As discussed above in *Methodology and Significance Thresholds,* based on the City of Long Beach Traffic Impact Guidelines, an impact is considered significant when the resulting LOS with project traffic is E or F and project related traffic contributes a V/C of 0.020 or more to the critical movements. At unsignalized intersections, a significant adverse traffic impact is defined as a project that adds 2% or more traffic to delay (seconds per vehicle) at an intersection operating at LOS E or LOS F. Therefore, because all study area intersections would operate at LOS D or better, the project's impact to the LOS at study area intersections would be less than significant.

Mitigation Measures. None required.

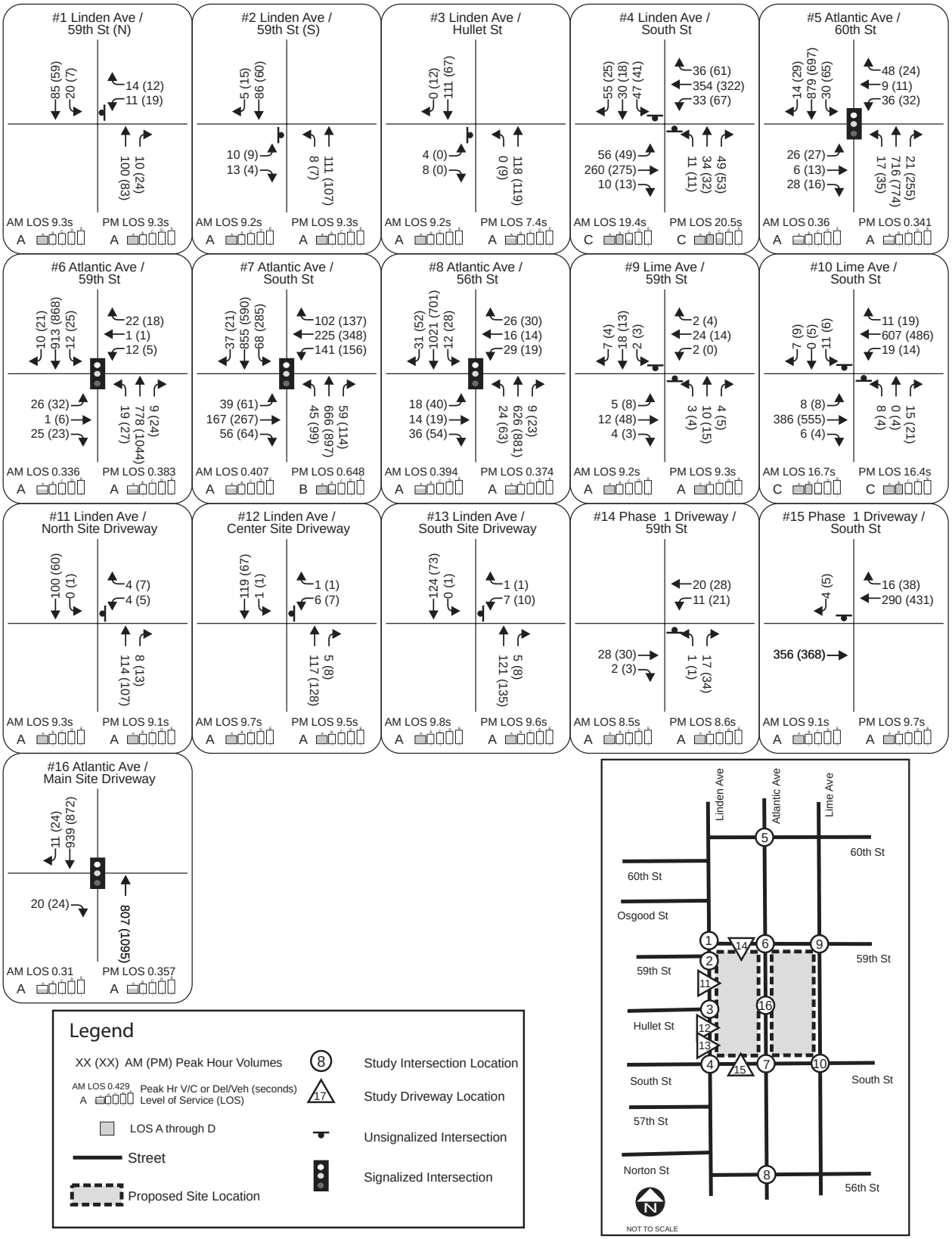
Significance After Mitigation. As discussed above, impacts to study area intersections would be less than significant without mitigation.

Impact T-2 The proposed project, under both Option A and Option B, would not adversely affect freeway mainline locations or CMP arterial monitoring intersections. Therefore, the project's CMP impact would be Class III, *less than significant*.

The Congestion Management Program (CMP) was created statewide as a result of Proposition 111 and is implemented locally by the Los Angeles County Metropolitan Transportation Authority (LACMTA). The CMP for Los Angeles County requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system. A total of 164 intersections are identified for monitoring on the system in Los Angeles County. None of the study intersections are part of the CMP arterial monitoring locations.

The focus of this analysis is to determine whether project-related trips would create a significant impact to the freeway system according to CMP guidelines and thresholds of significance. For purposes of analyzing the mainline freeway impact of the project, the nearest freeway monitoring station is located along the I-710 Freeway. Table 4.11-10 summarizes the project added trips by time period, direction and location. The project-added trips were compared with CMP Traffic Impact Analysis guidelines to determine if additional traffic impact analysis is needed at the freeway monitoring station.

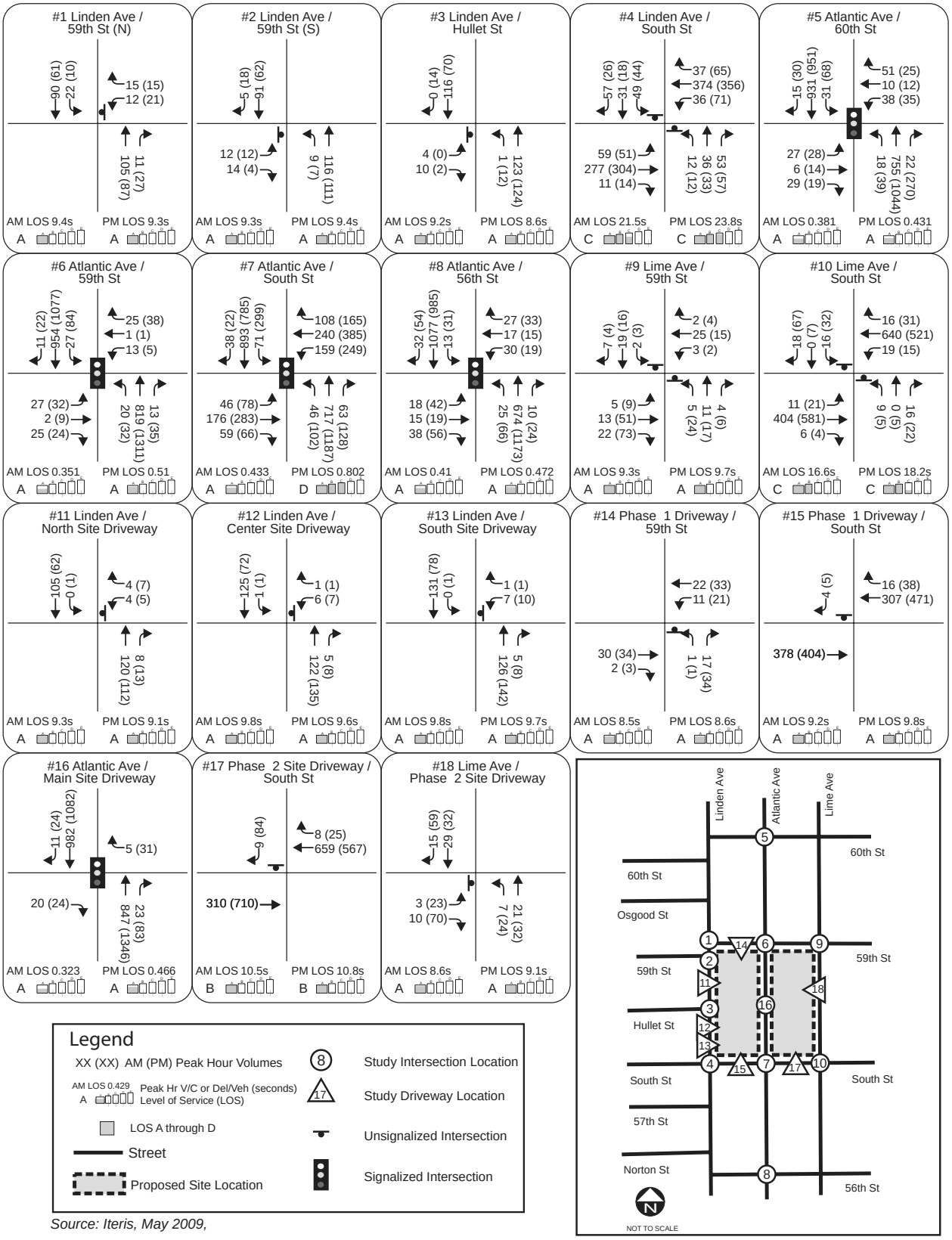
The two CMP freeway monitoring stations closest to the project site (listed below in Table 4.11-10) are currently operating at LOS E during the AM and PM peak hours. For purposes of the CMP, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C < 0.02), causing LOS F (V/C > 1.00).



With-Project Peak-Hour Traffic Volumes and Loss of Service - 2011 Phase I

Figure 4.11-9

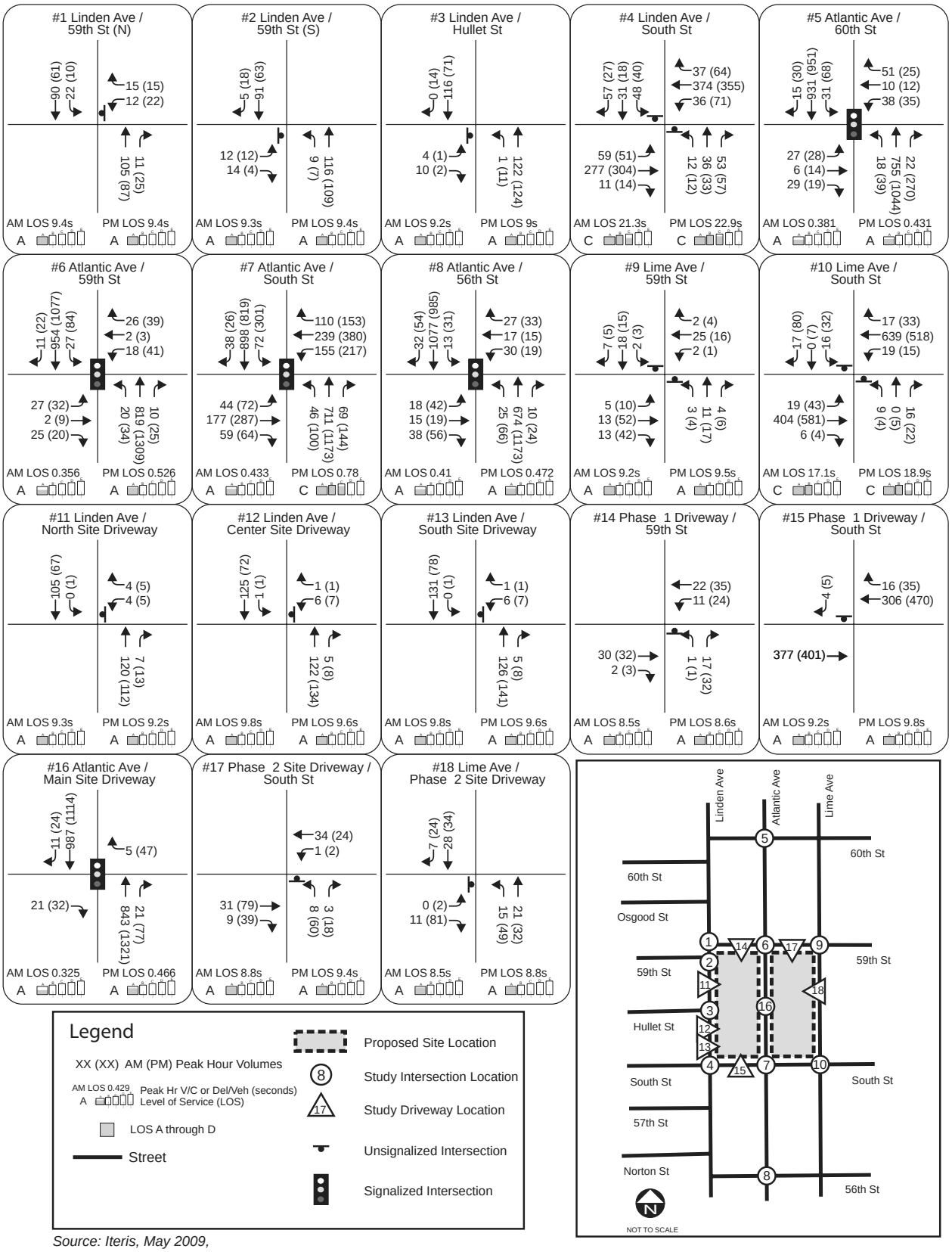
Source: Iteris, May 2009,



Source: Iteris, May 2009,

With-Project Peak-Hour Traffic Volumes and Level of Service - Year 2016 Phase II (Option A)

Figure 4.11-10



Source: Iteris, May 2009,

With-Project Peak-Hour Traffic Volumes and Level of Service - Year 2016 Phase II (Option B) Figure 4.11-11

Table 4.11-6
Project Traffic Generation

Phase	Land Use	Size	Units	Daily Trip Rate	ITE Code	Trips Ends Generated						
						AM Peak			PM Peak			Daily 24-Hour
						Total	In	Out	Total	In	Out	
Phase I – West Block	High Turnover (Site-Down) Restaurant	5.4k	sf	127.15	932	62	32	30	59	36	23	687
	Shopping Center	8.6k	sf	160.23	820	36	22	14	124	60	64	1,378
	Residential Condominiums/Townhouse	31	du	5.86	230	14	2	12	16	11	5	182
	Residential Condominiums/Townhouse	11	du	5.86	230	5	1	4	6	4	2	64
	Residential Condominiums/Townhouse	5	du	5.86	230	2	0	2	3	2	1	29
	Residential Condominiums/Townhouse	7	du	5.86	230	3	1	2	4	3	1	41
	Subtotal Phase I – West Block					**122**	**58**	**64**	**212**	**116**	**96**	**2,381**
Phase II – East Block	Shopping Center	22k	sf	115.36	820	63	38	25	230	110	120	2,538
	Library	30k	sf	54.00	590	32	23	9	213	102	111	1,620
	Residential Condominiums/Townhouse	7	du	5.86	230	3	1	2	4	3	1	41
	Subtotal Phase II – East Block					**98**	**62**	**36**	**447**	**215**	**232**	**4,199**
Existing Land Use	*Auto Parts Sales*	*(8.245k)*	*sf*	*61.91*	*843*	*(18)*	*(9)*	*(9)*	*(49)*	*(24)*	*(25)*	*(510)*
	Subtotal Phase II – East Block (with existing land use credit)					**80**	**53**	**27**	**398**	**191**	**207**	**3,689**
Total Project Trips (with existing land use credits)						**202**	**111**	**91**	**610**	**307**	**303**	**6,070**

Source: Institute of Transportation Engineers, Trip Generation, 7th Edition; Source; Iteris, Inc., May 2009. See Appendix G for complete traffic study.

