

City of West Hollywood

8713 Beverly Boulevard Mixed-Use Project

Draft **Initial Study – Mitigated Negative Declaration**



July 2016

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July 2016

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INITIAL STUDY

- 1. Project Title:** 8713 Beverly Boulevard Mixed-Use Project
- 2. Lead Agency and Contact Person:** City of West Hollywood
8300 Santa Monica Boulevard
West Hollywood, CA 90069
Contact: Laurie Yelton, (323) 848-6890
- 3. Project Sponsor Name and Address:** 8711 Beverly Properties, LLC
C/O Truman & Elliott, LLP
626 Wilshire Boulevard, Suite 550
Los Angeles, CA 90017
(213) 629-5300
- 4. Project Location:** The project site is located at 8711-8713 Beverly Boulevard and 321-327 N. Sherbourne Drive, West Hollywood, CA 90048. The project site encompasses approximately 0.36 acres and includes Assessor Parcel Numbers (APNs) 4336-001-019, 4336-001-015, and 4336-001-016. Figure 1 shows the regional location and Figure 2 shows the project site location.
- 5. General Plan Designation:** Commercial, Community 1 (CC1)
- 6. Zoning:** Commercial, Community 1 (CC1) and Mixed-Use Incentive Overlay Zone (MUIOZ)

7. Surrounding Land Uses and Setting:

The project site currently contains a 3,272 square-foot, one-story nightclub/bar/restaurant building and parking area. Photos of the project site are shown on Figure 3. The project site is located on a commercial corridor (Beverly Boulevard), a neighborhood characterized by a mix of residential and commercial uses. The site is bordered by one- to two-story residential apartments to the north, Sherbourne Drive and a one-story restaurant to the east, Beverly Boulevard to the south, and one- to two-story commercial buildings to the west. Across Beverly Boulevard to the south is the Cedars-Sinai Medical Center (fronting Beverly Boulevard are the eight-story, 250,000-square-foot Saperstein Critical Care Tower and the seven-story, 216,000-square-foot Davis Research Building). North of the project site is a single-family and duplex residential neighborhood. The project is located within a tenth of a mile from a Major Transit Stop as noted in Section XVI, *Transportation/Traffic*. Figure 4 shows the project site and surrounding uses.

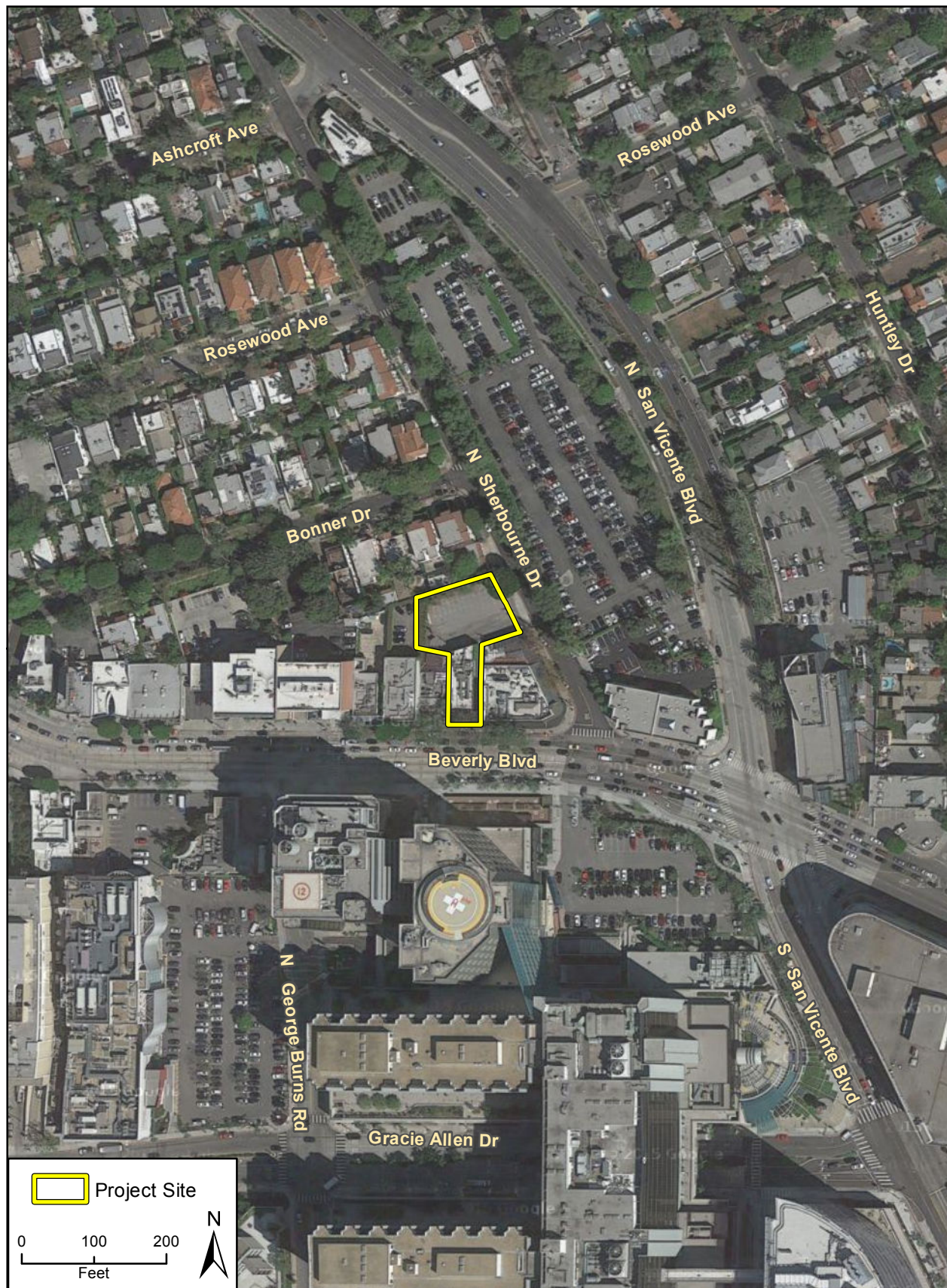
8. Description of Project:

The proposed project involves the demolition of the existing on-site nightclub building and construction of a mixed-use retail, office, and residential project. The mixed-use project would





Figure 1



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Project Location

Figure 2

City of West Hollywood



Photo 1 - Existing one-story nightclub/bar/restaurant building on the project site.

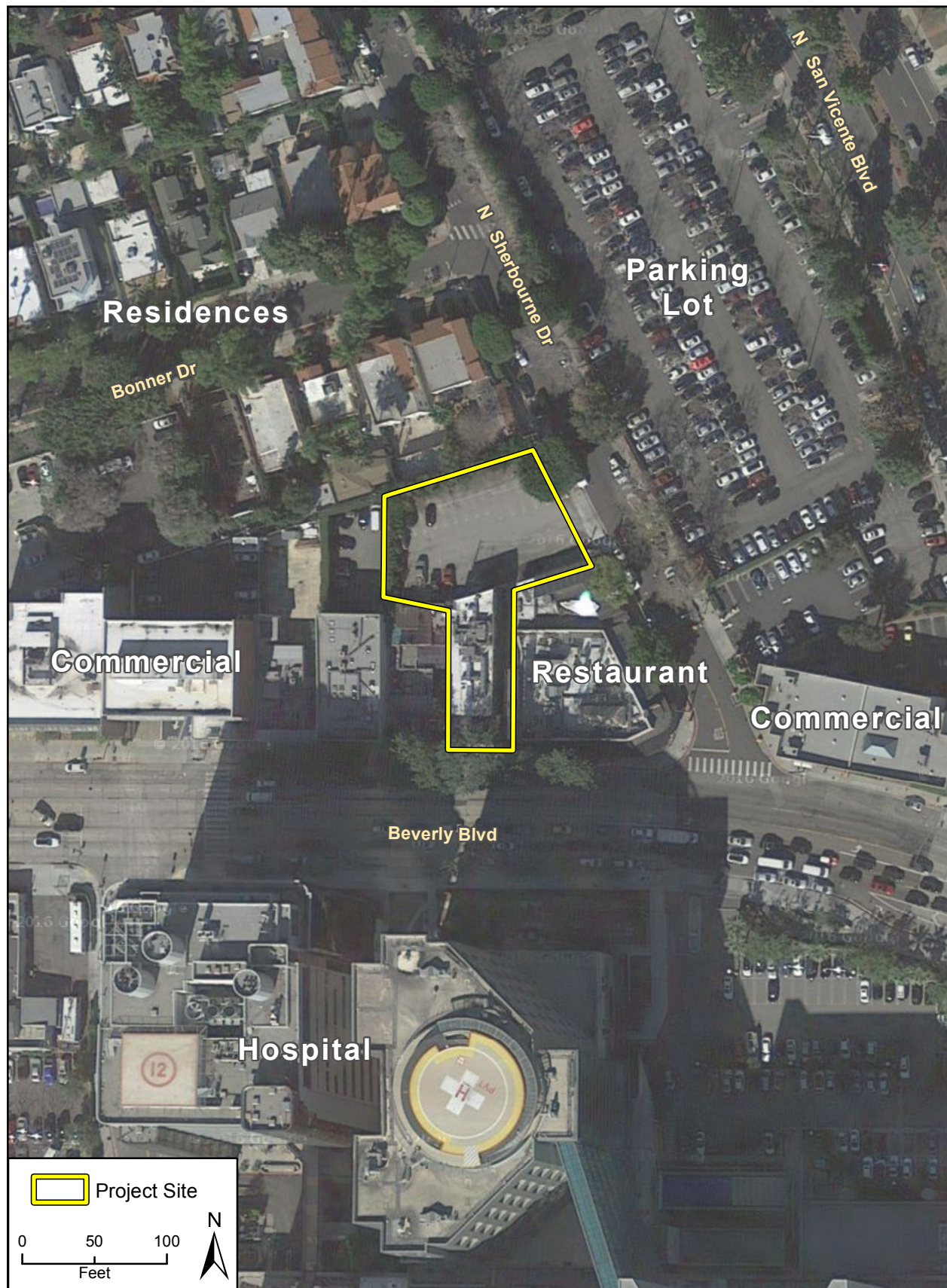


Photo 2 - Foreground view of the on-site parking area and back of one-story nightclub/bar/restaurant building (blue building on left side of frame). Also shown are adjacent one-story commercial uses (buildings on right side of frame) and the seven- and eight-story Cedars-Sinai hospital buildings in the background.

Photos of Project Site and Surrounding Uses

Figure 3

City of West Hollywood



Project Site and Surrounding Uses

Figure 4

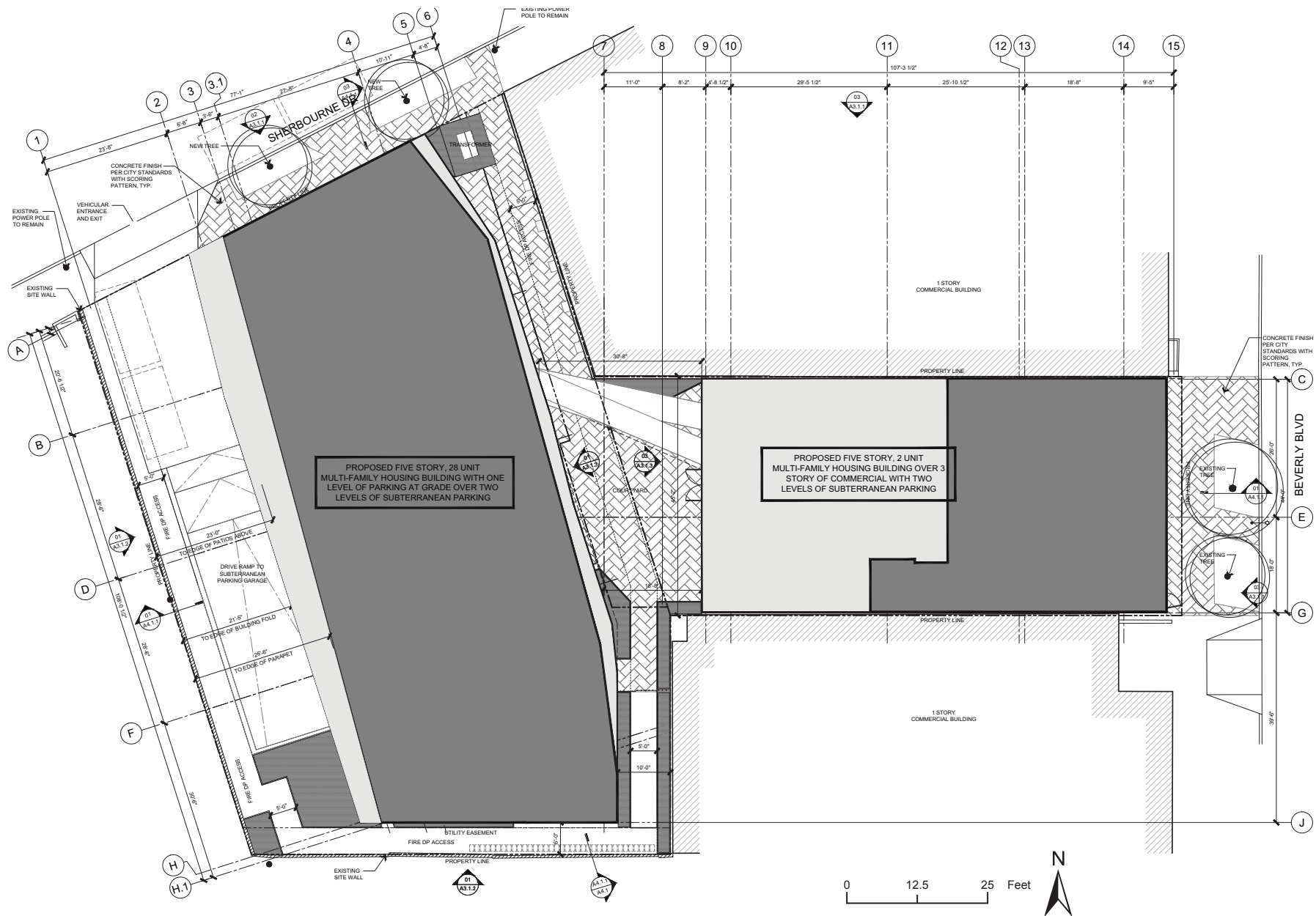
include two five-story buildings joined by two levels of underground parking, a ground-level central courtyard with connecting paseos to Beverly Boulevard and Sherbourne Drive, and pedestrian bridges on the second, third, and fourth floors. The overall floor area of the two buildings would be approximately 40,718 square feet, including 9,391 square feet of commercial space and 30 apartment units. Of the 30 units proposed, 28 would be one-bedroom units and two would be two-bedroom units. Six units would be affordable (three very low income units and three moderate income units).

Table 1 summarizes the characteristics for the proposed project. Figure 5 shows the proposed site plans.

Table 1
Project Characteristics

Assessor Parcel Numbers (APNs)	4336-001-019, 4336-001-015, and 4336-001-016
Project Site Size	15,793 sf (0.36 acres)
Building Floor Area	<i>Commercial</i> Retail: 5,475 sf Gallery: 500 sf Office: 3,416 sf Total Commercial Area: 9,391 sf <i>Residential</i> Residential Units: 21,157 sf Lobby: 344 sf Fitness: 399 sf Trash/Recycling: 290 sf Circulation/Other: 7,872 sf Total Residential Area: 30,062 sf Parking Garage: 27,860 sf
Residential Units	1-BD: 28 units 2-BD: 2 units Total # Units: 30 units Affordable Housing: 6 units
Parking	Residential: 32 spaces Commercial: 33 spaces Total Parking: 65 spaces Bicycle: 10 spaces
Floor Area Ratio (FAR)	2.58
Building Height	Max Height: 55 feet, five stories
Setbacks	Front Yard: 0 feet North Sideyard: 25 feet South Sideyard: 8 feet Rear Yard: 6 feet

The southern building facing Beverly Boulevard would include 2,425 square feet of ground floor retail, 3,050 square feet of second-floor retail, 3,416 square feet of third-floor office, and two two-bedroom residential units and a resident community garden on the fourth and fifth levels.



Source: OJMR Architects, May 20, 2014.

Proposed Site Plan

Figure 5

City of West Hollywood

The northern building facing Sherbourne Drive would include a 500-square foot art gallery, a 344-square foot residential lobby, a 399-square foot residential fitness room, and commercial valet parking on the ground-level, and 28 one-bedroom residential units on the second through fifth floors.

Parking and Site Access

The proposed project would include a total of 65 parking spaces, of which 54 would be provided in two levels of subterranean parking and 11 would be provided on the ground-floor. Vehicle access would be provided via a driveway on Sherbourne Drive. Vehicles would be able to turn right and left into the site, but vehicles exiting the site would be restricted to right-turns only (no left turns).

Landscaping

The proposed project would involve drought-tolerant landscaping around the perimeters of the buildings as well as in the resident community garden located on the fourth floor. Approximately 1,114.5 square feet of landscaped areas would be located on the ground floor. In addition, approximately 516.5 square feet of landscaping would be provided in the residential garden area located on the fourth floor of the southern building and 155 square feet of landscaping would be provided on the roof. The landscaping trees in the existing on-site parking area would be removed. In addition, one street tree (a mature *figus microcarpa*) on Sherbourne Drive would be removed for driveway access. The two existing street trees on Beverly Boulevard would remain and two additional street trees on Sherbourne Drive would be planted.

Utilities

Electricity would be provided by Southern California Edison, solid waste and wastewater service would be provided by the City of West Hollywood, water service would be provided by the City of Beverly Hills. The proposed project would connect to existing sewer and water lines along Beverly Boulevard and Sherbourne Drive.

Green Building Features

In order to conform to the City of West Hollywood's green building program, the proposed project would earn a total of at least 90 points on the Green Building Points sheet, which requires a minimum of 60 points for compliance. The proposed project would use energy and water efficient systems and incorporate environmentally-friendly materials for landscaping, building foundation, insulation, roofing, countertops, and flooring. In order to reduce energy use, the proposed project would install solar photovoltaic (PV) panels and would include Energy Star appliances, lighting, and signage. In order to reduce water use, the proposed project would include water efficient toilets and faucets. The proposed project also would increase the quality of indoor air by using non-VOC paints on interior surfaces, using composite wood with no added urea formaldehyde for counters and cabinets, eliminating the use of carpet, installing fans with humidistat sensors or timers in all bathrooms, installing high efficiency HVAC Filters (min. MERV 8) or providing a ductless system, and providing daylighting for 50% of occupied spaces.

Grading and Construction

Construction of the proposed project would occur over approximately 18-24 months. Approximately 11,832 cubic yards (CY) of cut would be required for excavation of the proposed subterranean parking. This material would be exported off-site. Assuming an average hauling truck size of 16 CY, approximately 740 round-trip hauling truck trips would be required.

9. Other Public Agencies Whose Approval is Required:

The proposed project would require the discretionary approval of the Planning Commission of the City of West Hollywood. Specifically, the following approvals would be required:

- *Demolition Permit*
- *Development Permit*
- *Vesting Tentative Tract Map*

No approvals from other public agencies are required.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is “Potentially Significant” or “Potentially Significant Unless Mitigation Incorporated” as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☒ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☒ Mandatory Findings of Significance

DETERMINATION

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Yannayelton
Signature

7/21/16
Date



ENVIRONMENTAL CHECKLIST

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
I. AESTHETICS				
-- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a) **LESS THAN SIGNIFICANT IMPACT.** The West Hollywood 2035 General Plan does not identify any designated scenic vistas. However, the Hollywood Hills lie just north of the City and are visible throughout West Hollywood. The Los Angeles Basin and buildings in downtown Los Angeles are also visible throughout the City.

The proposed project involves construction of a five-story mixed-use structure. Public views of the Hollywood Hills and Los Angeles Basin around the project site are limited due to the topography of the area and existing trees and multi-story development. Views of the Hollywood Hills to the north and Los Angeles Basin and downtown Los Angeles to the south from streets and sidewalks surrounding the project site are blocked by existing development and trees. Therefore, the proposed project would not block views of the Los Angeles Basin or the Hollywood Hills and impacts related to scenic vistas would be less than significant.

b) **NO IMPACT.** The project site is currently developed with a one-story nightclub and parking lot. The project site does not contain any scenic resources such as scenic trees or rock outcroppings. The proposed project does not include any historic resources (see Section III, *Cultural Resources*) and is not near any scenic highways (Caltrans, 2016). The proposed project would involve removal of existing landscaping trees in the parking area and one street tree on Sherbourne Drive. However, these trees would be replaced with additional street trees and on-site landscaping. No impact would occur with respect to scenic resources.

c) **LESS THAN SIGNIFICANT IMPACT.** The project site is within a commercial sub-area identified in the City's General Plan 2035 as the "Melrose/Beverly District." This District, also known as "The Avenues," is composed of segments of Melrose Avenue, Robertson Boulevard, and Beverly Boulevard. The District is characterized by the contrasts between the small, closely-



packed scale of the commercial buildings and streetscape along Melrose and Robertson and the large scale of the PDC and nearby Beverly Center and Cedars-Sinai Hospital. The Land Use and Urban Form Element of the City's 2035 General Plan intends to expand the District's role as a major destination for high-end arts and design studios, offices, and related business and to have wide sidewalks, street, trees, landscaping, and excellent architecture. The visual character of the area surrounding the project site is diverse; the surrounding buildings have varying architectural styles, massing, and heights. The project site is currently developed with a one-story building, a paved parking area, and landscaping trees.

The proposed project is an infill development involving construction of a five-story mixed-use structure. The proposed new structure would increase the massing and intensity of development on the project site. As such, the proposed project would represent a change in the visual character of the project site. However, the project site is located on a major commercial corridor with buildings of varying heights. For example, across Beverly Boulevard to the south of the project site is the Cedars-Sinai Medical Center which contains several buildings up to eight stories in height. In addition, overall, the proposed project would convert an underdeveloped site with low-visual quality with a contemporary mixed-use building with high-visual quality. Further, the proposed project would implement the City's plan for the area to have a vibrant street environment with ground-floor retail and gallery uses. Lastly, the proposed project has a floor-area-ratio (FAR) of 2.58 and a maximum height of 55 feet or five stories. This is within the maximum height and FAR allowed in these areas of 55 feet and 2.7, respectively (see also Table 10). Therefore, impacts related to visual character would be less than significant.

d) **LESS THAN SIGNIFICANT IMPACT.** The project site is in an urbanized area with high levels of existing lighting. The existing commercial building and adjacent commercial, residential, and roadway uses generate light and glare along all sides of the site. Primary sources of light on and adjacent to the project site include lighting associated with the existing commercial and residential buildings including building mounted lighting and headlights from vehicles on nearby streets. The primary source of glare on and adjacent to the project site is the sun's reflection from metallic and glass surfaces on vehicles parked on the existing parking lot and adjacent streets and on the Cedars-Sinai Medical Center buildings to the south.

The proposed project would introduce two connected five-story structures to the project site. The windows proposed on the exterior elevations area could increase the reflected sunlight during certain times of the day. However, the proposed project would be subject to Chapter G-12 (Commercial and Public use Design Guidelines) of the WHMC which states that lighting should be tested after installation to make sure that glare would not be a problem for neighbors, pedestrians, or motorists and that windows should be located high to increase reflection and reduce glare. With adherence to WHMC requirements, the proposed project would not create a substantial new source of glare which would affect daytime views.

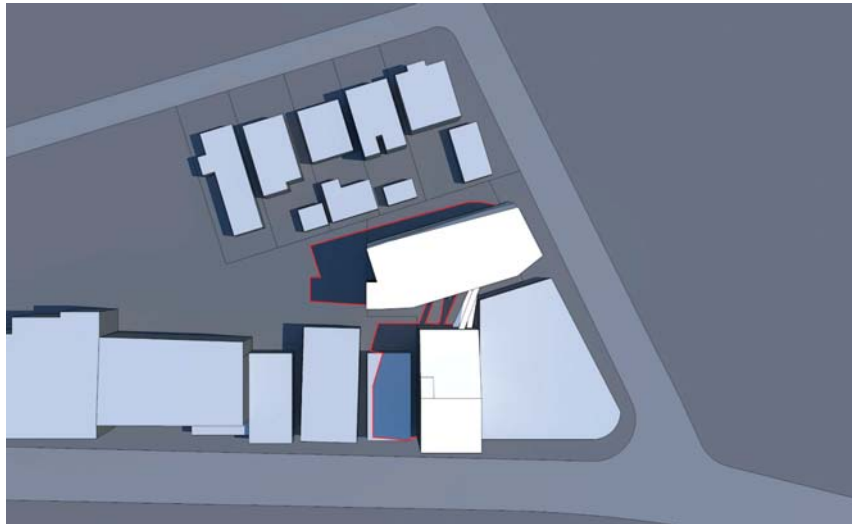
The proposed project would incorporate exterior lighting in the form of pedestrian walkway lighting, building mounted lighting, and other safety-related lighting. These light sources would not have a significant impact on the night sky, as they would only incrementally add to the existing background light levels already present as a result of the surrounding urban development. Headlights of vehicles entering and exiting the parking garage from the driveway on Sherbourne Drive at night would be similar to existing conditions and would not affect

nearby light-sensitive receptors since the driveway is not oriented toward nearby light-sensitive receptors.

Because of the existing, relatively high ambient lighting levels in the vicinity of the project site, project development would not substantially alter light conditions. In addition, the proposed project would be required to comply with Section 19.20.100 of the West Hollywood Municipal Code (WHMC), which limits the design, intensity and impacts of night lighting. Outdoor lighting must be designed to prevent glare and light trespass as much as possible and must be directed away from adjacent properties and public rights-of-way. The recommended light level is five foot candles for active commercial building entrances, one foot candle for inactive commercial building entrances, and 0.2 to 0.9 foot candles for parking or pedestrian areas. Further, pursuant to Section 19.46.050 the WHMC, the Design Review Subcommittee would review, comment on and provide recommendation to the Planning Commission with respect to architectural design, including the lighting plans for proposed development. This section of the WHMC prescribes that specific design elements such as lighting “have been incorporated into the proposed project to further ensure the compatibility of the structures with the character of surrounding development.” Overall, impacts related to project light and glare would be less than significant.

Because the proposed structure is five stories in height, it may cast shadows in the immediate area surrounding the buildings. Shadow-sensitive uses include nurseries, outdoor-oriented retail or restaurant uses (e.g., outdoor eating areas), existing solar collectors, or routinely useable outdoor spaces associated with recreational, institutional, or residential land uses. These uses are considered sensitive because sunlight is important to their function, physical comfort, and/or commerce. Figure 4 shows land uses around the project site. The only shadow-sensitive uses surrounding the project site are the residential uses north of the project site. In general, shadows cast by buildings are shortest on the summer solstice (June 21) and longest on the winter solstice (December 21). A shadow analysis was performed to determine how the proposed project would affect nearby residences (shown in Figures 6a and 6b). Prolonged periods of shade and shadow can negatively affect the character of certain land uses. The City of West Hollywood has not adopted any specific thresholds or regulations addressing shading; therefore the City may use the City of Los Angeles CEQA thresholds to determine significance. According to the LA CEQA Thresholds Guide for shade and shadow impacts, a project’s impact on shade and shadow may be considered significant if shadow-sensitive uses would be shaded by project-related structures for more than three hours between the hours of 9:00 AM and 3:00 PM Pacific Standard Times (between late October and early April), or for more than four hours between the hours of 9:00 AM and 5:00 PM Pacific Standard Times (between early April and late October).

As shown on Figure 6a, during summer mornings, shadows would fall to the west, and would fall on the eastern side of the commercial building west of the project site. This commercial building is not considered a shadow sensitive use. As the day progresses, shadows would move eastward. Summer evening shadows would project onto the restaurant building east of the project site. However, this restaurant building is not considered a shadow sensitive use. There is no outdoor seating on the western side of the building that would be negatively affected by shadows.



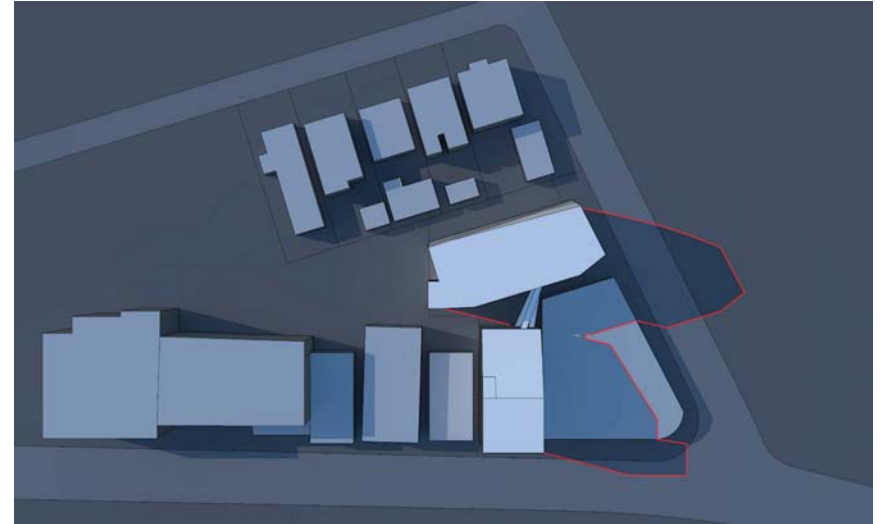
June 21, 9:00am



June 21, 12:00pm



June 21, 3:00pm



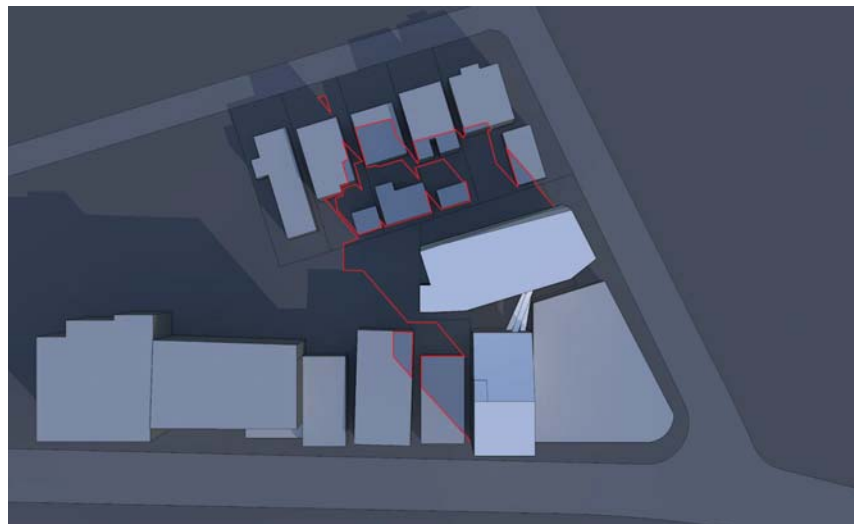
June 21, 5:00pm

Summer Shadows

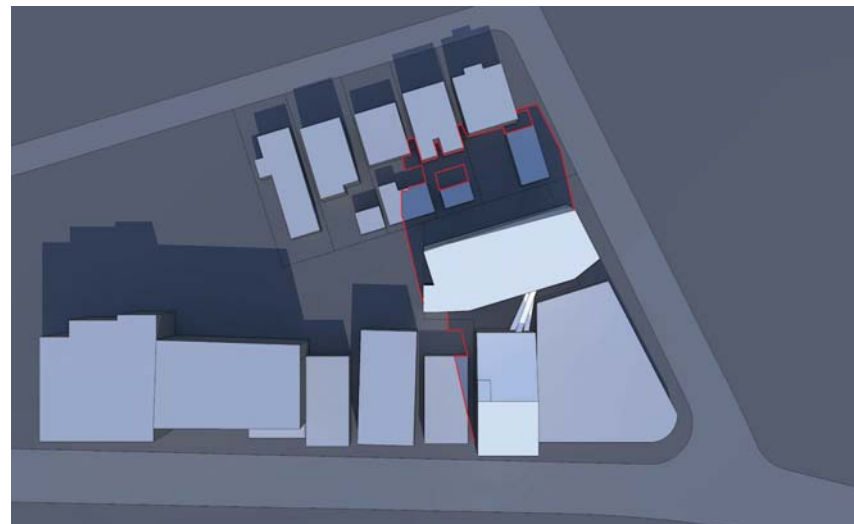
Figure 6a

City of West Hollywood

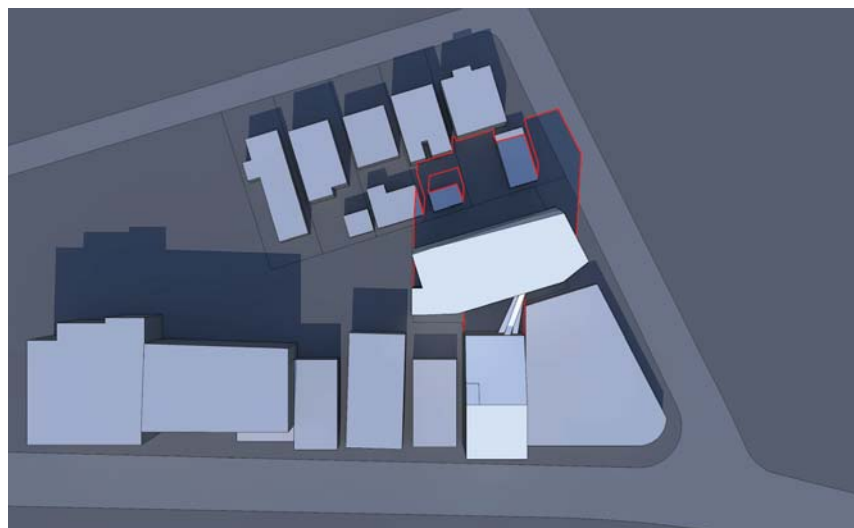




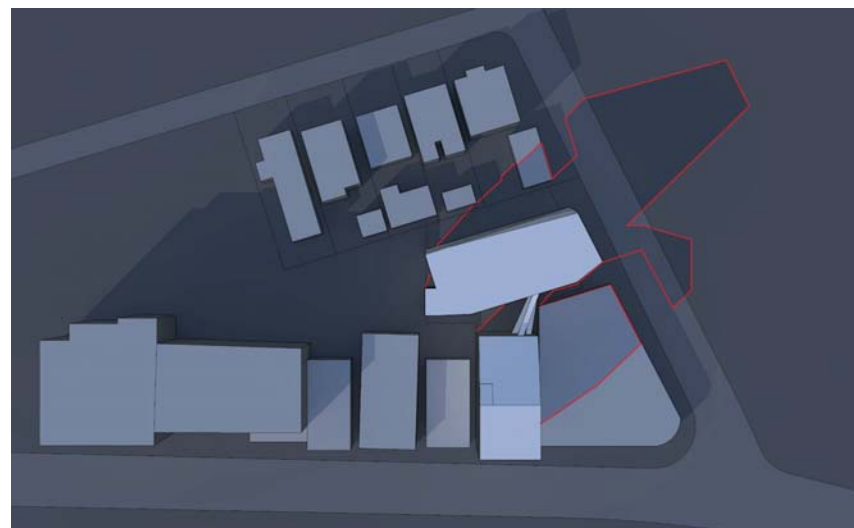
December 21, 9:00am



December 21, 11:00am



December 21, 12:00pm



December 21, 3:00pm

Winter Shadows

Figure 6b



As shown on Figure 6b, during the winter mornings, shadows would project northwest of the project site. A two-story apartment building is located north of the project site. On the back of the residential site closest to the proposed project are parking areas and parking garages. One of rear structures on the property north of the project site, at 8708-8710 Bonner Drive, is a residential apartment unit. Between the hours of approximately 9:00 AM and 12:00 PM, the southern walls of the residential buildings, the rear residential unit, and the residential parking garages would be shaded. However, the parking areas are not considered shadow-sensitive and no routinely useable outdoor space associated with the residential uses would be affected by shadows. As the day progresses, shadows would move in a northeasterly direction. By 12:00 PM, the rear residential building is only partially shaded; only the southeastern corner of the rear residential building would experience any shading. Northeast of the project site is a parking lot. No shadow sensitive uses are located northeast of the project site and none would be affected. Therefore, because there is no continuous full coverage of shadow-sensitive uses for a period greater than three hours between the hours of 9:00 AM and 3:00 PM, impacts of the proposed project would be less than significant.