Table 4.11-7
Year 2011 Phase I – With Project Traffic Intersections Conditions

	Study Intersection	AM Peak Hour						PM Peak Hour					
		No Project		With Project		Change in V/C	Impact?	No Project		With Project		Change in V/C	Impact?
		LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]			LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]		
1	Linden Ave & 59th St (N) (unsignalized)	A	9.3	A	9.3	0.0	NO	A	9.2	A	9.3	0.1	NO
2	Linden Ave & 59th St (S) (unsignalized)	A	9.2	A	9.2	0.0	NO	A	9.3	A	9.3	0.0	NO
3	Linden Ave & Hullet St (unsignalized)	A	9.1	A	9.2	0.1	NO	A	7.4	A	7.4	0.0	NO
4	Linden Ave & South St (unsignalized)	C	17.0	C	19.4	2.4	NO	C	16.9	C	20.5	3.6	NO
5	Atlantic Ave & 60th St (signalized)	A	0.337	A	0.360	0.023	NO	A	0.334	A	0.341	0.007	NO
6	Atlantic Ave & 59th St (signalized)	A	0.300	A	0.336	0.036	NO	A	0.357	A	0.383	0.026	NO
7	Atlantic Ave & South St (signalized)	A	0.400	A	0.407	0.007	NO	B	0.636	C	0.648	0.012	NO
8	Atlantic Ave & 56th St (signalized)	A	0.369	A	0.394	0.025	NO	A	0.361	A	0.374	0.013	NO
9	Lime Ave & 59th St (unsignalized)	A	9.2	A	9.2	0.0	NO	A	9.3	A	9.3	0.0	NO
10	Lime Ave & South St (unsignalized)	C	16.5	C	16.7	0.2	NO	C	16.0	C	16.4	0.4	NO
11	Linden Ave & North Site Driveway (unsignalized)	--	--	A	9.3	--	NO	--	--	A	9.1	--	NO
12	Linden Ave & Center Site Driveway (unsignalized)	--	--	A	9.7	--	NO	--	--	A	9.5	--	NO
13	Linden Ave & South Site Driveway (unsignalized)	--	--	A	9.8	--	NO	--	--	A	9.6	--	NO
14	Phase I Driveway & 59th Street (unsignalized)	--	--	A	8.5	--	NO	--	--	A	8.6	--	NO
15	Phase I Driveway & South Street (unsignalized)	--	--	A	9.1	--	NO	--	--	A	9.7	--	NO
16	Atlantic Ave & Main Site Driveway (signalized)	--	--	A	0.310	--	NO	--	--	A	0.357	--	NO

City of Long Beach Standards:
[a] Signalized Intersection - ICU Methodology - Volume-to-Capacity Ratio (V/C)
[b] Unsignalized Intersection - 2000 HCM Methodology - Delay per Vehicle in seconds
Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

Table 4.11-8
Year 2016 Phase I + Phase II (Option A) – With Project Traffic Intersections Conditions

	Study Intersection	AM Peak Hour						PM Peak Hour					
		No Project		With Project		Change in V/C	Impact?	No Project		With Project		Change in V/C	Impact?
		LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]			LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]		
1	Linden Ave & 59th St (N) (unsignalized)	A	9.3	A	9.4	0.1	NO	A	9.3	A	9.3	0.0	NO
2	Linden Ave & 59th St (S) (unsignalized)	A	9.2	A	9.3	0.1	NO	A	9.3	A	9.4	0.1	NO
3	Linden Ave & Hullet St (unsignalized)	A	9.2	A	9.2	0.0	NO	A	7.4	A	8.6	1.2	NO
4	Linden Ave & South St (unsignalized)	C	18.2	C	21.5	3.3	NO	C	17.9	C	23.8	5.9	NO
5	Atlantic Ave & 60th St (signalized)	A	0.371	A	0.381	0.010	NO	A	0.410	A	0.431	0.021	NO
6	Atlantic Ave & 59th St (signalized)	A	0.332	A	0.351	0.019	NO	A	0.433	A	0.510	0.077	NO
7	Atlantic Ave & South St (signalized)	A	0.437	A	0.433	-0.004	NO	C	0.723	D	0.802	0.079	NO
8	Atlantic Ave & 56th St (signalized)	A	0.398	A	0.410	0.012	NO	A	0.438	A	0.472	0.034	NO
9	Lime Ave & 59th St (unsignalized)	A	9.2	A	9.3	0.1	NO	A	9.3	A	9.7	0.4	NO
10	Lime Ave & South St (unsignalized)	C	17.3	C	16.6	-0.7	NO	C	16.8	C	18.2	1.4	NO
11	Linden Ave & North Site Driveway (unsignalized)	--	--	A	9.3	--	NO	--	--	A	9.1	--	NO
12	Linden Ave & Center Site Driveway (unsignalized)	--	--	A	9.8	--	NO	--	--	A	9.6	--	NO
13	Linden Ave & South Site Driveway (unsignalized)	--	--	A	9.8	--	NO	--	--	A	9.7	--	NO
14	Phase I Driveway & 59th St (unsignalized)	--	--	A	8.5	--	NO	--	--	A	8.6	--	NO
15	Phase I Driveway & South St (unsignalized)	--	--	A	9.2	--	NO	--	--	A	9.8	--	NO
16	Atlantic Ave & Main Site Driveway (signalized)	--	--	A	0.323	--	NO	--	--	A	0.466	--	NO
17	Phase II Driveway & South St (unsignalized)	--	--	B	10.5	--	NO	--	--	B	10.8	--	NO
18	Lime Ave & Phase II Site Driveway (signalized)	--	--	A	8.6	--	NO	--	--	A	9.1	--	NO

City of Long Beach Standards:
[a] Signalized Intersection - ICU Methodology - Volume-to-Capacity Ratio (V/C)
[b] Unsignalized Intersection - 2000 HCM Methodology - Delay per Vehicle in seconds
Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

Table 4.11-9
Year 2016 Phase I + Phase II (Option B) – With Project Traffic Intersections Conditions

	Study Intersection	AM Peak Hour						PM Peak Hour					
		No Project		With Project		Change in V/C	Impact?	No Project		With Project		Change in V/C	Impact?
		LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]			LOS	V/C[a] or Delay[b]	LOS	V/C[a] or Delay[b]		
1	Linden Ave & 59th St (N) (unsignalized)	A	9.3	A	9.4	0.1	NO	A	9.3	A	9.4	0.1	NO
2	Linden Ave & 59th St (S) (unsignalized)	A	9.2	A	9.3	0.1	NO	A	9.3	A	9.4	0.1	NO
3	Linden Ave & Hullet St (unsignalized)	A	9.2	A	9.2	0.0	NO	A	7.4	A	9.0	1.6	NO
4	Linden Ave & South St (unsignalized)	C	18.2	C	21.3	3.1	NO	C	17.9	C	22.9	5.0	NO
5	Atlantic Ave & 60th St (signalized)	A	0.371	A	0.381	0.010	NO	A	0.410	A	0.431	0.021	NO
6	Atlantic Ave & 59th St (signalized)	A	0.332	A	0.356	0.024	NO	A	0.433	A	0.526	0.093	NO
7	Atlantic Ave & South St (signalized)	A	0.437	A	0.433	-0.004	NO	C	0.723	C	0.780	0.057	NO
8	Atlantic Ave & 56th St (signalized)	A	0.398	A	0.410	0.012	NO	A	0.438	A	0.472	0.034	NO
9	Lime Ave & 59th St (unsignalized)	A	9.2	A	9.2	0.0	NO	A	9.3	A	9.5	0.2	NO
10	Lime Ave & South St (unsignalized)	C	17.3	C	17.1	-0.2	NO	C	16.8	C	18.9	2.1	NO
11	Linden Ave & North Site Driveway (unsignalized)	--	--	A	9.3	--	NO	--	--	A	9.2	--	NO
12	Linden Ave & Center Site Driveway (unsignalized)	--	--	A	9.8	--	NO	--	--	A	9.6	--	NO
13	Linden Ave & South Site Driveway (unsignalized)	--	--	A	9.8	--	NO	--	--	A	9.6	--	NO
14	Phase I Driveway & 59th St (unsignalized)	--	--	A	8.5	--	NO	--	--	A	8.6	--	NO
15	Phase I Driveway & South St (unsignalized)	--	--	A	9.2	--	NO	--	--	A	9.8	--	NO
16	Atlantic Ave & Main Site Driveway (signalized)	--	--	A	0.325	--	NO	--	--	A	0.466	--	NO
17	Phase II Driveway & South St (unsignalized)	--	--	B	8.8	--	NO	--	--	B	9.4	--	NO
18	Lime Ave & Phase II Site Driveway (signalized)	--	--	A	8.5	--	NO	--	--	A	8.8	--	NO

City of Long Beach Standards:
[a] Signalized Intersection - ICU Methodology - Volume-to-Capacity Ratio (V/C)
[b] Unsignalized Intersection - 2000 HCM Methodology - Delay per Vehicle in seconds
Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

Table 4.11-10
Project Added Trips at Freeway Monitoring Stations

Freeway Analysis Segment	Project Added Trips by Direction		Traffic Impact Analysis Required?	
	NB	SB	NB	SB
Weekday AM Peak Hour				
I-710 Freeway (Post Mile-10.31) n/o JCT Rte 405, S/o Del Amo Blvd	2	6	No	No
Weekday PM Peak Hour				
I-710 Freeway (Post Mile-10.31) n/o JCT Rte 405, S/o Del Amo Blvd	6	3	No	No

Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

It expected that trips associated with the commercial/retail portion of the site would be drawn from the surrounding community. Therefore, to provide a conservative estimate, it was assumed that 25% of the residential trips associated with the proposed project would travel along the nearest CMP freeway monitoring stations. As shown in Table 4.11-10, the proposed project would not contribute more than the minimum threshold of 150 peak-period trips at any CMP mainline location. Based on CMP criteria described previously in *Methodology and Significance Thresholds*, detailed impact analysis is not warranted and no significant CMP impact would occur.

Mitigation Measures. The proposed project's impacts to CMP freeway mainline locations and CMP arterial monitoring intersections would not be significant; therefore, mitigation is not required.

Significance after Mitigation. Impacts to CMP freeway mainline locations and CMP arterial monitoring intersections would be less than significant without mitigation.

Impact T-3 **The Shared Parking Analysis performed for the North Village Center Project determined that the proposed off-street parking supply would be deficient by nine spaces on weekdays and four spaces on weekend. As the applicant would be required to either obtain an Administrative Use Permit for the parking as proposed or provide parking per code requirements, parking impacts would be a Class III, *less than significant*, impact for either Option A or Option B.**

An analysis of the project's parking supply and demand was completed to determine whether the proposed project would have sufficient parking. The complete parking analysis is contained in the traffic study prepared by Iteris, Inc. in Appendix G.

Parking Required By Code. Title 21.41 of the Long Beach Municipal Code, "Off Street Parking and Loading Requirements," establishes regulations for parking and loading to ensure that vehicle traffic and loading activities associated with a use do not interfere with circulation on public rights-of-way or circulation within required parking areas and to ensure that an adequate number of parking spaces is provided to serve the use of a specific site without causing traffic congestion. The following are the residential and commercial parking requirements set forth by Title 21.41 of the Long Beach Municipal Code that would apply to the proposed project:

Residential Parking Requirements

- Two-bedroom and larger units: 2 spaces per unit
- Guest parking: 1 space per 4 units

Commercial Parking Requirements

- Shopping Centers (commercial land use containing both retail and restaurant uses): 5 spaces per 1,000 square feet
- Community Center/Library: 4 spaces per 1,000 square feet
- Community Center/Library: 1 bus parking stall per 5,000 square feet

Proposed Onsite Parking. Parking for residential land uses would be provided in attached garages. The project would provide up to 177 and 178 onsite parking spaces on the West Block and East Block, respectively, for a total of 355 parking spaces.

It should be noted that the zoning code does not allow on-street parking to be used to satisfy parking demand. Therefore, to provide a code compliant parking analysis, no on-street parking was considered as part of the parking supply. Furthermore, parking reductions for transit and captive market were also not included in the parking analysis to provide a conservative assessment. Therefore, based on the existing code requirements, a total of 192 parking spaces would be required on the west block and 252 spaces would be required on the east block, for a total of 444 parking spaces (see Table 4.11-11). The proposed project would provide 355 parking spaces, resulting in a total parking deficiency of 89 spaces.

Shared Parking Analysis. Due to the multi-use character of the proposed project, a shared use parking analysis was conducted. This analysis looks at the parking supply and demand relationships for the project area, by time of day. This methodology recognizes that parking demand for each type of land use varies by time of day and/or day of the week (weekday versus weekend day) and thus some of the parking can be shared (note that only residential guest parking is included in the shared parking analysis). When one land use has a lower parking demand during the day, that parking would be available for other land uses onsite. For example, during the times that the library is not open, those parking spaces may be used by retail and restaurant patrons.

Table 4.11-11
Project Parking Supply/Demand Summary*

Land Use	Size	Units	Code Rate	Number of Spaces
West Block				
Residential	54	DU	2 per unit	108
Residential Guest Parking	54	DU	0.25 per unit	14
Restaurant	5.4	1,000 sf	5 per 1,000 sf	27
Commercial	8.6	1,000 sf	5 per 1,000 sf	43
			Required Parking Subtotal	**192**
			Proposed New Onsite Parking	177
East Block				
Residential	7	DU	2 per unit	14
Residential Guest Parking	7	DU	0.25 per unit	2
Community Center/Library	30	1,000 sf	4 per 1,000 sf	120
Library bus Parking	30	1,000 sf	0.2 per 1,000 sf	6
Commercial	22	1,000 sf	5 per 1,000 sf	110
			Required Parking Subtotal	**252**
			Proposed New Onsite Parking	178
Total Project (West and East Block)				
			Total Project Parking Requirement by Code	**444**
			Total Project Parking Supply	**355**
			Total Project Parking Deficiency	***89***

**No on-street parking was considered in the analysis.*
Source: Iteris, Inc., May 2009. See Appendix G for complete traffic study.

The Urban Land Institute (ULI) parking rates were used for all land uses, except for the library/convention center land use. Library parking ratios by time of day were obtained from a field parking survey conducted at a similar land use (Mark Twain Library) within the City of Long Beach. The ULI rates differentiate between weekday and weekend use, which may provide a more accurate analysis of parking needs. The parking survey results obtained at the Mark Twain library are shown in the appendix to the traffic study contained in Appendix G. The survey was conducted on a typical Tuesday (March 31, 2009) and Saturday (April 4, 2009) during typical library working hours. The parking rate shows the demand by hour for various land use types.

A time of day analysis was conducted using ULI procedures, which generally results in a parking demand that is lower than the summation of the demand for each individual land-use

based on City Parking Code requirements. Sharing parking spaces allows parking usage by different types of visitors in the morning or night, weekday or weekend. An example of this may be a patron going to the library who parks during the day, and in the evening that same space is available for restaurant or retail parking. This analysis recognizes that some of the residential guest spaces may be used by patrons of other site uses. To provide a conservative parking analysis, it was assumed that 122 residential parking spaces[1] and six parking spaces[2] for library bus use would be reserved for these uses and would not be available as shared parking with other retail site uses. Each block was analyzed by time of day, which established the overall demand by time of day for the site.

Tables 4.11-12 and 4.11-13 summarize the shared parking analysis results. Detailed shared parking analysis calculations are provided in the appendix to the traffic study (Appendix G). The combined peak parking demand for the two blocks is 236 and 231 spaces during the weekday and weekend, respectively. The weekday combined peak hour occurs at around 12:00 PM and the weekend combined peak hour occurs around 2:00 PM.

Table 4.11-12
Shared Parking Analysis[a]

	Non-shared Parking Requirement		Shared Parking Requirement		Total without On-street Parking	
Land Use	**Residential Parking**	**Library Bus Parking**	**Shared Parking Analysis[d]**			
Code Requirement	**2 per unit**	**0.2 per 1,000 sf**				
	Parking Requirement per City Code (61 units plus guest parking)	**Parking Requirement per City Code**	**Total Peak Demand with Shared Parking**	**Total Shared Parking Demand**	**Total Parking Supply**	**Surplus/ Deficiency**
Weekday	**122[b]**	**6[c]**	**236**	**364**	**355**	**-9**
Weekend	**122 [b]**	**6 [c]**	**231**	**359**	**355**	**-4**

[a] Sharing parking spaces allows parking usage by different types of visitors in the morning or night, weekday or weekend. An example of this may be a patron going to the library who parks during the day, and in the evening that same space is available for restaurant or retail parking.
[b] 61 units X 2.0 spaces/unit = 122 parking spaces
[c] 30,000 sf library X 0.2 spaces/1,00 sf = 6 library parking spaces
[d] Detailed shared parking analysis calculations are provided in the traffic report contained in Appendix G.

[1] (61 units X 2.0 spaces/unit + 61 units = 122 parking spaces)
[2] (30,000 sf library X 0.2 spaces/1,sf = 6 library parking spaces)

Table 4.11-13
Shared Parking Analysis Summary*

	Based on Parking Code Requirement	Based on Shared Parking Analysis	
	Weekday/Weekend	Weekday	Weekend
Parking Demand	444	364	359
Parking Supply	355	355	355
Deficiency	89	9	4

** Detailed shared parking analysis calculations are provided in the traffic report contained in Appendix G.*

As discussed above, the proposed project is required to provide 444 parking spaces per City parking code. Based on the shared parking analysis, the peak parking demand shows a need for 364 (122+6+236) and 359 (122+6+231) parking spaces during the weekday and weekend peak period, respectively. The parking analysis shows a weekday parking deficiency of nine spaces and a weekend parking deficiency of four spaces, using the shared parking analysis results.

Despite the identified deficiency, the proposed project's mix of uses and the modest scale of the deficiency indicate that the proposed parking supply would adequately meet demand. Certain factors that affect parking demand were not considered in the shared parking analysis but would likely further reduce overall demand. Foremost of these is that fact that the proposed commercial uses are intended primarily to serve the surrounding neighborhood. It is logical, therefore, to assume that some percentage of patrons would walk or bike to the stores, restaurant or library, particularly those that live within the proposed mixed use project itself. It is expected that this percentage would outweigh the calculated nine-space weekday or four-space weekend deficiency.

Mitigation Measures. Proposed project parking would not meet the requirements of the City Code, and the Shared Parking Analysis for the project shows that peak parking demand would be slightly greater than the proposed off-street parking supply. Per Zoning Code Section 21.41.223, when two or more land uses share a parking facility and the hours of demand for parking at least partially overlap, an Administrative Use Permit may be approved by the City to allow less than Code required parking. The project application includes a request for approval of an Administrative Use Permit to allow a reduced parking supply on the project site. Approval of an Administrative Use Permit would allow the project to be implemented as proposed in accordance with this provision of the Zoning Code. If the Administrative Use Permit is not approved by the City, the project would be revised to meet Zoning Code parking requirements. Therefore, no mitigation is need for either Option A or Option B.

Significance After Mitigation. Impacts would less than significant for either Option A or Option B.

Impact T-4 The design of the proposed project, under either Option A or Option B, would not result in adverse traffic hazards or inadequate emergency access. Impacts related to traffic hazards and emergency access would be Class III, *less than significant*.

As discussed in Section 2.0, *Project Description*, emergency access to the site would be continued to be provided via five roadways: East 59th Street, Linden Avenue, East South Street, Lime Avenue, and Atlantic Avenue. The project site would be accessible via driveways on South Street and 59th Street as well as Atlantic Avenue, and there would be limited automobile access from Linden Avenue and Lime Avenue. The parking areas would be accessed as follows:

West Block

- One driveway along 59th Street (right turn in and out only)
- Three driveways along Linden Avenue (full access)
- One driveway along South Street (right turn in and out only)
- One driveway along Atlantic Avenue (right turn in and out only)

East Block Option A:

- One driveway along Lime Avenue (full access)
- One driveway along South Street (right turn in and out only)
- One driveway along Atlantic Avenue (right turn in and out only)

East Block Option B:

- One driveway along 59th Street (full access)
- One driveway along Lime Avenue (full access)
- One driveway along Atlantic Avenue (right turn in and out only)

The proposed project would be required to comply with applicable City codes and regulations that govern driveways and site access, such as the Uniform Building Code (UBC), California Building Code (CBC), Uniform Fire Code, and final plan check by the City of Long Beach Fire Department and Traffic Engineer. Through implementation of standard conditions and regulations, sufficient emergency access would be provided to the project site and impacts related to emergency access would be less than significant.

The proposed site plans for Option A and Option B are shown on figures 2-5 and 2-6 in Section 2.0, *Project Description*. While the project involves the installation of new traffic signalization mid-block on Atlantic Avenue, between 59th Street and South Street, and new vehicular access points for the project site, the existing traffic pattern on surrounding streets would remain generally unchanged. The proposed pedestrian crossings that would be provided at signalized intersections along Atlantic Avenue, in between the east and west blocks, are intended to improve pedestrian circulation and safety.

Although no substantial hazards or access concerns were identified in site plan reviews by the City or by Iteris, Inc. in the traffic study, Iteris did include the following design considerations

for the City's and the project design team's consideration to improve traffic flow and minimize pedestrian/vehicle conflicts:

- *Consider "offsetting" proposed mid-block Atlantic Avenue signalized driveways by the width of a single crosswalk. The driveways would be located on the far side of the crosswalk, such that an approaching driver would receive a flashing red signal indication when pedestrians are present and they would stop for the pedestrians before proceeding into the driveway. Exiting vehicles would have no conflicts and could turn and exit freely. This design modification is recommended to reduce vehicle/pedestrian conflicts and increase safety at the new driveways.*

- *The proposed West Block South Street site entrance is located approximately 75 feet from the signalized Atlantic Avenue/South Street intersection. In order to accommodate vehicle queuing along the westbound South Street approach, the City should consider shifting the entrance mid-block between Atlantic Avenue and Linden Avenue.*

- *The proposed West Block 59th Street site entrance is located approximately 75 feet from the signalized Atlantic Avenue/59th Street intersection. The eastbound traffic waiting at the signal may block passage of the westbound 59th Street site related traffic from making a left-turn. This may lead to queuing along 59th Street. Therefore, the City should consider shifting the entrance mid-block between Atlantic Avenue and Linden Avenue.*

- *The proposed West Block Linden Avenue site entrance is located approximately 50 feet from the stop-controlled Linden Avenue/South Street intersection. The City should consider shifting this driveway approximately mid-block between Hullett Street and South Street. Furthermore, there are two additional driveways along Linden Avenue forming two off-set intersections with the stop-controlled Linden Avenue/ Hullett Street intersection. The driveway south of Hullett Street forms an off-set intersection alignment resulting in potential conflicts with the left-turn movements to/from the site. Therefore, the City should consider combining Linden Avenue/North Site Driveway and Linden Avenue/Center Site Driveway thereby eliminating one driveway along Linden Avenue.*

These recommendations would reduce the potential for traffic-related conflicts to occur. However, neither Option A nor Option B would create significant impacts related to traffic hazards or traffic conflicts. The recommendations listed above are intended to further reduce potential traffic conflicts resulting from proposed design features and are included for consideration by the decision-makers and the development team. Implementation of these recommendations would not require additional environmental analysis as no changes to impact levels or secondary impacts would occur.

Mitigation Measures. Impacts related to traffic hazards and emergency access would be less than significant; therefore, mitigation is not required.

Significance after Mitigation. Impacts related to traffic hazards and emergency access would be less than significant without mitigation.

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4.12 UTILITIES AND SERVICE SYSTEMS

This section analyzes impacts to water service, wastewater treatment and collection, solid waste disposal service, and the delivery of electricity and natural gas for the proposed project.

4.12.1 Setting

a. Water. Water for the City of Long Beach service area is supplied by the Long Beach Water Department (LBWD). The City's water sources are groundwater, imported water, and reclaimed wastewater. Citywide water demand for 2007 was approximately 74,432 acre-feet per year (AFY) (Comprehensive Annual Financial Report for the City of Long Beach, LBWD, 2007). The City pumps ground water from the Central Basin, which is monitored by a court appointed water master, the Department of Water Resources (DWR). The DWR identifies 41 water wells within the City of Long Beach, of which 31 have been producing water in recent years. The City has a right to extract a total of 32,684 acre-feet per year from the Basin. The remainder of the City's water need is currently met by the Metropolitan Water District (MWD) of Southern California, which delivers water imported from the Colorado River and State Water Project to the City. Additionally, a small supply of treated wastewater from the Long Beach Reclamation Plant (LBRP), which is owned and operated by the Los Angeles County Sanitation Districts, is used in the City for landscape irrigation and indoor plumbing.

Water supply goals, policies and regulations applicable to the project are contained in the LBWD's Urban Water Management Plan (UWMP), the Long Beach 2010 Strategic Plan, Metropolitan Water District (MWD) rules and regulations and Regional Urban Water Management Plan (RUWMP), Technical Support Documents (TSD) rules and regulations, and Title 22, Division 4 of the State of California Administrative Code, which addresses the use of reclaimed wastewater.

Table 4.12-1 lists the amount of water supply purchased from the MWD, produced from City groundwater wells, gained from recycled water, and produced through projected future desalinated seawater through 2030 according to the UWMP (2005).

MWD is the "supplemental" supplier of water for the LBWD and the other 25 MWD member agencies that supply water to the 18 million people of the Southern California coastal plain. The MWD provides the water the LBWD needs in addition to the groundwater it pumps to meet the City's water demands. If groundwater supplies increase, less water is purchased from the MWD and vice versa. With substantial investments and long term planning, the MWD expects to fulfill its obligations as the supplemental supplier by being 100% reliable through the year 2030.

The LBWD has an entitlement, embedded in State law (Section 135 of the Metropolitan Water District Act), to the imported drinking water it expects to purchase wholesale from the MWD. The entitlement comes in the form of a preferential right to MWD supplies except during times of extreme emergencies. The MWD recalculates each of its member agency's preferential rights on an annual basis. The LBWD's rights to MWD imported water, according to the 2007 calculation, is shown in Table 4.12-2.

Table 4.12-1
Current and Projected Water Supplies for the City of Long Beach (acre-feet/year)

Water Supply Sources	2000	2005	2010	2015	2020	2025	2030
Purchased from MWD	46,475	43,939	35,658	30,758	31,912	30,488	29,516
City-produced groundwater	24,582	25,955	32,684	32,684	32,684	32,684	32,684
Desalinated Seawater	0	0	5,000	10,000	10,000	10,000	10,000
Total Potable	**71,057**	**69,894**	**73,342**	**73,142**	**74,596**	**73,172**	**72,200**
Reclaimed Water	5,190	5,210	6,458	8,058	9,604	12,428	14,400
Total	**76,247**	**75,104**	**79,800**	**81,500**	**84,200**	**85,600**	**86,600**

Source: Long Beach Water Department Urban Water Management Plan, 2005
Units of measure: Acre-feet/year

Table 4.12-2
LBWD's 2007 Preferential Rights to MWD Water

LBWD's Preferential Rights of MWD's Imported Water (%)	2.57%
Minimum MWD Supplies (Most severe and prolonged hydrological conditions)*	1,500,000 af/year
LBWD's Minimum Preferential Rights (Most severe conditions)	39,150 af/year

**MWD dry-year supplies include imported water, stored water, water purchased on the spot market, etc.*

A portion of the LBWD's water supply is treated groundwater pumped from the Central Basin aquifer. The Basin was adjudicated in 1965 limiting the amount of water to be extracted in any given year and assigning rights, or "Allowable Pumping Allocation" (APA) to extract that water to specified parties. The LBWD was awarded certain APA rights at that time and has since purchased additional APA totaling 32,684 acre-feet APA per year. As shown in Table 4.12-3, the LBWD has extracted less then their APA of 32,684 acre-feet per year in five of the last six fiscal years. However, while the pumping for the period of 2007-2008 (35,816 AF) was higher than the 32,684 AF, it did not exceed the allowable extraction based on credits from 2006-2007 carryover and leases. (See note in Table 4.12-3.)

The LBWD only extracts groundwater from the Central Basin and no difficulties in extracting this groundwater over the next 20 years are anticipated based on the following combination of factors:

Table 4.12-3
Groundwater Extracted by LBWD - AF/ Fiscal Year Ending Sept 30

Fiscal Year	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Acre-Feet Extracted	27,751	21,173	24,728	23,353	25,487	35,816[a]

Source: California State Department of Water Resources, 2008.
a The allowable extraction for the LBWD for the 2007-2008 period is 40,267 AF based on carryover from 2006-2007 and available leases.

- *The Central Basin adjudication prevents over-drafting by imposing strict limits on extraction from the basin;*
- *The adjudication has imposed upon the Water Replenishment District of Southern California (WRD) the mandate to provide for the continual replenishment of the Basin;*
- *WRD has fulfilled this mandate well, increasing the amount of water stored in the Basin since the time of adjudication; and*
- *WRD is expected to continue to maintain the groundwater level in the Basin in the future, given its mandate and access to resources through the fee it imposes whenever water is extracted.*

Tables 4.12-4 through 4.12-6 show current and projected LBWD water supplies and demand. These projections indicate that sufficient supplies can be reasonably relied upon to meet projected demands for the entire LBWD service area under single and multiple dry years, average years, and wet years.

The City implements a number of water conservation programs, including public information and education programs, irrigation programs, commercial and industrial programs, and other Best Management Practices (BMPs). BMPs are established and generally accepted practices among water suppliers that result in more efficient use and conservation of water. The City may require various BMPs for all new construction as part of the plan review process and as part of the City's Water Conservation Program. In addition, the City may require water demand mitigation fees to offset estimated total project water demand.

Table 4.12-4
Groundwater Projected to be Extracted by LBWD AF/Year

Year	2010	2015	2020	2025	2030
Acre Feet to be Extracted	32,684	32,684	32,684	32,684	32,684

Source: LBWD Urban Water Management Plan, 2005

Table 4.12-5
Current Potable Demands and Dry-Year Supplies (AFY)*

	Normal Year	1st Dry Yr	2nd Dry Yr	3rd Dry Yr	4th Dry Yr
Groundwater Supplies	32,684	32,684	32,684	32,684	32,684
Wholesale from MWD	37,316	38,724	38,724	38,724	38,724
Less Non-Project Demand	(70,000)	(71,408)	(71,408)	(71,408)	(71,408)
Balance	-	-	-	-	-

Source: LBWD Urban Water Management Plan, 2005.
Assumes demands increase 2% due to dry-year conditions, worse case scenario of consecutive dry weather without extraordinary "dry year conservation".
** Acre-feet per year*

Table 4.12-6
Future Potable Demands and Dry-Year Supplies (AFY)*

Source	Normal Year	1st Dry Yr	2nd Dry Yr	3rd Dry Yr	4th Dry Yr
Groundwater Supplies	32,684	32,684	32,684	32,684	32,684
Wholesale from MWD	30,488	31,951	31,951	31,951	31,951
Desalinated Seawater	10,000	10,000	10,000	10,000	10,000
Less Non-Project Demand	(73,172)	(74,635)	(74,635)	(74,635)	(74,635)
Balance	-	-	-	-	-

Source: LBWD Urban Water Management Plan, 2005.
Assumes demands increase 2% due to dry-year conditions, worse case scenario of consecutive dry weather without extraordinary "dry year conservation".
Normal year is projected supply and demand in 2025.
** Acre-feet per year*

Based on review of the capacity of the water delivery infrastructure that currently supports the existing development on Lime Avenue, Atlantic Avenue, and Linden Avenue from South Street to 59th Street, the City has determined that the capacity of the existing infrastructure would be adequate to serve the proposed North Village Center project (LBWD, 2008).

b. Wastewater Conveyance and Treatment. The City of Long Beach Water Department's sewer collection system serves the project site. Sewer flow from the City is generally conveyed to the Los Angeles County Sanitation District's (LACSD) Joint Water Pollution Control Plant (JWPCP) and the LACSD Long Beach Water Reclamation Plant. The JWPCP is located approximately 10 miles southwest of the project site at 24501 South Figueroa Street in Carson. The Long Beach Water Reclamation Plant (LBWRP) is located approximately

seven miles southeast of the project site at 7400 East Willow Street in Long Beach. According to the Districts, wastewater from the project site vicinity is conveyed to the JWPCP and not the LBWRP.

The JWPCP serves 3.5 million people throughout the County of Los Angeles. The JWPCP occupies about 350 acres, receives approximately 323 million gallons per day (mgd) of wastewater, and has a permitted capacity of 385 mgd (Districts, 2006). One of the largest wastewater treatment plants in the world and the largest of the District's wastewater treatment plants, the JWPCP provides primary and secondary wastewater treatment while producing over 95% of the energy used by the plant from the methane gas generated during the treatment process. The treated wastewater is sent two miles off the coast of Southern California along the Palos Verdes Peninsula, where the effluent is discharged at a depth of 200 feet in the Pacific Ocean. The City conducts a long-term maintenance program to provide continued inspection, maintenance and rehabilitation for the wastewater collection system to ensure proper operation and avoid pipeline failure.

The LBWD completed a Sewer Master Plan Update in October of 2008. The Sewer Master Plan Update identified that the 10-inch sewer main in Linden Avenue is surcharged under current development conditions. An 8-inch sewer main on the east side of Atlantic Avenue and an 8-inch sewer main in Lime Avenue do have sufficient capacity for additional wastewater discharge (Jimmy Chen, LBWD, pers. Comm. March 2009).

The Developer may choose to upgrade the surcharged sewer system or divert flow so that there will be less flow in the surcharged sewer system. The Developer should hire an experienced Engineer to design alternatives. Contact Jimmy Chen at (562)570-2340 for further details on this.

c. Solid Waste. The City of Long Beach provides refuse collection service to approximately 109,000 Long Beach residential customers and approximately 5,600 commercial and industrial establishments. The Department of Public Works Environmental Services Bureau operates the solid waste management system. The solid waste operation is self-supporting; the fees charged to residents and businesses in the City comprise virtually all of its revenues. Citywide, about 368,000 tons of solid waste (including wastes diverted to recycling) are generated annually by both residential and commercial/industrial sources (City of Long Beach, 2008).

The City of Long Beach has designed and implemented a comprehensive solid waste management strategy. A source reduction and recycling program was developed to reduce the amount of waste to be managed and to reduce the consumption of natural resources. Solid waste is collected by the City in separate containers for recyclables, green waste and refuse. Refuse is taken to the Southeast Resource Recovery Facility (SERRF) located at 120 Henry Ford Avenue near the harbor in southwest Long Beach. Solid waste that is taken to the publicly owned SERRF is processed through one of three boilers. The SERRF performs "front-end" recycling by recovering such items as white goods prior to incineration and "back-end" recycling by collecting metal removed from the boilers after incineration. The SERRF recycles an average of 825 tons of metals each month (City of Long Beach, 2008).

The SERRF processes an average of 1,290 tons of municipal solid waste each day, with a capacity of 1,380 tons per day. The residential and commercial waste is combusted in high temperature boilers to produce steam, which is used to run a turbine-generator producing up to 36 megawatts of electricity, sufficient to run the facility and distribute excess electricity to Southern California Edison (SCE). Pollution from incinerating rubbish is a concern, especially air pollution, and has been addressed by the facility. The SERRF is equipped with the Best Available Control Technology (BACT). Air emissions resulting from burning waste are controlled by several measures. The SERRF uses ammonia to control nitrogen oxides, lime slurry to control sulfur oxides and acid gases, and a multi-chamber fabric filter "baghouse" filter for removal of particulate matter. When the flue gas is ready to exit the baghouse, it is discharged through a 265-foot tri-flue stack where emissions are monitored by a combination of continuous monitors and periodic stack sampling. The pollution control system is designed to remove 99.5% of the particulate matter, 99% of hydrochloric acid gasses, and 95% of sulfur dioxide acid gasses from the gas generated by the facility.

d. Energy. Southern California Edison (SCE) and the Long Beach Gas and Oil Department (LBGOD) provide electricity and natural gas services to the City of Long Beach.

Electricity. SCE generates electricity primarily from a combination of petroleum-based products (coal, natural gas, and oil) supplemented by hydroelectric, nuclear, and renewable resources, such as wind and solar power. Existing generation and transmission facilities provide adequate electrical service throughout the City. According to the California Energy Commission (CEC), annual total usage for SCE was 101,762 mkWH (million kilo-watt hours) in 2006. Residential and commercial uses were to top category consumers that year with total usage being 32,093 mkWH and 37,652 mkWH, respectively (CEC, 2006).

New buildings constructed in California are subject to the State Building Energy Efficiency Standards as per Title 24 of the California Code of Regulations. These standards are intended to conserve non-renewable energy resources, minimize the ecological impacts of energy consumption, and use energy efficiently.

Natural Gas. The City of Long Beach Gas and Oil Department (LBGOD) provides natural gas services to customers in the City. The LBGOD does not produce natural gas. Rather, it purchases natural gas on the open competitive market. Approximately 95% of the natural gas purchased by the LBGOD is imported from outside the City and transferred through Southern California Gas Company pipelines. About 5% is purchased from local providers (S. Bateman, LBGOD). On average, LBGOD provides approximately 52,000 cubic feet (Mcf) per day during the winter, during 2006-2007 the maximum amount delivered in one day was approximately 60,000 Mcf, and the LBGOD estimates a worst case scenario peak day to reach 80,000 Mcf delivered in one day. Existing natural gas service is adequate throughout the City, and no expansion of service is planned. Natural gas consumption in new buildings is regulated by State Building Energy Efficiency Standards per Title 24 of the California Code of Regulations.

e. Regulatory Setting. Federal, state, and local policies and regulations for the above-mentioned services and utilities are listed below.

Water Supply. The federal *Clean Water Act* (CWA) establishes regulatory requirements for potable water supplies including raw and treated water quality criteria. Long Beach is required to monitor water quality and conform to the regulatory requirements of the CWA.

The federal *Safe Drinking Water Act* (SDWA) establishes standards for contaminants in drinking water supplies. Maximum contaminant levels and treatment techniques are established for each of the contaminants. The listed contaminants include metals, nitrates, asbestos, total dissolved solids, and microbes.