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

II. AGRICULTURE AND FORESTRY RESOURCES

-- In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:

- a) Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

☐	☐	☐	☒
☐	☐	☐	☒



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES				
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

a-e) **NO IMPACT.** The project site is within a highly urbanized area in the City of West Hollywood. The City does not contain any agricultural land, agriculturally zoned land, or land under Williamson Act contract (2035 General Plan; California Department of Conservation, 2010). The proposed project would have no effect on forestland or the conversion of farmland to non-agricultural uses. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
III. AIR QUALITY				
-- Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

III. AIR QUALITY

-- Would the project:

d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

The project site is within the South Coast Air Basin (the Basin), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether or not the standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." The health effects associated with criteria pollutants upon which attainment of state and federal air quality standards is measured are described in Table 2.

The South Coast Air Basin (Basin), in which the project site is located, is a non-attainment area for the federal standards for ozone, PM_{2.5}, and lead and the state standards for ozone, PM₁₀, PM_{2.5}, NO₂ and lead. Thus, the Basin currently exceeds several state and federal ambient air quality standards and is required to implement strategies to reduce pollutant levels to recognized acceptable standards. This non-attainment status is a result of several factors, the primary ones being the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local airshed to eliminate air pollutants, and the number, type, and density of emission sources within the Basin.

Table 2
Health Effects Associated with Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Carbon monoxide (CO)	(1) Aggravation of angina pectoris and other aspects of coronary heart disease; (2) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (3) impairment of central nervous system functions; and (4) possible increased risk to fetuses.
Nitrogen dioxide (NO ₂)	(1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (2) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (3) contribution to atmospheric discoloration.
Sulfur dioxide (SO ₂)	(1) Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma.



Table 2
Health Effects Associated with Criteria Pollutants

Pollutant	Adverse Effects
Suspended particulate matter (PM ₁₀)	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma). ^a
Suspended particulate matter (PM _{2.5})	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.

Source: EPA 2008c.

The SCAQMD has adopted an Air Quality Management Plan (AQMP) that provides a strategy for the attainment of state and federal air quality standards. The SCAQMD recommends the use of quantitative thresholds to determine the significance of temporary construction-related pollutant emissions and project operations. These thresholds are shown in Table 3.

Table 3
SCAQMD Air Quality Significance Thresholds

Pollutant	Mass Daily Thresholds	
	Operation Thresholds (lbs/day)	Construction Thresholds (lbs/day)
NO _x	55	100
ROG ¹	55	75
PM ₁₀	150	150
PM _{2.5}	55	55
SO _x	150	150
CO	550	550
Lead	3	3

¹ Reactive Organic Gases (ROG) are formed during combustion and evaporation of organic solvents. ROG are also referred to as Volatile Organic Compounds (VOC).

Source: SCAQMD, <http://www.aqmd.gov/ceqa/handbook/signthres.pdf>, March 2011.

The SCAQMD also has developed Localized Significance Thresholds (LSTs). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), project size, and distance to the sensitive receptor. However, LSTs only apply to emissions within a fixed stationary location, including idling emissions during both project construction and operation. LSTs have been developed for NO_x, CO, PM₁₀ and PM_{2.5}. LSTs do not apply to mobile sources such as cars on a roadway (Final Localized Significance Threshold Methodology, SCAQMD, June 2003). As such, LSTs for operational emissions do not apply to onsite development since the majority of emissions would be generated by cars on the roadways.

LSTs have been developed for emissions within areas up to five acres in size, with air pollutant modeling recommended for activity within larger areas. The SCAQMD provides lookup tables for project sites that measure one, two, or five acres. The proposed project involves 0.3 acres of on-site construction. SCAQMD's *Sample Construction Scenarios for Projects Less than 5 Acres in Size* contains methodology for determining the thresholds for projects that are not exactly 1, 2, or 5 acres in size. This methodology was implemented to determine the thresholds for the proposed project. The project site is located in Source Receptor Area 2 (SRA-2, Northwest Coastal LA County). LSTs for construction on a 0.36 acre site in SRA-2 are shown in Table 4. LSTs are provided for receptors at a distance of 82 to 1,640 feet from the project site boundary. According to the SCAQMD's publication *Final Localized Significant (LST) Thresholds Methodology*, projects with boundaries located closer than 82 feet to the nearest receptor should use the LSTs for receptors located at 82 meters. The use of LSTs is voluntary, to be implemented at the discretion of local agencies.

Table 4
SCAQMD LSTs for Construction

Pollutant	Allowable emissions from a 0.36-acre site in SRA-2 for a receptor 82 feet away
Gradual conversion of NO _x to NO ₂	75
CO	392
PM ₁₀	3
PM _{2.5}	2

Source: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2>, October 2009.

a) Vehicle use, energy consumption, and associated air pollutant emissions are directly related to population growth. A project may be inconsistent with the AQMP if it would generate population exceeding the forecasts used in the development of the AQMP. The AQMP for the SCAQMD relies on population data from the Southern California Association of Governments (SCAG).

Using the California State Department of Finance (DOF, 2016) average household size for West Hollywood of 1.56 persons, the 30 new dwelling units would generate a resident population estimated at 47 persons (30 units x 1.56 persons/unit). The current City population is approximately 35,923, according to the most recent (May 2016) California Department of Finance estimate. Therefore, the proposed project would result in a total population of approximately 35,970 persons (35,923 + 47). According to SCAG's latest growth forecast (Draft 2016 RTP/SCS Growth Forecast by Jurisdiction, released December 2015), City of West Hollywood is projected to have a population of 37,700 in 2020, 40,500 in 2035, and 41,800 in 2040. According to the City's General Plan EIR (October 2010), the population in General Plan buildout year 2035 is estimated at 44,182. The level of population increase associated with the proposed project would be within the SCAG and City of West Hollywood's citywide population forecasts. Therefore, the proposed project would not exceed any AQMP thresholds and would not conflict with the AQMP. Impacts would be less than significant.

b-d) The proposed project would generate temporary construction emissions and long-term operational emissions. Emissions associated with the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2.2. Complete CalEEMod results and assumptions can be viewed in Appendix A.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM₁₀ and PM_{2.5}) and exhaust emissions from heavy construction vehicles, in addition to reactive organic gases (ROG) that would be released during the drying phase upon application of architectural coatings.

As mentioned in the Project Description, the proposed project would require approximately 11,832 cubic yards of cut that would be exported off-site, requiring approximately 740 round-trip hauling trips. It was assumed that the proposed project would comply with SCAQMD Rule 403 regarding fugitive dust emissions during construction and Rule 1113 regarding the use of low-volatile organic compound (VOC) architectural coatings. Construction was estimated to occur over approximately 18 months.

Table 5 summarizes the estimated maximum daily emissions of pollutants during construction on the project site. As shown in Table 5, the SCAQMD or LST thresholds would not be exceeded. Therefore, impacts would be less than significant.

Long-Term Emissions

Long-term emissions associated with project operation, as shown in Table 6, would include emissions from vehicle trips (mobile sources), natural gas and electricity use (energy sources), and landscape maintenance equipment, consumer products and architectural coating associated with onsite development (area sources). Emissions would not exceed SCAQMD thresholds for any criteria pollutant. Consequently, the impact of the proposed project's operational emissions on regional air quality under thresholds b), c), and d), and on sensitive receptors, would be less than significant.

Table 5
Estimated Construction Maximum Daily Air Pollutant Emissions

	Maximum Daily Emissions (lbs/day)					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
Maximum Daily Emissions ^a	10.30	47.82	37.58	4.93	2.98	0.09
SCAQMD Thresholds	75	100	550	150	55	150
Construction On-site Emissions	3.58	12.67	15.40	1.64	1.19	0.01
LSTs ^b	N/A	72	377	3	2	N/A
Exceed SCAQMD Thresholds or LSTs?	No	No	No	No	No	No

^a See Table 2.1 "Overall Construction-Mitigated" of summer emissions CalEEMod worksheets in Appendix A.

^b LST's only include on-site emissions. LSTs for a 0.36-acre site in SRA-2, see Table 4

N/A = not applicable

Table 6
Estimated Project Operational Emissions

Sources	Estimated Emissions (lbs/day)					
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}	SO _x
Area	9.52	0.23	17.60	2.31	2.30	0.02
Energy	0.01	0.09	0.04	<0.1	<0.1	<0.1
Mobile	1.70	4.34	18.22	2.72	0.77	0.04
Total Emissions (lbs/day)	11.23	4.66	35.86	5.03	3.08	0.07
<i>SCAQMD Thresholds</i>	<i>55</i>	<i>55</i>	<i>550</i>	<i>150</i>	<i>55</i>	<i>150</i>
Threshold Exceeded?	No	No	No	No	No	No

Source: Calculations were made in CalEEMod. See Table 2.2 “Unmitigated Operational” in CalEEMod summer emissions worksheets in Appendix A.

Note: numbers may not add up due to rounding.

e) **NO IMPACT.** The proposed mixed-use development includes residential, office, and retail uses. These uses are not listed on Figure 4-3 of the 1993 SCAQMD CEQA Air Quality Handbook as uses that require analysis of odor impacts. Further, office, retail, and residential uses are not identified on Figure 5-5, Land Uses Associated with Odor Complaints, of the Handbook. Substantial objectionable odors are normally associated with such uses as agriculture, wastewater treatment, industrial facilities, or landfills. Therefore, the proposed project would not generate objectionable odors affecting a substantial number of people. No impact would occur.

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IV. BIOLOGICAL RESOURCES

-- Would the project:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES				
-- Would the project:				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	■
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	■
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	■
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

a, b) **NO IMPACT.** The project site is located in an urbanized area of West Hollywood. The project site has been disturbed and developed. The proposed project would involve construction of a mixed-use building. The project site does not contain any riparian habitat or sensitive natural communities. No federal-or-state-listed endangered, threatened, rare, or otherwise sensitive flora or fauna were observed at the project site (Rincon Consultants, Inc., Site Visit, 2015). The project site does not contain any vegetation or biological habitat that might provide habitat for sensitive or special status species.

The project site contains several landscape trees that would be removed and one mature tree on the Sherbourne Drive sidewalk would be removed as part of the proposed project. Although no active bird nests were observed during site visits, these trees could contain bird nests and birds that are protected under the Migratory Bird Treaty Act (MBTA). Birds protected include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows and others, including their body parts (feathers, plumes etc.), nests, and eggs. If active bird nests are present, a protective buffer must be established to ensure that they are not disturbed until fledglings have left the nest. Compliance with the MBTA would ensure that protected birds are not adversely affected. No impact would occur.

c) **NO IMPACT.** The project site is not located on or in the vicinity of a federally protected wetland (FWS wetlands Mapper, 2015). No impact would occur.

d) **LESS THAN SIGNIFICANT IMPACT.** As described above, there is no native biological habitat on the project site. In addition, there are no native wildlife nursery sites. The City of West Hollywood is not recognized as an existing or proposed Significant Ecological Area that links migratory wildlife populations, as designated by the County of Los Angeles (2035 General Plan FEIR, 2010). The proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. No impact would occur.

e) **NO IMPACT.** No local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, apply to the project site. No impact would occur.

f) **NO IMPACT.** The project site is not located within an area that is subject to an adopted conservation plan (2035 General Plan FEIR, 2010). No impact would occur.

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

V. CULTURAL RESOURCES

-- Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

a) **NO IMPACT.** The project site currently contains a one-story commercial building and a parking lot. According to the Los Angeles County Office of the Assessor, the existing building was built in 2009 (LA County, 2016). The existing structure has not been identified as a historic resource in any State register, nor does the site contain any historic resources defined under the California Public resources Code Section 15064.5 (California State Parks, 2013). In addition, the building is not designated as a historic or cultural resource or a potential historic or cultural resource by the City of West Hollywood (West Hollywood Cultural and Historic Resources Map, 2015; Antonio Castillo, personal communication, July 2016). No historic resources are located in the vicinity of the project site. The closest historic structures designated by the City of



West Hollywood are located at the Pacific Design Center, 0.5 miles northwest of the project site. No impact would occur.

b-d) **NO IMPACT.** The project site is within a highly urbanized area. In addition, it has been disturbed to accommodate past and present onsite development and is currently covered with a structure and surface parking lot. There is no evidence that archaeological or paleontological resources or human remains are present onsite. In the unlikely event that such resources are unearthed during construction, applicable regulatory requirements pertaining to the handling and treatment of such resources would be followed. If archaeological or paleontological resources are identified, as defined by Section 2103.2 of the Public Resources Code, the site would be required to be treated in accordance with the provisions of Section 21083.2 of the Public Resources Code as appropriate. If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
VI. GEOLOGY AND SOILS				
-- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
VI. GEOLOGY AND SOILS				
-- Would the project:				
d) Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

a.i) **NO IMPACT.** The project site is not located within an Alquist-Priolo earthquake fault zone as defined by the State Geologist (Beverly Hills Quadrangle, California Department of Conservation, 1986), nor is it located in the vicinity of a known fault. The active fault closest to the site that is capable of surface rupture is the Hollywood fault, approximately 1 mile north of the site. A state-designated Alquist-Priolo Earthquake Zone is not established for the active Hollywood Fault. For planning purposes, the City of West Hollywood has established a Fault Precaution (FP) zone along the Hollywood Fault zone. FP Zone 1 requires a site-specific surface fault rupture evaluation and FP Zone 2 requires either a site-specific surface fault rupture evaluation or foundation strengthening to mitigate up to 2 inches of ground displacement. The project site is not located in FP Zone 1 or FP Zone 2 (City of West Hollywood Fault Location and Precaution Zone Map, Figure 3.5-2, 2035 General Plan FEIR, 2010). Therefore, the project would not be exposed to hazards associated with surface fault rupture. No impact would occur.

a.ii) **LESS THAN SIGNIFICANT IMPACT.** As with any site in the southern California region, the project site is susceptible to strong seismic ground shaking in the event of a major earthquake. Nearby active faults include the Hollywood Fault, the Santa Monica Fault, the Newport-Inglewood Fault Zone, the Raymond Fault, the Verdugo Fault, and the San Fernando Fault. These faults are capable of producing strong seismic ground shaking at the project site.

Onsite structures would be required to be constructed to comply with the WHMC Title 13, which adopts the provisions of the Los Angeles County Building Code (Title 26 of the Los Angeles County Code) and the California Building Code (CBC, Title 24 of the California Code of Regulations). With adherence to the WHMC requirements regarding seismic safety, design and construction of the proposed mixed-use structure would be engineered to withstand the expected ground acceleration that may occur at the project site. The calculated design base ground motion for the site would take into consideration the soil type, potential for liquefaction, and the most current and applicable seismic attenuation methods that are available. In addition, project construction would be subject to review and approval by City building and safety officials. Seismic hazard impacts would be less than significant.

a.iii, c) **POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED.**

Liquefaction is a condition that occurs when loose, unconsolidated, saturated soils change to a near-liquid state during groundshaking. The project site is within a potential liquefaction zone as identified on the State Hazards map (California Department of Conservation, Beverly Hills Quadrangle, 1999). Subsidence is the sudden sinking or gradual downward settling of the Earth's surface with little or no horizontal movement. Subsidence is typically associated with regional changes in ground surface elevation associated with withdrawal of groundwater, pumping of oil and gas from underground, the collapse of underground mines, liquefaction, or hydrocompaction. Lateral spreading is the horizontal movement or spreading of soil toward an open face. When soils located on a sloping site liquefy, they tend to flow downhill. The potential for failure from subsidence and lateral spreading is highest in areas where the groundwater table is high and where relatively soft, where recent alluvial deposits exist, and in areas with liquefaction risks.

Geocon West, Inc. prepared a geotechnical investigation of the project site in May 2015 (see Appendix B). This report included an analysis of liquefaction potential, which found that the alluvial soils below the subterranean level, assumed to extend to a depth of 22 feet, could be prone to up to 6.7 inches of settlement as a result ground motion during an earthquake. If liquefaction were to occur, differential settlement is anticipated to occur relatively globally across the site and would likely result in tilting or leaning of the proposed structure. Therefore, in order to mitigate impacts associated with potential liquefaction within and outside the structure footprint, site preparation and foundation design must be completed in accordance with the recommendations of the geotechnical engineer and the geotechnical report to provide a structurally sound foundation that accommodates any adjacent soil liquefaction potential. Compliance with recommendations in the Geotechnical Investigation (Mitigation Measure GEO-1) and geotechnical observation and monitoring (Mitigation Measure GEO-2) are required to reduce liquefaction impacts.

The proposed project is located in an area where the groundwater table is relatively high and there is liquefaction risk. However, the project site is located in an urbanized area that is generally flat. Therefore, the potential for lateral spreading is low. In addition, the proposed project would be required to comply with applicable provisions for construction related to potential soils hazards in the most recently adopted version of the CBC and the City's building regulations. Impacts associated with lateral spreading, subsidence, or collapse would be less than significant.

The proposed project would be required to comply with applicable provisions for construction in a liquefaction zone of the most recently adopted version of the CBC and the City's development requirements within hazard zones (WHMC Section 19.32.020). The City requires a soils report by a registered civil engineer in areas susceptible to liquefaction. The report must include a study of liquefaction potential. Where liquefaction potential is identified, it must also include mitigating design features. Recommendations in the soils report to reduce liquefaction impacts must be incorporated into the building design. In addition to adherence to CBC and WHMC requirements, the following mitigation is required to address the recommendations made by Geocon West, Inc. in the 2015 Geotechnical Investigation regarding impacts related to liquefaction and settlement:

GEO-1 Geotechnical Design Considerations. The recommendations included on pages 12 through 39 in the 2015 *Geotechnical Investigation* (included in Appendix B of this IS-MND) conducted by Geocon West, Inc. related to soil engineering must be incorporated into the proposed project grading and building/construction plans. The recommendations are related to:

- Site preparation (general grading specifications, excavation of site soils),
- Foundation design (general conditions, spread footings, foundation settlement),
- Retaining walls (general design-static loading, seismic surcharge, surcharge loading, subdrain, backfill),
- Temporary and/or Permanent Dewatering
- Temporary excavations (shoring, lateral design of shoring, lagging, earth anchors, anchor testing, internal bracing, deflection monitoring),
- Floor slabs and concrete decking,
- Corrosion,
- Drainage (onsite surface water filtration), and
- Waterproofing.

GEO-2 Geotechnical Observation and Monitoring. Ongoing during construction activities, the project geotechnical engineer shall, at a minimum, conduct the following, subject to the review and approval of the City Building Official or designee and the City Engineer or designee:

- Observe exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished subgrade;
- Evaluate the suitability of on-site and import soils for fill placement and collect and submit soil samples for required or recommended laboratory testing where necessary;
- Observe the fill and backfill for uniformity during placement;
- Test backfill for field density and compaction to determine the percentage of compaction achieved during backfill placement;
- Observe and probe foundation materials to confirm that suitable bearing materials are present at the design foundation depths;
- Observe the testing and installation of soldier piles to verify that the desired diameter and depth are obtained;
- Observe the installation and testing of the temporary tie-back anchors, if necessary;
- Observe the installation of and dynamic testing of driven piles to develop a piledriving criteria, if necessary; and,
- Observe the installation of production-driven piles to verify that the desired capacities and lengths are achieved, if necessary.

Pursuant to the 2015 Geotechnical Investigation for the project (see Appendix B), provided the recommendations presented in the report are complied with and implemented during design and construction, construction of the proposed project would not create hazards related to site



geology or soils and the effects of liquefaction induced settlement on the proposed structure would be mitigated.

In addition to incorporation of Mitigation Measures GEO-1 and GEO-2, the project must comply with the California Building Code (CBC) seismic standards (e.g., Section 1610 for lateral soil loads and Section 1613 for earthquake loads) and other applicable state and local laws and regulations, such as the City of West Hollywood Building Code. Compliance with CBC requirements and other applicable state and local laws and regulations would further ensure impacts associated with liquefaction, settlement, lateral spreading, subsidence, and collapse would be less than significant. Therefore, with implementation of Mitigation Measures GEO-1 and GEO-2, impacts would be less than significant.

a.iv) **NO IMPACT.** The geologic character of an area determines its potential for landslides. Steep slopes, the extent of erosion, and the rock composition of a hillside all contribute to the potential for slope failure and landslide events. Disturbance of unstable slopes can result in slope failure. Common triggering mechanisms of slope failure include undercutting slopes by erosion or grading, saturation of marginally stable slopes by rainfall or irrigation; and shaking of marginally stable slopes during earthquakes.

The project site is located in an urbanized area and is flat. The site is not listed or shown as an area prone to slope instability or landslides in the City of West Hollywood 2035 General Plan Safety and Noise Element or the California Department of Conservation Seismic Hazards Map (1999). No impact would occur.

b) **LESS THAN SIGNIFICANT IMPACT.** The proposed project involves development of a mixed-use structure on an urban infill site. Operation of the proposed project would not cause substantial erosion because the project site is flat and would be fully developed without exposed soils.

The proposed project involves grading and excavation for the subterranean parking garage. The grading and excavation phase when soils are exposed has the highest potential for erosion, although erosion could occur during project construction if there are large amounts of stockpiled or exposed soils. Construction activity would be required to comply with WHMC Section 15.56.090. This section requires storm water runoff containing sediment, construction materials or other pollutants from a construction site to be reduced to the maximum extent practicable. The following requirements would apply to the proposed project:

- *Sediment, construction wastes, trash and other pollutants from construction activities shall be reduced to the maximum extent practicable.*
- *Structural controls such as sediment barriers, plastic sheeting, detention ponds, filters, berms, and similar controls shall be utilized to the maximum extent practicable in order to minimize the escape of sediment and other pollutants from the site.*
- *Between October 1 and April 15, all excavated soil shall be located on the site in a manner that minimizes the amount of sediment running onto the street, drainage facilities or adjacent properties. Soil piles shall be bermed or covered with plastic or similar materials until the soil is either used or removed from the site.*

- *No washing of construction or other vehicles is permitted adjacent to a construction site. No water from the washing of construction vehicle or equipment on the construction site is permitted to run off the construction site and enter the municipal storm water system.*
- *Trash receptacles must be situated at convenient locations on construction sites and must be maintained in such a manner that trash and litter does not accumulate on the site nor migrate off site.*
- *Erosion from slopes and channels must be controlled through the effective combination of best management practices.*

With adherence to WHMC Section 15.56.090 and incorporation of the requirements listed above, temporary erosion-related impacts would be less than significant.

d) **LESS THAN SIGNIFICANT IMPACT.** Expansive soils are generally clays, which increase in volume when saturated and shrink when dried. According to the City's 2035 General Plan FEIR (2010), expansive soils exist in the City and are more prevalent in the southern part of the City, south of Santa Monica Boulevard where the project site is located. CBC Section 1808.6 requires special foundation design for buildings constructed on expansive soils. If the soil is not removed or stabilized, then foundations must be designed to prevent uplift of the supported structure or to resist forces exerted on the foundation due to soil volume changes or shall be isolated from the expansive soil. Compliance with CBC requirements would protect structures and occupants from impacts related to expansive soils. With compliance with CBC and WHMC requirements, impacts associated with expansive soils would be less than significant.

e) **NO IMPACT.** The proposed project would be connected to the local wastewater treatment system. Septic systems would not be used. No impact would occur.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

VII. GREENHOUSE GAS EMISSIONS

-- Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHGs). GHGs contribute to the "greenhouse effect," which is a natural occurrence that helps regulate the temperature of the



planet. The majority of radiation from the Sun hits the Earth's surface and warms it. The surface in turn radiates heat back towards the atmosphere, known as infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping back into space and re-radiate it in all directions. This process is essential to supporting life on Earth because it warms the planet by approximately 60° Fahrenheit. Emissions from human activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere that trap heat, thereby contributing to an average increase in the Earth's temperature.

GHGs occur naturally and from human activities. Human activities that produce GHGs are the burning of fossil fuels (coal, oil and natural gas for heating and electricity, gasoline and diesel for transportation); methane from landfill wastes and raising livestock, deforestation activities; and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Since 1750, it is estimated that the concentrations of carbon dioxide, methane, and nitrous oxide in the atmosphere have increased over by 36%, 148%, and 18% respectively, primarily due to human activity. Emissions of GHGs affect the atmosphere directly by changing its chemical composition while changes to the land surface indirectly affect the atmosphere by changing the way in which the Earth absorbs gases from the atmosphere. Potential impacts of global climate change in California may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CEC, March 2009).

The City of West Hollywood adopted a Climate Action Plan (CAP) in September 2011. The CAP outlines a course of action to reduce municipal and community-wide GHG emissions that contribute to climate change. The CAP includes seven emission reductions strategies: 1) community leadership and engagement, 2) land use and community design, 3) transportation and mobility, 4) energy use and efficiency, 5) water use and efficiency, 6) waste reduction and recycling, and 7) green space. The land use and community design strategy and the transportation and mobility strategy encourage development in areas to promote transit use, walking and bicycling to improve health and decrease driving. According to the CAP, a project-specific GHG analysis "must identify the specific CAP measures applicable to the project and how the project incorporates the measures." If the project is not consistent with the CAP measures or if the measures are not otherwise binding, they must be incorporated as mitigation measures applicable to the project.

The adopted *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The 2008 SCAQMD threshold considers emissions of over 10,000 metric tons of carbon dioxide equivalent (CO₂E) per year to be significant. However, the SCAQMD's threshold applies only to stationary sources and is expressly intended to apply only when the SCAQMD is the CEQA lead agency. Although not formally adopted, the SCAQMD has a recommended tiered GHG significance threshold (SCAQMD, 2008). According to SCAQMD's tiered approach, under Tier 1, a proposed project would have a less than significant impact on GHG emissions if the project fits under any applicable exemptions. If no exemptions apply, the project would be evaluated under Tier 2. There are no exemptions that would apply to the proposed project. Under Tier 2, project impacts would be less than significant if a project is consistent with an

approved GHG reduction plan, such as a CAP. The City of West Hollywood has an adopted CAP. Therefore, GHG emissions associated with the proposed project would be less than significant if it is consistent with the City of West Hollywood CAP. If the proposed project is not consistent with the CAP (or if no adopted GHG reduction plan exists) then projects may be evaluated based on the SCAQMD recommended Tier 3 screening level quantitative thresholds. SCAQMD has a recommended screening level quantitative threshold for all land use types of 3,000 metric tons CO₂E /year (SCAQMD, “Proposed Tier 3 Quantitative Thresholds – Option 1”, September 2010). For the proposed project, impacts would be significant if it were found to be inconsistent with the City’s CAP. The project’s estimated annual emissions have been calculated and compared to the 3,000 metric tons CO₂E /year threshold for informational purposes.

The threshold approach of evaluating consistency with a qualified GHG reduction plan to determine impact significance was endorsed by the California State Supreme Court in the Newhall Ranch ruling (*Center for Biological Diversity vs. California Department of Fish and Wildlife*) as an appropriate method to determine significance of GHG emissions, provided the qualified GHG reduction plan uses a GHG reduction target consistent with the state reduction planning (Association of Environmental Professionals, 2016). West Hollywood’s CAP is consistent with the state’s GHG reduction planning efforts.

a-b) **LESS THAN SIGNIFICANT IMPACT.**

Consistency with Approved GHG Reduction Plan

As discussed above, according to the SCAQMD’s recommended thresholds, a project would have a less than significant impact if it would be consistent with an approved plan for the reduction of GHG. The City of West Hollywood adopted a CAP in 2011. The City of West Hollywood CAP outlines a course of action to reduce municipal and communitywide GHG emissions that contribute to climate change. According to the CAP, a project-specific GHG analysis “must identify the specific CAP measures applicable to the project and how the project incorporates the measures.” If the project is not consistent with the CAP measures or if the measures are not otherwise binding, they must be incorporated as mitigation measures applicable to the project. Table 7 compares the proposed project with the applicable CAP measures. As shown in the table, the proposed project would implement applicable GHG reduction measures and therefore would be consistent with the CAP. Impacts would be less than significant and mitigation would not be required.

Table 7
Consistency with Applicable West Hollywood
Climate Action Plan Reduction Measures

Measure	Project Consistency
Land Use and Community Design	
LU-1.1: Facilitate the establishment of mixed-use, pedestrian- and transit-oriented development along the commercial corridors and in Transit Overlay Zones.	Consistent The project site is a mixed-use, pedestrian-friendly development located along a commercial corridor.

Table 7
Consistency with Applicable West Hollywood
Climate Action Plan Reduction Measures

Measure	Project Consistency
Transportation and Mobility	
T-1.1: Increase the pedestrian mode share in West Hollywood with convenient and attractive pedestrian infrastructure and facilities.	Consistent The project site is located within walking distance of retail facilities, restaurants, and public transportation.
T-2.1: Increase the bicycle mode share by providing accessible, convenient, and attractive bicycle infrastructure.	Consistent The project site is located next to a bike route along Beverly Boulevard.
T-2.2: Install bike racks and bike parking in the City where bike parking infrastructure currently does not exist.	Consistent The proposed project includes bicycle parking for employees, customers, and residents in accordance with West Hollywood green building program requirements.
Energy Use and Efficiency	
E-2.2: Require all new construction to achieve California Building Code Tier II Energy Efficiency Standards (Section 503.1.2).	Consistent The proposed project would meet Title 24 California Building Code Energy Efficiency standards.
E-3.2: Require the use of recycled materials for 20% of construction materials in all new construction.	Consistent The proposed project includes recycled-content materials in the foundation, insulation, and landscaping.
Water Use and Efficiency	
W-1.1: Reduce per capita water consumption by 30% by 2035.	Consistent To reduce water use, the proposed project would include low-flow plumbing fixtures consistent with CalGreen building standards and would utilize drought-tolerant landscaping.
W-1.2: Encourage all automated irrigation systems installed in the City to include a weather-based control system.	Consistent The proposed project involves drip-irrigation landscaping. Minimal irrigation would be required.
Waste Reduction and Recycling	
SW-1.1: Establish a waste reduction target not to exceed 4.0 pounds per person per day.	Consistent The City of West Hollywood's Public Works Department is responsible for complying with AB 939. The City has enacted numerous programs to achieve the mandated diversion rates. In 2012, the per employee disposal rate per day in West Hollywood was 5.2 pounds per employee. This exceeds CalRecycle's target of 7.7 pounds per employee per day (CalRecycle, 2012). The proposed project would include space for the collection and storage of recyclables. In addition, at least 80% of construction and demolition waste would be diverted in accordance with WHMC Section 19.20.060. The project would also be subject to all applicable State and City requirements for solid waste reduction as they change in the future.
Urban Forest	
G-1.1: Increase and enhance the City's urban forest to capture and store carbon and reduce building energy consumption.	Consistent The proposed project includes landscaping around the perimeter of the buildings and will plant additional street trees.