Safe Water Drinking Act (1976). California enacted its own *Safe Water Drinking Act*. The California Department of Health Services (DHS) has been granted primary enforcement responsibility for the SDWA. Title 22 of the California Administrative Code establishes DHS authority and stipulates drinking water quality and monitoring standards. These standards are equal to or more stringent than federal standards.

Senate Bill 610 (2001). Senate Bill 610 (Costa) was signed into law in 2001. This law requires cities and counties to develop water supply assessments when considering approval of applicable development projects in order to determine whether projected water supplies can meet the project's anticipated water demand. The proposed project does not require a water supply assessment pursuant to SB 610 because it includes fewer than 500 residential units and less than 250,000 square feet of commercial floor area.

Wastewater Treatment and Conveyance. *National Pollution Discharge Elimination System (NPDES).* Under the Los Angeles RWQCB NPDES, all existing and future municipal and industrial discharges to surface waters within the City of Long Beach are subject to regulations. NPDES permits are required for operators of construction projects and industrial facilities. NPDES permits are further discussed in Section 4.6 *Hydrology and Water Quality*.

Solid Waste. *California Integrated Solid Waste Management Act.* The California Integrated Solid Waste Management Act of 1989 (AB 939) required that each County prepare a new Integrated Waste Management Plan. The Act further required each city to prepare a Source Reduction and Recycling Element (SRRE) by July 1, 1991. AB 939 also required cities and counties to prepare SRREs in their General Plans. Senate Bill 2202 made a number of changes to the municipal solid waste diversion requirements under the Integrated Waste Management Act. These changes included a revision to the statutory requirement for 50% diversion of solid waste to clarify that local governments must continue to divert 50% of all solid waste on and after January 1, 2000.

Electricity. Title 24 of the California Code of Regulations, which is known as the energy efficiency standards, regulates energy consumption in new construction. The standards regulate energy consumed in buildings for heating, cooling, ventilation, water heating, and lighting. Title 24 is implemented through the local plan check and permit process.

Natural Gas. As a public utility, the SCGC is under the jurisdiction of the California Public Utilities Commission. The SCGC provides service in accordance with their policies and extensions rules on file with the Commission.

4.12.2 Impact Analysis

a. Methodology and Significance Thresholds.

The following criteria were used to determine whether impacts to utilities and service systems would be significant. Would the project:

- *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*
- *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*
- *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*
- *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*
- *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*
- *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*
- *Comply with federal, state, and local statutes and regulations related to solid waste?*

As discussed in the Initial Study (see Appendix A), the proposed project has the potential to result in significant impacts in relation to all seven of the criteria listed above. Below is a more detailed explanation of the thresholds used to determine impacts. An analysis of impacts related to the project's electricity and natural gas usage is also included in this section.

Water Supply and Demand. Impacts to water supply were determined based upon information from the Long Beach Water Department. Water supply impacts are considered potentially significant if the proposed project would not have sufficient water supplies available from existing entitlements and resources.

Wastewater. The increase in wastewater generation expected to occur with implementation of the proposed project has been estimated using wastewater generation factors from the Sanitation Districts of Los Angeles County. Impacts to wastewater infrastructure are considered significant if the proposed project would result in sewer line or treatment plant system deficiencies requiring new or expanded facilities.

Solid Waste. Solid waste generation was estimated using factors from the California Integrated Waste Management Board (2004). Solid waste collection service and disposal capacity already exist in the project area; therefore, for the purpose of this EIR, the project would cause a significant impact if it fails to implement measures to reduce the amount of solid waste entering landfills in accordance with State standards and/or if solid waste generated by the proposed project exceeds the capacity of the disposal facility and other solid waste facilities where such waste would be disposed.

Energy. Electricity and natural gas demand was estimated using factors from the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook (1993). The proposed project would cause a significant impact on energy resources if energy consumption would exceed the projected supply capacity of either the electric or natural gas systems of the City, or if the applicant does not take steps to reduce energy consumption through the use of efficient electrical and mechanical systems.

b. Project Impacts and Mitigation Measures.

Impact U-1 Buildout of the proposed project would incrementally increase water demand in the City of Long Beach. However, the Long Beach Water Department's water supplies are sufficient to meet the projected demand. Therefore, the impact on water supplies is considered to be Class III, *less than significant* for Option A or Option B.

Water for the proposed development would be provided by the City of Long Beach Water Department (LBWD). Based on the Department's water demand factors, the proposed project would generate net demand for approximately 28.17 AFY of water, or about 25,132 gallons of water per day (see Table 4.12-7). This increase in demand would constitute about 0.04% of the existing water demand level for the City, which is approximately 60 million gallons per day (LBWD, 2007). Project demand could be met with current and projected supplies of water, as projected through 2030 based on reported water availability as identified in the LBWD's 2006 Water Availability Assessment.

Table 4.12-7
Estimated Project Water Demand

Land Use	Size	Generation Rate (acre-feet/year)*	Total (acre-feet/year)
Retail/Commercial/Public	66,000 sf	224 per million square feet*	14.78
Residential	61 dwelling units	0.249 per unit**	15.19
Total for Proposed Project (acre-feet/year)			**29.97**
Existing Annual Water Use On-Site			**(1.8)**
Net Increase in Water Demand (acre-feet/year)			**28.17**
Total Net Increase in Water Demand (gallons/day)			**25,132**

Notes: sf = square feet
**Based on LBWD Comprehensive Sewer System Master Plan and Management Program.*
***Base on average use in Long Beach.*
1 AFY = 892.15 GPD

The LBWD would have the water resources to meet the demand of the proposed project during normal and dry year events. Tables 4.12-8 and 4.12-9 show that the supply of supplemental water would increase to accommodate the demands of the project. The reliability of the supplemental supply reflects the MWD's reliability and commitment to regional water

reliability. Not shown but available is the LBWD's right to pump its carryover storage and to access other groundwater supplies in case of emergency per the adjudication of the basin.

Table 4.12-9 shows the impact of the proposed project on future supplies and demand during multiple dry years. The LBWD 2005 Urban Water Management Plan projected demand 25 years into the future. This demand forecast in the 2005 UWMP incorporates the type of new demand the proposed project represents. Therefore, Table 4.12-9 shows similar overall total demand for potable water with the proposed project in the year 2030 as shown in Table 4.12-6. The proposed project would not have an impact on the supply and demand for water in the fiscal year 2030 as the demand expected from the proposed project was anticipated and planned for in the 2005 UWMP.

Table 4.12-8
Current Potable Demands with Project and Dry-year Supplies
(acre-feet/year)

	Normal Year	1st Dry Yr	2nd Dry Yr	3rd Dry Yr	4th Dry Yr
Groundwater Supplies	32,684	32,684	32,684	32,684	32,684
Wholesale from MWD	37,453	38,864	38,864	38,864	38,864
Supply Subtotal	**70,137**	**71,548**	**71,548**	**71,548**	**71,548**
Less Project Demand	(28)	(29)	(29)	(29)	(29)
Less Non-Project Demand	(70,109)	(71,519)	(71,519)	(71,519)	(71,519)
Demand Subtotal	**70,137**	**71,548**	**71,548**	**71,548**	**71,548**
Balance	-	-	-	-	-

Source: LBWD, Water Availability Assessment prepared for the Press-Telegram Mixed Use Development, 2006. Assumes demands increase 2% due to dry-year conditions, worse case scenario of consecutive dry weather without extraordinary "dry year conservation".

Table 4.12-9
Future Potable Demands with Project and Dry-year Supplies
(acre-feet/year)

	Normal Year	1st Dry Yr	2nd Dry Yr	3rd Dry Yr	4th Dry Yr
Groundwater Supplies	32,684	32,684	32,684	32,684	32,684
Wholesale from MWD	30,490	31,954	31,954	31,954	31,954

Table 4.12-9
Future Potable Demands with Project and Dry-year Supplies
(acre-feet/year)

Desalinated Seawater	10,000	10,000	10,000	10,000	10,000
Supply Subtotal	**73,174**	**74,638**	**74,638**	**74,638**	**74,638**
Less Project Demand	(28)	(29)	(29)	(29)	(29)
Less Non-Project Demand	(73,146)	(74,609)	(74,609)	(74,609)	(74,609)
Demand Subtotal	**73,174**	**74,638**	**74,638**	**74,638**	**74,638**
Balance	-	-	-	-	-

Source: LBWD, Water Availability Assessment prepared for the Press-Telegram Mixed Use Development, 2006.
Assumes demands increase 2% due to dry-year conditions, worse case scenario of consecutive dry weather without extraordinary "dry year conservation".
Desalinated water will begin in year 2010.

Mitigation Measures. As impacts would be less than significant, no mitigation is necessary.

Significance After Mitigation. Impacts related to water supply would be less than significant without mitigation. This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space would be the same for either option.

Impact U-2 **The proposed project would generate an estimated net increase of 29,235 gallons of wastewater per day, which would flow to the Joint Water Pollution Control Plant. The treatment plant has sufficient capacity to accommodate this increase in wastewater generation. However, the sewer main in Linden Avenue adjacent to the project site is over-capacity and not able to receive wastewater flows from the proposed increased density on the project site. This impact is considered Class II, *significant but mitigable,* for Option A or Option B.**

As shown in Table 4.12-10, the proposed project would generate an estimated 29,235 gallons of wastewater per day[1]. This increase in wastewater would not conflict with the City's contractual entitlement (unlimited flow) for flows to the Joint Water Pollution Control Plant, nor would it exceed the plant's capacity. Project-generated wastewater would account for about 0.008% of the 385 MGD permitted capacity for the JWPCP. Therefore, impacts to the City's wastewater treatment system would be less than significant.

[1] Wastewater generation is typically lower than water demand. In this case, projected wastewater generation is higher than estimated water demand, due to differences in agency generation rates. (Agencies do not necessarily match their generation rates.) Further, the water demand generation rates are based on actual average usage, rather than a set rate. Thus the estimate of wastewater generation is conservative and would likely be lower.

Table 4.12-10
Project Estimated Wastewater Generation

Land Use	Size [a]	Generation Rate (gallons/day/1000 sf)* [a]	Total (gallons/day)
Retail/Commercial/Public	66,000 sf	300	19,800
Residential	61 units	195 (gallons /unit)	11,895
Total for Project			**31,695**
Existing Wastewater Generation On-Site			2,460
Net Increase in Wastewater Generation			**29,235**

Note: sf = square feet
** Source: Sanitation Districts of Los Angeles County, 2006*
[a] All figures assume maximum 1.6 gallon/flush toilets, 1.0 gallon/flush urinals, and 2.5 gallon/minute showerheads.

Existing wastewater infrastructure adjacent to the project site includes a 10-inch sewer main in Linden Avenue, an 8-inch sewer main on the east side of Atlantic Avenue and an 8-inch sewer main in Lime Avenue. The LBWD completed a Sewer Master Plan Update in October of 2008. The Sewer Master Plan Update noted that the 10-inch sewer main in Linden Avenue is surcharged under current development conditions, while the 8-inch sewer main on the east side of Atlantic Avenue and the 8-inch sewer main in Lime Avenue do have sufficient capacity for additional wastewater discharge (Jimmy Chen, LBWD, pers. Comm. March 2009).

Without being upgraded, the 10-inch sewer main in Linden Avenue, which would otherwise receive wastewater flow from some or all of the West Block of the project site, is currently operating over capacity. This main may not take any increased sewage flow that would be associated with the proposed project and the resulting increased density and wastewater generation on the site. Mitigation is required to ensure that the wastewater infrastructure serving the site has the capacity to serve the proposed project.

Mitigation Measures. The following measure would reduce impacts to wastewater infrastructure to less than significant levels.

U-2 **Wastewater Infrastructure.** The developer shall implement one of the following two options prior to issuance of a certificate of occupancy for the project. For either option, prior to issuance of grading or building permits, the developer shall submit a sewer study performed by an experienced civil engineer, including a hydraulic analysis, for review and approval by the LBWD. Whichever option is chosen must be designed and implemented consistent with the information and conclusions in the approved sewer study. The options are:

Upgrade the 10-inch sewer main in Linden Avenue to sufficient design and capacity to accommodate the proposed project.

OR

Connect the 8-inch sewer main in the west side of Atlantic Avenue to another 8-inch sewer main in the east side of Atlantic Avenue.

Significance After Mitigation. Impacts related to wastewater flows would be less than significant with implementation of Mitigation Measure U-2. This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space on each block would be the same for either option.

Impact U-3 The proposed project would incrementally increase the long-term generation of solid waste at the site. However, the City's solid waste and recycling systems have adequate capacity to accommodate the increases. Therefore, impacts to the City's solid waste handling system would be Class III, *less than significant* for Option A or Option B.

Table 4.12-11 shows the estimated amount of solid waste that would be generated by the various uses for the project site. These estimates do not take into account any reduction in amount of waste produced due to recycling and other waste reduction programs. The City has completed a comprehensive waste reduction and recycling plan in compliance with State Law AB 939, which required every city in California to reduce the waste it sends to landfills by 50% by the year 2000. Based on solid waste generation factors from the California Integrated Waste Board (2004), the proposed project would generate a net increase of 165 net tons of solid waste per year (3 tons per week), of which less than 50% would go to processing at the SERRF. In the City, an average of 7,077 tons of solid waste is generated weekly by all sources (LACSD, 2006).

Table 4.12-11
Estimated Project Solid Waste Disposal Demand

Land Use	Size	Generation Rate*	Total (lbs/year) [a]
Retail/Commercial/Public	66,000 sf	1 lb/100 sf/day	240,900
Residential	61 units	5.31 lbs/unit/day	118,227
Total for project		**180 tons/year**	
Existing Solid Waste Generation on-site		15 tons/year	
Net Increase in Solid Waste Disposal		**165 tons/year**	

Notes: sf = square feet; 1 ton = 2,000 lbs
Source: California Integrated Waste Management Board, 2004.
[a] *Calculations based on 365 days per year of operation; this is a conservative figure, as most commercial and public uses are closed on Sundays and/or major holidays.*

The increase in weekly solid waste tonnage would constitute less than 0.04% of the 368,000 tons/year of waste currently generated citywide. The project would be required to participate in local waste reduction programs, which divert more than 50% of the waste generated in the City. Therefore, the estimated increase of solid waste from the project to be diverted to the

SERRF would be approximately 1.5 tons per week (3 tons/week x 50%). The SERRF currently operates with an excess capacity of approximately 90 tons per day, and thus could accommodate the estimated increase resulting from the proposed project. Project demolition and construction would also generate substantial amounts of solid waste through the removal of large expanses of concrete/asphalt parking lots and removal of portions of the existing buildings. Project demolition and construction would be subject to the requirements of the City's construction and waste management plans and ordinances. The estimated increase in solid waste generation could be accommodated by existing infrastructure and facilities, impacts would be less than significant.

Mitigation Measures. As impacts would be less than significant, no mitigation is necessary. Compliance with the City's Design Standards for refuse and recycling rooms and outdoor enclosures would ensure that adequate areas are provided for collecting and loading recyclable materials on the project site. Compliance with the City's construction and demolition material waste management standards would ensure that the quantity of waste generated during demolition activities would be minimized.

Significance After Mitigation. Provided that the project complies with building standards set forth in the Municipal Code, Federal, State, and Local regulations, the additional solid waste generated as a result of this project would be less than significant without mitigation. This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space would be the same for either option.

Impact U-4 The proposed project would incrementally increase electricity and natural gas consumption within the City. However, because energy resources are available to serve the project, impacts to energy would be Class III, *less than significant* for Option A or Option B.

Energy consumption of the proposed North Village project was estimated using electricity usage rates from the California Air Pollution Control Officers Association's [CAPCOA] (January 2008) *CEQA and Climate Change* white paper, as shown in Table 4.12-12. The project would generate a demand for about 1,437,790 kilowatt hours (kWh) of electricity per year. The potential increase in energy demand represents about 0.002 percent of the total electricity demand (approximately 78,543 million kWh in 2001) for the SCE service area (CEC, 2002). It should be noted that the project site was fully built out and drawing electricity and natural gas in the recent past, and that completely new electrical infrastructure would not be required. The incremental increase in demand for electricity could be accommodated by existing electricity sources and service systems.

Table 4.12-12
Project Estimated Electricity Consumption

Land Use	Size	Electricity Demand Factor *	Total (kilowatt hours/year)
Retail/Commercial/Public	66,000 sf	16,750 kWH/ 1,000 sf/year [1]	1,105,500
Residential	61 units	7,000 kWH/ unit/year [1]	427,000
Total for project			**1,532,500**
Existing Electricity Consumption On-site			94,710
Net Increase in Electricity Consumption			**1,437,790**

sf = square feet kWH = kilowatt hour
[1] Demand factor from CAPCOA, January 2008. CEQA and Climate Change.

The proposed land uses and development would also generate demand for natural gas. The project's likely natural gas consumption was calculated using estimated natural gas usage rates from the SCAQMD CEQA Air Quality Handbook (1993) as shown in Table 4.12-13. The estimated net demand for natural gas consumption for the proposed project is about 4.3 million cubic feet per year as indicated on Table 4.12-13. Natural gas is provided by the Long Beach Gas and Oil Department (LBGOD). The LBGOD purchases natural gas predominately from out-of-state suppliers and indicates that existing natural gas service is adequate throughout the City (S. Batemen, LBGOD, 2006). Natural gas consumption is also regulated by State Building Efficiency Standards (Title 24). The incremental increase in natural gas demand could be accommodated by the Long Beach Gas and Oil Department's existing sources and infrastructure, therefore this is considered a Class III, less than significant impact.