GHG Emissions Associated with the Proposed Project

Although the proposed project would be consistent with the West Hollywood CAP and impacts would be less than significant, for informational purposes, a quantitative analysis of GHG emissions associated with construction emissions and operational emissions from the proposed project is provided below. Emissions associated with the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2.2. Complete CalEEMod results and assumptions can be viewed in Appendix C.

As shown in Table 8, emissions of CO₂E units generated by construction of the proposed project are estimated at 291 metric tons. When amortized over a 30-year period (the assumed life of the project), CO₂E construction emissions would be approximately 9.7 metric tons CO₂E per year.

Table 8
Estimated Construction Emissions of Greenhouse Gases

	Annual Emissions (Carbon Dioxide Equivalent (CO₂E))
Total	291 metric tons
Amortized over 30 years	9.7 metric tons per year

See Appendix C for CalEEMod Results.

Operational Indirect and Stationary Direct Emissions

Operational Emissions include area sources (consumer products, landscape maintenance equipment, and painting), energy use (electricity and natural gas), solid waste, electricity to deliver water, and transportation emissions and are shown in Table 9. Operational emissions were calculated using CalEEMod. Full results are shown in Appendix C. In accordance with AB 939, it was assumed that the proposed project would achieve at least a 50% waste diversion rate. CalEEMod does not calculate N₂O emissions related to mobile sources. As such, N₂O emissions were calculated based on the proposed project's VMT using calculation methods provided by the California Climate Action Registry General Reporting Protocol (January 2009). As shown in Table 9, total emissions associated with the new commercial building are estimated at 791 metric tons CO₂E per year.

Table 9
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (CO₂e) (in metric tons)
Project Construction	10
Project Operational	
Area	10
Energy	138
Solid Waste	12
Water	21
Project Mobile	
CO ₂ and CH ₄	572
N ₂ O	28
Project Total	791

Sources: See Appendix C for calculations and for GHG emission factor assumptions.

According to SCAQMD Tier 2 GHG significance thresholds, a proposed project's GHG emissions would be less than significant if the proposed project is consistent with an adopted regional GHG reduction plan (such as a CAP). As described above, the proposed project would be consistent with the West Hollywood CAP. In addition, for informational purposes, a quantitative analysis was provided. The proposed project would emit an estimated 791 metric tons CO₂E per year, which is below the SCAQMD recommended Tier 3 threshold of 3,000 metric tons CO₂E per year for all land use types. The proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and would be consistent with the West Hollywood CAP and objectives of the RTP/SCS, AB 32, SB 97 and SB 375. Therefore, impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

VIII. HAZARDS AND HAZARDOUS MATERIALS

-- Would the project:

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



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS				
-- Would the project:				
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

a, b) **LESS THAN SIGNIFICANT IMPACT.** The proposed project would involve demolition of an existing commercial building and development of a new mixed-use project. The proposed uses (office, retail, residential) would not involve the routine transport, use or disposal of hazardous substances, other than minor amounts typically used for maintenance and landscaping. In the unlikely scenario that licensed vendors or tenants bring hazardous materials

to and from the project site, they would be required to provide all appropriate documentation for all hazardous materials that are transported in connection with project-site activities (as required by the WHMC). This would achieve compliance with the existing hazardous materials regulations. In addition, any hazardous wastes produced onsite would be subject to requirements associated with accumulation time limits, proper storage locations and containers, and proper labeling. As part of any removal of any hazardous waste from the site, hazardous waste generators are required to use a certified hazardous waste transportation company, which must ship hazardous waste to a permitted facility for treatment, storage, recycling, or disposal. Compliance with these applicable regulations would ensure that impacts associated with the use, transport, storage, and sale of hazardous materials would not be significant. Impacts would be less than significant.

c) **NO IMPACT.** There are no schools within ¼ mile of the project site. The closest school is Rosewood Elementary School, located approximately 0.4 miles northwest of the site. As mentioned above, operation of the proposed project would not involve the use or transport of hazardous materials. Therefore, no impact would occur.

d) **NO IMPACT.** The project site does not appear on any hazardous material site list compiled pursuant to Government Code Section 65962.5. The following databases were checked (November 6, 2015) for known hazardous materials contamination at the project site:

- *GeoTracker (California State Water Resources Control Board): list of leaking underground storage tank sites*
- *EnviroStor (California Department of Toxic Substances Control): list of hazardous waste and substances sites*
- *Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database*
- *Cortese list of Hazardous Waste and Substances Sites*
- *EnviroMapper (U.S. Environmental Protection Agency)*

No leaking underground storage tank (LUST) cleanup sites or other hazardous cleanup sites are located within 1,000 feet of the project site. No impact would occur.

e, f) **NO IMPACT.** The project site is not located in the vicinity of a public or private airstrip. The closest airport is Santa Monica airport, located approximately seven miles southwest of the site. No impact would occur.

g) **NO IMPACT.** The proposed project involves infill development in a highly urbanized area of West Hollywood. Project implementation would not alter or otherwise interfere with public rights-of-way and, therefore, would not interfere with emergency response or evacuation. The proposed project would be required to comply with applicable California Fire Code requirements. No impact would occur.

h) **NO IMPACT.** The project site is in an urbanized area and is not within a wildland fire hazard area as defined by the City of West Hollywood 2035 General Plan Safety and Noise Element. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY				
-- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

IX. HYDROLOGY AND WATER QUALITY

-- Would the project:

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

a, c -f) **LESS THAN SIGNIFICANT IMPACT.** The proposed project would not involve alteration of a stream or river and would not substantially alter drainage patterns in the area. During construction of the proposed project, the drainage pattern could be temporarily altered and erosion could occur. However, as discussed in Section VI, *Geology and Soils*, Item b, construction activity would be required to comply with WHMC Section 15.56.090. This Section requires storm water runoff containing sediment, construction materials or other pollutants from a construction site to be reduced to the maximum extent practicable. This requirement would reduce temporary erosion-related effects.

The proposed project involves development of a mixed-use building on a lot that is currently developed with a structure and parking areas. The proposed project would include permeable surfaces, but also would provide landscaped area with 1,179 square feet of permeable surface and permeable pavers and drainage areas with 823 square feet of permeable surface. Further, the proposed project would be required to comply with Chapter 15.56.096 of the WHMC which requires a Low Impact Development (LID) plan for the proposed project. A LID Plan is a document developed to control pollutants, pollutant loads, and runoff volume being released from the project site by minimizing the impervious surface area and controlling runoff from impervious surfaces (West Hollywood LID Plan Development Guide, no date). The proposed project is required to implement Best Management Practices (BMPs), such as use of flow-through planter boxes, vegetative swales, semi-pervious surfaces, or infiltration trenches, to meet retain runoff from the 85th percentile 24-hour rain event. With adherence to WHMC requirements to control polluted runoff, impacts would be less than significant.

b) **LESS THAN SIGNIFICANT IMPACT.** The proposed project involves the construction of a mixed-use development and would incrementally increase water consumption. Water would be provided by the Los Angeles Department of Water and Power, which receives approximately 15% of its water from groundwater sources. However, adequate water supply is available to serve the project site. Therefore, water demand associated with the proposed project would not substantially deplete groundwater supplies (refer to Section XVI, *Utilities and Service Systems*, for further discussion of this impact.) Impacts would be less than significant.

g-h) **NO IMPACT.** The project site is within Flood Zone X, which is an area outside of the 100-year flood zone (FEMA FIRM Map No. 06037C1585F, 2008). The project would not involve



construction of a structure that would impede flood flows. The site is not located within a potential inundation area (City of West Hollywood, 2035 General Plan Safety and Noise Element). The project site is approximately nine miles from the Pacific Ocean and is not located within a seiche or landslide/mudslide hazard zone (California Department of Conservation, 1999). No impact would occur.

i-j) **NO IMPACT.** The site is not located within a potential dam inundation area (City of West Hollywood, 2035 General Plan Safety and Noise Element). The project site is approximately nine miles from the Pacific Ocean and is not located within a seiche or landslide/mudslide hazard zone (California Department of Conservation, 1999). No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
X. LAND USE AND PLANNING				
-- Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with an applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

a) **NO IMPACT.** The proposed project involves a new mixed-use development on an infill site in an urbanized area. This development does not include new roads or other components that would divide an established community. Rather, the project would be expected to blend into the fabric of the community. No impact would occur.

b) **LESS THAN SIGNIFICANT IMPACT.** The project site is zoned and has a General Plan land use designation of Commercial, Community 1 (CC1). The CC1 land use designation provides for commercial and mixed-use development along major corridors, including Santa Monica Boulevard. The designation allows for a variety of commercial uses, including retail, offices, and restaurants, as well as a mix of residential, commercial, and office uses. The base FAR is 1.5 and the base height is 35 feet. The proposed project involves a mixed-use development with residential, office and retail uses, all of which are permitted in the CC1 zone.

The project site is also within the Mixed-Use Incentive Overlay Zone (MUIOZ). The purpose of the MUIOZ is to identify commercial sites and areas within the City where height or density incentives for mixed-use development may be applied (WHMC Chapter 19.14.080). In the



MUIOZ, FAR of up to 0.5 may be granted in addition to the base FAR for a project that incorporates residential units into a commercial project. In addition, a height bonus of up to 10 feet may accompany a FAR bonus of up to 0.5 for residential uses provided that certain conditions are met¹ (WHMC Chapter 19.10.050). Therefore, because it is part of the MUIOZ, the proposed project would be allowed a FAR of up to 2.0 and a height up to 45 feet.

Further, pursuant to Government Code Section 65915, density bonuses must be granted for residential or mixed-use projects that include a certain percentage of affordable housing. The density bonus allows increases of up to 35% in FAR (equivalent to an additional 0.7 FAR, based on the 2.0 FAR inclusive of the mixed-use bonus). Further, providing on-site affordable housing also requires the City to grant waivers and/or up to three affordable housing incentives or concessions. The proposed project would provide six affordable housing (20% of base units), three very low income and three moderate income units. Therefore, according to WHMC Chapter 19.22.050, the proposed project is eligible for a 35% density bonus (13% of base units designated as very low income units) and two concessions. In addition, the applicant has requested a waiver of development standards to allow an additional story to construct the project.

Table 10 compares the project to applicable zoning ordinance and General Plan requirements. The proposed project would be consistent with applicable requirements.

Table 10
Consistency with Zoning Ordinance and General Plan Requirements

Requirement	Allowed	Actual Provided by Proposed Project
Floor Area Ratio (FAR)	CC1 Base FAR: 1.5 + Mixed-Use Bonus FAR: 0.5 + 35% Density Bonus for Affordable Housing: 0.70 <i>Total Allowed = 2.7</i>	<u>Consistent</u> 2.58
Building Height	CC1 Allowed Height: 35 ft, 3 stories + Mixed-Use Bonus Height: 10 feet + Affordable Housing Waiver: 1 story <i>Total Allowed: 55 feet, 5 stories</i>	<u>Consistent</u> CC1: 55 ft, 5 stories
Setbacks	CC1: Front: none required North: 10 feet. Below 35' Height, 25 feet. Above 35' Height Side and Rear: 10 feet if adjacent to a parcel in a residential zoning district	<u>Consistent</u> Front Yard: 0 feet North Sideyard: 25 feet South Sideyard: 8 feet Rear Yard: 6 feet

The project site also is within the General Plan Commercial Subarea 1 (Melrose/Beverly District). The Melrose/Beverly District, also known as the “West Hollywood Design District”, includes segments of Melrose Avenue, Robertson Boulevard, and Beverly Boulevard and surrounds the Pacific Design Center. The vision for the Melrose/Beverly District is to be a “national and international destination for high-end arts and design studios, offices, and related businesses” (General Plan Goal LU-11). Policies in the General Plan encourage retail and

¹ Conditions include: 1) the 25 feet of structure located closest to residential zoning district is limited to 35 feet in height, and 2) any square footage where the height bonus is utilized is developed exclusively with residential units.



creative office uses while enhancing the pedestrian environment (LU-11.1 and LU-11.7). The proposed project would implement these General Plan goals and policies by providing gallery, retail, and office uses as well as sidewalk landscaping that would enhance the pedestrian experience. Impacts related to conflicts with land use plans would be less than significant.

c) **NO IMPACT**. The project site is in an urbanized area of West Hollywood. There are no adopted habitat conservation plans or natural community conservation plans within the City of West Hollywood (2035 General Plan FEIR, 2010). No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XI. MINERAL RESOURCES				
-- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

a, b) **NO IMPACT**. The project site is in a highly urbanized area of West Hollywood that is not used for mineral resource extraction. No state-designated or locally designated mineral resource zones exist in the City (2035 General Plan FEIR, 2010). The proposed project would not affect mineral resources. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XII. NOISE				
-- Would the project result in:				
a) 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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels above levels existing without the project?	☐	☐	☒	☐



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XII. NOISE				
-- Would the project result in:				
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒
f) 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?	☐	☐	☐	☒

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).

Because of the logarithmic scale of the decibel unit, sound levels cannot be added or subtracted arithmetically. If a sound's physical intensity is doubled, the sound level increases by 3 dBA, regardless of the initial sound level. For example, 60 dBA plus 60 dBA equals 63 dBA. Where ambient noise levels are high in comparison to a new noise source, the change in noise level would be less than 3 dBA. For example, 70 dBA ambient noise levels are combined with a 60 dBA noise source the resulting noise level equals 70.4 dBA.

Noise that is experienced at any receptor can be attenuated by distance or the presence of noise barriers or intervening terrain. Sound from a single source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance. For acoustically absorptive, or soft, sites (i.e., sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees), ground attenuation of about 1.5 dBA per doubling of distance normally occurs. A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by this shielding depends on the size of the object, proximity to the noise source and receiver, surface weight, solidity, and the frequency content of the noise source. Natural terrain features (such as hills and dense woods) and human-made features (such as buildings and walls) can substantially reduce noise levels. Walls often are constructed between a source and a receiver



specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dBA of noise reduction.

The City of West Hollywood adopted the 2035 General Plan Safety and Noise Element in September 2011. The Noise Element provides a description of existing noise levels and sources and incorporates comprehensive goals, policies, and implementing actions. The Noise Element includes several policies on noise and acceptable noise levels. These policies address unnecessary, excessive, and annoying noise levels and sources such as vehicles, construction, special sources (e.g., radios, musical instrument, animals, etc.), and stationary sources (e.g., heating and cooling systems, mechanical rooms, etc.). The Noise Element also establishes land use compatibility categories for community noise exposure. The maximum “normally acceptable” noise level for the exterior of residential areas is 60 dBA CNEL or Ldn.² The maximum “normally acceptable” noise level for commercial and professional uses is 65 dBA CNEL or Ldn.

To implement the City’s noise policies, the City adopted a Noise Ordinance. The Noise Ordinance is part of the WHMC. The City of West Hollywood Noise Ordinance has no numerical standards, but restricts unnecessary or excessive noise within the City limits. Radios, musical instruments or similar devices operated between 10:00 PM and 8:00 AM may not be operated at a level to be plainly audible at a distance of 50 feet (Section 9.08.050[a]); the operation of any motor may not be audible at more than 50 feet from the source (Section 9.08.050[c]); loading and unloading activities are generally prohibited from 10:00 PM to 8:00 AM (Section 9.08.050[e]); and commercial activities may not be plainly audible at any residence between 10:00 PM to 8:00 AM (Section 9.08.050[k]). The City Manager has responsibility, with the assistance of the Sheriff’s Department if necessary, to enforce these noise regulations (Section 9.08.070).

Section 9.08.050 of the WHMC sets limits on when construction activities can occur. Construction activities are not permitted between the hours of 7:00 PM and 8:00 AM on weekdays and Saturdays, or at any time on Sundays or City holidays. Pursuant to Section 9.08.050 of the WHMC, the loading, unloading, opening, closing or other handling of boxes, containers, building materials, solid waste and recycling containers or similar objects is not permitted between the hours of 10:00 PM and 8:00 AM in such manner as to cause unreasonable noise disturbance, excluding normal handling of solid waste and recycling containers by a franchised collector.

Vibration is a unique form of noise because its energy is carried through buildings, structures, and the ground, whereas noise is simply carried through the air. Thus, vibration is generally felt rather than heard. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB) in the U.S. The City has not adopted any thresholds or regulations addressing vibration.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. The vibration thresholds established by the

² The Day-Night average level (Ldn) and the Community Noise Equivalent Level (CNEL) are two commonly used noise metrics. The Ldn is a 24-hour average noise level that adds 10 dBA to actual nighttime (10:00 PM to 7:00 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 dBA penalty for noise occurring during the evening (7:00 PM to 10:00 PM).

Federal Transit Administration (FTA) are 65 VdB for buildings where low ambient vibration is essential for interior operations (such as hospitals and recording studios), 72 VdB for residences and buildings where people normally sleep, including hotels, and 75 VdB for institutional land uses with primary daytime use (such as churches and schools). The threshold for the proposed project is 72 VdB for residences and hotels during hours when people normally sleep, as these are the only sensitive receptors in the vicinity of the project site. In terms of ground-borne vibration impacts on structures, the FTA states that ground-borne vibration levels in excess of 100 VdB would damage fragile buildings and levels in excess of 95 VdB would damage extremely fragile historic buildings.

The most common sources of noise in the project site vicinity are transportation-related, such as 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. On November 19, 2015, Rincon Consultants, Inc. performed two 15-minute weekday noise measurements using an ANSI Type II integrating sound level meter. Both measurements were taken during rush hour, between approximately 5:50 and 6:30 pm. The noise monitoring results are summarized in Table 11.

Table 11
Noise Measurement Results

Measurement Number	Measurement Location	Primary Noise Source	Leq (dBA) ¹
1	Sherbourne Drive – Northwest Corner of Project Site	Cars and pedestrians	59.2
2	Beverly Boulevard – Southern Boundary of Project Site	Traffic	70.0

Source: Rincon Consultants, Inc. Recorded during field visit using ANSI Type II Integrating sound level meter. See Appendix D for noise measurement results.

¹ *The equivalent noise level (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). For this measurement the Leq was over a 15-minute period.*

Noise levels in the vicinity of the project site ranged from about 59 to 70 dBA Leq. The primary sources of roadway noise near the project site are automobiles traveling on Beverly Boulevard immediately south of the project site.

a, c, d) **LESS THAN SIGNIFICANT IMPACT.** The proposed project could generate temporary noise increases during construction and long-term increases associated with project operation; however, as discussed below, both construction-related and operational noise would be less than significant.

Construction Noise

Noise levels from construction of the proposed project would result from construction of the structure and traffic noise from construction vehicles. Nearby noise-sensitive land uses, including the residences immediately north of the project site, 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. Additionally, this is an urban area where some construction noise is expected. Construction activity is

expected to occur over a period of approximately 18-24 months. Table 12 shows typical noise levels at construction sites.

Table 12
Typical Noise Levels at Construction Sites

Equipment Onsite	Typical Level (dBA) 25 Feet from the Source	Typical Level (dBA) 50 Feet from the Source	Typical Level (dBA) 100 Feet from the Source
Air Compressor	87	81	75
Backhoe	86	80	74
Concrete Mixer	91	85	79
Crane, mobile	89	83	77
Dozer	91	85	79
Jack Hammer	94	88	82
Paver	95	89	83
Saw	82	76	70
Truck	94	88	82

Noise levels assume a noise attenuation rate of 6dBA per doubling of distance.
Source: Federal Transit Administration (FTA), May 2006

Typical construction noise levels at 25 feet from the source range from about 86 to 95 dBA. Such levels would exceed ambient noise and would be audible on adjacent properties, including residences immediately north of the project site. However, as discussed above, pursuant to Section 9.08.050 of the WHMC, construction is prohibited between the hours of 7:00 PM and 8:00 AM on weekdays and Saturdays; or at any time on Sundays or City holidays. Therefore, construction would not occur during recognized sleep hours for residences. In addition, Mitigation Measure 3.9-2 from the West Hollywood 2035 General Plan FEIR (2010) applies to all new construction in the City and would be a Condition of Approval for the proposed project:

- 3.9-2 *The City shall require construction contractors to implement the following measures during construction activities through contract provisions and/or conditions of approval as appropriate:*
- *Construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (i.e., mufflers, silencers, wraps, etc.). Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power equipment.*
 - *Construction operations and related activities associated with the proposed project shall comply with the operational hours outlined in the WHMC Noise Ordinance, or mitigate noise at sensitive land uses to below WHMC standards. Construction equipment should not be idled for extended periods of time in the vicinity of noise-sensitive receptors.*
 - *Locate fixed and/or stationary equipment as far as possible from noise-sensitive receptors (e.g., generators, compressors, rock crushers, cement mixers). Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on powered construction equipment.*

- *Where feasible, temporary barriers shall be placed as close to the noise source or as close to the receptor as possible and break the line of sight between the source and receptor where modeled levels exceed applicable standards. Acoustical barriers shall be constructed of material having a minimum surface weight of 2 pounds per square foot or greater, and a demonstrated STC rating of 25 or greater as defined by American Society for Testing and Materials (ASTM) Test Method E90. Placement, orientation, size, and density of acoustical barriers shall be specified by a qualified acoustical consultant.*
- *Music from a construction site shall not be audible at offsite locations.*

Further, the City of West Hollywood's plan check process includes the requirement for implementing a Construction Period Mitigation Plan (CPMP). All developers in West Hollywood are required to prepare a CPMP to address issues such as truck routing, dust control, construction worker parking, hours of operation, noise, and materials storage. The CPMP would ensure that there is not disruption to the neighborhood. The CMP must describe the construction schedule and phasing and specific noise mitigation measures. Because construction activity would be required to comply with timing restrictions and with the conditions of approval listed above, and would be required to develop a CPMP, noise levels would not exceed ambient noise levels and impacts related to temporary construction noise would be less than significant.

Operational Noise

The proposed project includes the construction of a mixed-use retail, office, and residential project. The mixed-use project would include two five-story buildings joined by two levels of underground parking, a ground-level courtyard, and pedestrian bridges on the second, third, and fourth floors. Existing uses near the project site may periodically be subject to noises associated with operation of the proposed project, including noise that is typical of mixed-use development such as conversations, music, delivery trucks, and noise associated with rooftop ventilation and heating systems. The closest sensitive receptors are the residences located north of the project site.

Rooftop ventilation and heating systems would be onsite noise generators. Noise levels from commercial heating, ventilation and air conditioning (HVAC) equipment can reach 100 dBA at a distance of three feet (EPA, 1971). This equipment usually has noise shielding cabinets placed on the roof or is within mechanical equipment rooms. Typically, the shielding and location of these units reduce noise levels to no greater than 55 dBA at 50 feet from the source. Rooftop HVAC systems on the 5-story multi-family residence would be over 50 feet from the nearest adjacent residence. Exterior noise produced by the HVAC systems would therefore not exceed 55 dBA, which is less than the 60 dBA CNEL exterior noise threshold for residences. Therefore, operational noise impacts from HVAC equipment would be less than significant.

Operation of the proposed retail and office uses of the project would involve delivery trucks and trash hauling trucks going to and from the project site. An individual delivery truck can generate noise of up to 85 dBA, which could be disruptive if it were to occur at night or in the early morning hours. However, pursuant to Section 9.08.050 of the WHMC, commercial deliveries that would cause unreasonable noise disturbance are not permitted between the hours of 10:00 PM and 8:00 AM, except for normal handling of solid waste and recycling

containers by a franchised collector. Noise generated by daytime deliveries and trash pickups would not adversely affect nearby sensitive receptors due to their relatively low frequency, and the lower noise level sensitivity of receptors during the day when deliveries would occur. Moreover, delivery and trash haul noise would be similar to what already occurs in the area due to deliveries and trash pick-up at the project site and nearby properties.

The proposed project would involve a total of 65 parking spaces, of which 54 would be provided in two levels of subterranean parking and 11 would be provided on the ground-floor. Sources of noise would include general vehicular movement, periodic instantaneous sounds such as car honking and car alarms, and conversations. Table 13 shows exterior noise levels typically associated with parking lots. Noise levels could reach 72 dBA 50 feet from the parking areas when street sweeping occurs, but would not exceed 69 dBA during normal daily activity. The existing restaurant and nightclub on the project site includes surface parking. The proposed project would involve surface and subterranean parking. Most noise associated with parking lot noise would occur underground in the subterranean garage and would not be audible for nearby sensitive uses. The proposed surface level parking would generate noise comparable to existing conditions at the on-site surface parking lot. In addition, noise would occur only sporadically and mostly during the day, compared to the existing nightclub use which generates noise mostly at night. Therefore, operational noise associated with the proposed surface parking lot would not exceed noise ordinance standards.

Table 13
Parking Lot Noise Sources at 50 Feet

Source	Level (dBA)
Autos at 14 mph	50
Sweepers	72
Car Alarm Signal	69
Car Alarm Chirp	54
Car Horns	69
Door Slams	64
Talking	36
Radios	64
Tire Squeals	66

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

The proposed project would increase the number of vehicle trips to and from the site, which would incrementally increase traffic noise on study area roadways. The project therefore could incrementally increase noise at neighboring uses. As shown on Table 11, existing measured ambient noise levels along roadway segments in the project vicinity during non-peak hours range from 59 dBA to 70 dBA. Noise levels during the peak period were modeled using the Federal Highway Administration Traffic Noise Model using data from the project traffic study. Table 14 shows the change in noise level due to project-related traffic.

Table 14
Operational Roadway Noise Exposure

Roadway	Projected Peak Hour Noise Level (dBA Leq)				Change In Noise Level (dBA Leq)		
	Existing (1)	Existing + Project (2)	Cumulative 2018 (3)	Cumulative 2018 + Project (4)	Change Under Existing Conditions (2 minus 1)	Cumulative Change (3-1)	Project's Cumulative Contri- bution (4 minus 3)
Residences to the north	61.9	61.9	62.5	62.5	0.0	0.0	0.0
Sherbourne Drive adjacent to project site	62.8	62.8	63.5	63.5	0.0	0.0	0.0
Beverly Boulevard adjacent to project site	68.4	68.4	68.9	69.0	0.0	0.5	0.1

Refer to Appendix D for full noise model output.

Source: Federal Highway Administration Traffic Noise Model Version 2.5; Traffic counts from Fehr & Peers January 2016, Traffic Study (See Appendix D)

Notes: Noise levels presented do not account for attenuation provided by existing barriers or future barriers; therefore, actual noise levels at sensitive receptor locations influenced by study area roadways may in many cases be lower than presented herein.

As shown in Table 14, between existing and cumulative conditions, an increase of 0.5 dBA would occur on Beverly Boulevard as a result of the increase in traffic between existing and cumulative conditions. Project-related traffic would cause an increase of 0.1 dBA at Beverly Boulevard under Cumulative conditions. This incremental increase in noise and would not be perceptible to nearby sensitive receptors. Operational noise impacts would be less than significant.

b) **LESS THAN SIGNIFICANT IMPACT.** Operation of the proposed project would not perceptibly increase groundborne vibration or groundborne noise on the project site above existing conditions, due to the proposed residential and commercial nature of the proposed project. These uses are not typically associated with the generation of vibration.

Construction of the proposed project could potentially increase groundborne vibration on the project site, but construction effects would be temporary. Based on the information presented in Table 15, vibration levels could reach approximately 86 VdB at the residences north of the site, which are approximately 25 feet north of the project site.

Excessive vibration would occur if it would exceed the FTA thresholds described previously. As discussed above, according to the FTA, 100 VdB is the general threshold where minor damage can occur in fragile buildings. Because vibration levels would not reach 100 VdB, structural damage would not occur as a result of construction activities. Vibration levels at the residential units 25 feet north of the project site could exceed the groundborne velocity threshold level of 72 VdB established by the FTA for residences and buildings where people normally sleep. However, as discussed above, the WHMC prohibits construction activities between the hours of 7:00 PM and 8:00 AM on weekdays and Saturdays, and all day Sundays, and City holidays. Therefore, construction would not occur during recognized sleep hours for residences. As such, the proposed project would not cause excessive vibration and impacts would be less than significant.



Table 15
Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB		
	25 Feet	50 Feet	100 Feet
Loaded Trucks	86	80	74
Jackhammer	79	73	67
Small Bulldozer	58	52	46

Source: Federal Railroad Administration, 1998

e, f) **NO IMPACT**. The project site is not in the vicinity of any public or private airport. The closest airport is the Santa Monica Airport, located approximately seven miles southwest of the project site. Therefore, no impact related to aircraft noise would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

XIII. POPULATION AND HOUSING

-- Would the project:

a) 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)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) **LESS THAN SIGNIFICANT IMPACT**. Using the California State Department of Finance (DOF, 2015) average household size for West Hollywood of 1.56 persons, the 30 new dwelling units would generate a resident population of 47 persons (30 units x 1.56 persons/unit). The current City population is approximately 35,923, according to the most recent (May 2016) California Department of Finance estimate. Therefore, the proposed project would result in a total population of approximately 35,970 persons (35,923 +47). The latest SCAG growth forecast (Draft 2016 RTP/SCS growth forecast, released December 2015) projects the population of the City of West Hollywood will be 37,700 in 2020, 40,500 in 2035, and 41,800 in 2040. According to the City's General Plan EIR (October 2010), the population in General Plan buildout year 2035 is estimated at 44,182. The level of population increase associated with the proposed project would be within SCAG and City of West Hollywood's citywide population forecasts. The



proposed project is urban infill so it would not substantially indirectly induce population growth. Therefore, project impacts would be less than significant.

b, c) **NO IMPACT.** The project site does not currently contain any residential uses; therefore, no residential uses would be removed as a result of the proposed project. The proposed project would not displace housing or people or necessitate the construction of replacement housing. No impact would occur.

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

XIV. PUBLIC SERVICES

a) Would the project 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 times or other performance objectives for any of the public services:

i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other public facilities?	☐	☐	☒	☐

a.i) **LESS THAN SIGNIFICANT IMPACT.** The Los Angeles County Fire Department (LACFD) provides fire protection and emergency medical services for the City of West Hollywood, which is within LACFD's Battalion 1 service area. The LACFD operates six fire stations within the Battalion 1 area, with two fire stations (#7 and #8) located within West Hollywood. The closest fire station to the project site is Fire Station #7, located at 864 N. San Vicente Blvd approximately one mile north of the project site. As identified in Section 14.04.010 of the WHMC, the City of West Hollywood has adopted the Los Angeles County Title 32 (Fire Code), an amended California Fire Code (2010 edition), and an amended International Fire Code (2009 edition). The City's Fire Code is based on the Los Angeles County Fire Code supplemented by the other fire codes identified. The Fire Code contains regulations related to construction, maintenance and design of buildings and land uses. The proposed project would be required to adhere to all Fire Code requirements.



The proposed project would involve construction of an infill, mixed-use development. The proposed project would increase development intensity on the project site, which would incrementally increase demand for fire protection services. However, the proposed project is infill development within the existing service area of the LACFD. In addition, as described under Section XIII, *Population and Housing*, the proposed project would be within the growth projections contained in the City's General Plan. Therefore, the proposed project would not place an unanticipated burden on fire protection services. The proposed project would not affect response times or service ratios such that new or expanded fire facilities would be needed (2035 General Plan FEIR, 2010). Impacts would be less than significant.

a.ii) **LESS THAN SIGNIFICANT IMPACT.** Law enforcement services in West Hollywood are provided by contract with the Los Angeles County Sheriff's Department (LACSD). Protection services include emergency and non-emergency police response, routine police patrols, investigative services, traffic enforcement, traffic investigation, and parking code enforcement. The LACSD has established the West Hollywood Sheriff's Department and operates two stations: the headquarters for West Hollywood, located at 780 N. San Vicente Boulevard, and a sub-station at Universal City Walk. LACSD has mutual aid agreements with the City of Los Angeles and the City of Beverly Hills police departments.