Table 4.12-13
Project Estimated Natural Gas Consumption

Land Use	Size [a]	Generation Rate	Total (cubic feet/year)
Non-Residential	66,000 sf	2.0 (cubic feet/sf/month)*	1,584,000
Residential [a]	61 units	4,011.5 (cf/unit/month)	2,936,418
Total for Project			**4,520,418**
Existing Natural Gas Consumption:			196,800
Net Increase in Natural Gas Consumption			**4,323,618**

Note: sf = square feet
**Source: Southern California Air Quality Management District, CEQA Air Quality Handbook, Table A9-12-A 1993*
[a] assessed at multi-family generation rate

In Long Beach, energy use in new buildings is not regulated. The City does, however, have guidelines for reducing energy use in City's Green Building Policy (adopted 2002), which includes standards for municipal buildings such as libraries. In addition, "green design strategies" are proposed for the North Village Center Redevelopment project. This would include the use of natural light and Energy Star™ appliances. The proposed structures would be designed to achieve basic LEED certification, while the library and community center would achieve LEED Silver classification. Although the increased energy consumption associated with development and operation of the project could be accommodated by existing sources, adherence with the City's Green Building guidelines and implementation of the proposed green building strategies/LEED certification would further reduce the increased demand. Impacts to energy resources would be less than significant.

Mitigation Measures. No mitigation is necessary. Impacts related to energy consumption would be less than significant.

Significance After Mitigation. Impacts related to energy consumption would be less than significant without mitigation. This would be the case for Option A or Option B, as the number of housing units and quantity of non-residential space would be the same for either option.

c. Cumulative Impacts.

Water Supply. 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 Long Beach Water Department has a preferential right to the imported drinking water it expects to purchase wholesale from the MWD except during times of extreme emergency (Metropolitan Water District Act, Section 135). LBWD has an Allowable Pumping Allocation to extract groundwater from the Central Basin Aquifer. LBWD anticipates development projects' demand for water through projected increases in factors influencing demand projections, such as increases in housing, population, and employment. The current adopted UWMP projected water demands based on a number of factors, including an increase in multi-family housing from 89,703 units in 2005 to 112,716 units by 2030; and an increase in commercial/retail square footage as a result of increased employment from 200,200 jobs in 2005 to 244,400 jobs in 2030. Based on UWMP forecasts, water demand associated with cumulative growth can be met with existing and planned water supplies. As described in Section 4.9, *Population and Housing*, the growth associated with the North Village Center Redevelopment Project is within the City and SCAG projections for the City of Long Beach, and thus would not add significantly to the demand for water resources beyond current projections through 2025.

Wastewater Treatment and Conveyance. 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*). Given the City's current efforts at reducing its overall water consumption and sewer flows through implementation of water conservation programs, the City's flow to the Joint Water Pollution

Control Plant is not expected to increase substantially. In 2005, the City began repairing and replacing most of the sewer conveyance system to provide for the current and future sewage conveyance demands. Thus, the sewage flow from cumulative development will result in minimal impacts on the City's sewer conveyance system. As noted above, replacement of existing deficient sewer lines would be required in conjunction with the proposed project, thus mitigation potential project impacts. Placement of similar conditions on other planned and pending developments as necessary would mitigate any cumulative impacts to the wastewater conveyance system.

Solid Waste. 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 City has implemented a comprehensive waste reduction and recycling plan, in compliance with state law AB 939 waste diversion requirements. The Districts' Southeast Resource Recovery Facility is currently operating within capacity and is not expected to exceed permitted levels in the future (Districts, accessed March 2008). No additional improvements to the solid waste management system are needed to accommodate planned and pending development in the City.

Electricity and Natural Gas. Energy use in new buildings is regulated by Federal, State and local regulations, including the State Building Efficiency Standards (Title 24), which require energy efficiency levels to at least state standards. Compliance with these standards ensures that increased energy demands associated with cumulative development are minimized. Significant cumulative impacts to electricity and natural gas service are not anticipated.

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5.0 OTHER CEQA-REQUIRED DISCUSSIONS

5.1 GROWTH INDUCEMENT

Section 15126(d) of the *CEQA Guidelines* requires a discussion of a proposed project's potential to foster economic or population growth, including ways in which a project could remove an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. The proposed project's growth inducing potential is therefore considered significant if it could result in significant physical effects in one or more environmental issue area. The most commonly cited example of how an economic effect might create a physical change is where economic growth in one area could create blight conditions elsewhere by causing existing competitors to go out of business and the buildings to be left vacant for extended periods.

5.1.1 North Village Center Project Site

The proposed project is a mixed-use "village center" that would involve the construction of up to 61 units of multi-family housing in a mix of row houses, courtyard units, and units built atop ground floor non-residential space. The project would include up to 36,000 square feet of commercial retail space, including restaurant space, oriented primarily toward Atlantic Avenue. The project would also include a public library and community center totaling approximately 30,000 square feet fronting Atlantic Avenue on the east block. The project would generate temporary employment opportunities during construction, which would be expected to draw workers from the existing regional work force. Therefore, construction of the proposed project would not be considered growth inducing from a temporary employment standpoint.

The proposed project would create an increase in permanent jobs in the City relating to the occupation of the retail, restaurant, and institutional space. As discussed in Section 4.9, *Population and Housing*, the proposed project includes 36,000 square feet of ground floor retail/restaurant space and 30,000 square feet of public library and community center. Using the SCAG employment generation factor of 2.36 employees per 1,000 square feet for retail uses and 1.37 employees for 1,000 square feet for public institutional space, the project would generate approximately 126 jobs (SCAG/Natelson Company, 2001). The project-generated employment opportunities would represent approximately 0.06% of the employment growth forecast for the City through 2030 (198,860 jobs). Therefore, project-generated employment growth would be well within projected employment growth within for the area.

The current uses on site includes 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. The current uses on site to be replaced are detailed in Table 2-3 in Section 2.0, *Project Description*. The replacement of 40,000 square feet of commercial building space, of which all but 8,245 square feet is vacant, with 36,000 square feet of commercial retail and restaurant space and 30,000 square feet of institutional space would increase on-site employment. Employees of the Auto Zone would be moved to another store or would lose their jobs with implementation of the proposed project. The proposed project is

anticipated to generate 126 jobs at the project site, as detailed in Section 4.9 *Population and Housing*.

As discussed in Section 4.9, based on the City average of 2.90 people per household (California Department of Finance, May 2009), the 61-unit residential component of the proposed project would generate a net increase of approximately 177 residents. Based on the estimated 2009 population of 492,682 residents, an increase of 177 residents would increase the City's population by about 0.04%. The addition of 61 units of housing would also represent an increase of about 0.03% in the number of 175,164 existing units within the City.

According to the Southern California Association of Governments (SCAG), Long Beach is projected to add about 66,916 residents through 2030. The 177 new residents associated with project buildout would therefore make up approximately 0.3% of projected citywide population growth over that time period. Based on the SCAG growth forecasts for the City, Long Beach is projected to add about 15,412 housing units by 2030. The 61 units associated with build-out of the proposed project would account for approximately 0.4% of projected citywide housing growth for that time period. Although this is an increase in population and housing within the immediate area, the increase is well within City growth projections.

According to the SCAG population data for the City, Long Beach has a job-housing ratio of 1.05 (see Section 4.9, *Population and Housing*). This indicates that there are 1.05 jobs for every housing unit. A job-housing ratio over 1.5 is considered high and may indicate an increasing imbalance between jobs and housing (i.e., new residential construction has not kept up with job creation). A ratio below 1:1 is considered low. The new housing units, population growth and employment opportunities that would be added by the project are within SCAG's projections for the City. The addition of 61 units would only incrementally alter the existing job-housing ratio in the City of Long Beach from 1.051:1 to 1.052:1. Impacts realted to the jobs to housing ratio would not be signifcant.

5.1.2 Removal of Obstacles to Growth

The proposed project would be located in a fully urbanized area, generally served by existing infrastructure. Improvements to water, sewer, circulation and drainage connection infrastructure would be sized to specifically serve the proposed project. Project-related improvements to infrastructure, such as potential upsizing of the Linden Avenue sewer main, would be sized to accommodate the project's contribution to existing service needs.

The proposed project does not provide for any substantially capacity-increasing transportation and circulation improvements. No new roadways or bike/pedestrian pathways are proposed other than sidewalk improvements around the site and interior circulation elements. The project constitutes infill development within an urbanized area and does not require the extension of new infrastructure through undeveloped areas.

5.2 IRREVERSIBLE ENVIRONMENTAL EFFECTS

The *CEQA Guidelines* require that EIRs evaluating projects involving amendments to public plans, ordinances, or policies contain a discussion of significant irreversible environmental changes. CEQA also requires decisionmakers to balance the benefits of a proposed project

against its unavoidable environmental risks in determining whether to approve a project. This section addresses non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the proposed development.

Conversion of the project site from vacant land and older commercial structures and surface parking lots to a mixed use development would likely result in a long-term commitment of the site to such uses. Development of the proposed project would result in alteration of the urban built environment. Although physically reversible, reversal of this trend is unlikely. Construction of the new buildings would involve the use of building materials and energy, some of which are non-renewable resources. Consumption of these resources would occur with any development in the region and are not unique to the North Village Center Project. The increased intensity of commercial, institutional and residential development would also irreversibly increase local demand for non-renewable energy resources such as petroleum products and natural gas. However, increasingly efficient building fixtures and automobile engines are expected to offset the demand to some degree.

The project would require a commitment of law enforcement, fire protection, water supply, wastewater treatment, and solid waste disposal services. However, as discussed in Sections 4.10 and 4.12 of this EIR, impacts to these service systems would be less than significant or could be reduced to a less than significant level with recommended mitigation measures.

The additional vehicle trips associated with buildout of all three parcels would increase traffic congestion within the study area. As discussed in Section 4.2, air pollutant emissions associated with construction would be less than significant. Although impacts would be less than significant, construction pollutants would also contribute to the degradation of air quality.

Finally, the project would result in the irreversible removal of historic structures. This impact is discussed in Section 4.3 *Cultural Resources*.

5.3 GLOBAL CLIMATE CHANGE

Global climate change (GCC) is a change in the average weather of the earth that is measured by temperature, wind patterns, precipitation, and storms over a long period of time. The baseline, against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed an unprecedented acceleration in the rate of warming during the past 150 years.

GCC is a documented effect. Although the degree to which the change is caused by anthropogenic (man-made) sources is still under study, the increase in warming has coincided with the global Industrial Revolution, which has seen the widespread reduction of forests to accommodate urban centers and agriculture and the use of fossil fuels, primarily burning of coal, oil, and natural gas for energy. Per the United Nations Intergovernmental Panel on Climate Change (IPCC, 2007), the understanding of anthropogenic warming and cooling influences on climate has led to a high

confidence (90% or greater chance) that the global average net effect of human activities since 1750 has been one of warming. Most of the observed increase in global average temperatures, since the mid-20th century, is likely due to the observed increase in anthropogenic greenhouse gas (GHG) concentrations per the IPCC (November 2007). While there is some disagreement by individual scientists with some of the findings of the IPCC, the majority of scientists working on climate change agree with the main conclusions, as do the majority of major scientific societies and national academies of science. Disagreement within the scientific community is always present for all issues; however, the current state of knowledge suggests that GCC warming is occurring, with eleven of the last twelve years (1995-2006) ranking among the twelve warmest years in the instrumental record of global surface temperature since 1850 (IPCC, 2007). In addition, the majority of scientists agree that anthropogenic sources are a main, if not primary, contributor to the GCC warming.

5.3.1 Greenhouse Gases (GHGs)

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs), analogous to the way in which a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxides (NO_x), fluorinated gases, and ozone. GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6) (Cal EPA, 2006b).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34° C cooler (Climate Action Team [CAT], 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. The primary GHGs of concern are discussed below.

Carbon Dioxide. The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of CO_2 are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (USEPA, April 2008). CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20th century. Concentrations of CO_2 in the atmosphere have risen approximately 35% since the start of the Industrial Revolution. Per the IPCC (2007), the global atmospheric concentration of CO_2 has increased from a pre-industrial value of about 280 parts per million (ppm) to 379 ppm in 2005. The atmospheric concentration of CO_2 in 2005 exceeded the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores. The average annual CO_2 concentration growth rate was larger during the last 10 years (1995–2005 average: 1.9 ppm per year) than it had been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates.

Methane. CH_4 is an effective absorber of radiation, though its atmospheric concentration is less than that of CO_2 and its lifetime in the atmosphere is limited to 10-12 years, compared to some other GHGs. It is approximately 20 times more effective at trapping heat in the atmosphere than CO_2 (global warming potential [GWP] 20x that of CO_2). Over the last 250 years, the concentration of CH_4 in the atmosphere has increased by 148% (IPCC 2007). Anthropogenic sources of CH_4 include landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (USEPA, April 2008).

Nitrous Oxide. Concentrations of nitrous oxide (NO_x) also began to rise at the beginning of the industrial revolution. NO_x is produced by microbial processes in soil and water, including those reactions that occur in fertilizers containing nitrogen. Use of these fertilizers has increased over the last century. The GWP of NO_x is 300 times that of CO_2.

Fluorinated Gases (HFCS, PFCS and SF_6). Fluorinated gases, such as HFCs, PFCs, and SF_6, are greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances, such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are phased out under the *Montreal Protocol* and Clean Air Act Amendments of 1990. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but each molecule can have a much greater global warming effect. SF_6 is the most potent greenhouse gas that the IPCC has evaluated.

5.3.2 Greenhouse Gas Inventory

Worldwide anthropogenic emissions of GHG were approximately 40,000 million metric tons of CO_2 equivalent (CDE[1]) in 2004, including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay) (IPCC, 2007). CO_2 emissions from fossil fuel use accounts for 56.6% of the total emissions of 49,000 million metric tons CDE (includes land use changes) and all CO_2 emissions are 76.7% of the total. Methane emissions account for 14.3% of GHG and N_2O emissions account for 7.9% (IPCC, 2007).

Total U.S. GHG emissions were 7,054 million metric tons CDE in 2006 (USEPA, April 2008), or about 14% of worldwide GHG emissions. U.S. emissions rose by 14.7% from 1990 to 2006, while emissions fell by 1.1% from 2005 to 2006 (75.7 MMT CDE). The following factors were primary contributors to this decrease: (1) warmer winter conditions in 2006, which reduced consumption of heating fuels, as well as cooler summer conditions, which reduced demand for electricity; (2) restraint on fuel consumption caused by rising fuel prices, primarily in the transportation sector; and (3) increased use of natural gas and renewables in the electric power sector.

The primary GHG emitted by human activities in the United States is CO_2, representing an estimated 84.8% of total GHG emissions (USEPA, April 2008). The largest source of CO_2, and of overall greenhouse gas emissions, is fossil fuel combustion. CH_4 emissions, which have declined from 1990 levels, resulted primarily from enteric fermentation associated with domestic livestock, decomposition of wastes in landfills, and natural gas systems. Agricultural soil management and mobile source fossil fuel combustion were the major sources of N_2O emissions. The emissions of

[1] *Carbon dioxide equivalent (CDE or CO_2E) is a quantity that describes, for a given mixture and amount of GHGs, the amount of CO_2 (usually in metric tons; million metric tons [megatonne] = $MMTCO_2E$ = terragram [Tg] CO_2 Eq; 1,000 MMT = gigatonne) that would have the same global warming potential (GWP) when measured over a specified timescale (generally, 100 years).*

substitutes for ozone depleting substances and emissions of HFC-23 during the production of HCFC-22 are the primary contributors to aggregate HFC emissions. Electrical transmission and distribution systems account for most SF_6 emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production.

The residential and commercial end-use sectors accounted for 20% and 18%, respectively, of CO_2 emissions from fossil fuel combustion in 2006 (USEPA, April 2008). Both sectors rely heavily on electricity for meeting energy demands, with 72% and 79%, respectively, of their emissions attributable to electricity consumption for lighting, heating, cooling, and operating appliances. The remaining emissions were due to the consumption of natural gas and petroleum for heating and cooking.

California is the second largest contributor in the United States among states and if California were a country, it would rank as the sixteenth largest contributor in the world (AEP, 2007). Based upon the 2004 GHG inventory data (the latest year available) compiled by the California Energy Commission (CEC, December 2006), California produced 492 MMT CDE (7% of US total). The major source of GHG in California is transportation, contributing 41% of the state's total GHG emissions. Electricity generation is the second largest source, contributing 22% of the state's GHG emissions (CEC, December 2006). Most (81%) of California's 2004 GHG emissions (in terms of CDE) were carbon dioxide produced from fossil fuel combustion, with 2.8% from other sources of CO_2, 5.7% from methane, and 6.8% from nitrous oxide (CEC, December 2006). California emissions are due in part to its large size and large population. California had the fourth lowest CO_2 emissions per capita from fossil fuel combustion in the country in 2001, due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have otherwise been (CEC, December 2006). Another factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate.

5.3.3 Effects of Global Climate Change

GCC has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place, including substantial ice loss in the Arctic (IPCC, 2007).

According to the California Air Resources Board (ARB), potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (ARB 2006c, 2007c). Below is a summary of some of the potential effects reported by an array of studies that could be experienced in California as a result of global warming and climate change.

Air Quality. Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are

accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (CEC, February 2006).

Water Supply. Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. Studies have found that, "considerable uncertainty about precise impacts of climate change on California hydrology and water resources will remain, until we have more precise and consistent information about how precipitation patterns, timing, and intensity will change" (Climate Change and California Water Resources). For example, some studies identify little change in total annual precipitation in projections for California (California Climate Change Center, 2006). Other studies show significantly more precipitation (Climate Change and California Water Resources [(DWR 2006)]). Even assuming that climate change leads to long-term increases in precipitation, analysis of the impact of climate change is further complicated by the fact that no studies have identified or quantified the runoff impacts that such an increase in precipitation would have in particular watersheds (California Climate Change Center, 2006). Also, little is known about how groundwater recharge and water quality will be affected (Id.). Higher rainfall could lead to greater groundwater recharge, although reductions in spring runoff and higher evapotranspiration could reduce the amount of water available for recharge (Ibid.).

The California Department of Water Resources (DWR 2006) report on climate change and effects on the State Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta concludes that "[c]limate change will likely have a significant effect on California's future water resources . . . [and] future water demand." DWR also reports that "much uncertainty about future water demand [remains], especially [for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain" (DWR, 2006).

This uncertainty serves to complicate the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood (DWR, 2006). DWR adds that "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future." Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (Kiparsky 2003; DWR 2005; Cayan 2006, Cayan, D., et al, 2006).

Hydrology. As discussed above, climate changes could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise may be a product of global warming through two main processes: expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture. California has a $30 billion agricultural industry that produces half of the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thus affect their quality (CCCC, 2006).

Ecosystems and Wildlife. Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise as discussed previously: 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) in the next century, with substantial regional variation (EPA 2000). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as two feet along most of the U.S. coast. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan, 2004; Parmesan, C. and H. Galbraith 2004.)

5.3.4 Regulatory Setting

International and Federal. The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC), since is was signed on March 21, 1994. The Kyoto Protocol is a treaty, made under the UNFCCC, and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5% from 1990 levels, during the first commitment period of 2008–2012. It should be noted that although the United States is a signatory to the Kyoto Protocol, Congress has not ratified the Protocol and the United States has not bound itself to the Protocol's commitments (UNFCCC, 2007)

The United States is currently using a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (led by the Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative (CCTP, December 2007; http://www.epa.gov/climatechange/policy/cctp.html).

To date, the United States Environmental Protection Agency (USEPA) has not regulated GHGs under the Clean Air Act; however, the U.S. Supreme Court in *Massachusetts v. EPA* (April 2, 2007) held that the USEPA can, and should, consider regulating motor-vehicle GHG emissions. The USEPA has not yet promulgated federal regulations limiting GHG emissions. In December 2007, the USEPA also denied California's request for a waiver to directly limit GHG tailpipe emissions, which prompted a suit by California in January 2008 to overturn that decision.

California Regulations. Assembly Bill (AB) 1493, requiring the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases," emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State was signed into law in September 2002. In 2005, Executive Order S-3-05 established statewide GHG emissions reduction targets. S-3-05 provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80% of 1990 levels (CalEPA 2006a).

In response to EO S-3-05, the CalEPA created the Climate Action Team (CAT), which in March 2006, published the Climate Action Team Report (the "2006 CAT Report"). The 2006 CAT Report identifies a recommended list of strategies that the state could pursue to reduce climate change greenhouse gas emissions. These are strategies that could be implemented by various state agencies to ensure that the AB 32 targets are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/ infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc.

AB 32, the "California Global Warming Solutions Act of 2006," was signed into law in the fall of 2006. AB 32 requires the ARB to adopt regulations by January 1, 2008 to require reporting and verification of statewide GHG emissions. The ARB is to produce a plan by January 1, 2009 to indicate how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms, and other actions. In addition, this law requires the ARB to adopt regulations by January 1, 2010 to implement the early action GHG emission reduction measures that can be implemented before the adoption of those recommended by the 2009 plan. The bill requires achievement by 2020 of a statewide GHG emissions limit equivalent to 1990 emissions (essentially a 25% reduction below 2005 emission levels; same requirement as under S-3-05), and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions.

In response to the requirements of AB 32, the ARB produced a list of 37 early actions for reducing GHG emissions in June 2007. The ARB expanded this list in October 2007 to 44 measures that have the potential to reduce GHG emissions by at least 42 million metric tons of CO_2 emissions by 2020, representing about 25% of the estimated reductions needed by 2020 (ARB, October 2007). After completing a comprehensive review and update process, the ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CDE.

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis under CEQA. This bill directs the California Office of Planning and Research to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions by July 1, 2009. Draft guidelines were released in April, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010.

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10%

by 2020. In addition, a Low Carbon Fuel Standard ("LCFS") for transportation fuels is to be established for California.

Senate Bill (SB) 375, signed in August 2008, requires the inclusion of sustainable communities' strategies (SCS) in regional transportation plans (RTPs) for the purpose of reducing GHG emissions. The bill requires ARB to set regional targets for the purpose of reducing greenhouse gas emissions from passenger vehicles, for 2020 and 2035. On January 23, 2009 ARB appointed a Regional Targets Advisory Committee (RTAC) to provide recommendations on factors to be considered and methodologies to be used in the ARB target setting process, as required under SB 375. The Committee must provide its recommendations in a report to ARB by September 30, 2009.

For more information on the assembly bills, executive orders, and reports discussed above, please refer to these websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

Local Regulations and CEQA Requirements. GHG emissions and their contribution to global climate change have only recently been addressed in CEQA documents, such that CEQA and case law do not provide guidance relative to their assessment. Quantitative significance thresholds for this topic have not been adopted by the State of California or any particular air pollution control district, including the SCAQMD[2]. The Office of Planning and Research (OPR) is directed under SB 97, to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions through CEQA by July 1, 2009. Draft guidelines were released in April, 2009 which do not include quantitative emissions thresholds. The California Resources Agency (Resources Agency) will certify and adopt amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions implementing the draft guidelines, on or before January 1, 2010, pursuant to SB 97 (Dutton, 2007). These updated *CEQA Guidelines* will provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents. In the interim, in an effort to guide professional planners, land use officials and CEQA practitioners, the Governor's Office of Planning and Research (OPR) prepared *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA)*. *CEQA and Climate Change* offers informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents. This guidance was developed in cooperation with the Resources Agency, the California Environmental Protection Agency (Cal/EPA), and the ARB. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the state CEQA Guidelines for greenhouse gas emissions, as required by Senate Bill 97. These proposed CEQA Guideline amendments would provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in draft CEQA documents. The Natural Resources Agency will conduct formal rulemaking in 2009, prior to certifying and adopting the amendments, as required by Senate Bill 97.

[2] *To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, the SCAQMD staff has formed a GHG CEQA Significance Threshold Working Group. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that will provide input to the SCAQMD staff on developing GHG CEQA significance thresholds.*

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The board letter, resolution, interim GHG significance threshold, draft guidance document and attachments can be found under the Board Agenda Item 31 on the December 5, 2008, Governing Board meeting agenda (http://www.aqmd.gov/ceqa/handbook/ghg/ghg.html).

The Air Resources Board is in the midst of implementing AB 32, the three-year-old law that requires California to reduce greenhouse gas (GHG) emissions to 1990 levels by 2020, and to 80% below 1990 levels by 2050. The Air Resources Board has decided that a small portion of the GHG reduction will be attributable to land use changes, but the board has deferred the specifics to the SB 375 process. Passed in 2008, SB 375 requires the state to establish GHG emissions reduction targets for each of the state's 17 regions, and requires the metropolitan planning organization within each region to adopt land use planning and transportation strategies that will meet the target.

5.3.5 Climate Change Impact Analysis

The information provided in this section is based on recently established California goals for reducing GHG emissions, as well as a project-specific emissions inventory developed for the proposed project. Determining how a proposed project might contribute to climate change, and what the overall effect of an individual project would be based on that contribution is still undergoing debate at this time. As previously discussed, no adopted thresholds or methodologies are currently available for determining the significance of a project's potential cumulative contribution to global climate change in CEQA documents. An individual project (unless it is a massive construction project, such as a dam or a new freeway project, or a large fossil-fuel fired power plant) does not generate sufficient GHG emissions to directly influence global climate change; therefore, the issue of global climate change typically involves an analysis of whether a project's contribution towards a cumulative impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Methodology. This analysis is based on the methodologies recommended by the California Air Pollution Control Officers Association [CAPCOA] (January 2008) *CEQA and Climate Change* white paper. CAPCOA conducted an analysis of various approaches and significance thresholds, ranging from a zero threshold (all projects are cumulatively considerable) to a high of 40,000 – 50,000 metric tons CDE per year. For example, assuming a zero threshold and the AB 32 2020 targets, this approach would require all discretionary projects to achieve a 33% reduction from projected "business-as-usual" emissions to be considered less than significant. A zero threshold approach could be considered on the basis that climate change is a global phenomenon, and not controlling small source emissions would potentially neglect a major portion of the GHG inventory. Another method, based on a market capture approach that requires mitigation for greater than 90% of likely future discretionary development, would use a quantitative threshold of greater than 900 metric tons CDE/year for most projects, which would generally correspond to office projects of approximately 35,000 square feet, retail projects of approximately 11,000 square feet, or supermarket space of approximately 6,300 square feet. Another potential threshold of 10,000 metric tons was considered by the Market Advisory Committee for inclusion in a GHG Cap and Trade System in California. A 10,000 metric ton significance threshold would correspond to the GHG emissions of approximately 550 residential units, 400,000 square feet of office space, 120,000 square feet of retail, and 70,000 square feet of supermarket space (CAPCOA, January 2008). This threshold would capture roughly half of new residential or commercial development (CAPCOA, January 2008). The basic concepts for the various approaches suggested by CAPCOA are used herein to determine whether or not the proposed project's GHG emissions are "cumulatively considerable."

The information provided in this section is based on recently established California goals for reducing GHG emissions. The City of Long Beach, as the lead agency, has no duty to establish a significance threshold for GHG emissions. Therefore, this analysis is specific to the proposed project and does not establish thresholds for the City or set precedence for the type of analysis in a climate change analysis, as this discipline is still evolving and is expected to undergo multiple renditions before standards and thresholds are published.

Calculations of CO_2, CH_4, and NO_x are provided for full disclosure of the magnitude of potential project effects. The analysis focuses on CO_2, NO_x, and CH_4 as these are the GHG emissions that the project would generate in the largest quantities. Calculations were based on the methodologies discussed in the CAPCOA white paper (January 2008) and included the use of the California Climate Action Registry General Reporting Protocol (March 2007).

Indirect Emissions. Operational emissions of CO_2, associated with space heating and landscape maintenance were quantified using the California Air Resource Board's URBEMIS 2007 (version 9.2.4) computer model. NO_x and CH_4 emissions were quantified using the California Climate Action Registry General Reporting Protocol (January 2009) indirect emissions factors for electricity use (see Appendix B for calculations). The calculations and emission factors contained in the General Reporting Protocol were selected based on technical advice provided to the Registry by the California Energy Commission. This methodology is considered reasonable and reliable for use, as it has been subjected to peer review by numerous public and private stakeholders, and in particular by the California Energy Commission, and is recommended by CAPCOA (January 2008).

Direct Emissions from Mobile Combustion. Emissions of CO_2 from transportation sources were quantified using the California Air Resource Board's URBEMIS 2007 (version 9.2.4) computer model. N_2O and CH_4 emissions were quantified using the California Climate Action Registry General Reporting Protocol (January 2009) direct emissions factors for mobile combustion (see Appendix B for calculations). Total daily mileage was calculated using URBEMIS 2007 version 9.2.4 and extrapolated to derive total annual mileage. Emission rates were based on the vehicle mix output, generated by URBEMIS, and the emission factors found in the California Climate Action Registry General Reporting Protocol.

It should be noted that one of the limitations to a quantitative analysis is that emission models, such as URBEMIS, evaluate aggregate emissions and do not demonstrate, with respect to a global impact, what proportion of these emissions are "new" emissions, specifically attributable to the proposed project in question. For most projects, the main contribution of GHG emissions is from motor vehicles and the total vehicle miles traveled (VMT), but the quantity of these emissions appropriately characterized as "new" is uncertain. Traffic associated with a project may be relocated trips from other locales, and consequently, may result in either higher or lower net VMT. In this instance, it is likely that some of the proposed project-related GHG emissions, associated with traffic and energy demand, would be truly "new" emissions. However, it is also likely that some of the emissions represent diversion of emissions from other locations. Thus, although GHG emissions are associated with the project, it is not possible to discern how much diversion is occurring or what fraction of those emissions represent global increases. In the absence of information regarding the different types of trips, the VMT generated by URBEMIS is used as a conservative, "worst-case" estimate.

Estimate of GHG Emissions.

Operational Indirect and Stationary Direct Emissions. Operation of the proposed project would consume an estimated 1,532,500 kilowatt-hours [kWh]/year of electricity (see Table 5-1). The generation of electricity through combustion of fossil fuels typically yields CO_2, and to a smaller extent N_2O and CH_4. As discussed above, annual electricity emissions can be calculated using the California Climate Action Registry General Reporting Protocol, which has developed emission factors based on the mix of fossil-fueled generation plants, hydroelectric power generation, nuclear power generation, and alternative energy sources associated with the regional grid. CO_2 emission estimates using the URBEMIS model also take into account emissions from other operational sources such as natural gas use for space heating. Table 5-2 shows the operational emissions of GHGs associated with the proposed project, estimated at 822.3 metric tons. It should be noted that in order to provide a conservative estimate of GHG emissions generated by the proposed project, no credit was given for the existing onsite energy use.

Table 5-1
Estimated Electricity Consumption

Type of Use	Units	Electricity Demand Factor	Annual Electricity Demand
Commercial/Retail /Institutional	66,000 sf	16,750 kWH/ 1,000 sf/year[1] [1]	1,105,500 kWH
Residential	61 units	7,000 kWH/ unit/year[1]	427,000 kWH
		Total	**1,532,500 kWH**

sf = square feet
kWH = kilowatt hour
[1] Demand factor from CAPCOA, January 2008. CEQA and Climate Change.

Table 5-2
Estimated Annual Operational Emissions of Greenhouse Gases

Emission Source	Annual Emissions	
	Emissions	**CDE**
Carbon Dioxide (CO_2)[1]	905.5 (short, US)	821.5 metric tons
Methane (CH_4) [2]	0.0047 metric tons	0.1 metric tons
Nitrous Oxide (N_2O) [2]	0.0026 metric tons	0.8 metric tons
Project Total		**822.3 metric tons**

Source:
[1] See Appendix B for calculations.
[2] California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1,January 2009, pp. 31-40.
See Appendix B for GHG emission factor assumptions.

Transportation Emissions. Mobile source GHG emissions were estimated using the average daily trips estimate generated by the traffic study (Appendix C) and the total vehicle miles traveled estimated in URBEMIS 2007 (v. 9.2.4). The URBEMIS 2007 model estimates that the project would generate approximately 37,000 daily VMT. Table 5-3 shows the estimated mobile emissions of GHGs based on this VMT.

Table 5-3
Estimated Annual Mobile Emissions of Greenhouse Gases

	Annual Emissions	
Emission Source	**Emissions**	**CDE**
Carbon Dioxide (CO_2)[1]	6,693.0 tons (short, US)	6,071.8 metric tons
Methane (CH_4) [2]	0.7344 metric tons	15.4 metric tons
Nitrous Oxide (N_2O) [2]	0.8788 metric tons	272.4 metric tons
	Project Total	**6,359.6 metric tons**

Source:
[1] Mobile Emissions from URBEMIS 2007 (version 9.2.4).
[2] California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009, page 41-48.
See Appendix B for GHG emission factor assumptions.

Combined Stationary and Mobile Source Emissions. Table 5-4 combines the operational and mobile GHG emissions associated with the proposed project, which total approximately 7,182 metric tons per year in CO_2 equivalency units. This total represents roughly 0.0015% of California's total 2004 emissions of 492 million metric tons. These emission projections indicate that the majority of the project GHG emissions are associated with vehicular travel (89%). Mobile emissions are in part a redirection of existing travel to other locations, and so may already be a part of the total California GHG emissions.

Table 5-4
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions
Operational	822.3 metric tons CDE
Mobile	6,359.6 metric tons CDE
Project Total	**7,181.9 metric tons CDE**

Sources: Operational Emissions from URBEMIS 2007 (version 9.2.4).
California Climate Action Registry General Reporting Protocol, Reporting Entity Wide Greenhouse Gas Emissions, Version 3.1, January 2009.

GHG Cumulative Significance. As discussed above under *Methodology*, CAPCOA (January 2008) provided several approaches to consider potential cumulative significance of projects with respect to GHGs. Table 5-5 shows CAPCOA's suggested thresholds for GHG emissions. A zero threshold approach can be considered on the basis that climate change is a global phenomenon, and not controlling small source emissions would potentially neglect a major portion of the GHG inventory. However, the California Environmental Quality Act (CEQA) Guidelines also recognize that there may be a point where a project's contribution, although above zero, would not be a considerable contribution to the cumulative impact (CEQA Guidelines, Section 15130 (a)). Therefore, a threshold of greater than zero is considered more appropriate for the analysis of GHG emissions under CEQA.

Based on CAPCOA suggested thresholds in Table 5-5, the proposed project's contribution of about 7,182 metric tons CDE/year would exceed the 900-ton Quantitative Threshold, but would not exceed the other two emissions-based thresholds. The proposed 61 residential units and 66,000 sf of commercial development would exceed the Unit-Based Threshold Based on Market Capture, but would not exceed the Threshold for Statewide, Regional, or Area-Wide Significance. It should be noted that because the project would be infill development, which results in intensification and reuse of already developed lands as opposed to low density development on undeveloped lands, it would reduce reliance on the drive-alone automobile. As the City of Long Beach is generally built out, most development within the City is considered infill and would reduce reliance on the drive-alone automobile. A reduction in vehicle use and vehicle miles traveled can result in a reduction in fuel consumption and in air pollutant emissions, including GHG emissions. Recent research indicates that infill development reduces VMT and associated air pollutant emissions, as compared to development on sites at the periphery of metropolitan areas, also known as "greenfield" sites. For example, a 1999 simulation study conducted for the USEPA, comparing infill development to greenfield development, found that infill development results in substantially fewer VMT per capita (39% to 52%) and generates fewer emissions of most air pollutants and greenhouse gases. Table 5-6 shows the results of the EPA study.

Table 5-5
CAPCOA Suggested Quantitative Non-Zero Thresholds for Greenhouse Gas Emissions

90% Market Capture	~900 tons CDE/year
CARB Reporting Threshold/Cap and Trade Entry Level	Report: 25,000 tons CDE/year Cap and Trade: 10,000 tons CDE/year
Regulated Inventory Capture	~40,000 - 50,000 tons CDE/year
Unit-Based Threshold Based on Market Capture	Residential development > 50 du* Commercial space > 50,000 sf* Industrial (with emissions > 900 tons CDE)
Statewide, Regional, or Area-wide Significance (CEQA Guidelines 15206(b)).	Residential development > 500 du Office space > 250,000 sf Retail space > 500,000 sf Hotels > 500 units Industrial project > 1,000 employees, 40 ac, or 650,000 sf

**du = dwelling units*
**sf = square feet*
Sources: California Air Pollution Control Officers Association (CAPCOA), CEQA & Climate Change, January 2008.