The proposed project involves the removal of existing commercial uses and construction of a mixed-use project. The addition of residential uses on the project site would incrementally increase demand for police protection services compared to existing uses. According to the City's General Plan FEIR, the City has a ratio of 3.6 sworn officers per 1,000 residents, which exceeds the average for cities in the Western United States of 1.7 officers per 1,000 residents. The proposed project would add an estimated 47 residents and would not substantially reduce the ratio of officers to residents. Therefore, the proposed project would not affect service ratios such that new or expanded police facilities are needed. In addition, the proposed project would be within the growth projections contained in the City's General Plan and would not place an unanticipated burden on police protection services. At the present time, there are no plans for a new police station (City of West Hollywood General Plan Final EIR, October 2010). Impacts would be less than significant.

a.iii) **LESS THAN SIGNIFICANT IMPACT.** The Los Angeles Unified School District (LAUSD) provides public school services to West Hollywood residents. The proposed project would involve 30 new residential units. Based on LAUSD's student generation rates (see Table 16), the proposed project would generate an estimated 6 elementary school students, 3 middle school students, and 4 high school students.

Table 16
Student Generation Rates

Type of Use	Quantity	Generation Factor	Students Generated
Multi-Family Residential	30 Units	0.1966 Elementary School Students Per Unit	6
		0.0935 Middle School Students Per Unit	3
		0.1106 High School Students Per Unit	4
Total Students			13

Source: City of West Hollywood 2035 General Plan FEIR, 2010



The proposed project would be served by Rosewood Avenue Elementary School, John Burroughs Middle School, and Fairfax Senior High School (LAUSD, 2015). Table 17 compares the capacity of these schools to current enrollment. As shown, the schools have adequate capacity to serve new students generated by the proposed project.

Table 17
School Capacity and Enrollment

School	Capacity ^a	2013-2014 Enrollment ^b	2014-2015 Enrollment ^b	% of Capacity (compared to 2014-2015 enrollment)
Rosewood Elementary School	584	305	316	54%
Burroughs Middle School	2,048	1,865	1,849	90%
Fairfax Senior High School	3,600	2,108	2,101	58%

^a Source: City of West Hollywood 2035 General Plan FEIR, 2010

^b Source: California Department of Education. DataQuest: <http://dq.cde.ca.gov/dataquest/dataquest.asp>

Additionally, in accordance with State law the applicant would be required to pay school impact fees. 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." Thus, payment of the development fees is considered full mitigation for the proposed project's impacts under CEQA. Impacts would be less than significant.

a.iv) **LESS THAN SIGNIFICANT IMPACT.** The proposed project would involve the addition of an estimated 47 residents and would incrementally increase the demand for usage of existing parks in the City (see Section XV, *Recreation*). The City assesses Quimby Act and public open space development fees for new residential and non-residential development (WHMC Chapter 19.64). These fees are intended to be used for the acquisition, improvement, and expansion of public parks and/or recreational facilities. The proposed project would be subject to payment of park fees. The addition of 47 residents is within the growth projections anticipated in the City's General Plan. Therefore, the proposed project would not create unanticipated demand on city parks. The proposed project is approximately 0.5 miles from West Hollywood Park, which is undergoing extensive renovations to increase recreational facilities and amenities and would serve residents associated with the proposed project. Impacts would be less than significant.

a.v) **LESS THAN SIGNIFICANT IMPACT.** The proposed project would contribute incrementally toward impacts to City public services and facilities such as storm drain usage (discussed in Section IX, *Hydrology and Water Quality*), public parks (discussed above in this section), solid waste disposal (discussed in Section XVII, *Utilities and Service Systems*), water usage and wastewater disposal (discussed in more detail in Section XVII, *Utilities and Service Systems*). The project's contribution would be offset through payment of fees that are used to fund storm drain improvements, and school facility expansions, as well as by the project specific features described in the individual resource section analyses described in this Initial Study. The project's contribution, taking into account existing capacities and assuming compliance with existing ordinances, would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

a, b) **LESS THAN SIGNIFICANT IMPACT.** West Hollywood has six parks totaling 15.3 acres of parkland (West Hollywood 2035 General Plan FEIR, 2010). The park closest to the project site is the West Hollywood Park located approximately 0.5 miles north of the project site. Using the City's current population of 35,825, this amounts to a park ratio of 0.43 acres per 1,000 residents. West Hollywood does not specify a park acreage standard. However, the desired standard stated in the 1975 Quimby Act is 3 acres per 1,000 residents. By this standard, West Hollywood is park deficient.

The proposed project would involve 30 new residential units, increasing the City population by an estimated 47 residents (see Section XIII, *Population and Housing*). The proposed project would incrementally increase the use of and demand for parks and recreational facilities. However, the proposed project includes on-site recreational amenities such as a gym and the rooftop community garden that would offset some of the demand for West Hollywood park facilities. In addition, the project applicant would be required to pay Quimby Act and Public Open Space Development fees that would be used by the City to acquire parkland as it becomes available and/or to expand and maintain existing recreational facilities (WHMC Chapter 19.64). Payment of required impact mitigation fees would reduce impacts to a less than significant level.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

XVI. TRANSPORTATION/TRAFFIC

-- Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and	☐	☐	☒	☐



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC				
-- Would the project:				
relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?				
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	■	☐
c) 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?	☐	☐	☐	■
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	■	☐
e) Result in inadequate emergency access?	☐	☐	■	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	☐	☐	■	☐

a, b) **LESS THAN SIGNIFICANT IMPACT.** Fehr & Peers prepared a Transportation Study for the proposed project in January 2016 (see Appendix E). The study analyzed potential project-generated traffic impacts based on projected conditions in 2018 both with and without the addition of the project traffic. These scenarios include: Existing (2015) Conditions, Existing (2015) plus Project Conditions, Cumulative Base (2018) Conditions, and Cumulative (2018) plus Project Conditions. The following is based on the Fehr & Peers Transportation Study.

Study Area

Five intersections were identified for analysis in consultation with West Hollywood staff. All the study intersections are in the City of West Hollywood with the exception of La Cienega Boulevard & Beverly Boulevard, which is fully within the City of Los Angeles's jurisdiction. All study intersections operate under traffic signal control.

1. San Vicente Boulevard and Melrose Boulevard
2. Robertson Boulevard and Beverly Boulevard
3. George Burns Road and Beverly Boulevard
4. San Vicente Boulevard and Beverly Boulevard
5. La Cienega Boulevard and Beverly Boulevard

Four street segments were also selected for analysis:

1. Sherbourne Drive between Ashcroft Avenue and Rosewood Avenue
2. Sherbourne Drive between Bonner Drive and Project Site Driveway
3. Rosewood Avenue between Robertson Boulevard and Sherbourne Drive
4. Bonner Drive between Beverly Boulevard and Sherbourne Drive

Traffic Scenarios

The traffic study, which analyzes potential project-generated traffic impacts on the adjacent street system, anticipates that the project would be completed by 2018. The analysis of cumulative year traffic forecasts was based on projected conditions in 2018 both with and without the addition of the project traffic. The following traffic scenarios have been developed and analyzed as part of this study:

- Existing (2015) Conditions – The analysis of existing traffic conditions was intended to provide a basis for the remainder of the study. The existing conditions analysis included a description of the street system serving the site, current traffic volumes, and an assessment of the operating conditions at these locations.
- Existing (2015) plus Project Conditions – This traffic scenario includes the proposed project, provides projected traffic volumes, and an assessment of operating conditions under existing conditions with the addition of project-generated traffic. The impacts of the proposed project on existing traffic operating conditions can then be identified.
- Cumulative Base (2018) Conditions – Cumulative traffic conditions without the proposed project were developed for the year 2018. The objective of this analysis was to project cumulative traffic growth and operating conditions that could be expected to result from regional growth and related projects in the vicinity of the project site by the year 2018 (the list of related projects is included in Appendix C of the Traffic Study).
- Cumulative (2018) plus Project Conditions – This traffic scenario provided projected traffic volumes and an assessment of operating conditions under cumulative conditions with the addition of project-generated traffic. The impacts of the proposed project on cumulative traffic operating conditions could then be identified.

Level of Service Methodology

LOS is a qualitative measure used to describe the traffic flow conditions, ranging from excellent (LOS A) to overloaded (LOS F) conditions. A variety of methodologies are available to analyze LOS depending on the type of intersection control. In accordance with policies established by the City of West Hollywood, the "Operational Analysis" method from the Highway Capacity Manual (HCM) was used to perform signalized intersection LOS analysis at all signalized and unsignalized study intersections, including those partially or wholly within the City of Los Angeles.



The HCM operational method determines two key operating characteristics of signalized intersections. The first characteristic is the average stopped delay experienced per vehicle. The second is the volume-to-capacity (V/C) ratio at intersections based on the amount of traffic traveling through the intersection, the lane geometries, and other factors affecting capacity such as on-street parking and pedestrian volumes at crosswalks. These characteristics are used to evaluate the operation of each signalized intersection, which is described generally in terms of level of service and expressed in terms of seconds of delay.

The intersection of La Cienega Boulevard and Beverly Boulevard (intersection #5), which is located in the City of Los Angeles, was analyzed per the requirements in *Traffic Study Policies and Procedures* (LADOT, August 2014). Per City of Los Angeles requirements, the Critical Movement Analysis (CMA) method of intersection capacity calculation (Transportation Research Board, 1980) was used to analyze the signalized intersection in the City of Los Angeles. The V/C ratio is used to find the corresponding LOS based on the definitions in Table 1. Under the CMA methodology, a V/C ratio is generated for each study intersection based on factors such as the volume of traffic and the number of lanes providing for such vehicle movement and an LOS grade.

The City of Los Angeles' Automated Traffic Surveillance and Control (ATSAC) system is a computer-based traffic signal control system that monitors traffic conditions and system performance to allow ATSAC operations to manage signal timing to improve traffic flow conditions. The Adaptive Traffic Control System (ATCS) is an enhancement to ATSAC and provides fully traffic-adaptive signal control based on real-time traffic conditions. All of the study intersections located in the City of Los Angeles are currently operating under the City's ATSAC system and ATCS control. ATSAC and ATCS provide improved operating conditions. Therefore, in accordance with City of Los Angeles procedures, a credit of 0.07 V/C reduction was applied at each intersection where ATSAC is implemented and an additional 0.03 V/C reduction was applied at each intersection where ATCS is implemented.

Traffic Operations

Traffic volumes were analyzed using the HCM methodology to determine current operating conditions at the five study intersections. Table 21 shows the existing levels of service at the intersections in the vicinity of the project site. Of the four City of West Hollywood intersections, the Robertson Boulevard & Beverly Boulevard intersection is currently operating at LOS E during the AM peak period. All other intersections are operating at LOS D or better.

The City of Los Angeles intersection, La Cienega Boulevard & Beverly Boulevard, is currently operating at LOS F during the PM peak period.

Project Traffic Volumes

Traffic volumes generated by the proposed project were estimated based on trip rates established by *Trip Generation (9th Edition)*, published by the Institute of Transportation Engineers (ITE), unless otherwise noted. Trip rates and traffic generation for the proposed project are provided in Table 18. Trip generation associated with the proposed project is shown in Table 19.

Table 18
Trip Generation Rates

Land Use	ITE#	Rate	Average Weekday	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Residential Apartments	220	Per DU	6.65	20%	80%	0.51	65%	35%	0.62
Office	710	per ksf	11.03	88%	12%	1.56	17%	83%	1.49
Retail	820	per ksf	42.70	62%	38%	0.96	48%	52%	3.71
Gallery	[b]	per ksf	1.80	86%	14%	0.28	16%	84%	0.18

¹ITE does not provide AM peak hour trip generation rates for Specialty Retail. AM trip rates from San Diego Association of Governments (SANDAG), Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (2002) were used.
Source: Fehr & Peers, 2016 (see Appendix E)
DU = Dwelling Unit
ksf = 1,000 square feet

Table 19
Project Trip Generation

Land Use	Size	Average Weekday	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Residential Apartments	30 DU	200	3	12	15	12	7	19
Office	3,416 ksf	38	4	1	5	1	4	5
Retail	5,475 ksf	211	2	2	4	9	9	18
Gallery	0.0500 ksf	1	0	0	0	0	0	0
Existing Land Uses - Night Club	3,272 ksf	147	0	0	0	0	0	0
Total Existing Trips		147	0	0	0	0	0	0
Total New Driveway Trips		450	9	15	24	22	20	42
Total Net Difference in Trips		303	9	15	24	22	20	42

See Table 14 for trip generation rates.
Source: Fehr & Peers, 2016 (see Appendix E)
ksf = 1,000 square feet

As shown in Table 19, the proposed project would generate 303 weekday daily trips, including 24 AM peak hour trips and 42 PM peak hour trips.

Significance Thresholds

The intersections selected for analysis span the jurisdictions of West Hollywood and Los Angeles. The following summarizes the significant traffic impact criteria established by each jurisdiction.

City of West Hollywood

The intersection threshold criteria used to determine if a project has an adverse significant traffic impact at signalized intersections in the City of West Hollywood are as follows:



- Signalized intersections formed by two commercial corridors are significantly impacted if:
 - o The addition of project traffic results in a LOS D and in an increase in delay of 12 seconds or greater, or
 - o The addition of project traffic results in a LOS E or F and an increase in delay of eight seconds or greater.
- All other signalized and/or four-way stop intersections are significantly impacted if:
 - o The addition of project traffic results in a LOS D and in an increase in delay of eight seconds or greater, or
 - o The addition of project traffic results in a LOS E or F and an increase in delay of five seconds or greater.

The street segment impact criteria used by the City of West Hollywood defines an adverse significant traffic impact as:

- An average daily traffic (ADT) of 2,000 vehicles or less and a project-related ADT increase of 12% or greater; or
- An ADT between 2,000 to 3,000 vehicles and a project-related ADT increase of 10% or greater; or
- An ADT between 3,000 to 6,750 vehicles and a project-related ADT increase of 8% or greater; or
- An ADT of more than 6,750 vehicles and a project-related ADT increase of 6.25% or more.

City of Los Angeles

The City of Los Angeles has established threshold criteria to determine significant traffic impact of a proposed Project in its jurisdiction. Under the LADOT guidelines, an intersection would be significantly impacted with an increase in V/C ratio equal to or greater than 0.04 for intersections operating at LOS C, equal to or greater than 0.02 for intersections operating at LOS D, and equal to or greater than 0.01 for intersections operating at LOS E or F after the addition of project traffic. Intersections operating at LOS A or B after the addition of the project traffic are not considered significantly impacted regardless of the increase in V/C ratio. Table 20 summarizes the impact criteria.

Table 20
City of Los Angeles Significance Thresholds

LOS	Final V/C Ratio	Project-Related Increase in V/C
C	> 0.700 – 0.800	Equal or greater than 0.040
D	> 0.800 – 0.900	Equal or greater than 0.020
E or F	> 0.900	Equal or greater than 0.010

Intersection Level of Service Impact Analysis

Tables 21 and 22 show the foregoing criteria applied to the locations as required by the respective jurisdictions.

Table 21
Existing plus Project Intersection Level of Service Analysis

Intersection	Jurisdiction	Peak Hour	Existing (Year 2015)		With Project (Year 2015)			
			V/C or Delay	LOS	V/C or Delay	LOS	Change in V/C or Delay	Significant Impact?
San Vicente Blvd & Melrose Blvd	WH	AM	31.6	C	31.7	C	<1.0	No
		PM	24.6	C	24.6	C	<1.0	No
Robertson Blvd & Beverly Blvd	WH	AM	67.6	E	68.1	E	<1.0	No
		PM	40.5	D	41.1	D	<1.0	No
George Burns Rd & Beverly Blvd	WH	AM	7.0	A	7.0	A	<1.0	No
		PM	8.0	A	8.1	A	<1.0	No
San Vicente Blvd & Beverly Blvd	WH	AM	17.5	B	17.5	B	<1.0	No
		PM	18.1	B	18.1	B	<1.0	No
La Cienega Blvd & Beverly Blvd	LA	AM	0.828	D	0.831	D	0.003	No
		PM	1.021	F	1.026	F	0.005	No

Source: Fehr & Peers, 2016 (see Appendix E)
LA – Los Angeles WH – West Hollywood

Table 22
Cumulative plus Project Intersection Level of Service Analysis

Intersection	Jurisdiction	Peak Hour	Existing (Year 2018)		With Project (Year 2018)			
			V/C or Delay	LOS	V/C or Delay	LOS	Change in V/C or Delay	Significant Impact?
San Vicente Blvd & Melrose Blvd	WH	AM	45.2	D	45.4	D	<1.0	No
		PM	62.0	E	62.0	E	<1.0	No
Robertson Blvd & Beverly Blvd	WH	AM	101.9	F	102.5	F	<1.0	No
		PM	68.1	E	68.8	E	<1.0	No
George Burns Rd & Beverly Blvd	WH	AM	7.6	A	7.6	A	<1.0	No
		PM	7.6	A	7.6	A	<1.0	No
San Vicente Blvd & Beverly Blvd	WH	AM	19.0	B	19.0	B	<1.0	No
		PM	29.4	C	29.4	C	<1.0	No
La Cienega Blvd & Beverly Blvd	LA	AM	0.969	E	0.972	E	0.003	No
		PM	1.219	F	1.223	F	0.004	No

Source: Fehr & Peers, 2016 (see Appendix E)
LA – Los Angeles WH – West Hollywood

Roadway Segment Impact Analysis

Tables 23 and 24 summarize the roadway segment impact analysis in existing and cumulative conditions. As shown, the percentage increase in weekday ADT on the selected segments ranges from 0.6 to 1.8%. According to the City of West Hollywood segment impact criteria, none of the segments are adversely impacted by the proposed project under both existing with project and cumulative with project conditions.



Table 23
Existing plus Project Roadway Segment Impact Analysis

Segment	Existing Daily Count (2015)	Allowable Increase	Proposed Project			
			Project Only ADT	Existing + Project (2015)	% Increase	Significant Impact?
A. Sherbourne Drive b/w Ashcroft Avenue & Rosewood Avenue	1,717	12%	25	1,742	1.5%	No
B. Sherbourne Drive b/w Bonner Drive & Project Site Driveway	1,365	12%	25	1,390	1.8%	No
C. Rosewood Avenue b/w Robertson Boulevard & Sherbourne Drive	830	12%	10	840	1.2%	No
D. Bonner Drive b/w Beverly Boulevard & Sherbourne Drive	862	12%	5	867	0.6%	No

Source: Fehr & Peers, 2016 (see Appendix E)

Table 24
Cumulative plus Project Roadway Segment Impact Analysis

Segment	Existing Daily Count (2015)	Cumulative Base Daily Traffic (2018)	Allowable Increase	Proposed Project			
				Project Only ADT	Cum + Project (2018)	% Increase	Significant Impact?
A. Sherbourne Drive b/w Ashcroft Avenue & Rosewood Avenue	1,717	1,769	12%	25	1,749	1.4%	No
B. Sherbourne Drive b/w Bonner Drive & Project Site Driveway	1,365	1,406	12%	25	1,431	1.8%	No
C. Rosewood Avenue b/w Robertson Boulevard & Sherbourne Drive	830	855	12%	10	865	1.2%	No
D. Bonner Drive b/w Beverly Boulevard & Sherbourne Drive	862	888	12%	5	893	0.6%	No

Source: Fehr & Peers, 2016 (see Appendix E)

Site Access and Circulation

Vehicular access to the project site would be provided via a driveway on Sherbourne Drive . The driveway would serve both inbound and outbound traffic for the proposed project. Vehicles would be able to turn right and left into the site but would only be able to turn right when exiting the site. According to the analysis provided by Fehr & Peers (January 2015, see appendix E), the proposed project meets all requirements with respect to parking space size, driveways, drive aisles, access ramps, ramp slopes, and parking area slopes. The proposed project would provide adequate maneuverability and visibility and impacts would be less than significant.



Parking

The proposed project would provide 65 parking spaces (54 subterranean parking spaces and 11 ground level parking spaces). The parking would be enclosed except for the ground level parking which is partially open on the north and south ends. Valet attendants would service all commercial parking at the ground level upon entering the site.

WHMC Section 19.28.040 provides the minimum off-street parking requirements of new developments. The WHMC indicated the following requirements:

1. Office space - 3.5 spaces per 1,000 sf
2. Retail space - 3.5 spaces per 1,000 sf
3. Gallery space - 2 spaces per 1,000 sf
4. Residential spaces
 - 1 Bedroom - 1 space per dwelling unit
 - 2-3 Bedrooms - 2 spaces per dwelling unit
 - 4+ Bedrooms - 2.5 spaces per dwelling unit

Section 19.28.160 of the WHMC requires one loading space per 20,000 square feet for non-residential space. The non-residential portion of the project is less than 20,000; therefore, loading spaces would not be required. However, any loading for the retail or office space is anticipated to be accommodated on Beverly Boulevard in front of the property.

Section 19.28.170 of the WHMC requires designation of two percent of all parking spaces in parking lots containing 25 or more parking spaces for preferential parking for alternative fuel vehicles. Based on the provided parking, the project would require one alternative fuel vehicle parking space. Two alternative fuel vehicle parking spaces would be provided onsite in the commercial parking area on the first level of subterranean parking. The proposed project is consistent with this requirement.

Lastly, Section 1129B of the 2010 California Building Code requires a minimum of three spaces of the total number of parking spaces in garages providing 51-75 spaces to be designated for accessible parking. Based on the provided parking, the project would require three accessible parking spaces. Up to three accessible parking spaces are provided onsite (one retail accessible space on the ground floor, one commercial accessible space on the first level of subterranean parking, and one residential accessible space on the second level of subterranean parking). Therefore, the proposed project is consistent with this requirement.

As shown in Table 25, because the project provides six units of affordable housing, the total parking requirement, pursuant to Government Code Section 65915 and WHMC Section 19.22.050.F, for the project would be 65 spaces. The site plans indicate that 65 spaces would be provided for the project. Therefore, this supply would meet the City requirement of spaces.

Table 25
Parking Requirement Estimates

Land Use	Size	Required Spaces
Residential Apartments		
0-1 Bedroom	28 du	28
2-3 Bedroom	2 du	4
Office	3.416 ksf	12
Retail	5.475 ksf	20
Gallery	0.500 ksf	1
Total Required		65
Spaces Provided		65

Source: Fehr & Peers, 2016

c) **NO IMPACT.** No airport or airstrip is located within or adjacent to the City of West Hollywood. The nearest airport is Santa Monica Airport, located approximately five miles southwest of the project site. The proposed project would not affect air traffic patterns. No impact would occur.

d) **LESS THAN SIGNIFICANT IMPACT.** The proposed project does not include any design features that would increase hazards. In addition, the proposed project is a fairly typical mixed-use infill project and would not result in vehicles or equipment, such as farm equipment or tractors, that would be incompatible with the existing land uses surrounding the area. Impacts would be less than significant.

e) **LESS THAN SIGNIFICANT IMPACT.** The proposed project would be required to conform to traffic and safety regulations that specify adequate emergency access measures. The site is located along an existing roadway lacking any identified significant safety hazards. The project would involve infill development that would not hinder emergency access or evacuation. Adherence to existing state and federal regulations would reduce potential impacts (2035 General Plan FEIR, 2010). Impacts would be less than significant.

f) **LESS THAN SIGNIFICANT IMPACT.**

Bicycle Facilities

The existing bicycle network in the study area consists of Class II facilities (designated bicycle lane, noted by striping and signage) on San Vicente Boulevard between Santa Monica Boulevard and Beverly Boulevard. Also present are Class III facilities (shared roadway, noted by signage) on Melrose Avenue between Santa Monica Boulevard and North Croft Avenue and on Beverly Boulevard between Doheny Drive and San Vicente Boulevard.

There is an existing Class III bicycle facility on Beverly Boulevard immediately south of the project site. The proposed project would not modify the bicycle lane on Beverly Boulevard or alter access to the existing facility (Fehr & Peers, 2016). Therefore, impacts would be less than significant.

Pedestrian Facilities

The pedestrian network in the study area consists of crosswalks, pedestrian crossings, and sidewalks. Sidewalks are available on all streets bordering the project site and all study intersections have a crosswalk on at least one approach.

There is an existing crosswalk immediately to the south of the project parking facility entrance. The proposed project would not modify or alter access to the existing pedestrian facilities (Fehr & Peers, 2016). Therefore, impacts would be less than significant.

Transit Facilities

The Los Angeles County Metropolitan Transportation Authority (Metro) and City of West Hollywood CityLine system provide existing public transit service in the vicinity of the proposed project. Numerous bus routes serve the surrounding area, including municipal bus lines, Metro local service to and from downtown Los Angeles, east-west local services to other areas, north-south local service to other areas, including bus lines with 15 minute headways in the peak hours located within 0.5 miles of the project site, and Metro Rapid service. The transit lines serving the study area are described below.

Metro Bus Lines:

- Metro Line 10 – Line 10 is a local east-west line that travels from West Los Angeles to Downtown Los Angeles via Temple Street and Melrose Avenue. Line 10 travels along Melrose Avenue in the study area. The lines operate at average 10-minute headways in the AM and PM peak hours.
- Metro Line 14 – Line 14 is a local east-west line that travels from West Los Angeles to Downtown Los Angeles via First Street and Beverly Boulevard. Line 14 travels along Beverly Boulevard in the study area. The lines operate at average 5- to 10-minute headways in the AM and PM peak hours.
- Metro Line 220 – Line 220 is a local north-south line that travels from Cedars-Sinai Medical Center to the Beverly Center via Robertson Boulevard and Beverly Boulevard. Line 220 travels along Robertson Boulevard and Beverly Boulevard in the study area. The lines operate at an average 60-minute headways in the AM and PM peak hours.
- Metro Lines 30 and 330 – Line 30 is a local east-west line that travels from Mid-City to east Los Angeles. Line 330 is a Metro line that provides limited-stop service from West Hollywood to east Los Angeles. Line 30 and Line 330 provide service to Mid-city, downtown Los Angeles, Boyle Heights, and east Los Angeles, with Line 330 also serving West Hollywood and Beverly Hills. Lines 30 and 330 both travel along San Vicente Boulevard in the study area. In the AM peak hour, Metro Line 30 operates at six-minute headways and Line 330 operates with 30-minute headways. In the PM peak hour, Line 30 operates at seven-minute headways and Line 330 operates with 30-minute headways.
- Metro Lines 105 and 705 – Line 105 is a local southeast-northwest line that travels from West Hollywood to Vernon. Line 705 is a Metro Rapid line that provides limited-stop service along the same route. Line 105 and Line 705 provide service to West Hollywood, Beverly Hills, Baldwin Hills, Leimert Park, Exposition Park, and Vernon. Lines 105 and 705 both travel along La Cienega Boulevard in the study area. In the AM peak hour, Metro Line 105 and 705 operate at 10-minute headways. In the PM peak hour, the lines operate at 16-20-minute headways.

West Hollywood CityLine:

- **Blue Route** – The West Hollywood CityLine Blue Route provides local circulation service to the City of West Hollywood, linking the east and west communities while primarily traveling on Santa Monica Boulevard. Near the project site, the Blue Route stops include Cedars Sinai Medical Center and San Vicente Boulevard & Beverly Boulevard. The Blue Route operates at 35- to 70-minute headways during the day.
- **Orange Route** – The West Hollywood CityLine Orange Route provides local circulation service to the City of West Hollywood, linking the east and west communities to Plummer Park while primarily traveling on Santa Monica Boulevard. Near the project site, the Orange Route stops include Cedars Sinai Medical Center and San Vicente Boulevard & Beverly Boulevard. The Orange Route operates at 35- to 70-minute headways during the day.

The transit facilities in the study area consist of bus stops with benches and shelters. Bus stops are available along the project frontage on Beverly Boulevard. The project frontage along Beverly Boulevard is not expected to interfere with the existing bus stops, which are located on frontages of nearby properties (Fehr & Peers, 2016). Therefore, impacts would be less than significant.

The project would have no impact with respect to adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, and would not otherwise substantially reduce the performance or safety of such facilities. Impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS				
-- Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) 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?	☐	☐	☒	☐
c) 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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS				
-- Would the project:				
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) 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?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

a, b, e) **LESS THAN SIGNIFICANT IMPACT.** The sewer collection within West Hollywood contains City-owned local sewers and County-owned trunk sewer links. Within the City, there are 39 miles of gravity piping providing sewer service to every parcel in the City. None of the regional trunk sewers are at or near capacity (2035 General Plan FEIR, 2010). Wastewater from the City is carried to the Hyperion Treatment Plant (HTP) in Playa Del Rey. This wastewater treatment plant provides full secondary treatment (LADWP website, 2015). The HTP has a dry-weather flow capacity of 450 million gallons per day (MGD) for full secondary treatment and an 850 MGD wet weather capacity. Currently, the average wastewater flow to the plant is 362 MGD (City of Los Angeles Bureau of Sanitation, 2016). Therefore, the current available capacity of the HTP is 88 MGD.

The proposed project would increase the number of residential units and commercial space on the project site, which would increase wastewater generation within the City. Table 26 shows the estimated wastewater generated by the proposed project.

The proposed project would generate approximately 2,707 gallons of wastewater per day. This increase would be approximately 0.003% of the existing unused capacity of the HTP. Therefore, the proposed project would not adversely affect the City's wastewater treatment system or result in the construction of new treatment facilities. Further, the City requires developers to pay a wastewater mitigation fee to offset any net increases in wastewater flow from new construction and finance any needed improvements to the wastewater conveyance system. Impacts would be less than significant.

Table 26
Estimated of Wastewater Generation

Type of Use	Quantity	Generation Factor (per day)	Amount (gallons per day)
Proposed Project			
Residential (1-bd)	28 du	120 gallons/unit	3,360
Residential (2-bd)	2 du	160 gallons/unit	320
Retail*	5,975 sf*	80 gallons/1,000 sf	478
Office	3,416 sf	150 gallons/1,000 sf	512
<i>Subtotal</i>			<i>4,670</i>
Existing Uses			
Nightclub**	3,272 sf	600 gallons/1,000 sf	(1,963)
Total Increase in Wastewater Demand			2,707

Source: City of Los Angeles CEQA Thresholds Guidelines (2006)

Notes: gpd = gallons per day, sf=square feet, du = dwelling unit

* Assuming 500 sf gallery is retail space

() denotes subtraction

c) **LESS THAN SIGNIFICANT IMPACT.** Storm drain infrastructure in the City is owned and operated by the City of West Hollywood or the County of Los Angeles. Currently, the project site contains a commercial building and parking area. The project site is almost entirely impervious. The proposed project would include some landscaping on the ground floor, which would introduce some permeable surfaces.

The proposed project also would be required to comply with Chapter 15.56.095 of the WHMC which requires a Low Impact Development (LID) plan for redevelopment projects that replace 5,000 square feet or more of impervious surface area on an already developed site. The proposed project would replace over 5,000 square feet of impervious surfaces and therefore is subject to the LID requirements. The proposed project must be “designed to control pollutants, pollutant loads, and runoff volume to the maximum extent feasible by minimizing impervious surface area and controlling runoff from impervious surfaces through infiltration, evapotranspiration, bioretention, and/or rainfall harvest in accordance with the West Hollywood LID Technical Guidance Manual. The proposed project would be required to implement Best Management Practices to reduce runoff. With adherence to applicable regulations, impacts would be less than significant.

d) **LESS THAN SIGNIFICANT IMPACT.** Water service to the project site would be provided by the City of Beverly Hills. Beverly Hills receives water from local groundwater extracted from the Hollywood Basin through the City’s wells and imported surface water purchased from the MWD. Beverly Hills receives 90% of its water supply from the MWD which comes from the State Water Project and the Colorado River. Approximately 10% of Beverly Hills’ water supply comes from groundwater pumped from the Hollywood Basin totaling approximately 1,500 acre-feet per year (AFY) (City of Beverly Hills, Urban Water Management Plan, 2010; 2035 General Plan FEIR, 2010).

The City of Beverly Hills attempts to address issues of water supply in its Urban Water Management Plan (UWMP). According to the most recent 2015 Draft UWMP (City of Beverly Hills, June 2016), the City has analyzed supply reliability for normal, single dry year, and multiple dry years through 2040.³ In each of the three hydrological conditions, the projected water demand was calculated taking into account growth in billing data, water conservation efforts, and demographics. Future populations for the water service area were estimated using SCAG's 2016 population projections for the City of Beverly Hills and City of West Hollywood. The UWMP states that City of Beverly Hills can reliably meet the projected water demand in each of the hydrological conditions through 2035 (City of Beverly Hills, 2011). Table 27 shows the project water demands and supplies through 2040.

Table 27
City of Beverly Hills Projected Water Demands and Supplies (AFY)

Water Sources	2020	2025	2030	2035	2040
Imported Water (Treated MWD Water)	9,104	7,482	7,562	7,744	7,728
Groundwater (Hollywood Basin)	2,000	2,000	2,000	2,000	2,000
Groundwater (La Brea Subarea of Central Basin)	-	1,700	1,700	1,700	1,700
Total Water Supply	11,104	11,182	11,262	11,344	11,428
Total Water Use	11,104	11,182	11,262	11,344	11,428
Supply/Demand Difference	0	0	0	0	0

Source: City of Beverly Hills, 2016 (Tables E-3 and E-4)

Notes: AFY = acre-feet per year. MWD = Metropolitan Water District. Projections are for normal water year.

Assuming that water use is 120% of wastewater generation, the proposed project would use approximately 3,248 gallons of water per day, which equates to 3.64 AFY. As described in Section XIII, *Population and Housing*, the proposed project would be within SCAG's most recent (2016) growth projections for West Hollywood. The City of Beverly Hills' UWMP demand projections rely on SCAG's 2016 growth forecast. Therefore, the demand associated with the proposed project has been anticipated in the UWMP. As shown in Table 27, adequate supplies are available to meet demand through 2040.

The proposed project involves improvements to the water line which would connect to the residence. With these improvements, the city's water conveyance system would be adequate to serve the proposed project. The proposed project's impact would be less than significant.

In January 2014, California Governor Brown declared a drought State of Emergency and called on Californians to voluntarily reduce water consumption by 20%. The City of West Hollywood has, during the past two years, intensified efforts to use less water and to promote conservation. The City has launched a water conservation campaign aimed at encouraging residents and businesses to make adjustments in their daily routines in order to conserve water (City of West Hollywood, <http://weho.org/city-hall/city-departments/public-works/environmental-services/water-conservation>, 2016) The City of Beverly Hills has also enacted water conservation projects. In May 2015, the City of Beverly Hills passed an emergency water conservation program which includes a watering schedule, other outdoor water use restrictions,

³ The proposed project would be consistent with both the Draft 2015 UWMP (not yet adopted as of July 2016) and the Final 2010 UWMP (adopted August 2011). The 2010 UWMP states that City of Beverly Hills can reliably meet the projected water demand in each of the hydrological conditions through 2035. The proposed project is consistent with the growth assumptions in the 2010 UWMP.



and possible penalties for customers who do not reduce water consumption by at least 30% (City of Beverly Hills, 2016). Assuming these restrictions are not lifted by the time the proposed project is in operation, the proposed project would be subject to the restrictions the City of Beverly Hills has enacted for its water customers.

f, g) **LESS THAN SIGNIFICANT IMPACT.** The City of West Hollywood contracts with Athens Services, a private company to collect, transport, and dispose of solid waste for all residential and commercial uses (2035 General Plan FEIR, 2010). Solid waste from West Hollywood is collected by Athens Services and taken to their recycling facility, the City of Industry Materials Recovery Facility (MRF) (Athens Services webpage, 2016). Food waste is processed and delivered to their compost facility, American Organics, in Victorville. Waste that cannot be recycled is disposed at the following facilities on a regular basis: Sunshine Canyon Landfill, Simi Valley Landfill, and City of Commerce’s Waste to Energy Incinerator. Table 28 summarizes the permitted daily throughput, estimated average waste quantities disposed, and remaining capacity for these facilities.

Table 28
Solid Waste Disposal Facilities

Facility	Permitted Daily Throughput (tons/day)	Average Daily Waste Quantities Disposed (tons/day)	Estimated Remaining Daily Capacity (tons/day)
City of Industry MRF ^a	5,000	796	4,204
Sunshine Canyon City/County Landfill ^b	12,100	8,048	4,052
Simi Valley Landfill and Recycling Center ^c	9,250	Not Available	--
Commerce Refuse-to-Energy Facility ^d	1,000	425	575

Sources:

^a Los Angeles County Department of Public Works Solid Waste Information Management System, Fact Sheet: Grand Central Recycling & Transfer Station, December 2013 Report Period, <http://dpw.lacounty.gov/epd/swims/site/factsheet-esri.aspx?id=187&action=2>

^b Los Angeles County Department of Public Works Solid Waste Information Management System, Fact Sheet: Sunshine Canyon City/County Landfill, October 2014 Report Period, <http://dpw.lacounty.gov/epd/swims/site/factsheet-esri.aspx?id=1524&action=2>

^c Los Angeles County Department of Public Works Solid Waste Information Management System, Fact Sheet: Simi Valley Landfill & Recycling Center, <http://dpw.lacounty.gov/epd/swims/site/factsheet-esri.aspx?id=704&action=2>

^d Los Angeles County Department of Public Works Solid Waste Information Management System, Fact Sheet: Commerce Refuse-to-Energy Facility, October 2014 Report Period, <http://dpw.lacounty.gov/epd/swims/site/factsheet-esri.aspx?id=8&action=2>

Eventually, solid waste may be transferred by rail to the Mesquite Regional Landfill in Imperial County (2035 General Plan FEIR, 2010). The Mesquite Regional Landfill is permitted to accept 20,000 tons per day and is expected to receive up to 12,000 tons per day (Los Angeles County, 2011).

Senate Bill (SB) 1016 requires that the 50% diversion requirement mandated by Assembly Bill (AB) 939 be measured in terms of pounds per person per day, instead of by volume or as an aggregate measure separate from population. CalRecycle sets a target for resident and employee per capita per day disposal rates. The target for residents is 5.8 and 7.7 for employees. In 2011 the per capita disposal rate per day per resident in West Hollywood was 4.5 and 5.1 per employee. West Hollywood has achieved both the resident and employee targets set by CalRecycle.



As shown in Table 29, the proposed project would generate an estimated 80 pounds, or 0.04 tons, of solid waste per day. The landfills listed in Table 28 have adequate capacity to dispose of waste generated by the proposed project. Therefore, impacts would be less than significant.

Table 29
Estimated Solid Waste Generation

Land Use	Size	Generation Factor*	Total (lbs/day)	Total (tons/day)
Proposed Project				
Residential - Multifamily	30 units	4 lbs / unit / day	120.0	0.060
Retail	5,975 sf**	0.006 lbs / sf / day	35.9	0.018
Office	3,416 sf	0.006 lbs / sf / day	20.5	0.010
<i>Subtotal- Proposed Project</i>			<i>176.4</i>	<i>0.088</i>
Existing Uses				
Restaurant	3,272 sf	0.005 lbs / sf / day	(16.4)	(0.008)
Total Net Solid Waste Generation			160	0.080
Total Solid Waste Sent to Landfill (assuming 50% diversion rate)			80	0.040

Notes: sf = square feet, lbs= pounds, () denotes subtraction

* CalRecycle Waste Generation Rates, available at: <http://www.calrecycle.ca.gov/wastechar/WasteGenRates/default.htm>

** Assuming 500 sf gallery is retail space

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

- a) Does the project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?
- b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

☐	☐	☐	☒
☐	☐	☒	☐



	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

- c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

☐	☒	☐	☐

a) **NO IMPACT.** The project site is located within an urbanized area that lacks native biological habitats, as discussed under item IV, Biological Resources. As discussed under item V, Cultural Resources, there are no historic resources onsite. The proposed project would not significantly degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. No impact would occur.

b) **LESS THAN SIGNIFICANT IMPACT.** According to the project traffic study (Fehr & Peers, 2016, see Figure 7 and Appendix C of the traffic study included in Appendix D of this report), there are several planned or pending projects within proximity to the project site. These include: a mixed-use project at 8816 Beverly Boulevard approximately 0.2 miles west of the project site, a mixed-use project at 375 N. La Cienega Boulevard approximately 0.4 miles east of the project site and a mixed-use project at 316 N. La Cienega Boulevard approximately 0.3 miles east of the project site. As discussed in Section XVI, *Transportation/Traffic*, cumulative traffic impacts would be less than significant.

As described in the discussion of environmental checklist Sections I through XVII, the project would have no impact or a less than significant impact with respect to all environmental issues. Cumulative impacts with some of the resource areas have been addressed in the individual resource sections above: Air Quality, Greenhouse Gases, Noise, Wastewater, Water Supply, and Solid Waste (See *CEQA Guidelines* Section 15064(h)(3)). Some of the other resource areas (agricultural, biological, cultural, mineral) were determined to have no impact in comparison to existing conditions and therefore would not contribute to cumulative impacts and did not warrant further analysis. There are no other known projects in development or under consideration that would affect the other resource areas. As such, cumulative impacts would also be less than significant (not cumulatively considerable).

c) **POTENTIALLY SIGNIFICANT UNLESS MITIGATION INCORPORATED.** In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed in the preceding responses, the proposed project would not result, either directly or indirectly, in adverse hazards related to air quality, hazardous materials or noise. However, under Section VI, *Geology and Soils*, the project site was found to be potentially exposed to liquefaction risk. Therefore, impacts to human beings would be potentially

significant unless mitigation incorporated. With implementation of Mitigation Measures GEO-1 and GEO-2, impacts related to liquefaction risks would be less than significant. In addition to Mitigation Measures GEO-1 and GEO-2, the project must comply with the California Building Code (CBC) requirements related to these areas (Section 1610 for lateral soil loads and Section 1613 for earthquake loads) and other state and local requirements including the City of West Hollywood Building Code. Compliance with CBC requirements and other seismic requirements would further ensure impacts associated with liquefaction, settlement, lateral spreading, subsidence, and collapse would be less than significant.

REFERENCES

Bibliography

Association of Environmental Professionals. April 3, 2016. *Draft White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*.

Athens Services. Webpage. Available at: <http://www.athensservices.com/recycling2/material-recovery-facility.html>. Accessed June 2014.

Beverly Hills, City of. June 2016. *Draft 2015 City of Beverly Hills Urban Water Management Plan*. Available:
<http://www.beverlyhills.org/living/utilities/waterservices/urbanwatermanagementplan/>

Beverly Hills, City of. 2016. BH2 Saving in Style webpage. Available:
<http://www.beverlyhills.org/living/recyclingandconservation/waterconservation/?NFR=1>. Accessed June 21, 2016.

California Department of Conservation, Special Studies Zones Map: Beverly Hills Quadrangle, 1986. Available at:
http://gmw.consrv.ca.gov/shmp/download/quad/BEVERLY_HILLS/maps/BEVHILLS.PDF.

California Department of Conservation, Seismic Hazard Zones Map: Beverly Hills Quadrangle, 1999. Available at:
http://gmw.consrv.ca.gov/shmp/download/quad/BEVERLY_HILLS/maps/ozn_bevh.pdf.

California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2010. *Los Angeles County Important Farmland*. Available at: <ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/los10.pdf>.

California Department of Resources Recycling and Recovery (CalRecycle). 2014. Solid Waste Information System (SWIS) Facility/Site Search. Available at:
<http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx>.

California Department of Resources Recycling and Recovery (CalRecycle). Waste Generation Rates for Commercial Uses, Residential Uses, and Service Establishments. Available at:
<http://www.calrecycle.ca.gov/wastechar/wastegenrate>. Accessed June 2014.

California Department of Resources Recycling and Recovery (CalRecycle). Jurisdiction Diversion/Disposal Rate Summary (2007 - Current). *2012 Jurisdiction Diversion/Disposal Rate Detail – West Hollywood*. Accessed July 3, 2014. Available at:
<http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionDetail.aspx?JurisdictionID=570&Year=2012>.

California Department of Transportation (Caltrans). 2014. California Scenic Highway Program Webpage. Available at:
http://www.caltrans.ca.gov/hq/LandArch/scenic_highways/scenic_hwy.htm.



- California Department of Toxic Substances Control. EnviroStor database. Accessed November 2015. Available online at: <http://www.envirostor.dtsc.ca.gov/public/>.
- California Energy Commission. 2014. Cal-Adapt website. Accessed June 2014. Available at: <http://cal-adapt.org/>.
- California Environmental Protection Agency, March 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*.
http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDFappen.
- California State Parks, Office of Historic Preservation. 2013. California Historical Resources. Website accessed June 2014. <http://ohp.parks.ca.gov/ListedResources/?view=county>.
- Castillo, Antonio. Associate Planner, City of West Hollywood, personal communication, July 2016.
- Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map, No. 06037C1585F. Effective September 26, 2008. (www.msc.fema.gov).
- Federal Railroad Administration, 1998. *Human Response to Different Levels of Groundborne Vibration*.
- Federal Transit Administration (FTA). May 2006. *Transit Noise and Vibration Impact Assessment*.
- Fehr & Peers. Transportation Study for the 8713 Beverly Boulevard Mixed-Use Project. December 2015.
- Geocon West, Inc. Geotechnical Investigation, Proposed Mixed Use Development 321-327 North Sherbourne Drive and 8713 Beverly Boulevard, West Hollywood, California. May 14, 2015.
- Los Angeles Unified School District. Resident School Identifier. Accessed January 2016. <http://rsi.lausd.net/ResidentSchoolIdentifier/>.
- Los Angeles, City of. 2006. CEQA Thresholds Guide. Available at: http://www.ci.la.ca.us/ead/programs/table_of_contents.htm.
- Los Angeles, City of, Department of Public Works. Hyperion Treatment Plant website. Accessed November 2015. Available at: http://www.lasewers.org/treatment_plants/hyperion/index.htm.
- Los Angeles, City of, Department of Public Works. 2011. *2010 Urban Water Management Plan*.
- Los Angeles County Office of the Assessor. 2016. Property Assessment Information System. Available:
http://maps.assessor.lacounty.gov/GVH_2_2/Index.html?configBase=http://maps.assessor.lacounty.gov/Geocortex/Essentials/REST/sites/PAIS/viewers/PAIS_hv/virtualdirectory/Resources/Config/Default.

- City of Los Angeles Bureau of Sanitation. About Wastewater. Accessed January 2016.
<http://www.lacitysan.org/wastewater/factsfigures.htm>.
- Southern California Association of Governments. 2012. *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy*.
- South Coast Air Quality Management District (SCAQMD). 2012 Air Quality Management Plan. Available at: <http://www.aqmd.gov/aqmp/2012aqmp/index.htm>.
- South Coast Air Quality Management District. 1993 CEQA Air Quality Handbook.
- South Coast Air Quality Management District, CEQA, Final Localized Significance Threshold Methodology, SCAQMD, June 2003. Available at:
http://www.aqmd.gov/CEQA/handbook/LST/Method_final.pdf.
- South Coast Air Quality Management District August 2008. *Draft AQMD Staff CEQA Greenhouse Gas Significance Threshold*. Available at:
http://www.aqmd.gov/ceqa/handbook/GHG/2008/aug27mtg/GHGproposal_augmtg.pdf.
- South Coast Air Quality Management District. Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group Meeting #15: "Proposed Tier 3 Quantitative Thresholds – Option 1", September 2010. Available at:
<http://www.aqmd.gov/ceqa/handbook/GHG/2010/sept28mtg/ghgmtg15-web.pdf>.
- State Water Resources Control Board. GeoTracker. Accessed November 2015. Available online at: <http://geotracker.waterboards.ca.gov/>.
- U.S. Environmental Protection Agency (EPA). CERCLIS Superfund Site Search. Accessed November 2015. Available online at:
<http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm>.
- U.S. Fish and Wildlife Service. National Wetlands Inventory. Wetlands Mapper website. Accessed November 2015. Available online:
<http://www.fws.gov/wetlands/Data/Mapper.html>.
- West Hollywood, City of, Municipal Code.
- West Hollywood, City of, 2035 General Plan, September 2011.
- West Hollywood, City of, General Plan Final Environmental Impact Report, October 2010.
- West Hollywood, City of. Historic and Cultural Resources Map. 2015. Available at:
<http://www.weho.org/city-hall/city-departments/community-development/current-and-historic-preservation-planning/historic-preservation/west-hollywood-historic-and-cultural-resources-map>.
- West Hollywood, City of. Water Conservation webpage. Available: <http://weho.org/city-hall/city-departments/public-works/environmental-services/water-conservation>. Accessed January 2016.



Appendix A

Air Quality Modeling Results

8731 Beverly Blvd West Hollywood
Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.42	1000sqft	0.08	3,416.00	0
Government (Civic Center)	0.50	1000sqft	0.01	500.00	0
Apartments Mid Rise	30.00	Dwelling Unit	0.79	30,000.00	86
Strip Mall	5.47	1000sqft	0.13	5,470.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Start coating during construction

Vehicle Trips - Rates according to Traffic Study

Woodstoves - no one is using wood stoves

Construction Off-road Equipment Mitigation -

Grading -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	138.00
tblConstructionPhase	PhaseEndDate	5/24/2017	12/9/2016
tblConstructionPhase	PhaseEndDate	12/23/2016	11/25/2016
tblConstructionPhase	PhaseStartDate	11/12/2016	6/1/2016
tblConstructionPhase	PhaseStartDate	12/10/2016	11/12/2016
tblGrading	MaterialExported	0.00	11,832.00
tblLandUse	LandUseSquareFeet	3,420.00	3,416.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblVehicleTrips	ST_TR	7.16	6.59
tblVehicleTrips	ST_TR	2.37	11.03
tblVehicleTrips	ST_TR	0.00	1.80
tblVehicleTrips	ST_TR	42.04	42.70
tblVehicleTrips	SU_TR	6.07	6.59
tblVehicleTrips	SU_TR	0.98	11.03
tblVehicleTrips	SU_TR	0.00	1.80
tblVehicleTrips	SU_TR	20.43	42.70
tblVehicleTrips	WD_TR	11.01	11.03
tblVehicleTrips	WD_TR	27.92	1.80
tblVehicleTrips	WD_TR	44.32	42.70
tblWoodstoves	NumberCatalytic	1.50	0.00
tblWoodstoves	NumberNoncatalytic	1.50	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	16.2728	240.4074	187.5409	0.5696	19.4358	4.4761	23.9119	6.6047	4.1176	10.7222	0.0000	57,404.23 10	57,404.23 10	0.9594	0.0000	57,424.37 81
Total	16.2728	240.4074	187.5409	0.5696	19.4358	4.4761	23.9119	6.6047	4.1176	10.7222	0.0000	57,404.23 10	57,404.23 10	0.9594	0.0000	57,424.37 81

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	16.2728	240.4074	187.5409	0.5696	15.4900	4.4761	19.9661	4.7411	4.1176	8.8587	0.0000	57,404.2310	57,404.2310	0.9594	0.0000	57,424.3781
Total	16.2728	240.4074	187.5409	0.5696	15.4900	4.4761	19.9661	4.7411	4.1176	8.8587	0.0000	57,404.2310	57,404.2310	0.9594	0.0000	57,424.3781

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	20.30	0.00	16.50	28.22	0.00	17.38	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.0343	0.1089	10.2367	1.3000e-004		1.1057	1.1057		1.1053	1.1053	103.9584	544.4586	648.4170	0.0149	0.0191	654.6424
Energy	0.0103	0.0891	0.0437	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7208	112.7208	2.1600e-003	2.0700e-003	113.4068
Mobile	1.7842	4.5538	18.3586	0.0386	2.6415	0.0625	2.7040	0.7063	0.0574	0.7637		3,407.494 1	3,407.494 1	0.1499		3,410.642 4
Total	9.8288	4.7518	28.6390	0.0393	2.6415	1.1753	3.8168	0.7063	1.1699	1.8762	103.9584	4,064.673 5	4,168.631 9	0.1670	0.0211	4,178.691 6

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.0343	0.1089	10.2367	1.3000e-004		1.1057	1.1057		1.1053	1.1053	103.9584	544.4586	648.4170	0.0149	0.0191	654.6424
Energy	0.0103	0.0891	0.0437	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7208	112.7208	2.1600e-003	2.0700e-003	113.4068
Mobile	1.7842	4.5538	18.3586	0.0386	2.6415	0.0625	2.7040	0.7063	0.0574	0.7637		3,407.494 1	3,407.494 1	0.1499		3,410.642 4
Total	9.8288	4.7518	28.6390	0.0393	2.6415	1.1753	3.8168	0.7063	1.1699	1.8762	103.9584	4,064.673 5	4,168.631 9	0.1670	0.0211	4,178.691 6

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	1/28/2016	5	20	
2	Site Preparation	Site Preparation	1/29/2016	2/1/2016	5	2	
3	Grading	Grading	2/2/2016	2/5/2016	5	4	
4	Building Construction	Building Construction	2/6/2016	11/11/2016	5	200	
5	Architectural Coating	Architectural Coating	6/1/2016	12/9/2016	5	138	
6	Paving	Paving	11/12/2016	11/25/2016	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 60,750; Residential Outdoor: 20,250; Non-Residential Indoor: 14,079; Non-Residential Outdoor: 4,693 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	174	0.41
Grading	Rubber Tired Dozers	1	6.00	255	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	1,479.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	25.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9066	28.2579	21.4980	0.0245		1.7445	1.7445		1.6328	1.6328		2,487.1296	2,487.1296	0.6288		2,500.3343
Total	2.9066	28.2579	21.4980	0.0245		1.7445	1.7445		1.6328	1.6328		2,487.1296	2,487.1296	0.6288		2,500.3343

3.2 Demolition - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867
Total	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9066	28.2579	21.4980	0.0245		1.7445	1.7445		1.6328	1.6328	0.0000	2,487.1296	2,487.1296	0.6288		2,500.3343
Total	2.9066	28.2579	21.4980	0.0245		1.7445	1.7445		1.6328	1.6328	0.0000	2,487.1296	2,487.1296	0.6288		2,500.3343

3.2 Demolition - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867
Total	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867

3.3 Site Preparation - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4686	0.0000	6.4686	3.0550	0.0000	3.0550			0.0000			0.0000
Off-Road	2.4428	25.7718	16.5144	0.0171		1.3985	1.3985		1.2866	1.2866		1,781.087 2	1,781.087 2	0.5372		1,792.369 3
Total	2.4428	25.7718	16.5144	0.0171	6.4686	1.3985	7.8671	3.0550	1.2866	4.3416		1,781.087 2	1,781.087 2	0.5372		1,792.369 3

3.3 Site Preparation - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	13.7930	214.5858	170.5053	0.5513	12.8778	3.0768	15.9546	3.5260	2.8302	6.3561		55,530.34 13	55,530.34 13	0.4168		55,539.09 39
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149
Total	13.8301	214.6356	171.0264	0.5524	12.9672	3.0776	16.0448	3.5497	2.8310	6.3806		55,623.14 38	55,623.14 38	0.4221		55,632.00 88

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5228	0.0000	2.5228	1.1915	0.0000	1.1915			0.0000			0.0000
Off-Road	2.4428	25.7718	16.5144	0.0171		1.3985	1.3985		1.2866	1.2866	0.0000	1,781.087 2	1,781.087 2	0.5372		1,792.369 3
Total	2.4428	25.7718	16.5144	0.0171	2.5228	1.3985	3.9212	1.1915	1.2866	2.4781	0.0000	1,781.087 2	1,781.087 2	0.5372		1,792.369 3

3.3 Site Preparation - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	13.7930	214.5858	170.5053	0.5513	12.8778	3.0768	15.9546	3.5260	2.8302	6.3561		55,530.34 13	55,530.34 13	0.4168		55,539.09 39
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149
Total	13.8301	214.6356	171.0264	0.5524	12.9672	3.0776	16.0448	3.5497	2.8310	6.3806		55,623.14 38	55,623.14 38	0.4221		55,632.00 88

3.4 Grading - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.9908	21.0361	13.6704	0.0141		1.1407	1.1407		1.0494	1.0494		1,462.846 8	1,462.846 8	0.4413		1,472.113 0
Total	1.9908	21.0361	13.6704	0.0141	4.9143	1.1407	6.0549	2.5256	1.0494	3.5750		1,462.846 8	1,462.846 8	0.4413		1,472.113 0

3.4 Grading - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149
Total	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9166	0.0000	1.9166	0.9850	0.0000	0.9850			0.0000			0.0000
Off-Road	1.9908	21.0361	13.6704	0.0141		1.1407	1.1407		1.0494	1.0494	0.0000	1,462.8468	1,462.8468	0.4413		1,472.1130
Total	1.9908	21.0361	13.6704	0.0141	1.9166	1.1407	3.0573	0.9850	1.0494	2.0344	0.0000	1,462.8468	1,462.8468	0.4413		1,472.1130

3.4 Grading - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149
Total	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149

3.5 Building Construction - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176		2,046.943 2	2,046.943 2	0.4499		2,056.391 3
Total	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176		2,046.943 2	2,046.943 2	0.4499		2,056.391 3

3.5 Building Construction - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0465	0.4485	0.6189	1.0900e-003	0.0312	6.9100e-003	0.0381	8.8700e-003	6.3600e-003	0.0152		109.1961	109.1961	8.3000e-004		109.2135
Worker	0.1158	0.1554	1.6284	3.4300e-003	0.2794	2.6400e-003	0.2821	0.0741	2.4300e-003	0.0765		290.0078	290.0078	0.0167		290.3590
Total	0.1623	0.6039	2.2473	4.5200e-003	0.3106	9.5500e-003	0.3202	0.0830	8.7900e-003	0.0918		399.2038	399.2038	0.0176		399.5725

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176	0.0000	2,046.943 2	2,046.943 2	0.4499		2,056.391 3
Total	3.2915	20.5459	14.7074	0.0220		1.3656	1.3656		1.3176	1.3176	0.0000	2,046.943 2	2,046.943 2	0.4499		2,056.391 3

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0465	0.4485	0.6189	1.0900e-003	0.0312	6.9100e-003	0.0381	8.8700e-003	6.3600e-003	0.0152		109.1961	109.1961	8.3000e-004		109.2135
Worker	0.1158	0.1554	1.6284	3.4300e-003	0.2794	2.6400e-003	0.2821	0.0741	2.4300e-003	0.0765		290.0078	290.0078	0.0167		290.3590
Total	0.1623	0.6039	2.2473	4.5200e-003	0.3106	9.5500e-003	0.3202	0.0830	8.7900e-003	0.0918		399.2038	399.2038	0.0176		399.5725

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.2766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	3.6450	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449

3.6 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0232	0.0311	0.3257	6.9000e-004	0.0559	5.3000e-004	0.0564	0.0148	4.9000e-004	0.0153		58.0016	58.0016	3.3500e-003		58.0718
Total	0.0232	0.0311	0.3257	6.9000e-004	0.0559	5.3000e-004	0.0564	0.0148	4.9000e-004	0.0153		58.0016	58.0016	3.3500e-003		58.0718

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.2766					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	3.6450	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449

3.6 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0232	0.0311	0.3257	6.9000e-004	0.0559	5.3000e-004	0.0564	0.0148	4.9000e-004	0.0153		58.0016	58.0016	3.3500e-003		58.0718
Total	0.0232	0.0311	0.3257	6.9000e-004	0.0559	5.3000e-004	0.0564	0.0148	4.9000e-004	0.0153		58.0016	58.0016	3.3500e-003		58.0718

3.7 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438		1,368.4366	1,368.4366	0.4053		1,376.9473
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438		1,368.4366	1,368.4366	0.4053		1,376.9473

3.7 Paving - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867
Total	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438	0.0000	1,368.4366	1,368.4366	0.4053		1,376.9473
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2872	13.2076	9.0880	0.0133		0.8075	0.8075		0.7438	0.7438	0.0000	1,368.4366	1,368.4366	0.4053		1,376.9473

3.7 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867
Total	0.0602	0.0808	0.8468	1.7800e-003	0.1453	1.3700e-003	0.1467	0.0385	1.2600e-003	0.0398		150.8040	150.8040	8.7000e-003		150.9867

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.7842	4.5538	18.3586	0.0386	2.6415	0.0625	2.7040	0.7063	0.0574	0.7637		3,407.494 1	3,407.494 1	0.1499		3,410.642 4
Unmitigated	1.7842	4.5538	18.3586	0.0386	2.6415	0.0625	2.7040	0.7063	0.0574	0.7637		3,407.494 1	3,407.494 1	0.1499		3,410.642 4

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	197.70	197.70	197.70	675,571	675,571
General Office Building	37.72	37.72	37.72	121,522	121,522
Government (Civic Center)	0.90	0.90	0.90	2,779	2,779
Strip Mall	233.57	233.57	233.57	444,387	444,387
Total	469.89	469.89	469.89	1,244,259	1,244,259

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Government (Civic Center)	16.60	8.40	6.90	75.00	20.00	5.00	50	34	16
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.533598	0.058434	0.178244	0.125508	0.038944	0.006283	0.016425	0.031066	0.002453	0.003157	0.003691	0.000543	0.001655

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0103	0.0891	0.0437	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7208	112.7208	2.1600e-003	2.0700e-003	113.4068
NaturalGas Unmitigated	0.0103	0.0891	0.0437	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7208	112.7208	2.1600e-003	2.0700e-003	113.4068

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	102.293	1.1000e-003	0.0100	8.4200e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004		12.0345	12.0345	2.3000e-004	2.2000e-004	12.1077
Government (Civic Center)	14.9726	1.6000e-004	1.4700e-003	1.2300e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.7615	1.7615	3.0000e-005	3.0000e-005	1.7722
Strip Mall	25.4767	2.7000e-004	2.5000e-003	2.1000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9973	2.9973	6.0000e-005	5.0000e-005	3.0155
Apartments Mid Rise	815.384	8.7900e-003	0.0751	0.0320	4.8000e-004		6.0800e-003	6.0800e-003		6.0800e-003	6.0800e-003		95.9276	95.9276	1.8400e-003	1.7600e-003	96.5114
Total		0.0103	0.0891	0.0437	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7208	112.7208	2.1600e-003	2.0600e-003	113.4068

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.102293	1.1000e-003	0.0100	8.4200e-003	6.0000e-005		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004		12.0345	12.0345	2.3000e-004	2.2000e-004	12.1077
Government (Civic Center)	0.0149726	1.6000e-004	1.4700e-003	1.2300e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.7615	1.7615	3.0000e-005	3.0000e-005	1.7722
Strip Mall	0.0254767	2.7000e-004	2.5000e-003	2.1000e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9973	2.9973	6.0000e-005	5.0000e-005	3.0155
Apartments Mid Rise	0.815384	8.7900e-003	0.0751	0.0320	4.8000e-004		6.0800e-003	6.0800e-003		6.0800e-003	6.0800e-003		95.9276	95.9276	1.8400e-003	1.7600e-003	96.5114
Total		0.0103	0.0891	0.0437	5.6000e-004		7.1400e-003	7.1400e-003		7.1400e-003	7.1400e-003		112.7208	112.7208	2.1600e-003	2.0600e-003	113.4068

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.0343	0.1089	10.2367	1.3000e-004		1.1057	1.1057		1.1053	1.1053	103.9584	544.4586	648.4170	0.0149	0.0191	654.6424
Unmitigated	8.0343	0.1089	10.2367	1.3000e-004		1.1057	1.1057		1.1053	1.1053	103.9584	544.4586	648.4170	0.0149	0.0191	654.6424

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1239					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7798					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0514	0.0795	7.7262	0.0000		1.0921	1.0921		1.0918	1.0918	103.9584	540.0000	643.9584	0.0104	0.0191	650.0883
Landscaping	0.0791	0.0294	2.5105	1.3000e-004		0.0135	0.0135		0.0135	0.0135		4.4586	4.4586	4.5500e-003		4.5541
Total	8.0343	0.1089	10.2367	1.3000e-004		1.1057	1.1057		1.1053	1.1053	103.9584	544.4586	648.4170	0.0149	0.0191	654.6424

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1239					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7798					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.0514	0.0795	7.7262	0.0000		1.0921	1.0921		1.0918	1.0918	103.9584	540.0000	643.9584	0.0104	0.0191	650.0883
Landscaping	0.0791	0.0294	2.5105	1.3000e-004		0.0135	0.0135		0.0135	0.0135		4.4586	4.4586	4.5500e-003		4.5541
Total	8.0343	0.1089	10.2367	1.3000e-004		1.1057	1.1057		1.1053	1.1053	103.9584	544.4586	648.4170	0.0149	0.0191	654.6424

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation



Appendix B

Geotechnical Investigation

GEOTECHNICAL INVESTIGATION

PROPOSED MIXED-USE DEVELOPMENT 321-327 NORTH SHERBOURNE DRIVE AND 8713 BEVERLY BOULEVARD, WEST HOLLYWOOD, CALIFORNIA



GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

**FMA BURLY, LLC
LOS ANGELES, CALIFORNIA**

PROJECT NO. A9091-06-01

MAY 14, 2015



Project No. A9091-06-01

May 14, 2015

FMA Burly, LLC
10445 Wilshire Boulevard, Suite 1502
Los Angeles, California 90024

Subject: REPORT OF GEOTECHNICAL INVESTIGATION
 PROPOSED MIXED-USE DEVELOPMENT
 321 & 327 N. SHERBOURNE DRIVE AND 8713 BEVERLY BOULEVARD
 WEST HOLLYWOOD, CALIFORNIA

Ladies and Gentlemen:

In accordance with your authorization of our proposal dated April 27, 2015, we have prepared this geotechnical investigation report for the proposed mixed-use development to be located at 321 & 327 North Sherbourne Drive and 8713 Beverly Boulevard in the City of West Hollywood, California. The accompanying report presents the findings of our study, and our conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction. Based on the results of our investigation, it is our opinion that the site can be developed as proposed, provided the recommendations of this report are followed and implemented during design and construction.

If you have any questions regarding this report, or if we may be of further service, please contact the undersigned.