Table 5-6
Comparison of VMT and Emissions: Infill versus Greenfield Development

Case Study	Per Capita Daily VMT, Infill as a Percentage of Greenfield	Emissions, Infill as a Percentage of Greenfield	
San Diego, CA	52%	CO NO_x SO_x PM CO_2	88% 58% 51% 58% 55%
Montgomery County, MD	42%	CO NO_x SO_x PM CO_2	52% 69% 110% 50% 54%
West Palm Beach, FL	39%	CO NO_x SO_x PM CO_2	75% 72% 94% 47% 50%

Source: Allen, E., Anderson, G., and Schroeer, W., "The Impacts of Infill vs. Greenfield Development: A Comparative Case Study Analysis," U.S. Environmental Protection Agency, Office of Policy, EPA Publication #231-R-99-005, September 2, 1999.

CAPCOA's suggested quantitative thresholds are generally more applicable to development on greenfield sites, where there would be an increase in VMT and associated GHG emissions than to infill development that would generally reduce regional VMT and associated emissions. For this reason, the most conservative (i.e., lowest) thresholds, suggested by CAPCOA, would not be appropriate for the proposed project, given that Long Beach is highly urbanized and built out. Consequently, the second lowest threshold threshold of 10,000 CDE/year[3] will be used as a quantitative benchmark for significance and qualitative consideration of the California Environmental Protection Agency's (CalEPA) GHG emissions reduction strategies that were prepared by CalEPA's CAT established by Executive Order S-3-05 for projects below 10,000 tons CDE/year. The CAT strategies are recommended to reduce GHG emissions at a statewide level to meet the goals of the Executive Order S-3-05 (http://www.climatechange.ca.gov). A project's contribution to cumulative impacts to global climate change is considered cumulatively considerable, if the project would generate 10,000 tons CDE/year. For projects that would generate fewer than 10,000 tons CDE/year, the impact would be considered cumulatively considerable if the project would be inconsistent with one or more of the CAT's GHG reduction strategies.

As indicated above, CDE emissions, associated with the proposed project, would be less than 10,000 tons/year. Therefore, the project's impact would be cumulatively considerable if the project were inconsistent with CAT strategies. Several of these actions are already required by California regulations. Tables 5-7 and 5-8 illustrate that the proposed project would be consistent with the GHG reduction strategies set forth by the 2006 CAT Report and the 2008 Attorney General's Greenhouse Reduction Report. Therefore, the project's contribution to cumulative GHG emissions and climate change would not be considerable.

Table 5-7
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
California Air Resources Board	
Vehicle Climate Change Standards AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004.	**Consistent** The vehicles that travel to and from the project site on public roadways would be in compliance with ARB vehicle standards that are in effect at the time of vehicle purchase.
Diesel Anti-Idling The ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling in July 2004.	**Consistent** Current State law restricts diesel truck idling to five minutes or less. Diesel trucks operating from, and making deliveries to, the project site are subject to this state-wide law. Construction

[3] *It should also be noted that the SCAQMD has recently proposed a resolution for an interim CEQA GHG emission threshold for stationary sources at 10,000 tons CDE/year. More information on SCAQMD's interim GHG threshold is available online at http://www.aqmd.gov/hb/2008/December/081231a.htm.*

Table 5-7
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
	vehicles are also subject to this regulation.
Hydrofluorocarbon Reduction 1) Ban retail sale of HFC in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration. 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs. 5) Enforce federal ban on releasing HFCs.	**Consistent** This strategy applies to consumer products. All applicable products would comply with the regulations that are in effect at the time of manufacture.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	**Consistent** The diesel vehicles that travel to and from the project site on public roadways could utilize this fuel once it is commercially available.
Alternative Fuels: Ethanol Increased use of E-85 fuel.	**Consistent** Employees of the project site could choose to purchase flex-fuel vehicles and utilize this fuel once it is commercially available in the region and local vicinity.
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector.	**Consistent** The heavy-duty vehicles that travel to and from the project site on public roadways would be subject to all applicable ARB efficiency standards that are in effect at the time of vehicle manufacture.
Achieve 50% Statewide Recycling Goal Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	**Consistent** The City of Long Beach's solid waste diversion rate was 69% in 2006. It is anticipated that the project would similarly divert at least 50 percent of its solid waste after the recyclable content is diverted.
Zero Waste – High Recycling Efforts to exceed the 50 percent goal would allow for additional reductions in climate change emissions.	**Consistent** The City of Long Beach's solid waste diversion rate was 69% in 2006. It is anticipated that the project would similarly divert at least 50 percent of

Table 5-7
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
	its solid waste after the recyclable content is diverted. The project would also be subject to all applicable State and City requirements for solid waste reduction as they change in the future.
Department of Forestry	
Urban Forestry A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	**Consistent** As shown on the proposed site plan (refer to Figure 2-6 in Section 2.0, *Project Description*), tress would be planted throughout the project site and along the streets surrounding the site. Project implementation would result in an increase in trees on the site.
Department of Water Resources	
Water Use Efficiency Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	**Consistent** The City of Long Beach Municipal Code* contains water use prohibitions, including operating a water feature that does not reticulate water, serving drinking water to a customer unless requested by the customer, and operating a non-water conserving pre-rinse nozzle in a food-preparation establishment. **Water use prohibitions have been adopted by the Long Beach Board of Water Commissioners and are incorporated by reference in the City of Long Beach Municipal Code.*
Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	**Consistent** The project will need to comply with the standards of Title 24 that are in effect at the time of development.
Appliance Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	**Consistent** Under State law, appliances that are purchased for the project - both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture.

Table 5-7
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
Fuel-Efficient Replacement Tires & Inflation Programs State legislation established a statewide program to encourage the production and use of more efficient tires.	**Consistent** Employees and residents of the proposed project could purchase tires for their vehicles that comply with state programs for increased fuel efficiency.
Municipal Utility Energy Efficiency Programs/Demand Response Includes energy efficiency programs, renewable portfolio standard, combined heat and power, and transitioning away from carbon-intensive generation.	*Not applicable*, but the project would not preclude the implementation of this strategy by municipal utility providers.
Municipal Utility Renewable Portfolio Standard California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 20 percent of retail electricity sales from renewable energy sources by 2017, within certain cost constraints.	*Not applicable*, but the project would not preclude the implementation of this strategy by Southern California Edison.
Municipal Utility Combined Heat and Power Cost effective reduction from fossil fuel consumption in the commercial and industrial sector through the application of on-site power production to meet both heat and electricity loads.	*Not applicable* since this strategy addresses incentives that could be provided by utility providers such as Southern California Edison and The Gas Company. In addition, the commercial facilities at the site are too small for efficient combined heat and power production.
Alternative Fuels: Non-Petroleum Fuels Increasing the use of non-petroleum fuels in California's transportation sector, as recommended as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	**Consistent** Employees and residents of the project could purchase alternative fuel vehicles and utilize these fuels once they are commercially available in the region and local vicinity.
Business, Transportation and Housing	
Measures to Improve Transportation Energy Efficiency Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.	**Consistent** The proposed project is an urban infill development; the proposed land uses would have readily available access to public transportation, which could incrementally reduce the number of regional vehicle trips.

Table 5-7
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. The Governor is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	**Consistent** The project is located in relatively close proximity to existing residential areas and places of employment within the City of Long Beach. The project site is located along major transit corridors.
Green Buildings Initiative Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and -leased buildings. The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20 percent target.	**Consistent** As discussed previously, the project is required to be constructed in compliance with the standards of Title 24 that are in effect at the time of development. The 2005 Title 24 standards are approximately 8.5 percent more efficient than those of the 2001 standards.

Table 5-7
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Public Utilities Commission (PUC)	
Accelerated Renewable Portfolio Standard The Governor has set a goal of achieving 33 percent renewable in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33 percent goal.	*Not applicable*, but the project would not preclude the implementation of this strategy by energy providers.
California Solar Initiative The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses, increased use of solar thermal systems to offset the increasing demand for natural gas, use of advanced metering in solar applications, and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	**Consistent** Although solar roofs are not proposed as part of the project, it is recommended that the applicants consider the installation and use of solar equipment. Implementation of the proposed project would not preclude the use of solar roofs in the area.

Table 5-8
Project Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	***Project Consistency***
Transportation-Related Emissions	
Diesel Anti-Idling Set specific limits on idling time for commercial vehicles, including delivery vehicles.	**Consistent** Currently, the California Air Resources Board's (CARB) Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling restricts diesel truck idling to five minutes or less. Diesel trucks operating from and making deliveries to, the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Transportation Emissions Reduction The project applicant shall promote ride sharing program e.g., by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and designating adequate passenger loading an unloading waiting areas.	**Consistent** Pursuant to Chapter 21.64 of the Long Beach Municipal Code, the applicant would be required to provide a display case or kiosk showing alternative transportation information, including, but not limited to ridesharing, bus schedules and bike routes. In addition, at least 10% of onsite parking must be designated carpool/vanpool parking and must be located as close as is practical to the employee entrance(s).

Table 5-8
Project Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	*Project Consistency*
Transportation Emissions Reduction Contribute transportation impact fees per residential and commercial unit to the City, to facilitate and increase public transit service.	**Consistent** Pursuant to Chapter 18.17.050 of the Long Beach Municipal Code, the applicant would be required to pay transportation management fees in an amount established by the City.
Transportation Emissions Reduction Provide shuttle service to public transportation.	**Consistent** Shuttle service to public transportation would be unnecessary as Long Beach Transit bus lines 61and 62 make stops along Atlantic Avenue, within 1/3 of a mile of the project site.
Transportation Emissions Reduction Incorporate bike lanes into the project circulation system.	*Not applicable*, the proposed project would use the existing City of Long Beach circulation system. However, the project would not preclude the addition of bike lanes to City streets.
Transportation Emissions Reduction Provide onsite bicycle and pedestrian facilities (showers, bicycle parking, etc.) for commercial uses, to encourage employees to bicycle or walk to work.	**Consistent** Pursuant to Chapter 21.64.030 of the Long Beach Municipal Code, the applicant would be required to provide bicycle racks. Pedestrian circulation would be improved, with a mid-block crossing and enhanced sidewalks.
Solid Waste and Energy Emissions	
Solid Waste Reduction Strategy Project construction shall require reuse and recycling of construction and demolition waste.	**Consistent** Pursuant to Chapter 18.97.020 of the Long Beach Municipal Code, development projects are required to meet established standards in respect to solid waste and recyclable storage and solid waste recycling.
Water Use Efficiency Require measures that reduce the amount of water sent to the sewer system – see examples in CAT standard above. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped, thereby saving energy.)	**Consistent** The City of Long Beach Municipal Code* contains water use prohibitions, including operating a water feature that does not recirculate water, serving drinking water to a customer unless requested by the customer, and operating a non-water conserving pre-rinse nozzle in a food-preparation establishment. **Water use prohibitions have been adopted by the Long Beach Board of Water Commissioners and are incorporated by reference in the City of Long Beach Municipal Code.*

Table 5-8
Project Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	***Project Consistency***
Land Use Measures, Smart Growth Strategies and Carbon Offsets	
Smart Land Use and Intelligent Transportation Systems Encourage mixed-use and high density development to reduce vehicle trips, promote alternatives to vehicle travel and promote efficient delivery of services and goods.	**Consistent** The proposed project is an urban infill development located in a high densely developed area. Additionally, the proposed project is located along a public transit corridor.
Smart Land Use and Intelligent Transportation Systems Require pedestrian-only streets and plazas within the project site and destinations that may be reached conveniently by public transportation, walking or bicycling.	**Consistent** The project site is located within an urban environment, which would promote walking or bicycling to and from the project site. The project would be accessible by sidewalk. Additionally, the project is a mixed use development, containing retail, residential, and institutional uses.

6.0 ALTERNATIVES

As required by Section 15126.6 of the *CEQA Guidelines*, this EIR examines a range of reasonable alternatives to the proposed project. Included in this analysis are three alternatives that involve different configurations, sizes and intensity of development on the site, including the CEQA-required "no project" alternative. This section also identifies the Environmentally Superior Alternative.

The following alternatives are evaluated in this EIR:

- *Alternative 1: No Project (no change to existing land uses)*
- *Alternative 2: General Plan and Zoning Ordinance Consistent Alternative*
- *Alternative 3: Historic Resources Preservation Alternative*

Table 6-1 provides a summary comparison of the development characteristics of the proposed project and the alternatives. A more detailed description of the alternatives is included in the impact analysis for each alternative.

Table 6-1
Comparison of Project Alternatives Buildout Characteristics

Characteristic	Alternatives			
	Proposed Project	**No Project Alternative**	**General Plan/Zoning Ordinance consistent Alternative**	**Historic Resources Preservation Alternative**
Residential Units	61 units	0 units	38 units	61 units
Commercial/Retail Square Footage	36,000	39,961*	135,900	30,000
Institutional Square Footage	30,000	0	30,000	30,000
Maximum Building Height	38 feet	28 feet*	28 feet	38 feet
Historic Structures	Demolition	No change	Demolition	Adaptive Reuse
General Plan Amendment and Zoning Ordinance for density required?	Yes	No	No	Yes

** Existing structures that would be demolished as part of the proposed project.*

6.1 NO PROJECT

This alternative assumes that the proposed improvements are not implemented and that the site remains in its present condition, mostly vacant with three commercial structures. This

alternative would not meet the objectives of the proposed project. It should also be noted that implementation of the No Project alternative would not preclude future development on the site and/or renovations or expansions of existing structures or uses, including those that would be exempt from CEQA and/or City discretionary review.

The No Project alternative would avoid the proposed project's significant impacts relating to historic resources and noise. However, the No Project alternative would not provide new housing opportunities in Long Beach, revitalization of the site, space for the library and community center, and other aspects of the proposed project that would further the City's goals for North Long Beach (see Section 4.7, *Land Use and Planning,* for further discussion of project consistency with the objectives, goals and policies of the General Plan).

6.2 GENERAL PLAN AND ZONING ORDINANCE CONSISTENT

This alternative involves development of the site in accordance with the existing zoning's allowed uses and height and density limits, while still achieving the fundamental project objectives. Based on the site's Zone Districts, the General Plan and Zoning Ordinance Consistent Alternative would consist of the generalized uses shown in Table 6-2, presented by Zone District.

Table 6-2
Alternative 3 Project Summary

District	Area	Standards	Development
R-3-T	1.2 acres (52,272 sf)	• Residential • 28' maximum height • 1 unit per 2,400 sf	• 21 units of attached two-story condominiums
R-2-N	1.2 acres (52,272 sf)	• Residential • 25' maximum height • 1 unit per 3,000 sf	• 17 units of two-story duplex condominiums
CNA	2.5 acres (108,900 sf)	• Commercial/Institutional • 28' maximum height	• 105,900 sf of commercial development, including 5,400 sf restaurant • 30,000 sf library/community center
CCA	1.4 acres (60,984 sf)		
	TOTAL		• **38 residential units** • **135,900 sf of mixed commercial/institutional development** • **28' maximum building height**

Notes: sf = square feet

Commercial square footage of CCA and CNA areas is estimated at 40% building coverage at two stories and 60% parking coverage.

The library/community center, which may be permitted in the CCA zone with an Administrative Use Permit (per Table 32-1 of Chapter 21.32 of the Municipal Code), would be located at the northeast corner of South Street and Atlantic Avenue, similar to its location in "Option B" of the proposed project.

Under this alternative, parking would be provided in surface lots and/or a parking structure for the commercial uses and covered (private and/or non-private) garages for the residential uses. The number of spaces provided would meet the requirements of the Long Beach Municipal Code for all uses.

The intent of this alternative is to provide the public and City decision makers with a comparative analysis between the impacts of the proposed project and those of potential development of the site under existing land use provisions. This alternative would meet most of the objectives of the proposed project.

6.2.1 Aesthetics

Under this alternative, the development's appearance and massing at street level would be in accordance with the existing zoning's allowed uses and height and density limits. Although building heights would be lower than those of the proposed project along Atlantic Avenue and South Street where the commercial development would be located, the overall massing would likely be greater due to the increased square footage and coverage as well as the possible need for a parking structure. Thus, impacts associated with the change to the visual character of the site would likely be greater from the Atlantic Avenue and South Street perspectives. The reduced residential density along Linden Avenue would likely result in a reduced visual impact related to height and scale from Linden Avenue. Lime Avenue views would be of lower density residential development rather than landscaped parking lots. As this alternative would result in development scales and massing that are generally compatible with the existing development pattern, impacts to the visual character of the site and surroundings would be less than significant as with the proposed project. Similarly, light and glare impacts would be reduced along Lime and Linden avenues, where light-sensitive uses are located. Nevertheless, mitigation measures AES-2 (a through d) would still be recommended to reduce potential light and glare impacts to a less than significant level.

Although overall massing would be greater along Atlantic Avenue and South Street, the tallest buildings would be approximately 10 feet shorter than those in the proposed project. Consequently, shadows would be cast shorter distances and overall shadow impacts would be reduced. Overall shadow impacts would remain less than significant.

In summary, the General Plan and Zoning Ordinance Consistent Alternative would change the nature of the visual impacts by redistributing project massing on the site; this would slightly increase some visual impacts and slightly decrease others. Overall, the impact levels would be roughly similar to the proposed project and would be less than significant.

6.2.2 Air Quality

Air quality impacts under this alternative would be increased in comparison with those associated with the proposed project. Construction emissions would be greater due to the larger volume of structural development, and operational emissions would be greater due to doubling in traffic volumes (see subsection 6.2.11 below). Mitigation measures recommended for the proposed project to reduce energy consumption would apply to this alternative, as would potentially additional measures to reduce construction and operational emissions.