Very truly yours,

GEOCON WEST, INC.

Thai La
Staff Engineer

Susan F. Kirkgard
CEG 1754

Harry Derkalousdian
PE 79694

(4+EMAIL) Addressee

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a geotechnical investigation for a proposed mixed-use structure to be located at 321-327 North Sherbourne Drive and 8713 Beverly Boulevard in the City of West Hollywood, California (see Vicinity Map, Figure 1). The purpose of our investigation was to evaluate subsurface soil and geologic conditions underlying the site and, based on conditions encountered to provide conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction.

The scope of our investigation included a site reconnaissance, field exploration, laboratory testing, engineering analysis, and the preparation of this report. The site was explored on February 28, and October 18, 2013, by drilling three 8-inch diameter borings utilizing a truck-mounted hollow-stem auger drilling machine. The borings were drilled to depths between 45½ and 70½ feet below the existing ground surface. The approximate locations of the exploratory borings are depicted on the Site Plan (see Figure 2A). A detailed discussion of the field investigation, including the boring logs, is presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to determine pertinent physical soil properties. Appendix B presents a summary of the laboratory test results.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described above, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE AND PROJECT DESCRIPTION

The subject site is located at 321-327 North Sherbourne Drive and 8713 Beverly Boulevard in the City of West Hollywood, California. The site consists of three irregularly-shaped, adjacent parcels totaling approximately 14,255 square feet. The site is currently occupied by an asphalt paved parking lot and a two-story at-grade commercial structure. The site is bounded by multiple on-grade residential structures to the north, by North Sherbourne Drive and an on-grade commercial structure to the east, by Beverly Boulevard and on-grade commercial structures to the south, and by an asphalt-paved parking lot and a two-story commercial structure to the west.

The site slopes gently to the east with an estimated 2 to 3 feet of vertical relief across the site. Surface water drainage at the site appears to be by sheet flow along the existing ground contours toward the city streets. Vegetation on site consists of trees and shrubs located in isolated planters.

Information concerning the proposed development was furnished by the client. It is our understanding that the proposed structure consists of five levels of residential units to be constructed over two subterranean parking levels (see Site Plan and Cross Sections, Figures 2A & 2B).

Due to the preliminary nature of the design at this time, it has been estimated that column loads for the proposed structures may be up to 800 kips. Wall loads for the proposed structure may be up to 8 kips per linear foot.

Once the design phase and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. GEOLOGIC SETTING

The site is located in the northern portion of the Los Angeles Basin, a coastal plain bounded by the Santa Monica Mountains to the north, the Puente Hills and Whittier faults to the east, the Palos Verdes Peninsula and Pacific Ocean to the west, and the Santa Ana Mountains and San Joaquin Hills to the south. The basin is underlain by a deep structural depression which has been filled by both marine and continental sedimentary deposits over a basement complex of igneous and metamorphic composition (Yerkes, et al., 1965). The basement surface within the central portion of the basin extends to a maximum depth of 32,000 feet below sea level. Regionally, the site is located within the Peninsular Ranges Geomorphic Province. This province is characterized by northwest-trending physiographic and geologic features such as the Newport-Inglewood Fault Zone and the Whittier Fault Zone.

4. SOIL AND GEOLOGIC CONDITIONS

Based on our field investigation and published geologic maps of the area (California Geological Survey, 2010; California Division of Mines and Geology, 1998; Dibblee, 1991), the site is underlain by Holocene age alluvial deposits consisting of poorly consolidated sand, silt, and clay extending approximately 40 below the existing ground surface (California Department of Water Resources, 1961). The Holocene age sediments are underlain by older Pleistocene age alluvial sediments that generally consist of varying amounts of sand and silt.

4.1 Artificial Fill

Minor amounts of artificial fill materials were encountered in borings B2 and B3 to maximum depths of 1½ and 4 feet, respectively. The fill generally consists of brown sandy silt. The artificial fill is characterized as slightly moist and firm. The fill is likely the result of past grading and/or construction activities at the site. Deeper fill may exist on site between excavations or in other portions of the site that were not directly explored.

4.2 Alluvium

The alluvium encountered at the site generally consists of gray to reddish brown to dark brown silt, clay, clay and silt with sand, sandy clay, and silty sand with variable amounts of fine to coarse gravel. Between depths of 3 to 16 feet, the sediments are predominantly dark brown to black clay and sandy clay with trace rootlets and a locally a slight organic odor. The alluvium is slightly moist to wet (saturated) and soft to hard or medium dense to very dense and becomes denser with increased depth.

5. GROUNDWATER

The historic high groundwater level beneath the site is reported to be at a depth of less than 10 feet below the existing ground surface (California Division of Mines and Geology [CDMG], 1998). Groundwater information presented in the CDMG publication is based on data collected from the early 1900's to the late 1990's.

The Los Angeles County Department of Public Works (LACDPW) has maintained various groundwater monitoring wells in the vicinity of the site over the past 50 years. The closest LACDPW groundwater monitoring well to the site is Well No. 2642M located approximately 1.4 miles to the east (LADPW, 2015a). Groundwater level data for this well was available for the monitoring period between 1984 and 2011. Based on the available data, the depth to groundwater has fluctuated between high and low measurements of 10.7 feet below the existing ground surface in December 2004 to 73.0 feet below the existing ground surface in April 1990 (LACDPW, 2015a). The most recent groundwater level measurement for Well No. 2642M was in August 2011 where groundwater was measured at a depth of 12.3 feet below the existing ground surface (LACDPW, 2015a). Considering the distance of this well from the site, this groundwater level information may not be representative of groundwater conditions at the site.

Groundwater was encountered at depths of approximately 12½, 14½ and 18 feet beneath the existing ground surface in borings B1, B2, and B3, respectively. Based on the reported historic high groundwater level in the site vicinity, the depth to groundwater encountered during site exploration, and the depth to groundwater in a nearby mentoring well, groundwater is anticipated to be encountered during excavation for this project.

Also, it is common for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed, especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall. In addition, recent requirements for stormwater infiltration could result in shallower seepage conditions in the immediate site vicinity. Proper surface drainage of irrigation and precipitation will be critical for future performance of the project. Recommendations for drainage are provided in the *Surface Drainage* section of this report (see Section 7.24).

6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in Southern California include active, potentially active, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS, formerly known as California Division of Mines and Geology [CDMG]) for the Alquist-Priolo Earthquake Fault Zone Program (Bryant and Hart, 2007). By definition, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years), but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a currently established Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards. No active or potentially active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low. However, the site is located in the seismically active Southern California region, and could be subjected to moderate to strong ground shaking in the event of an earthquake on one of the many active Southern California faults. The faults in the vicinity of the site are shown in Figure 3, Regional Fault Map.

6.1.1 Hollywood Fault

The closest active fault with the potential for surface fault rupture is the Hollywood Fault located 0.9 mile north of the site (California Geological Survey, 2014b). The Hollywood Fault trends east-west along the base of the Santa Monica Mountains from the West Beverly Hills Lineament in the West Hollywood-Beverly Hills area to the Los Feliz area of Los Angeles. The fault is a ground-water barrier within Holocene age sediments. Scarps 1.8 to 2.7 meters high in Holocene age flood plain deposits have been suggested along the fault trace in the Atwater area (Weber et al. 1980). Studies by several investigators (Dolan et al., 2000; Dolan et al., 1997; Dolan and Sieh, 1992; and Crook and Proctor, 1992) have indicated that the fault is active, based on geomorphic evidence, stratigraphic correlation between exploratory borings, and fault trenching studies. Additionally, recent investigations performed in the Hollywood area have demonstrated that Holocene age alluvial sediments have been offset by several strands of the Hollywood Fault (California Geological Survey, 2014a). An Alquist-Priolo Earthquake Fault Zone has recently been established for the Hollywood Fault (California Geological Survey, 2014b). Also, the City of West Hollywood considers the Hollywood Fault active for planning purposes (City of West Hollywood, 2011; City of West Hollywood, 2010).

6.1.2 Other Nearby Faults

Other nearby active faults include the Santa Monica Fault, the Newport-Inglewood Fault Zone, the Raymond Fault, the Verdugo Fault and the Malibu Coast Fault located 1.9 miles west-southwest, 2.5 miles south, 9.0 miles east-northeast, 9.7.5 miles northeast, and 10.5 miles west of the site, respectively (Ziony and Jones, 1989). The active San Andreas Fault Zone is located approximately 36 miles northeast of the site.

The closest potentially active fault to the site is the MacArthur Park Fault located approximately 3.9 miles east of the site (Ziony and Jones, 1989). Other nearby potentially active faults include the Overland Fault, the Charnock Fault and the Coyote Pass Fault located approximately 4.1 miles southwest, 5.5 miles southwest, and 10.5 miles east-southeast of the site, respectively (Ziony and Jones, 1989).

Several buried thrust faults, commonly referred to as blind thrusts, underlie the Los Angeles Basin at depth. These faults are not exposed at the ground surface and are typically identified at depths greater than 3.0 kilometers. The October 1, 1987 M_w 5.9 Whittier Narrows earthquake and the January 17, 1994 M_w 6.7 Northridge earthquake were a result of movement on the Puente Hills Blind Thrust and the Northridge Thrust. These thrust faults and others in the Los Angeles area are not exposed at the surface and do not present a potential surface fault rupture hazard at the site; however, these deep thrust faults are considered active features capable of generating future earthquakes that could result in moderate to significant ground shaking at the site.

6.2 Seismicity

As with all of Southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. The epicenters of recorded earthquakes with magnitudes equal to or greater than 5.0 in the site vicinity are depicted on Figure 4, Regional Seismicity Map. A partial list of moderate to major magnitude earthquakes that have occurred in the Southern California area within the last 100 years is included in the following table

LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
San Jacinto-Hemet area	April 21, 1918	6.8	82	SE
Near Redlands	July 23, 1923	6.3	65	E
Long Beach	March 10, 1933	6.4	40	SE
Tehachapi	July 21, 1952	7.5	73	NW
San Fernando	February 9, 1971	6.6	23	N
Whittier Narrows	October 1, 1987	5.9	17	E
Sierra Madre	June 28, 1991	5.8	25	NE
Landers	June 28, 1992	7.3	110	E
Big Bear	June 28, 1992	6.4	89	E
Northridge	January 17, 1994	6.7	13	NW
Hector Mine	October 16, 1999	7.1	126	NE

The site could be subjected to strong ground shaking in the event of an earthquake. However, this hazard is common in Southern California and the effects of ground shaking can be mitigated if the proposed structures are designed and constructed in conformance with current building codes and engineering practices.

6.3 Seismic Design Criteria

The following table summarizes site-specific design criteria obtained from the 2013 California Building Code (CBC; Based on the 2012 International Building Code [IBC] and ASCE 7-10), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the computer program *U.S. Seismic Design Maps*, provided by the USGS. The short spectral response uses a period of 0.2 second. The values presented below are for the risk-targeted maximum considered earthquake (MCE_R).

2013 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2013 CBC Reference
Site Class	D	Table 1613.3.2
MCE _R Ground Motion Spectral Response Acceleration – Class B (short), S _S	2.237g	Figure 1613.3.1(1)
MCE _R Ground Motion Spectral Response Acceleration – Class B (1 sec), S ₁	0.859g	Figure 1613.3.1(2)
Site Coefficient, F _A	1.0	Table 1613.3.3(1)
Site Coefficient, F _V	1.5	Table 1613.3.3(2)
Site Class Modified MCE _R Spectral Response Acceleration (short), S _{MS}	2.237g	Section 1613.3.3 (Eqn 16-37)
Site Class Modified MCE _R Spectral Response Acceleration – (1 sec), S _{M1}	1.288g	Section 1613.3.3 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (short), S _{DS}	1.491g	Section 1613.3.4 (Eqn 16-39)
5% Damped Design Spectral Response Acceleration (1 sec), S _{D1}	0.859g	Section 1613.3.4 (Eqn 16-40)

The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-10.

ASCE 7-10 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-10 Reference
Mapped MCE _G Peak Ground Acceleration, P _{GA}	0.860g	Figure 22-7
Site Coefficient, F _{PGA}	1.0	Table 11.8-1
Site Class Modified MCE _G Peak Ground Acceleration, P _{GA} M	0.86g	Section 11.8.3 (Eqn 11.8-1)

The Maximum Considered Earthquake Ground Motion (MCE) is the level of ground motion that has a 2 percent chance of exceedance in 50 years, with a statistical return period of 2,500 years. According to the 2013 California Building Code and ASCE 7-10, the MCE is to be utilized for the evaluation of liquefaction, lateral spreading, seismic settlements, and it is our understanding that the intent of the Building code is to maintain “Life Safety” during a MCE event. The Design Earthquake Ground Motion (DE) is the level of ground motion that has a 10 percent chance of exceedance in 50 years, with a statistical return period of 475 years.

Deaggregation of the MCE peak ground acceleration was performed using the USGS 2008 Probabilistic Seismic Hazard Analysis (PSHA) Interactive Deaggregation online tool. The result of the deaggregation analysis indicates that the predominant earthquake contributing to the MCE peak ground acceleration is characterized as a 6.74 magnitude event occurring at a hypocentral distance of 6.0 kilometers from the site.

Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the predominant earthquake contributing to the DE peak ground acceleration is characterized as a 6.69 magnitude occurring at a hypocentral distance of 11.5 kilometers from the site.

Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

6.4 Liquefaction Potential

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations.

The current standard of practice, as outlined in the “Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California” and “Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California” requires liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

A review of the State of California Seismic Hazard Zone Map for the Beverly Hills Quadrangle (CDMG, 1999) indicates that the site is located in an area designated as “liquefiable”. In addition, according to the City of West Hollywood (2010, 2011), the site is located within an area identified as having a potential for liquefaction.

Liquefaction analysis of the soils underlying the site was performed using an updated version of the spreadsheet template LIQ2_30.WQ1 developed by Thomas F. Blake (1996). This program utilizes the 1996 NCEER method of analysis. This semi-empirical method is based on a correlation between values of Standard Penetration Test (SPT) resistance and field performance data.

The liquefaction analysis was performed for a Design Earthquake level by using a historic high groundwater table of 10 feet below the ground surface, a magnitude 6.69 earthquake, and a peak horizontal acceleration of 0.574g ($\frac{2}{3}$ PGAM). The enclosed liquefaction analyses, included herein for boring B2, indicates that the alluvial soils below the historic high groundwater depth could be prone to approximately 5.7 inches of total settlement during Design Earthquake ground motion (see enclosed calculation sheets, Figures 5 and 6). Due to potential bridging effects of non-liquefiable soil layers, differential settlement is estimated to be approximately 4.2 inches at the subterranean level. If liquefaction were to occur, it is anticipated that settlement would occur globally across the site; however, it could result in tilting or leaning of the proposed structure.

Based on our understanding that the intent of the Building Code is to maintain “Life Safety”, the recommendations presented herein are intended to mitigate the effects of liquefaction induced settlement on the proposed structure. Conformance to the recommendations presented here does not constitute any kind of guarantee or assurance that significant structural damage will not occur if liquefaction occurs due to earthquake induced strong ground motion, since such design may be economically prohibitive.

Screening criteria presented by Bray and Sancio (2006) was used to evaluate the liquefaction susceptibility of the fine-grained soils encountered in the boring. Based on these screening criteria, fine-grained soils with a plasticity index of greater than 18 and a saturated water content of less than 80 percent of the liquid limit are considered to be not susceptible to liquefaction. Using these screening criteria, and based on the plasticity index test results (see Figure B7), the lean clay layer encountered below a depth of 65 feet is considered to be not susceptible to liquefaction.

It is our understanding that the intent of the Building Code is to maintain “Life Safety” during Maximum Considered Earthquake level events. Therefore, additional analysis was performed to evaluate the potential for liquefaction during a MCE event. The structural engineer should evaluate the proposed structure for the anticipated MCE liquefaction induced settlements and verify that anticipated deformations would not cause the foundation system to lose the ability to support the gravity loads and/or cause collapse of the structure.

The liquefaction analysis was also performed for Maximum Considered Earthquake levels by using a historic high groundwater table of 10 feet below the ground surface, a magnitude 6.74 earthquake, and a peak horizontal acceleration of 0.86g (PGAM). The enclosed liquefaction analysis, included herein for boring B2, indicates that the alluvial soils below the historic high groundwater level would be prone to 6.7 inches of liquefaction settlement during Maximum Considered Earthquake ground motion (see enclosed calculation sheets, Figures 7 and 8).

6.5 Seismically-Induced Settlement

Dynamic compaction of dry and loose sands may occur during a major earthquake. Typically, settlements occur in thick beds of such soils. The seismically-induced settlement calculations were performed in accordance with the American Society of Civil Engineers, Technical Engineering and Design Guides as adapted from the US Army Corps of Engineers, No. 9.

The calculations provided herein indicate that the soil above the historic high groundwater level of 10 feet could be prone to negligible settlements as a result of the Design Earthquake peak ground acceleration ($\frac{2}{3}PGA_M$).

The calculations provided herein indicate that the soil above the historic high groundwater level of 10 feet could be prone to negligible settlements as a result of the Maximum Considered Earthquake peak ground acceleration (PGA_M).

Calculation of the anticipated seismically-induced settlements is provided as Figures 9 and 10.

6.6 Slope Stability

The topography at the site is relatively level and the site is not within an area identified as having a potential for slope stability hazards (City of West Hollywood, 2010). Additionally, the site is not within an area susceptible to seismic slope instability (CDMG, 1999). No landslides have been identified at the site or in close proximity to the site. Additionally, the site is not in the path of any known or potential landslides. Therefore, the potential for slope stability hazards to adversely affect the proposed development is considered low.

6.7 Earthquake-Induced Flooding

Earthquake-induced flooding is inundation caused by failure of dams or other water-retaining structures due to earthquakes. Based on a review of the City of West Hollywood Safety Element (2001) and the Los Angeles County Seismic Safety Element (Leighton, 1990), the site is not located within a potential inundation area. Therefore, the potential for inundation at the site as a result of an earthquake-induced dam failure is considered low.

6.8 Tsunamis, Seiches and Flooding

The site is not located within a coastal area. Therefore, tsunamis, seismic sea waves, are not considered a significant hazard at the site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Flooding from a seismically-induced seiche is considered unlikely.

The site is within an area of minimal flooding (Zone X) as defined by the Federal Emergency Management Agency (FEMA, 2015; LACDPW, 2015b; City of West Hollywood, 2008).

6.9 Oil Fields & Methane Potential

Based on a review of the California Division of Oil, Gas and Geothermal Resources (DOGGR) Oil and Gas Well Location Map 117, the site is located within the Salt Lake Oilfield. Several abandoned and plugged oil wells are shown in the immediate vicinity of the site. The nearest oil well to the site is McDor Co.'s Well Number 2 API: 03726466, a plugged and abandoned dry hole, located within the southern area of the site. Due to the voluntary nature of record reporting by the oil well drilling companies, wells may be improperly located or not shown on the location map and undocumented wells could be encountered during construction. Any wells encountered will need to be properly abandoned in accordance with the current requirements of the DOGGR.

The site is located within the boundaries of the Salt Lake Oil Field. Therefore, there could be a potential for methane and other volatile gases to occur at the site. Should it be determined that a methane study is required for the proposed development it is recommended that a qualified methane consultant be retained to perform the study and provide mitigation measures as necessary.

6.10 Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas or as a result of decomposition of natural organic materials. Soils that are particularly subject to subsidence include those with high silt or clay content and/or high organic content. The site is located within an area identified in the City of West Hollywood Safety Element (2010) as a former marsh. However, significant organic materials were not encountered in our exploration at the site. Therefore, the potential for subsidence related to decomposition of organic materials at the site is considered low. Also, the potential for subsidence related to fluid or gas withdrawal is also considered low at the site. Only marginal activity currently exists in the Salt Lake Oilfield and water injection and flooding operations as part of secondary recovery is believed to have largely mitigated hazards related to fluid or gas withdrawal in the area (City of West Hollywood, 2010).

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

- 7.1.1 It is our opinion that neither soil nor geologic conditions were encountered during the investigation that would preclude construction of the proposed project provided the recommendations presented herein are followed and implemented during design and construction.
- 7.1.2 The enclosed liquefaction analysis indicates that the alluvial soils below the subterranean level, assumed to extend to a depth of 22 feet, could be prone to up to 6.7 inches of settlement as a result of the Design Earthquake ground motion. If liquefaction were to occur, differential settlement is anticipated to occur relatively globally across the site and would likely result in tilting or leaning of the proposed structure. Based on our understanding that the intent of the Building Code is to maintain “Life Safety”, the recommendations presented herein are intended to mitigate the effects of liquefaction induced settlement on the proposed structure. Conformance to the recommendations presented here does not constitute any kind of guarantee or assurance that significant structural damage will not occur if liquefaction occurs due to earthquake induced strong ground motion, since such design may be economically prohibitive.
- 7.1.3 Based on these considerations, it is recommended that the subterranean level of the proposed structure be designed for a differential settlement of 4.2 inches over a distance of 50 feet.
- 7.1.4 Up to 4 feet of existing artificial fill was encountered during site exploration. The existing fill encountered is believed to be the result of past grading and construction activities at the site. Deeper fill may exist in other areas of the site that were not directly explored. Excavations for the subterranean level are anticipated to penetrate through the existing artificial fill and expose undisturbed alluvial soils throughout the excavation bottom.
- 7.1.5 Groundwater was encountered during prior site explorations at depths of 12½, 14½ and 18 feet below the existing ground surface. Excavation for the subterranean level is anticipated to extend to depths of approximately 22 feet below the ground surface, including foundation excavations. Based on groundwater conditions encountered at the time of exploration, as well as consideration of the historic high depth to groundwater, groundwater is anticipated to be encountered at or near the bottom of the proposed excavation. Due to the depth of the proposed excavation and the potential for seasonal fluctuation in the groundwater level, temporary dewatering measures will likely be required to mitigate groundwater during excavation and construction. If the subterranean portion of the structure is not designed for full hydrostatic pressure, a permanent dewatering system will be required to relieve and mitigate the water pressure. Recommendations for *Temporary* and *Permanent Dewatering* are discussed in Section 7.4 and Section 7.5 of this report.

- 7.1.6 The alluvial soils anticipated to be exposed at the excavation bottom will likely be very moist and could be subject to excessive pumping. Operation of rubber tire equipment on the subgrade soils may cause excessive disturbance of the soils. Excavation activities to establish the finished subgrade elevation must be conducted carefully and methodically to avoid excessive disturbance to the subgrade. Stabilization of the bottom of the excavation will likely be required in order to provide a firm working surface upon which heavy equipment can operate. Recommendations for bottom stabilization and earthwork are provided in the *Grading* section of this report (see Section 7.6).
- 7.1.7 Based on these considerations, it is recommended that the proposed structure be supported on a reinforced concrete mat foundation system. A mat foundation is more accommodating to subgrade stabilization and dewatering procedures. It is recommended that the mat foundation derive support in the undisturbed alluvial soils found at the excavation bottom. In order to minimize differential settlement between the ramp, ramp walls, and basement level, it is recommended that the ramp and ramp walls for the subterranean parking garage be structurally supported on the mat foundation. Recommendations for the design of a *Mat Foundation Design* are provided in Section 7.7 of this report.
- 7.1.8 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied to the proposed structure, may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and proper compaction cannot be performed or is undesirable, foundations may derive support directly in the undisturbed alluvial soils found at or below a depth of 24 inches below existing ground surface, and should be deepened as necessary to maintain a minimum 12-inch embedment into the recommended bearing materials. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved in writing by a Geocon representative.
- 7.1.9 Due to the depth of the excavation and the proximity to the property lines, city streets and adjacent offsite structures, excavation of the proposed subterranean levels will require sloping and shoring measures in order to provide a stable excavation. Where shoring is required, it is recommended that a soldier pile shoring system be utilized. In addition, where the proposed excavation will be deeper than and adjacent to an offsite structure, the proposed shoring should be designed to resist the surcharge imposed by the adjacent offsite structures. Recommendations for *Shoring* are provided in Section 7.19 of this report.

- 7.1.10 Due to the nature of the proposed design and intent for a subterranean level, waterproofing of subterranean walls and slabs is suggested. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer. A waterproofing consultant should be retained in order to recommend a product or method, which would provide protection to subterranean walls, floor slabs and foundations.
- 7.1.11 Once the design and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. If the proposed building loads will exceed those presented herein, the potential for settlement should be reevaluated by this office.
- 7.1.12 Any changes in the design, location or elevation of improvements, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

7.2 Soil and Excavation Characteristics

- 7.2.1 The in-situ soils can be excavated with moderate effort using conventional excavation equipment. Minor caving should be anticipated in vertical excavations, especially where granular and/or saturated soils are encountered.
- 7.2.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable OSHA rules and regulations to maintain safety and maintain the stability of adjacent existing improvements.
- 7.2.3 All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load. Penetrations below this 1:1 projection will require special excavation measures such as sloping and shoring. Excavation recommendations are provided in the *Temporary Excavations* section of this report (see Section 7.18).
- 7.2.4 The soils encountered during the investigation near the subterranean level are considered to have a “moderate” (EI=54) expansive potential and are classified as “expansive” based on the 2013 California Building Code (CBC) Section 1803.5.3. The recommendations presented in this report assume that foundations and slabs will derive support in these materials.

7.3 Minimum Resistivity, pH and Water-Soluble Sulfate

- 7.3.1 Potential of Hydrogen (pH) and resistivity testing as well as chloride content testing were performed on representative samples of soil to generally evaluate the corrosion potential to surface utilities. The tests were performed in accordance with California Test Method Nos. 643 and 422 and indicate that the soils are considered “moderately corrosive” with respect to corrosion of buried ferrous metals on site. The results are presented in Appendix B (Figure B9) and should be considered for design of underground structures.
- 7.3.2 Laboratory tests were performed on representative samples of the site materials to measure the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate tests are presented in Appendix B (Figure B9) and indicate that the on-site materials possess “negligible” sulfate exposure to concrete structures as defined by 2013 CBC Section 1904 and ACI 318-08 Sections 4.2 and 4.3.
- 7.3.3 Geocon West, Inc. does not practice in the field of corrosion engineering and mitigation. If corrosion sensitive improvements are planned, it is recommended that a corrosion engineer be retained to evaluate corrosion test results and incorporate the necessary precautions to avoid premature corrosion of buried metal pipes and concrete structures in direct contact with the soils.

7.4 Temporary Dewatering

- 7.4.1 Groundwater was encountered during site exploration at depths of 12½, 14½ and 18 feet below the ground surface. The depth to groundwater at the time of construction can be further verified during initial dewatering well or shoring pile installation. If groundwater is present above the bottom of the proposed excavation, temporary dewatering will be necessary to maintain a safe working environment during excavation and construction activities.
- 7.4.2 It is recommended that a qualified dewatering consultant be retained to design the dewatering system. Temporary dewatering may consist of perimeter wells with interior well points as well as gravel filled trenches (french drains) placed adjacent to the shoring system and interior of the site. The number and locations of the wells or french drains can be adjusted during excavation activities as necessary to collect and control any encountered seepage. The french drains will then direct the collected seepage to a sump where it will be pumped out of the excavation.

7.4.3 The embedment of perimeter shoring piles should be deepened as necessary to take into account any required excavations for an adjacent french drain system, or sub-slab drainage system, should it be deemed necessary. It is not anticipated that a perimeter french drain will be more than 24 inches in depth below the proposed excavation bottom. If a french drain is to remain on a permanent basis, it must be lined with filter fabric to prevent soil migration into the gravel.

7.4.4 Geocon can assist with water quality testing as well as obtaining discharge permits required for dewatering.

7.5 **Permanent Dewatering**

7.5.1 If the portions of the subterranean levels which extend below the historic high groundwater level are not designed for full hydrostatic pressure, a permanent dewatering system must be implemented to prevent the groundwater table from impacting the structure. The historically highest groundwater is reported to be at a depth of 10 feet below the existing ground surface. A subdrainage system consisting of perforated pipe placed in gravel-filled trenches may be installed beneath the subterranean slab-on-grade to intercept and control groundwater. This system can be combined with the perimeter retaining wall drainage system provided backflow valves are installed at the base of the wall drainage system.

7.5.2 A typical permanent sub-slab drainage system would consist of a twelve-inch thick layer of $\frac{3}{4}$ -inch gravel that is placed upon a layer of filter fabric (Miami 500X or equivalent), and vibrated to a dense state. Subdrain pipes leading to sump areas, provided with automatic pumping units, should drain the gravel layer. The drain lines should consist of perforated pipe, placed with perforations down, in trenches that are at least six inches below the gravel layer. The excavation bottom, as well as the trench bottoms should be lined with filter fabric prior to placing and compacting gravel. The trenches should be spaced approximately 40 feet apart at most, within the interior, and should extend along to the perimeter of the building. Subsequent to the installation of the drainage system, the waterproofing system and building slab may then be placed on the densified gravel. A mud- or rat-slab may be placed over the waterproofing system for protection during placement of rebar and mat slab construction.

7.5.3 Recommendations for design flow rates for the permanent dewatering system should be determined by a qualified contractor or dewatering consultant.

7.6 Grading

- 7.6.1 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer, and geotechnical engineer in attendance. Special soil handling requirements can be discussed at that time.
- 7.6.2 Grading is anticipated to include excavation of site soils for the proposed subterranean levels, foundations, and utility trenches, as well as placement of backfill for walls, ramps, and trenches.
- 7.6.3 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing fill and alluvial soils encountered during exploration are suitable for re-use as an engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris is removed.
- 7.6.4 Grading should commence with the removal of all existing vegetation and existing improvements from the area to be graded. Deleterious debris such as wood and root structures should be exported from the site and should not be mixed with the fill soils. Asphalt and concrete should not be mixed with the fill soils unless approved by the Geotechnical Engineer. All existing underground improvements planned for removal should be completely excavated and the resulting depressions properly backfilled in accordance with the procedures described herein. Once a clean excavation bottom has been established it must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.)
- 7.6.5 The proposed structure may be supported on a reinforced concrete mat foundation deriving support in the undisturbed alluvium found at the excavation bottom. In order to minimize differential settlement between the ramp, ramp walls, and basement level, it is recommended that the ramp and ramp walls for the subterranean parking garage be structurally supported on the mat foundation.
- 7.6.6 Prior to construction of the mat foundation, the exposed alluvial subgrade must be proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon) and approved in writing. Due to the potential for high-moisture content soils at the excavation bottom, or if construction is performed during the rainy season and the excavation bottom becomes saturated, stabilization measures may have to be implemented to prevent excessive disturbance the excavation bottom. Should this condition exist, rubber tire equipment should not be allowed in the excavation bottom until it is stabilized or extensive soil disturbance could result.

- 7.6.7 If a permanent dewatering system is to be installed, subgrade stabilization may be accomplished by placing a one-foot thick layer of washed, angular 3/4-inch gravel atop a stabilization fabric (Mirafi 500X or equivalent), subsequent to subgrade approval. This procedure should be conducted in sections until the entire excavation bottom has been blanketed by fabric and gravel. Heavy equipment may operate upon the gravel once it has been placed. The gravel should be compacted to a dense state utilizing a vibratory drum roller. The placement of gravel at the subgrade level should be coordinated with the temporary or permanent dewatering of the site. The gravel and fabric system will function as both a permeable material for any necessary dewatering procedures as well as a stable material upon which heavy equipment may operate. It is recommended that the contractor meet with the Geotechnical Engineer to discuss this procedure in more detail.
- 7.6.8 Where temporary or permanent dewatering is not required, an alternative method of subgrade stabilization would consist of introducing a thin lift of three to 6-inch diameter crushed angular rock into the soft excavation bottom. The use of crushed concrete will also be acceptable. The crushed rock should be spread thinly across the excavation bottom and pressed into the soils by track rolling or wheel rolling with heavy equipment. It is very important that voids between the rock fragments are not created so the rock must be thoroughly pressed or blended into the soils. All subgrade soils must be properly compacted and proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon West, Inc.).
- 7.6.9 All fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to at least two percent over optimum moisture content, and properly compacted to a minimum 90 percent of the maximum dry density in accordance with ASTM D 1557 (latest edition).
- 7.6.10 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied to the proposed structure, may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and proper compaction cannot be performed or is undesirable, foundations may derive support directly in the undisturbed alluvial soils found at or below a depth of 24 inches below existing ground surface, and should be deepened as necessary to maintain a minimum 12 inch embedment into the recommended bearing materials. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved in writing by a Geocon representative.

- 7.6.11 Utility trenches should be properly backfilled in accordance with the requirements of the Green Book (latest edition). The pipe should be bedded with clean sands (Sand Equivalent greater than 30) to a depth of at least one foot over the pipe, and the bedding material must be inspected and approved in writing by the Geotechnical Engineer (a representative of Geocon). The use of gravel is not acceptable unless used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. The remainder of the trench backfill may be derived from onsite soil or approved import soil, compacted as necessary, until the required compaction is obtained. The use of minimum 2-sack slurry is also acceptable. Prior to placing any bedding materials or pipes, the excavation bottom must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).
- 7.6.12 Although not anticipated for this project, all imported fill shall be observed, tested, and approved by Geocon West, Inc. prior to bringing soil to the site. Rocks larger than 6 inches in diameter shall not be used in the fill. If necessary, import soils used as structural fill should have an expansion index less than 50 and soil corrosivity properties that are equally or less detrimental to that of the existing onsite soils (see Figure B9).
- 7.6.13 All excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, steel, gravel or concrete.

7.7 Mat Foundation Design

- 7.7.1 Subsequent to the recommended grading, it is recommended that a reinforced concrete mat foundation be utilized for support of the proposed structures. A mat foundation is more capable of distributing the structural loads applied to the soil and therefore minimizing potential settlements. The mat foundation may derive support in the undisturbed alluvial soils found at the excavation bottom.
- 7.7.2 It is anticipated that the mat foundation will impart an average pressure of less than 3,000 pounds per square foot (psf), with locally higher pressures up to 3,500 psf. The recommended maximum allowable bearing value is 3,500 psf. The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

- 7.7.3 It is recommended that a modulus of subgrade reaction of 100 pounds per cubic inch (pci) be utilized for the design of the mat foundation bearing in the undisturbed alluvial soils found at the excavation bottom. If the subgrade is stabilized in accordance with the recommendations in the grading section of this report a modulus of subgrade reaction of 250 pci may be utilized. The modulus of subgrade reaction value is a unit value for use with a 1-foot square footing. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K \left[\frac{B+1}{2B} \right]^2$$

where: K_R = reduced subgrade modulus
 K = unit subgrade modulus
 B = foundation width (in feet)

- 7.7.4 The thickness of and reinforcement for the mat foundation should be designed by the project structural engineer.
- 7.7.5 If the portion of the proposed structure which extends below the historic high groundwater table is to be designed for full hydrostatic pressure, the recommended floor slab uplift pressure to be used in design would be $62.4(H)$ in units of psf, where “H” is the height of the water above the bottom of the mat foundation in feet. For design purposes the water table may be assumed at a depth of 10 feet below existing ground surface.
- 7.7.6 For seismic design purposes, a coefficient of friction of 0.40 may be utilized between the concrete mat and undisturbed alluvial soils, and 0.15 for slabs underlain by a moisture barrier.
- 7.7.7 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.
- 7.7.8 Waterproofing of subterranean walls and slabs is recommended for this project. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer. A waterproofing consultant should be retained in order to recommend a product or method which would provide protection to subterranean walls, floor slabs and foundations.
- 7.7.9 This office should be provided a copy of the final construction plans so that the recommendations presented herein could be properly reviewed and revised if necessary.

7.8 Miscellaneous Foundations

- 7.8.1 Foundations for small outlying structures, such as block walls up to 6 feet in height, planter walls or trash enclosures, which will not be tied-in to the proposed structures, may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill. Where excavation and compaction cannot be performed or is undesirable, such as adjacent to property lines, foundations may derive support in the undisturbed alluvial soils found at and below a depth of 24 inches and should be deepened as necessary to maintain a minimum 12 inch embedment into the recommended bearing materials..
- 7.8.2 If the soils exposed in the excavation bottom are soft, compaction of the soft soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative. Miscellaneous foundations may be designed for a bearing value of 1,500 psf, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 12 inches into the recommended bearing material. The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces..
- 7.8.3 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the excavations and exposed soil conditions are consistent with those anticipated.

7.9 Foundation Settlement

- 7.9.1 The enclosed liquefaction and dry seismic induced settlement analysis indicates that the alluvial soils below the historic high groundwater depth could be prone to approximately 5.7 inches of settlement as a result of the Design Earthquake peak ground acceleration ($\frac{2}{3}PGA_M$). The resulting differential settlement is anticipated to be approximately less than 4.2 inches over a distance of fifty feet. These settlements are in addition to the static settlements indicated below and must be considered in the structural design.
- 7.9.2 The maximum expected settlement for the parking structure supported on a mat foundation deriving support in the undisturbed alluvium found at the excavation bottom with a maximum allowable soil bearing pressure of 3,500 psf is estimated to be less than 1½ inches. The anticipated settlement accounts for the excavation of at least 20 feet of soil overburden for construction of the proposed structure. A majority of the settlement of the foundation system is expected to occur on initial application of loading; however, minor additional settlements are expected within the first 12 months. Differential static settlement is not expected to exceed ¾-inch over a distance of twenty feet.

7.9.3 Based on seismic considerations, the proposed structure supported on a reinforced concrete mat foundation should be designed for a combined static and seismically induced differential settlement of 2.5 inches over a distance of 20 feet.

7.9.4 Once the design and foundation loading configurations for the proposed structures proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions (column loads of up to 800 kips, wall loads of up to 8 kips per linear foot), the potential for settlement should be reevaluated by this office.

7.10 Lateral Design

7.10.1 Resistance to lateral loading may be provided by friction acting at the base of foundations, slabs and by passive earth pressure. An allowable coefficient of friction of 0.40 may be used with the dead load forces in newly placed engineered fill or undisturbed alluvial soils.

7.10.2 Passive earth pressure for the sides of foundations and slabs poured against the alluvial soils, stabilized subgrade, or properly compacted engineered fill below the groundwater table may be computed as an equivalent fluid having a density of 200 pcf with a maximum earth pressure of 2,000 pcf (these values have been adjusted for buoyant forces). When combining passive and friction for lateral resistance, the passive component should be reduced by one-third.

7.11 Concrete Slabs-on-Grade

7.11.1 Concrete slabs-on-grade subject to vehicle loading should be designed in accordance with the recommendations in the *Preliminary Pavement Recommendations* section of this report (Section 7.12).

7.11.2 Exterior slabs, not subject to traffic loads, should be at least 4 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions, positioned near the slab midpoint. Prior to construction of slabs, the upper 12 inches of subgrade should be pre-moistened to 2 percent above optimum moisture content and properly compacted to at least 92 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition). Crack control joints should be spaced at intervals not greater than 10 feet and should be constructed using saw-cuts or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. The project structural engineer should design construction joints as necessary.

- 7.11.3 Slabs-on-grade at the ground surface that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) *Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials* (ACI 302.2R-06) and should be installed in general conformance with ASTM E 1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning is recommended. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. If the California Green Building Code requirements apply to this project, the vapor retarder should be underlain by 4 inches of clean aggregate. It is important that the vapor retarder be puncture resistant since it will be in direct contact with angular gravel. As an alternative to the clean aggregate suggested in the California Green Building Code, it is our opinion that the concrete slab-on-grade may be underlain by a vapor retarder over 4 inches of clean sand (sand equivalent greater than 30), since the sand will serve a capillary break and will minimize the potential for punctures and damage to the vapor barrier.
- 7.11.4 Due to the nature of the subterranean level, waterproofing of subterranean walls and slabs is suggested. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer. A waterproofing consultant should be retained in order to recommend a product or method, which would provide protection to subterranean walls, floor slabs and foundations.
- 7.11.5 The recommendations of this report are intended to reduce the potential for cracking of slabs due to settlement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

7.12 Preliminary Pavement Recommendations

- 7.12.1 Where new paving is to be placed, it is recommended that all existing fill and soft or unsuitable alluvial soils be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all soft or unsuitable soils in the area of new paving is not required; however, paving constructed over existing unsuitable soils may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper twelve inches of paving subgrade should be scarified, moisture conditioned to 2 percent above optimum moisture content, and properly compacted to at least 92 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition).
- 7.12.2 The following pavement sections are based on an assumed R-Value of 20. Once site grading activities are complete, it is recommended that laboratory testing confirm the properties of the soils serving as paving subgrade prior to placing pavement. The Traffic Indices listed below are estimates. Geocon does not practice in the field of traffic engineering. The actual Traffic Index for each area should be determined by the project civil engineer. If pavement sections for Traffic Indices other than those listed below are required, Geocon should be contacted to provide additional recommendations. Pavement thicknesses were determined following procedures outlined in the *California Highway Design Manual* (Caltrans). It is anticipated that the majority of traffic will consist of automobile and large truck traffic.

PRELIMINARY PAVEMENT DESIGN SECTIONS

Location	Estimated Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Automobile Parking	3.5	3	4
Driveways	5	3	7
Trash Truck & Fire Lanes	7	4	12

- 7.12.3 Asphalt concrete should conform to Section 203-6 of the “*Standard Specifications for Public Works Construction*” (Green Book). Class 2 aggregate base materials should conform to Section 26-1.02A of the “*Standard Specifications of the State of California, Department of Transportation*” (Caltrans). Crushed Miscellaneous Base should conform to Section 200-2.4 of the “*Standard Specifications for Public Works Construction*” (Green Book).

- 7.12.4 Unless specifically designed and evaluated by the project structural engineer, where concrete paving will be utilized for support of vehicles at the ground surface, it is recommended that the concrete be a minimum of 5 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Concrete paving supporting vehicular traffic should be underlain by a minimum of 4 inches of aggregate base and a properly compacted subgrade. The subgrade and base material should be compacted to at least 92 and 95 percent relative compaction, respectively, as determined by ASTM Test Method D 1557 (latest edition).
- 7.12.5 The performance of pavements is highly dependent upon providing positive surface drainage away from the edge of pavements. Ponding of water on or adjacent to the pavement will likely result in saturation of the subgrade materials and subsequent cracking, subsidence and pavement distress. If planters are planned adjacent to paving, it is recommended that the perimeter curb be extended at least 12 inches below the bottom of the aggregate base to minimize the introduction of water beneath the paving.

7.13 Retaining Walls

- 7.13.1 The recommendations presented below are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 22 feet. In the event that walls higher than 22 feet are planned, Geocon should be contacted for additional recommendations.
- 7.13.2 Retaining wall foundations may be designed in accordance with the recommendations provided in the *Mat Foundation Design* section of this report (see Section 7.7).
- 7.13.3 Assuming that proper drainage and permanent dewatering is maintained, retaining walls with a level backfill surface that are not restrained at the top should be designed utilizing a triangular distribution of pressure (active pressure) of 34 pcf.
- 7.13.4 Restrained walls are those that are not allowed to rotate more than $0.001H$ (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Assuming that proper drainage and permanent dewatering is maintained, where walls are restrained from movement at the top, walls may be designed utilizing a triangular distribution of pressure (at-rest pressure) of 54 pcf.
- 7.13.5 The wall pressures provided above assume that the retaining wall will be properly drained preventing the buildup of hydrostatic pressure. If retaining wall drainage is not implemented, the equivalent fluid pressure to be used in design of undrained walls is 90 pcf. The value includes hydrostatic pressures plus buoyant lateral earth pressures.

- 7.13.6 The wall pressures provided above assume that the proposed retaining walls will support relatively undisturbed alluvial soils. If sloping techniques are to be utilized for construction of proposed walls, which would result in a wedge of engineered fill behind the retaining walls, revised earth pressures may be required to account for the expansive potential of the soil placed as engineered fill. This should be evaluated once the use of sloping measures is established and once the geotechnical characteristics of the engineered backfill soils can be further evaluated.
- 7.13.7 Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures and should be designed for each condition as the project progresses.
- 7.13.8 It is recommended that line-load surcharges from adjacent wall footings, use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$\text{For } x/H \leq 0.4$$

$$\sigma_H(z) = \frac{0.20 \left(\frac{z}{H} \right)}{\left[0.16 + \left(\frac{z}{H} \right)^2 \right]^2} \frac{Q_L}{H}$$

and

$$\text{For } x/H > 0.4$$

$$\sigma_H(x, z) = \frac{1.26 \left(\frac{x}{H} \right)^2 \left(\frac{z}{H} \right)}{\left[\left(\frac{x}{H} \right)^2 + \left(\frac{z}{H} \right)^2 \right]^2} \frac{Q_L}{H}$$

where x is the distance from the face of the excavation to the vertical line-load, H is the distance from the bottom of the footing to the bottom of excavation, z is the depth at which the horizontal pressure is desired, QL is the vertical line-load and σ_H is the horizontal pressure at depth z.

- 7.13.9 It is recommended that vertical point-loads, from construction equipment outriggers or adjacent building columns use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$\text{For } x/H \leq 0.4$$

$$\sigma(z) = \frac{0.28 \times \left(\frac{z}{H}\right)^2}{\left[0.16 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_p}{H^2}$$

and

$$\text{For } x/H > 0.4$$

$$\sigma(z) = \frac{1.77 \times \left(\frac{x}{H}\right)^2 \times \left(\frac{z}{H}\right)^2}{\left[\left(\frac{x}{H}\right)^2 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_p}{H^2}$$

then

$$\sigma'_H(z) = \sigma_H(z) \cos^2(1.1\theta)$$

where x is the distance from the face of the excavation to the vertical point-load, H is distance from the outrigger/bottom of column footing to the bottom of excavation, z is the depth at which the horizontal pressure is desired, Q_p is the vertical point-load, σ is the vertical pressure at depth z, θ is the angle between a line perpendicular to the bulkhead and a line from the point-load to half the pile spacing at the bulkhead, and σ_H is the horizontal pressure at depth z.

- 7.13.10 In addition to the recommended earth pressure, the upper ten feet of the shoring adjacent to the street or driveway areas should be designed to resist a uniform lateral pressure of 100 psf, acting as a result of an assumed 300 psf surcharge behind the shoring due to normal street traffic. If the traffic is kept back at least ten feet from the shoring, the traffic surcharge may be neglected.
- 7.13.11 Seismic lateral forces should be incorporated into the design as necessary, and recommendations for seismic lateral forces are presented below.

7.14 Dynamic (Seismic) Lateral Earth Pressure

- 7.14.1 The structural engineer should determine the seismic design category for the project in accordance with Section 1613 of the CBC. If the project possesses a seismic design category of D, E, or F, proposed retaining walls in excess of 6 feet in height should be designed with seismic lateral pressure (Section 1803.5.12 of the 2013 CBC).
- 7.14.2 A seismic load of 37 pcf should be used for design of walls that support more than 6 feet of backfill in accordance with Section 1803.5.12 of the 2013 CBC. The seismic load is applied as an equivalent fluid pressure along the height of the wall and the calculated loads result in a maximum load exerted at the base of the wall and zero at the top of the wall. This seismic load should be applied in addition to the active earth pressure. The earth pressure is based on half of two thirds of PGA_M calculated from ASCE 7-10 Section 11.8.3.

7.15 Retaining Wall Drainage

- 7.15.1 Retaining walls should be provided with a drainage system extended at least two-thirds the height of the wall. At the base of the drain system, a subdrain covered with a minimum of 12 inches of gravel should be installed, and a compacted fill blanket or other seal placed at the surface (see Figure 11). The clean bottom and subdrain pipe, behind a retaining wall, should be observed by the Geotechnical Engineer (a representative of Geocon), prior to placement of gravel or compacting backfill.
- 7.15.2 As an alternative, a plastic drainage composite such as Miradrain or equivalent may be installed in continuous, 4-foot wide columns along the entire back face of the wall, at 8 feet on center. The top of these drainage composite columns should terminate approximately 18 inches below the ground surface, where either hardscape or a minimum of 18 inches of relatively cohesive material should be placed as a cap (see Figure 12). These vertical columns of drainage material would then be connected at the bottom of the wall to a collection panel or a one-cubic-foot rock pocket drained by a 4-inch subdrain pipe.
- 7.15.3 Subdrainage pipes at the base of the retaining wall drainage system should outlet to an acceptable location via controlled drainage structures.
- 7.15.4 Moisture affecting below grade walls is one of the most common post-construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer. A waterproofing consultant should be retained in order to recommend a product or method, which would provide protection to subterranean walls, floor slabs and foundations.

7.16 Elevator Pit Design

- 7.16.1 The elevator pit slab and retaining wall should be designed by the project structural engineer. As a minimum the slab-on-grade for the elevator pit bottom should be at least 4 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions, positioned near the slab midpoint. Elevator pit walls may be designed in accordance with the recommendations in the *Mat Foundation Design and Retaining Wall Design* section of this report (see Sections 7.7 and 7.13).
- 7.16.2 Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent foundations and should be designed for each condition as the project progresses.
- 7.16.3 If retaining wall drainage is to be provided, the drainage system should be designed in accordance with the *Retaining Wall Drainage* section of this report (see Section 7.15).
- 7.16.4 It is suggested that the exterior walls and slab be waterproofed to prevent excessive moisture inside of the elevator pit. Waterproofing design and installation is not the responsibility of the geotechnical engineer.

7.17 Elevator Piston

- 7.17.1 If a plunger-type elevator piston is installed for this project, a deep drilled excavation will be required. It is important to verify that the drilled excavation is not situated immediately adjacent to a foundation or shoring pile, or the drilled excavation could compromise the existing foundation or pile support, especially if the drilling is performed subsequent to the foundation or pile construction.
- 7.17.2 Casing will likely be required in the drilled excavation. The contractor should be prepared to use casing and should have it readily available at the commencement of drilling activities. The contractor should also be prepared to mitigate buoyant forces during installation of the piston casing. Continuous observation of the drilling and installation of the elevator piston by the Geotechnical Engineer (a representative of Geocon West, Inc.) is required.
- 7.17.3 The annular space between the piston casing and drilled excavation wall should be filled with a minimum of 1½-sack slurry pumped from the bottom up. As an alternative, pea gravel may be utilized. The use of soil to backfill the annular space is not acceptable.

7.18 Temporary Excavations

- 7.18.1 Excavations on the order of 22 feet in height are anticipated for excavation and construction of the proposed subterranean level, foundation system, and dewatering measures. The excavations are expected to expose alluvial soils, which are suitable for vertical excavations up to 5 feet where loose soils or caving sands are not present or where not surcharged by adjacent traffic or structures.
- 7.18.2 Vertical excavations greater than five feet will require sloping and/or shoring measures in order to provide a stable excavation. Where sufficient space is available, temporary unsurcharged embankments could be sloped back at a uniform 1:1 slope gradient or flatter. A uniform slope does not have a vertical portion. Where space is limited, shoring measures will be required. *Shoring* data is provided in Section 7.19 of this report.
- 7.18.3 Where sloped embankments are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. Geocon personnel should inspect the soils exposed in the cut slopes during excavation so that modifications of the slopes can be made if variations in the soil conditions occur. All excavations should be stabilized within 30 days of initial excavation.

7.19 Shoring – Soldier Pile Design and Installation

- 7.19.1 The following information on the design and installation of shoring is preliminary. Review of the final shoring plans and specifications should be made by this office prior to bidding or negotiating with a shoring contractor.
- 7.19.2 One method of shoring would consist of steel soldier piles, placed in drilled holes and backfilled with concrete. Where maximum excavation heights are less than 12 feet the soldier piles are typically designed as cantilevers. Where excavations exceed 12 feet or are surcharged, soldier piles may require lateral bracing utilizing drilled tie-back anchors or raker braces to maintain an economical steel beam size and prevent excessive deflection. The size of the steel beam, the need for lateral bracing, and the acceptable shoring deflection should be determined by the project shoring engineer.
- 7.19.3 The design embedment of the shoring pile toes must be maintained during excavation activities. The toes of the perimeter shoring piles should be deepened to take into account any required excavations necessary for foundations and/or adjacent drainage systems.

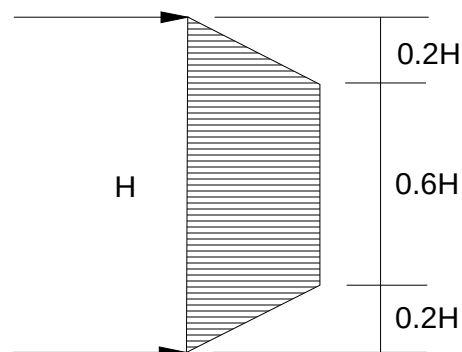
- 7.19.4 Drilled cast-in-place soldier piles should be placed no closer than 2 diameters on center. The minimum diameter of the piles is 18 inches. Structural concrete should be used for the soldier piles below the excavation; lean-mix concrete may be employed above that level. As an alternative, lean-mix concrete may be used throughout the pile where the reinforcing consists of a wideflange section. The slurry must be of sufficient strength to impart the lateral bearing pressure developed by the wideflange section to the soil. For design purposes, an allowable passive value for the soils below the bottom plane of excavation may be assumed to be 200 psf per foot for the portion of the pile below a depth of 16 feet (values have been reduced for buoyant forces). The allowable capacity may be doubled for isolated piles spaced more than three times the pile diameter. To develop the full lateral value, provisions should be implemented to assure firm contact between the soldier piles and the undisturbed soils.
- 7.19.5 Groundwater was encountered during exploration and the contractor should be prepared for groundwater during pile installation. Piles placed below the water level require the use of a tremie to place the concrete into the bottom of the hole. A tremie should consist of a rigid, water-tight tube having a diameter of not less than 6 inches with a hopper at the top. The tube should be equipped with a device that will close the discharge end and prevent water from entering the tube while it is being charged with concrete. The tremie should be supported so as to permit free movement of the discharge end over the entire top surface of the work and to permit rapid lowering when necessary to retard or stop the flow of concrete. The discharge end should be closed at the start of the work to prevent water entering the tube and should be entirely sealed at all times, except when the concrete is being placed. The tremie tube should be kept full of concrete. The flow should be continuous until the work is completed and the resulting concrete seal should be monolithic and homogeneous. The tip of the tremie tube should always be kept about 5 feet below the surface of the concrete and definite steps and safeguards should be taken to insure that the tip of the tremie tube is never raised above the surface of the concrete.
- 7.19.6 A special concrete mix should be used for concrete to be placed below water. The design should provide for concrete with an unconfined compressive strength psi of 1,000 pounds per square inch (psi) over the initial job specification. An admixture that reduces the problem of segregation of paste/aggregates and dilution of paste should be included. The slump should be commensurate to any research report for the admixture, provided that it should also be the minimum for a reasonable consistency for placing when water is present.

- 7.19.7 Casing may be required since caving may occur in the saturated soils. If casing is used, extreme care should be employed so that the pile is not pulled apart as the casing is withdrawn. At no time should the distance between the surface of the concrete and the bottom of the casing be less than five feet. As an alternative, piles may be vibrated into place; however, there is always a risk that excessive vibrations in sandy soils could induce settlements and distress to adjacent offsite improvements. Continuous observation of the drilling and pouring of the piles by the Geotechnical Engineer (a representative of Geocon West, Inc.), is required.
- 7.19.8 If a vibratory method is utilized, the owner should be aware of the potential risks associated with vibratory efforts, which typically involve inducing settlement within the vicinity of the pile which could result in a potential for damage to existing improvements in the area.
- 7.19.9 The level of vibration that results from the installation of the piles should not exceed a threshold where occupants of nearby structures are disturbed, despite higher vibration tolerances that a building may endure without deformation or damage. The main parameter used for vibration assessment is peak particle velocity in units of inch per second (in/sec). The acceptable range of peak particle velocity should be evaluated based on the age and condition of adjacent structures, as well as the tolerance of human response to vibration.
- 7.19.10 Based on Table 19 of the *Transportation and Construction Induced Vibration Guidance Manual* (Caltrans 2004), a continuous source of vibrations (ex. vibratory pile driving) which generates a maximum peak particle velocity of 0.5 in/sec is considered tolerable for modern industrial / commercial buildings and new residential structures. The Client should be aware that a lower value may be necessary if older or fragile structures are in the immediate vicinity of the site.
- 7.19.11 Vibrations should be monitored and record with seismographs during pile installation to detect the magnitude of vibration and oscillation experienced by adjacent structures. If the vibrations exceed the acceptable range during installation, the shoring contractor should modify the installation procedure to reduce the values to within the acceptable range. Vibration monitoring is not the responsibility of the Geotechnical Engineer.
- 7.19.12 Geocon does not practice in the field of vibration monitoring. If vibratory construction techniques will be implemented, it is recommended that qualified consultant be retained to provide site specific recommendations for vibration thresholds and monitoring.

- 7.19.13 The frictional resistance between the soldier piles and retained soil may be used to resist the vertical component of the anchor load. The coefficient of friction may be taken as 0.4 based on uniform contact between the steel beam and lean-mix concrete and retained earth below a depth of 16 feet. The portion of soldier piles below the plane of excavation may also be employed to resist the downward loads. The downward capacity may be determined using a frictional resistance of 400 psf per foot for the portion of the pile below a depth of 16 feet (value has been reduced for buoyant forces).
- 7.19.14 Due to the nature of the site soils, it is expected that continuous lagging between soldier piles will be required. However, it is recommended that the exposed soils be observed by the Geotechnical Engineer (a representative of Geocon West, Inc.), to verify the presence of any cohesive soils and the areas where lagging may be omitted.
- 7.19.15 The time between lagging excavation and lagging placement should be as short as possible soldier piles should be designed for the full-anticipated pressures. Due to arching in the soils, the pressure on the lagging will be less. It is recommended that the lagging be designed for the full design pressure but be limited to a maximum of 400 psf.
- 7.19.16 Assuming that a temporary dewatering system is implemented just outside the shoring system, and that pumping is continuously maintained throughout the excavation and construction process it is recommended that an equivalent fluid pressure based on the following table, be utilized for design. A diagram depicting the trapezoidal pressure distribution of lateral earth pressure is provided below the table.

HEIGHT OF SHORING (FEET)	EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot) (ACTIVE PRESSURE)	EQUIVALENT FLUID PRESSURE (Pounds Per Square Foot per Foot) Trapezoidal (Where H is the height of the shoring in feet)
Up to 22	25	15H

Trapezoidal Distribution of Pressure



- 7.19.17 It is very important to note that active pressures can only be achieved when movement in the soil (earth wall) occurs. If movement in the soil is not acceptable, such as adjacent to an existing structure, or the pile is restrained from movement by bracing or a tie back anchor, an at-rest pressure of 45 pcf should be considered for design purposes.
- 7.19.18 Where a combination of sloped embankment and shoring is utilized, the pressure will be greater and must be determined for each combination. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic, or adjacent structures and must be determined for each combination.
- 7.19.19 It is recommended that line-load surcharges from adjacent wall footings, use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$\text{For } x/H \leq 0.4$$

$$\sigma_H(z) = \frac{0.20 \left(\frac{z}{H} \right)}{\left[0.16 + \left(\frac{z}{H} \right)^2 \right]^2} \frac{Q_L}{H}$$

and

$$\text{For } x/H > 0.4$$

$$\sigma_H(x, z) = \frac{1.26 \left(\frac{x}{H} \right)^2 \left(\frac{z}{H} \right)}{\left[\left(\frac{x}{H} \right)^2 + \left(\frac{z}{H} \right)^2 \right]^2} \frac{Q_L}{H}$$

where x is the distance from the face of the excavation to the vertical line-load, H is the distance from the bottom of the footing to the bottom of excavation, z is the depth at which the horizontal pressure is desired, QL is the vertical line-load and σ_H is the horizontal pressure at depth z.

- 7.19.20 It is recommended that vertical point-loads, from construction equipment outriggers or adjacent building columns use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$\text{For } x/H \leq 0.4$$

$$\sigma(z) = \frac{0.28 \times \left(\frac{z}{H}\right)^2}{\left[0.16 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_p}{H^2}$$

and

$$\text{For } x/H > 0.4$$

$$\sigma(z) = \frac{1.77 \times \left(\frac{x}{H}\right)^2 \times \left(\frac{z}{H}\right)^2}{\left[\left(\frac{x}{H}\right)^2 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_p}{H^2}$$

then

$$\sigma'_H(z) = \sigma_H(z) \cos^2(1.1\theta)$$

where x is the distance from the face of the excavation to the vertical point-load, H is distance from the outrigger/bottom of column footing to the bottom of excavation, z is the depth at which the horizontal pressure is desired, Q_p is the vertical point-load, σ is the vertical pressure at depth z , θ is the angle between a line perpendicular to the bulkhead and a line from the point-load to half the pile spacing at the bulkhead, and σ_H is the horizontal pressure at depth z .

- 7.19.21 In addition to the recommended earth pressure, the upper ten feet of the shoring adjacent to the street or driveway areas should be designed to resist a uniform lateral pressure of 100 psf, acting as a result of an assumed 300 psf surcharge behind the shoring due to normal street traffic. If the traffic is kept back at least ten feet from the shoring, the traffic surcharge may be neglected.
- 7.19.22 It is difficult to accurately predict the amount of deflection of a shored embankment. It should be realized that some deflection will occur. It is recommended that the deflection be minimized to prevent damage to existing structures and adjacent improvements. Where public right-of-ways are present or adjacent offsite structures do not surcharge the shoring excavation, the shoring deflection should be limited to less than 1 inch at the top of the shored embankment. Where offsite structures are within the shoring surcharge area it is recommended that the beam deflection be limited to less than 1/2 inch at the elevation of the adjacent offsite foundation, and no deflection at all if deflections will damage existing

structures. The allowable deflection is dependent on many factors, such as the presence of structures and utilities near the top of the embankment, and will be assessed and designed by the project shoring engineer.

7.19.23 Because of the depth of the excavation, some means of monitoring the performance of the shoring system is suggested. The monitoring should consist of periodic surveying of the lateral and vertical locations of the tops of all soldier piles and the lateral movement along the entire lengths of selected soldier piles.

7.19.24 Due to the depth of the depth of the excavation and proximity to adjacent structures, it is suggested that prior to excavation the existing improvements be inspected to document the present condition. For documentation purposes, photographs should be taken of preconstruction distress conditions and level surveys of adjacent grade and pavement should be considered. During excavation activities, the adjacent structures and pavement should be periodically inspected for signs of distress. In the even that distress or settlement is noted, an investigation should be performed and corrective measures taken sot that continued or worsened distress or settlement is mitigated. Documentation and monitoring of the offsite structures and improvements is not the responsibility of the geotechnical engineer.

7.20 Tie-Back Anchors

7.20.1 Tie-back anchors may be used to resist lateral loads. Friction anchors are recommended. For design purposes, it may be assumed that the active wedge adjacent to the shoring is defined by a plane drawn 35 degrees with the vertical through the bottom plane of the excavation. Friction anchors should extend a minimum of 20 feet beyond the potentially active wedge and to greater lengths if necessary to develop the desired capacities. The locations and depths of all offsite utilities should be thoroughly checked and incorporated into the drilling angle design for the tie-back anchors.

7.20.2 The capacities of the anchors should be determined by testing of the initial anchors as outlined in a following section. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads. Anchors should be placed at least 6 feet on center to be considered isolated. Based on the height of the proposed excavation, one row of anchors may be required. For preliminary design purposes, it is estimated that drilled friction anchors constructed without utilizing post-grouting techniques will develop average skin frictions as follows:

- Up to 10 feet below the top of the excavation – 1000 pounds per square foot.

- 7.20.3 Depending on the techniques utilized, and the experience of the contractor performing the installation, a maximum allowable friction capacity of 3 kips per linear foot for post-grouted anchors (for a 20 foot length beyond the active wedge) may be assumed for design purposes. Only the frictional resistance developed beyond the active wedge should be utilized in resisting lateral loads.

7.21 Anchor Installation

- 7.21.1 Tied-back anchors are typically installed between 20 and 40 degrees below the horizontal; however, occasionally alternative angles are necessary to avoid existing improvements and utilities. The locations and depths of all offsite utilities should be thoroughly checked prior to design and installation of the tie-back anchors. Caving of the anchor shafts, particularly within sand and gravel deposits or seepage zones, should be anticipated during installation and provisions should be implemented in order to minimize such caving. It is suggested that hollow-stem auger drilling equipment be used to install the anchors. The anchor shafts should be filled with concrete by pumping from the tip out, and the concrete should extend from the tip of the anchor to the active wedge. In order to minimize the chances of caving, it is recommended that the portion of the anchor shaft within the active wedge be backfilled with sand before testing the anchor. This portion of the shaft should be filled tightly and flush with the face of the excavation. The sand backfill should be placed by pumping; the sand may contain a small amount of cement to facilitate pumping.

7.22 Anchor Testing

- 7.22.1 All of the anchors should be tested to at least 150 percent of design load. The total deflection during this test should not exceed 12 inches. The rate of creep under the 150 percent test load should not exceed 0.1 inch over a 15-minute period in order for the anchor to be approved for the design loading.
- 7.22.2 At least ten percent of the anchors should be selected for "quick" 200 percent tests and three additional anchors should be selected for 24-hour 200 percent tests. The purpose of the 200 percent tests is to verify the friction value assumed in design. The anchors should be tested to develop twice the assumed friction value. These tests should be performed prior to installation of additional tiebacks. Where satisfactory tests are not achieved on the initial anchors, the anchor diameter and/or length should be increased until satisfactory test results are obtained.
- 7.22.3 The total deflection during the 24-hour 200 percent test should not exceed 12 inches. During the 24-hour tests, the anchor deflection should not exceed 0.75 inches measured after the 200 percent test load is applied.

7.22.4 For the "quick" 200 percent tests, the 200 percent test load should be maintained for 30 minutes. The total deflection of the anchor during the 200 percent quick tests should not exceed 12 inches; the deflection after the 200 percent load has been applied should not exceed 0.25 inch during the 30-minute period.