6.2.3 Cultural Resources

The treatment of the historic structures would be the same under this alternative as under the proposed project as new construction would require the demolition of the existing structures. Therefore, impacts would be similar under the General Plan and Zoning Ordinance Consistent Alternative in comparison with the proposed project. All mitigation measures recommended for the proposed project would apply and would reduce impacts to the degree feasible. However, as with the proposed project, historic resource impacts would be significant and unavoidable.

6.2.4 Geology and Soils

Impacts relating to seismic activity, liquefaction, groundwater, soil expansion, subsidence and erosion with implementation of this alternative would be similar, although slightly reduced, in comparison with the proposed project. The reduction in impacts would result from the reduced number of residents (38 units would support an on-site population of approximately 110 residents, compared to 177 for the proposed project) that could be exposed to seismic and other hazards. Still, impacts related to seismic hazards and soil instability would be potentially significant; mitigation measures recommended for the proposed project would apply and would reduce impacts to a less than significant level, similar to the proposed project.

6.2.5 Hazards and Hazardous Materials

Impacts relating to hazards and hazardous materials would be similar as those expected to result from the proposed project. Demolition of existing structures that could release asbestos and other hazardous materials would still take place, and excavation and development would occur in generally the same potential areas of soil contamination in either scenario. Mitigation measures recommended for the proposed project would apply and, as with the proposed project, would reduce impacts to a less than significant level.

6.2.6 Hydrology and Water Quality

Impacts relating to hydrology and water quality would be similar as those expected to result from the proposed project as the overall development footprint and site grading would remain similar. As with the proposed project, impacts related to runoff quality and quantity would be potentially significant. Mitigation measures recommended for the proposed project would apply and, as with the proposed project, would reduce impacts to a less than significant level.

6.2.7 Land Use and Planning

Land use and planning impacts would be slightly reduced with this alternative. First, the General Plan and Zoning Ordinance would not need to be amended in order to approve the project. Second, the general land use pattern would be more closely maintained, with commercial uses along Atlantic Avenue and lower-density residential uses along Lime and Linden avenues. This would contrast with the proposed project, wherein multi-family residential units would be adjacent to single-family units on Linden Avenue, and mixed-use development would be introduced along Atlantic Avenue. In addition, although traffic-related impacts would be increased due to the increased number of trips (see subsection 6.2.11 below),

the increase would not exceed the levels of noise and traffic expected in a highly urbanized area. Thus, land use compatibility impacts would be less than significant for this alternative.

The significant impact related to inconsistency with historic resource preservation policies would be the same as for the proposed project, as either would involve demolition of the historic structures.

6.2.8 Noise

Traffic noise impacts associated with the General Plan and Zoning Ordinance Consistent Alternative would be greater than those of the proposed project due to the approximate doubling in trip generation (see subsection 6.2.11 below). This increase would exceed thresholds for traffic noise along Linden and Lime avenues, as would the proposed project. The mitigation measure identified for the project would still apply, and additional mitigation to limit access from those residential streets might also be called for; these measures could potentially reduce the impact to less than significant levels, as with the proposed project.

Construction noise would be roughly similar but slightly higher due to the increased amount of overall construction. All mitigation measures recommended for the proposed project would apply and residual impacts would likely be higher than those of the proposed project but reduced below thresholds of significance.

6.2.9 Population and Housing

Based on the citywide average of 2.90 persons per household (California Department of Finance, 2009), the 38-unit residential component of the General Plan and Zoning Ordinance Consistent Alternative would generate a net increase of approximately 110 residents. Based on the estimated 2009 citywide population of 492,682 residents, the addition of 110 residents that would be associated with this alternative's 38 housing units would increase Long Beach's population by about 0.02%. Based on the estimated 2009 citywide number of housing units of 175,164, the addition of 38 housing units would also increase the number of households in the City by about 0.02%. Neither the proposed project nor the General Plan and Zoning Ordinance Consistent alternative would conflict with City Housing Element policies. As commercial space would increase as compared to the proposed project, employment growth would also increase. This alternative involves 105,900 square feet of commercial development and 30,000 square feet of public library and community center space. Using the SCAG employment generation factor of 2.36 employees per 1,000 square feet for retail uses and 1.37 employees for 1,000 square feet for public institutional space (Natelson Company, 2001), the project would generate approximately 291 jobs. Employment opportunities generated by this alternative would be within the projected employment growth forecast for the City through 2030 (198,860 jobs). As with the proposed project, population and housing impacts would be less than significant for this alternative.

6.2.10 Public Services

Impacts relating to police, fire, school and park services would be incrementally less than the proposed project as the General Plan and Zoning Ordinance Consistent alternative would include fewer residents. Site design for the General Plan and Zoning Ordinance Consistent

Alternative, like the proposed project, would include walkways not visible from public streets that may create public safety concerns. All mitigation recommended for the proposed project, including those to reduce the potentially significant impact to police services, would apply and residual impacts would be less than significant.

6.2.11 Transportation and Traffic

The General Plan and Zoning Ordinance Consistent alternative would include 64% fewer residential units, but would include 69,900 square feet more of commercial space. As commercial uses are higher traffic generators than residential units, this alternative would generate more traffic and require more parking spaces than the proposed project. Table 6-3 provides an estimate of the trip generation for the conceptual General Plan and Zoning Ordinance Consistent project.

Table 6-3
Alternative 2 Gross Trip Generation

Land Use	Size	Units	Trip Rate	Daily Trips
High-Turnover (Sit-Down) Restaurant	5,400		127.15 / ksf	687
Shopping Center @ 8.6 ksf	27,600 sf		160.23 / ksf	4,423
Residential Condominiums/Townhouse		38	5.86	223
Shopping Center @ 22 ksf	72,900 sf		115.36 / ksf	8410
Library	30,000 sf		54.00 / ksf	162
TOTAL FOR ALTERNATIVE 2				**13,905**

Notes: sf = square feet, ksf = thousand square feet

As shown in the table, this alternative would generate approximately twice as many gross daily trips (13,905) as the proposed project (6,070, as shown in Table 4.11-6 in Section 4.11, *Transportation and Circulation*). The larger number of trips associated with this alternative would increase all traffic impacts to affected intersections and roadways in comparison with the proposed project. Traffic impacts would be more severe than the less than significant impacts associated with the proposed project, and may exceed significance thresholds for traffic and circulation, requiring mitigation. Parking demand would be higher; however, as this alternative would provide parking as required by code, parking impacts would be less than significant without mitigation and therefore reduced compared to the proposed project. The parking mitigation measure for the proposed project would not apply.

6.2.12 Utilities and Service Systems

Impacts to utilities and services, including water supply, wastewater capacity, solid waste generation and electricity and natural gas consumption, would be greater under this alternative than the proposed project. Tables 6-3 through 6-5 estimate water demand, solid waste generation and wastewater generation for the General Plan and Zoning Ordinance Consistent alternative.

Table 6-4
Alternative 2 Estimated Gross Project Water Demand

Land Use	Size	Generation Rate (acre-feet/year)*	Total (acre-feet/year)
Retail/Commercial/Public	135,900 sf	224 per million square feet*	29.12
Residential	38 dwelling units	0.249 per unit**	9.46
Total for Alternative 2 (acre-feet/year)			**38.58**

Note: sf = square feet
**Based on LBWD Comprehensive Sewer System Master Plan and Management Program.*
***Base on average use in Long Beach.*
1 AFY = 892.15 GPD

As shown in Table 6-4, this alternative would generate demand of approximately 38.58 acre-feet per year. This increase in demand, approximately 37% more than the estimated 28.17 acre feet/year that would be the demand for the proposed project, would constitute about 0.06% of the existing water demand level for the City, which is approximately 60 million gallons per day (LBWD, 2007). Demand associated with this alternative could be met with current and projected supplies of water, as projected through 2030 based on reported water availability as discussed in Section 4.12, Utilities and Service Systems. Impacts would be increased compared to the proposed project, but would remain less than significant.

As shown in Table 6-5, this alternative would generate approximately 48,810 gallons of wastewater per day, compared to 29,235 gallons per day for the proposed project.

Table 6-5
Alternative 2 Estimated Gross Wastewater Generation

Land Use	Size [a]	Generation Rate (gallons/day/1000 sf)* [a]	Total (gallons/day)
Retail/Commercial/Public	135,900 sf	300	40,770
Residential	38 units	195 (gallons /unit)	7,410
Total for Alternative 2			**48,180**

Note: sf = square feet
** Source: Sanitation Districts of Los Angeles County, 2006*
[a] *All figures assume maximum 1.6 gallon/flush toilets, 1.0 gallon/flush urinals, and 2.5 gallon/minute showerheads.*

This increase in wastewater would not conflict with the City's contractual entitlement (unlimited flow) for flows to the Joint Water Pollution Control Plant, nor would it exceed the plant's capacity. However, mitigation would be required to avoid significant impacts to local wastewater infrastructure, similar to the proposed project. Impacts would be increased compared to the proposed project, but would remain less than significant after mitigation.

As shown in Table 6-6, this alternative would generate approximately 285 tons of solid waste each year, approximately 58% more than would the proposed project.

Table 6-6
Alternative 2 Estimated Gross Solid Waste Disposal Demand

Land Use	Size	Generation Rate*	Total (lbs/year) [a]
Retail/Commercial/Public	135,900 sf	1 lb/100 sf/day	496,035
Residential	38 units	5.31 lbs/unit/day	73,650
Total for Alternative 2		**285 tons/year**	

Notes: sf = square feet; 1 ton = 2,000 lbs
Source: California Integrated Waste Management Board, 2004.
[a] *Calculations based on 365 days per year of operation; this is a conservative figure, as most commercial and public uses are closed on Sundays and/or major holidays.*

Impacts related to solid waste would therefore be greater than those associated with the proposed project. However, as the City's Southeast Resource Recovery Facility currently operates with an excess capacity of approximately 90 tons per day, impacts would remain less than significant, as for the proposed project.

6.3 HISTORIC RESOURCES PRESERVATION ALTERNATIVE

This alternative involves adaptive reuse of the eligible historic properties (5870-74 Atlantic Avenue and 635 South Street). The adaptive reuse program would be conducted consistent with the *Secretary of the Interior's Standards for Rehabilitation*. Land uses would be generally the same as for the proposed project; the site would be designed and programmed around and with the historic structures to result in roughly the same amount of residential and institutional space. Commercial space would be slightly reduced (by 6,000 square feet for a total of 30,000 square feet) as there would be less area available for two-story development (please see Table 6-1 for the basic characteristics of this alternative). The 635 South Street building would be renovated for commercial space and the Atlantic Theater building would be adapted for reuse either as a portion of the library and community center or for commercial use (in the latter case the library and community center would be located at South Street and Atlantic Avenue, similar to Option B for the proposed project, and the tot lot currently planned in Option B for the 635 South Street area would be located elsewhere on the site. This alternative would meet most of the objectives of the proposed project and would avoid the significant impact to historic resources that would result from implementation of the proposed project.

6.3.1 Aesthetics

Under this alternative, the development's appearance and massing at street level would be similar to the proposed project, although slightly reduced at the locations of the historic structures. Changes to the site would have less visual impact as the two historic structures would be rehabilitated for adaptive reuse. Thus, impacts associated with the change to the visual character of the site would be reduced, and would be less than significant, as for the

proposed project. Light and glare impacts would be generally similar in comparison to the proposed project and mitigation would continue to apply; residual impacts would be less tha significant.

Overall shadow impacts and changes to the visual character of the site would be slightly reduced under this alternative and, as with the proposed project, would remain less than significant.

6.3.2 Air Quality

Temporary impacts to air quality resulting from construction of the Historic Resources Preservation alternative would be reduced in comparison with the proposed project. Although maximum daily emissions would be about the same, the duration of construction and associated emissions would be reduced because the adaptive reuse would mean less new construction would be required. Fewer emissions from site preparation, grading and foundation work would also be expected, and less demolition would be required due to the rehabilitation of historic structures. As with the proposed project, impacts would be less than significant.

Operational emissions associated with vehicle traffic and energy consumption would be incrementally reduced with the 6,000 square-foot (17%) reduction in commercial space associated with this alternative and, as with the proposed project, would be less than significant. Measures to reduce energy consumption would still be recommended.

6.3.3 Cultural Resources

This alternative would involve adaptive reuse of the two existing eligible historic properties (5870-74 Atlantic Avenue and 635 South Street). The historic Atlantic Theater would be adapted for reuse as the library and community center or for commercial use and 635 South Street would be adaptively reused for commercial space. Therefore, this alternative would avoid the significant and unavoidable impacts to historic resources associated with the proposed project. Impacts associated with this alternative would be less than significant and mitigation would not be required.

6.3.4 Geology and Soils

Impacts relating to seismic activity, liquefaction, groundwater, soil expansion, subsidence and erosion with implementation of this alternative would be similar to the proposed project. The land uses, density and development footprint would be roughly the same as for the proposed project. Impacts related to seismic hazards and soil instability would be potentially significant; mitigation measures recommended for the proposed project would apply and would reduce impacts to a less than significant level, similar to the proposed project.

6.3.5 Hazards and Hazardous Materials

Impacts relating to hazards and hazardous materials would be similar as those expected to result from the proposed project, although slightly reduced as less demolition would be required. Demolition of existing structures that could release asbestos and other hazardous

materials would still take place, and excavation and development would occur in generally the same potential areas of soil contamination. Impacts would be potentially significant. Mitigation measures recommended for the proposed project would apply and, as with the proposed project, would reduce impacts to a less than significant level.

6.3.6 Hydrology and Water Quality

Impacts relating to hydrology and water quality would be similar to those expected to result from the proposed project as the overall development footprint and site grading would remain similar, and would be potentially significant. Mitigation measures recommended for the proposed project would apply and, as with the proposed project, would reduce impacts to a less than significant level.

6.3.7 Land Use and Planning

Impacts related to land use and planning would be reduced for this alternative in comparison with the proposed project. The significant and unavoidable impact related to potential inconsistency with historic resource preservation policies would be avoided, as this alternative would not involve demolition of the historic structures. All other land use and planning impacts associated with this alternative would be similar to those associated with the proposed project and would be less than significant.

6.3.8 Noise

Noise impacts associated with the Historic Resources Preservation alternative, both from vehicular traffic and stationary sources at the site, would be incrementally reduced in comparison with the proposed project due to the fact that 6,000 square feet (17%) less commercial space would be built. Construction noise would be somewhat reduced due to a shorter construction duration but would remain potentially significant. All mitigation measures recommended for the proposed project would apply and would reduce impacts to a less than significant level. Project-related operational noise impacts would be slightly reduced, but would still be potentially significant; again, the mitigation measure would apply and would reduce impacts to a less than significant level.

6.3.9 Population and Housing

The Historic Resources Preservation alternative would not involve a change in the number of residential units as compared to the proposed project. Neither the proposed project nor this alternative would conflict with City Housing Element policies or regional growth forecasts. As commercial and institutional space would be slightly reduced compared to the proposed project, employment growth would similar. As with the proposed project, population and housing impacts would be less than significant.

6.3.10 Public Services

Impacts relating to police, fire, school and park services would be generally the same as for the proposed project, although slightly reduced, as the alternative proposes the same number of residential units and slightly less commercial space. Site design in the Historic Resources

Preservation Alternative, like the proposed project, would include walkways not visible from public streets that may create public safety concerns, which would be potentially significant. All mitigation recommended for the proposed project would apply and residual impacts would be less than significant.

6.3.11 Transportation and Traffic

As the Historic Resources Preservation alternative would generally be the same as the proposed project with a 6,000 square-foot (17%) reduction in the amount of commercial space, it would generate slightly less traffic and require slightly fewer parking spaces. The reduction of commercial trips generated associated with this alternative would incrementally reduce all traffic impacts to affected intersections and roadways. As with the project, traffic impacts would be less than significant without mitigation. As with the proposed project, parking impacts would be potentially significant, depending on the parking program; if that were the case, incorporation of the mitigation measure for parking supply would reduce impacts to a less than significant level.

6.3.12 Utilities and Service Systems

As the Historic Resources Preservation alternative would have the same number of residents and 6,000 square feet (17%) less of commercial and institutional space, impacts related to water, wastewater and solid waste would be roughly the same as the proposed project but slightly reduced. Mitigation required for the proposed project to avoid potentially significant impacts to local wastewater infrastructure would still apply, as development under this alternative would increase wastewater generation at the site over current conditions, although slightly less than the proposed project. Impacts would be less than significant with this mitigation, as with the proposed project, and slightly reduced.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project alternative would avoid all of the project's impacts. Consequently, the No Project alternative is considered environmentally superior. However, the No Project alternative would not fulfill the basic objectives of the project stated in Section 2.0, *Project Description*. Furthermore, the No Project alternative would not include the benefits associated with redevelopment of the site, including the construction of a community library, commercial hub, and would provide the City with additional housing.

Among the other alternatives being considered, the Historic Resources Preservation alternative would be considered environmentally superior, as it would avoid significant impacts related to historic resources and land use and planning, and would incrementally reduce impacts related to traffic, noise, air quality and other issue areas due to the slight reduction in commercial space. This alternative would generally meet the project objectives, although slightly less commercial space would be constructed.

Table 6-7 indicates whether each alternative's environmental impact is greater, lesser, or similar to the proposed project.

Table 6-7
Comparison of Environmental Impacts of Alternatives

Issue	Proposed Project	Alternative 1: No Project	Alternative 2: General Plan/Zoning Consistent Project	Alternative 3: Historic Resources Preservation
Aesthetics	=	+	=	+
Air Quality	=	+	-	+
Cultural Resources	**=**	+	**=**	+
Geology/Soils	=	+	+	=
Hazards	=	+	=	+
Hydrology	=	+	=	=
Land Use	=	+	+	+
Noise	=	+	-	+
Population and Housing	=	=	=	=
Public Services	=	+	+	=
Transportation/Traffic	=	+	-	+
Utilities	=	+	-	+
Overall	=	+	-	+

+Superior to the proposed project
- Inferior to the proposed project
= Similar impact to the proposed project
***Bold typeface** indicates a significant and unavoidable (Class I) impact.*

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