7.22.5 After a satisfactory test, each anchor should be locked-off at the design load. This should be verified by rechecking the load in the anchor. The load should be within 10 percent of the design load. A representative of this firm should observe the installation and testing of the anchors.

7.23 Internal Bracing

7.23.1 Rakers may be utilized to brace the soldier piles in lieu of tieback anchors. The raker bracing could be supported laterally by temporary concrete footings (deadmen) or by the permanent, interior footings. For design of such temporary footings or deadmen, poured with the bearing surface normal to rakers inclined at 45 degrees, a bearing value of 2,000 psf may be used, provided the shallowest point of the footing is at least one foot below the lowest adjacent grade. The client should be aware that the utilization of rakers could significantly impact the construction schedule do to their intrusion into the construction site and potential interference with equipment.

7.24 Surface Drainage

7.24.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the supporting soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the original designed engineering properties. Proper drainage should be maintained at all times.

7.24.2 All site drainage should be collected and controlled in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2010 CBC 1804.3 or other applicable standards. In addition, drainage should not be allowed to flow uncontrolled over any descending slope. The proposed structure should be provided with roof gutters. Discharge from downspouts, roof drains and scuppers not recommended onto unprotected soils within five feet of the building perimeter. Planters which are located adjacent to foundations should be sealed to prevent moisture intrusion into the engineered fill providing foundation support. Landscape irrigation is not recommended within five feet of the building perimeter footings except when enclosed in protected planters.

- 7.24.3 Positive site drainage should be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures. The building pad and pavement areas should be fine graded such that water is not allowed to pond.
- 7.24.4 Landscaping planters immediately adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. Either a subdrain, which collects excess irrigation water and transmits it to drainage structures, or an impervious above-grade planter boxes should be used. In addition, where landscaping is planned adjacent to the pavement, it is recommended that consideration be given to providing a cutoff wall along the edge of the pavement that extends at least 12 inches below the base material.

7.25 Plan Review

- 7.25.1 Grading, foundation, and, shoring plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon West, Inc.
2. This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.
3. The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.
4. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

LIST OF REFERENCES

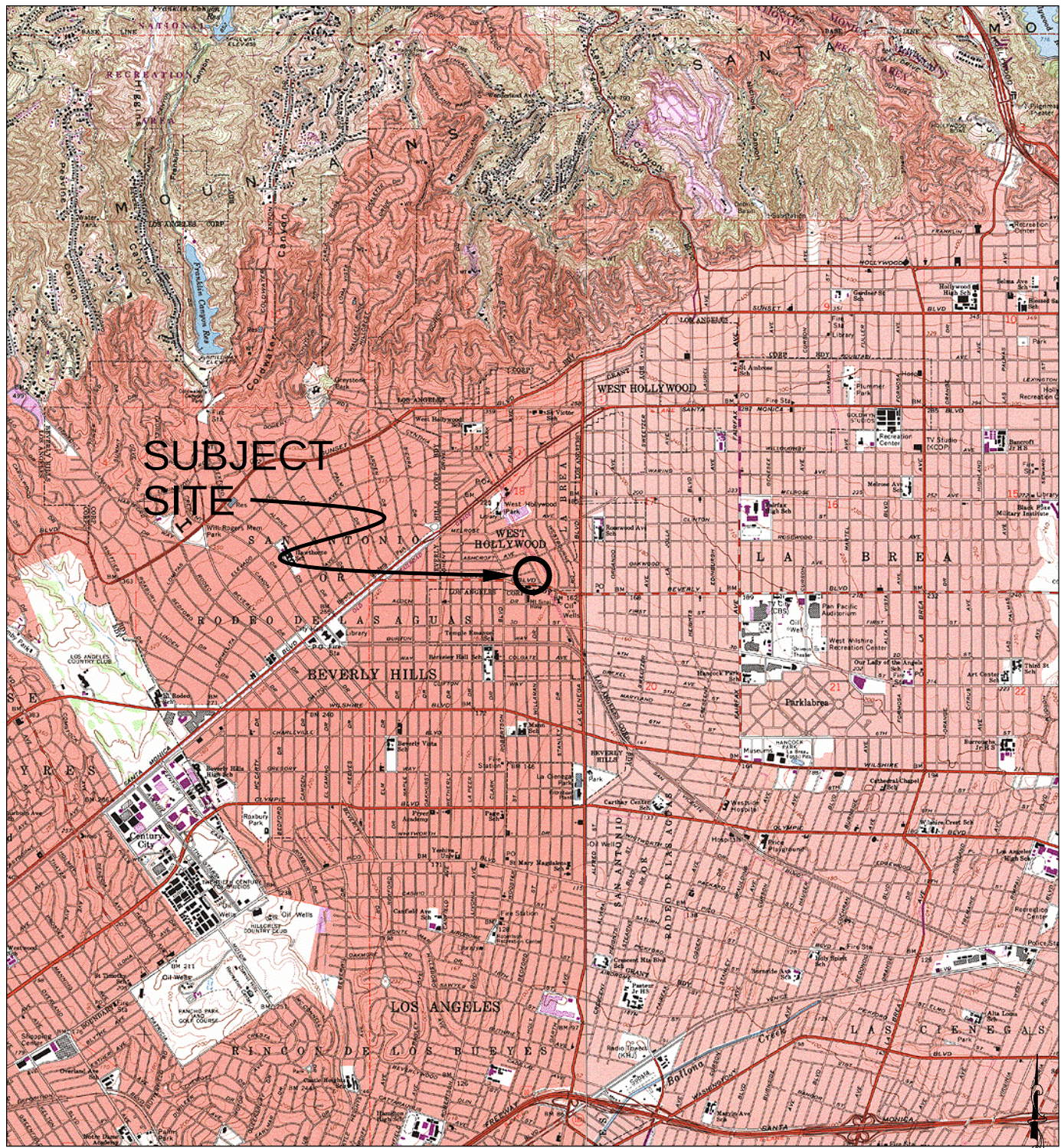
- Bray, J. D., and Sancio, R. B., 2006, *Assessment of the Liquefaction Susceptibility of Fine-Grained Soils*, American Society of Civil Engineers, Journal of the Geotechnical and Geoenvironmental Engineering, Vol. 132, No. 9, pp. 1165-1177.
- Bryant, W. A. and Hart, E. W., 2007, *Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps*, California Division of Mines and Geology Special Publication 42, interim revision.
- California Department of Water Resources, 1961, *Planned Utilization of Groundwater Basins of the Coastal Plain of Los Angeles County*, Bulletin 104, Appendix A.
- California Division of Oil, Gas and Geothermal Resources, 2015, Online Well Finder, <http://maps.conservation.ca.gov/doggr/#close>.
- California Division of Mines and Geology, 1986, *Alquist-Priolo Special Studies Zones, Beverly Hills 7.5-Minute Quadrangle, Los Angeles County, California, Revised Official Map Effective: July 1, 1986*.
- California Division of Mines and Geology, 1999, *State of California Seismic Hazard Zones, Beverly Hills Quadrangle, Official Map Released: March 25, 1999*.
- California Division of Mines and Geology, 1998, *Seismic Hazard Evaluation of the Beverly Hills 7.5-Minute Quadrangle, Los Angeles County, California*, Open File Report 98-14.
- California Division of Oil, Gas and Geothermal Resources, 2015. Division of Oil, Gas, and Geothermal Resources Well Finder, <http://maps.conservation.ca.gov/doggr/index.html#close>.
- California Division of Oil, Gas and Geothermal Resources, 2006; Regional Wildcat Map, Los Angeles and Orange County, Map Number W1-5.
- California Division of Oil, Gas and Geothermal Resources, 2003, *Field: Beverly Hills, Cheviot Hills, Sawtelle, San Vicente, Sherman, and Salt Lake*, Map 117.
- California Geological Survey, 2015, www.quake.ca.gov/gmaps/WH/regulatory_maps.htm.
- California Geological Survey, 2014a, *Fault Evaluation Report FER 253, The Hollywood Fault in the Hollywood 7.5' Quadrangle, Los Angeles County, California*, California Geological Survey, Fault Evaluation, dated February 14.
- California Geological Survey, 2014b, *Earthquake Zones of Required Investigation, Hollywood Quadrangle, Los Angeles County, California*, dated November 6, 2014.
- California Geological Survey, 2010, *Geologic Compilation of Quaternary Surficial Deposits in Southern California, Los Angeles 30' X 60' Quadrangle, A Project for the Department of Water Resources by the California Geological Survey*, Compiled from existing sources by Trinda L. Bedrossian, CEG and Peter D. Roffers, CGS Special Report 217, Plate 9, Scale 1:100,000.
- California Geological Survey, 2008, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, Special Publication 117A.

LIST OF REFERENCES (Continued)

- Crook, R., Jr., and Proctor, R. J., 1992, *The Santa Monica and Hollywood Faults and the Southern Boundary of the Transverse Ranges Province*, in *Engineering Geology Practice in Southern California*.
- Dibblee, T. W., Jr., 1991, *Geologic Map of the Beverly Hills and Van Nuys (South ½) Quadrangles, Los Angeles County, California*, Dibblee Geological Foundation Map No. DF-31.
- Dolan, J. F., Stevens, D., and Rockwell, T. K., 2000, *Paleoseismologic Evidence for an Early to Mid-Holocene Age of the Most Recent Surface Fault Rupture on the Hollywood Fault, Los Angeles, California*, Bulletin of the Seismological Society of America, April 2000.
- Dolan, J. F., Sieh, K. E., Rockwell, T. K., Gupta, P., and Miller, G., 1997, *Active Tectonics, Paleoseismology, and Seismic Hazards of the Hollywood Fault, Northern Los Angeles Basin, California*, Geological Society of America Bulletin, Vol. 109, No. 12.
- Dolan, J. F. and Sieh, K., 1992, *Paleoseismology and Geomorphology of the Northern Los Angeles Basin: Evidence for Holocene Activity on the Santa Monica Fault and Identification of New Strike-Slip Faults through Downtown Los Angeles*, EOS, Transactions of the American Geophysical Union, Vol. 73.
- FEMA, 2015, Online Flood Hazard Maps, *Flood Insurance Rate Map, Los Angeles County, California and Unincorporated Areas, Map Number 06037C1605FF*, Date Accessed: April 24, 2015, <http://www.esri.com/hazards/index.html>.
- Hoots, H.W., and Kew, W.S., 1930, *Geology of the Eastern Part of the Santa Monica Mountains*, Los Angeles County, California, U.S. Geological Survey Professional Paper 165.
- Jennings, C.W., 2010, *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions*, California Division of Mines and Geology Map No. 6.
- Leighton and Associates, Inc., 1990, *Technical Appendix to the Safety Element of the Los Angeles County General Plan*, Hazard Reduction in Los Angeles County.
- Los Angeles County Department of Public Works, 2015a, Ground Water Wells Website, <http://dpw2.co.la.ca.us/website/wells/viewer.asp>.
- Los Angeles County Department of Public Works, 2015b, Flood Zone Determination Website, <http://dpw.lacounty.gov/apps/wmd/floodzone/map.htm>.
- Mendenhall, W. C., 1905, *Development of Underground Waters in the Western Coastal Plain Region, Southern California*, U.S. Geological Survey Water Supply Paper 139.
- Topozada, T., Branum, D., Petersen, M., Hallstrom, C., and Reichle, M., 2000, *Epicenters and Areas Damaged by M > 5 California Earthquakes, 1800 – 1999*, California Geological Survey, Map Sheet 49.
- Weber, F. H., Bennett, J. H., Chapman, R. H., Chase, G. W., and Saul, R. B., 1980, "Earthquake Hazards Associated with the Verdugo–Eagle Rock and Benedict Canyon Fault Zones, Los Angeles County, California," California Division of Mines and Geology Open File Report 80-10LA.

LIST OF REFERENCES (Continued)

- West Hollywood, City of, 2011, *West Hollywood General Plan 2035*, Chapter 10, Safety and Noise.
- West Hollywood, City of, 2010, *Geologic and Seismic Technical Background Report, City of West Hollywood General Plan Update, West Hollywood, Los Angeles County, California*, Prepared for the City of West Hollywood by KFM GeoScience, report dated March 10, 2010.
- West Hollywood, City of, 2008, *Approval of Revised Flood Insurance Designation Letter of Map Revision (LOMR), Case No.:08-09-0191P, West Hollywood, CA*, Effective Date May 30, 2008.
- Yerkes, R.F., McCulloch, T.H., Schoellhamer, J.E., and Vedder, J.G., 1965, *Geology of the Los Angeles Basin—An Introduction*, U.S. Geological Survey Professional Paper 420-A.
- Yerkes, R. F., 1997, *Preliminary Geologic Map of the Hollywood 7.5' Quadrangle, Southern California*, U.S. Geological Survey Open File Report 97-255.
- Ziony, J.I., and Jones, L.M., 1989, *Map Showing Late Quaternary Faults and 1978–1984 Seismicity of the Los Angeles Region, California*, U.S. Geological Survey Miscellaneous Field Studies Map MF-1964.



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REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, BEVERLY HILLS, CA QUADRANGLE

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DRAFTED BY: RA

CHECKED BY: SFK

VICINITY MAP

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD
FMA BURLY, LLC
WEST HOLLYWOOD, CALIFORNIA

MAY 2015

PROJECT NO. A9091-06-01

FIG. 1

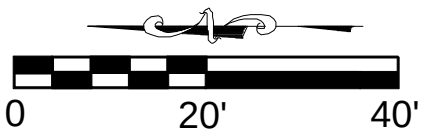
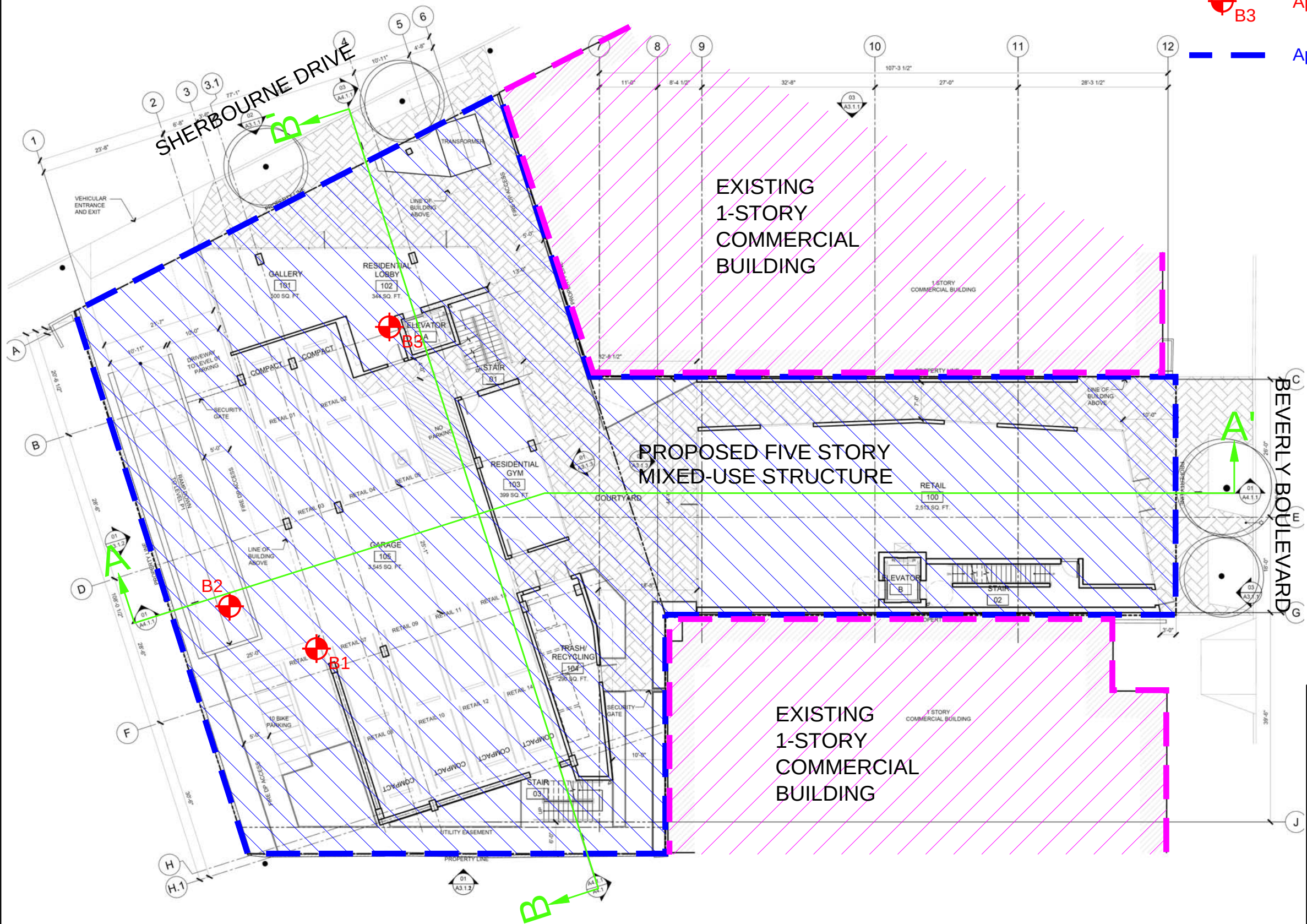
LEGEND



Approximate Location of Boring



Approximate Location of Proposed Development



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SITE PLAN

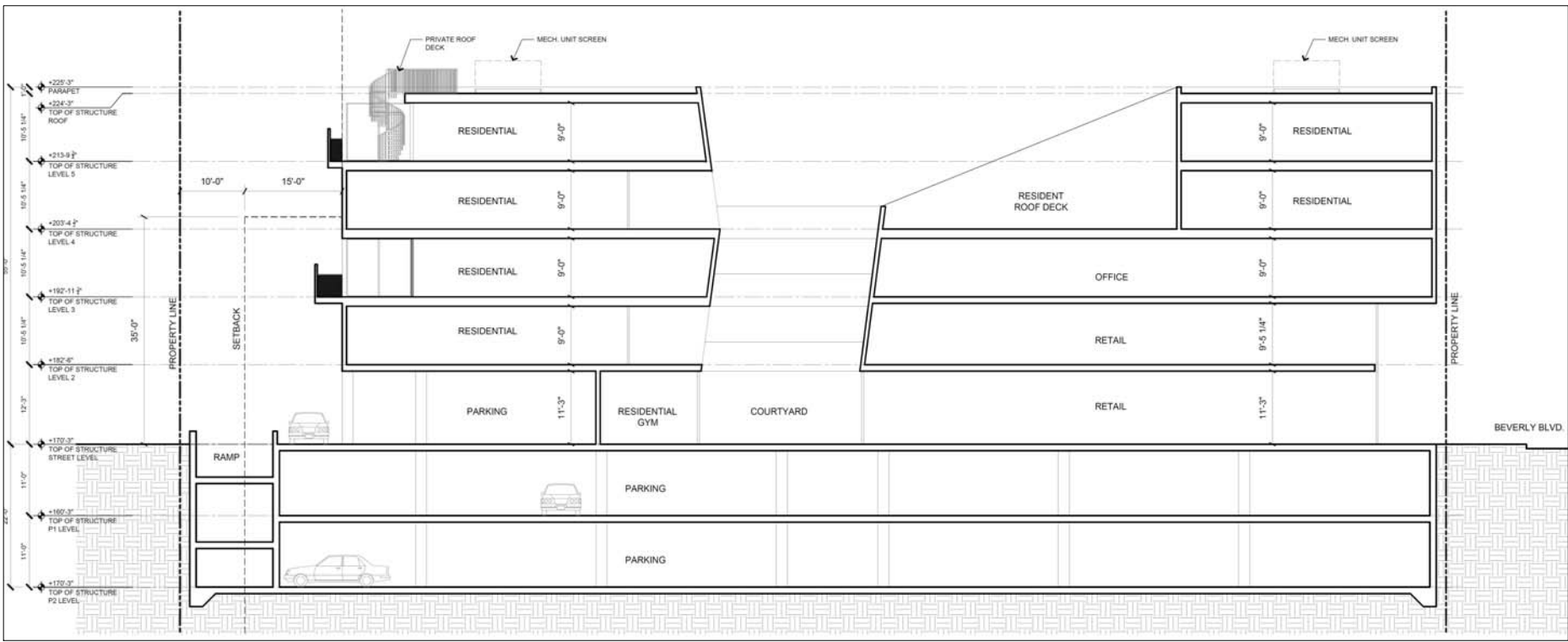
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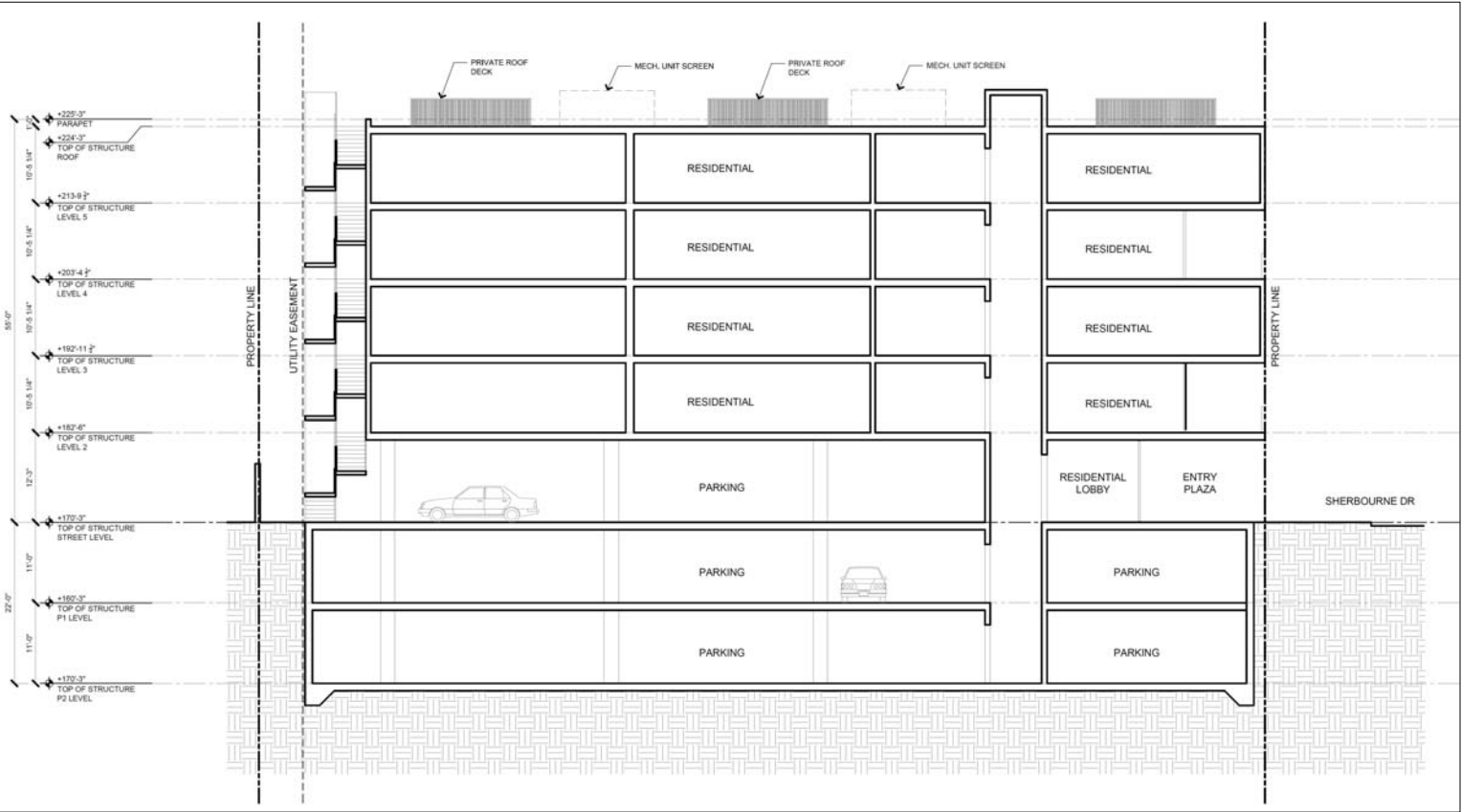
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FIG. 2A

A - A'



B - B'



NORTH INTO PAPER



NOTE: CROSS-SECTIONS ARE FOR ILLUSTRATION PURPOSES ONLY,
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CROSS SECTIONS

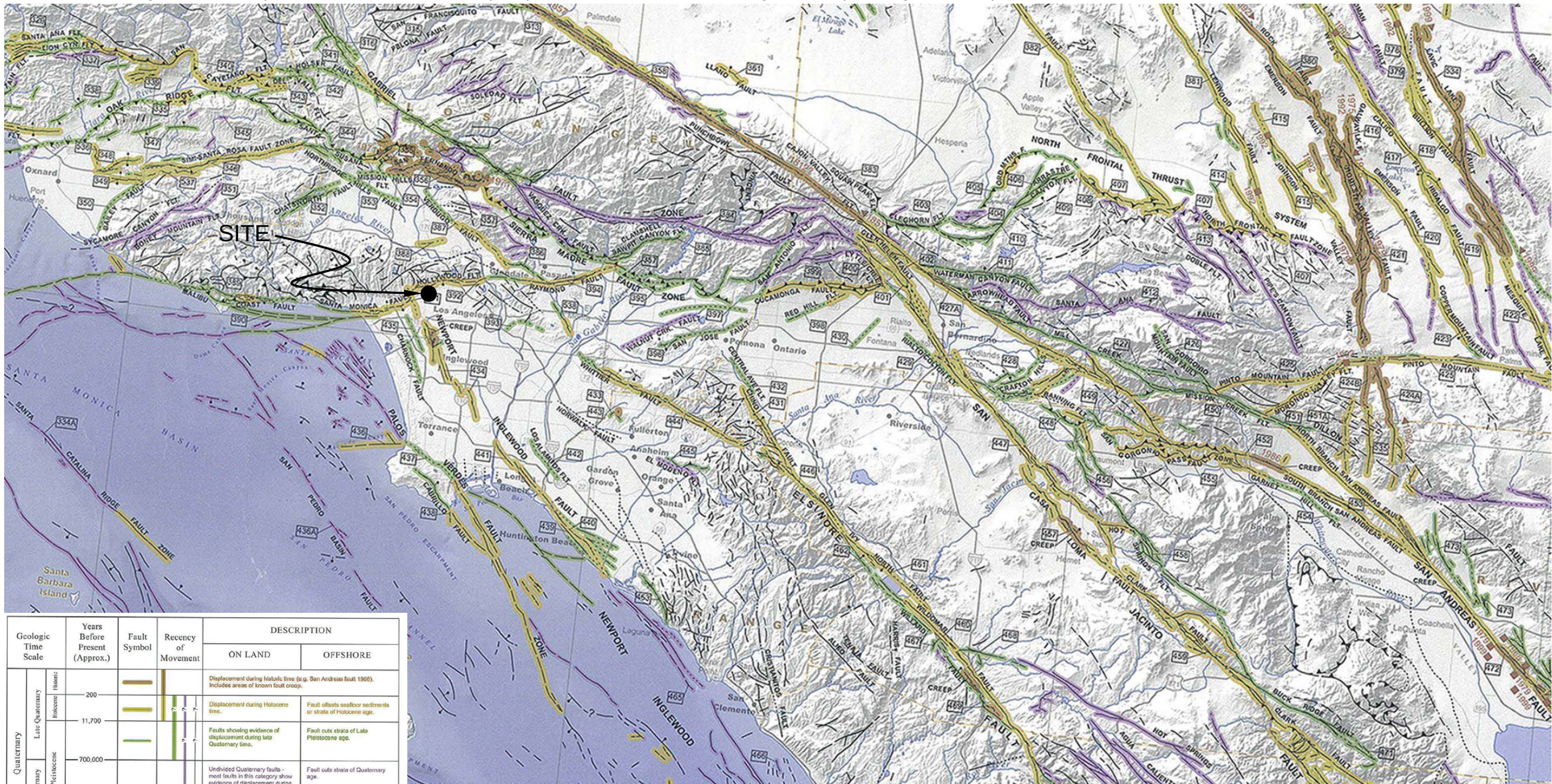
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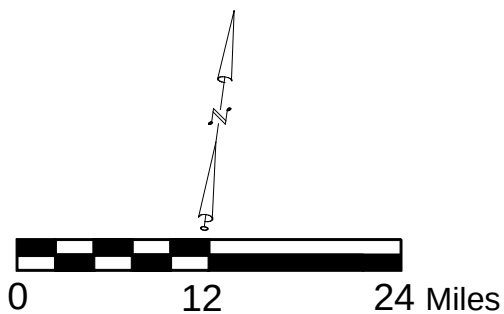
FIG. 2B

Reference: Jennings, C.W. and Bryant, W. A., 2010, Fault Activity Map of California, California Geological Survey Geologic Data Map No. 6.



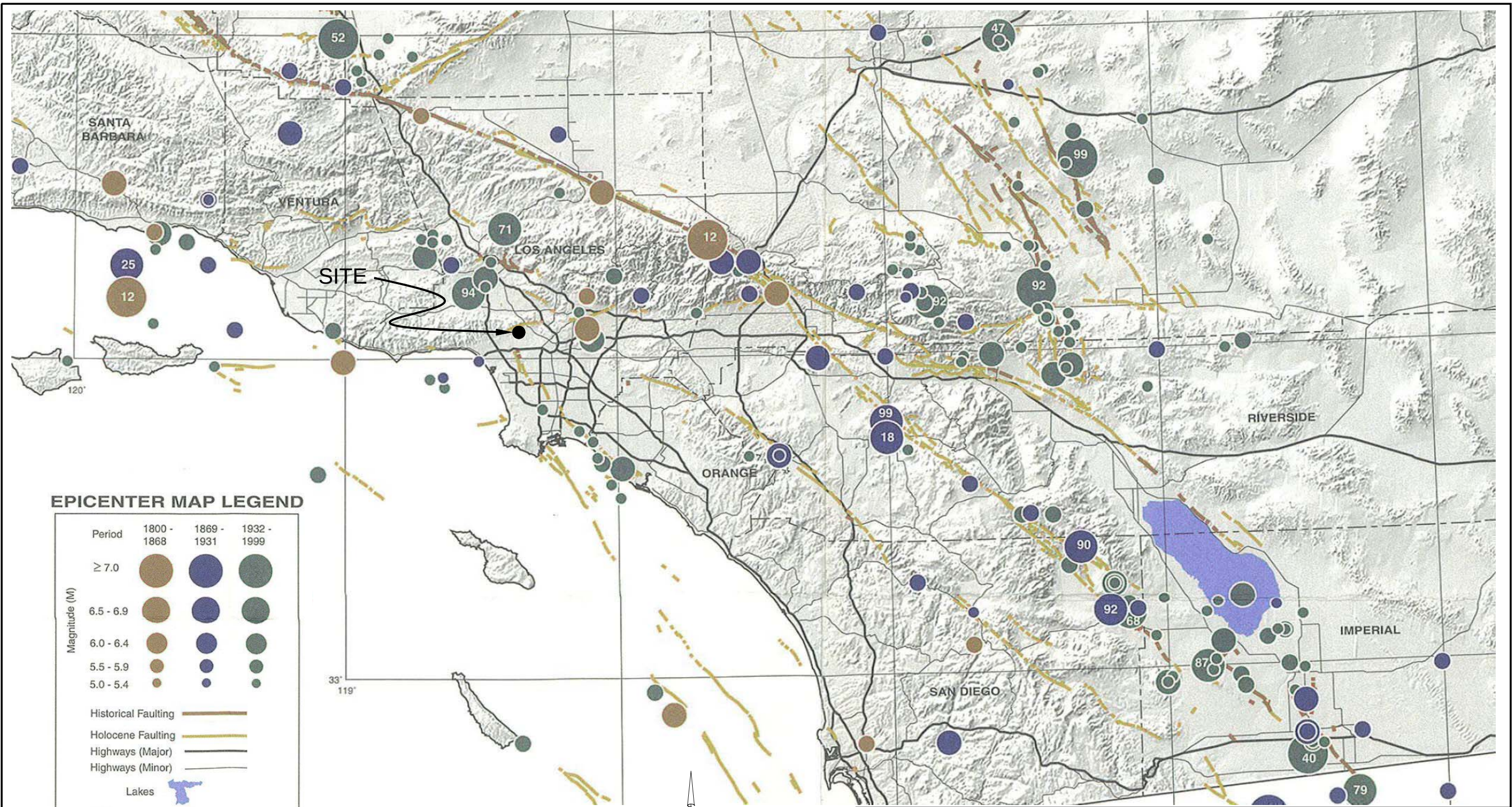
Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Reency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Holocene	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
			11,700			Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
	Early Quaternary	Pleistocene	700,000			Faults showing evidence of displacement during late Quaternary times.	Fault cuts strata of Late Pleistocene age.
			1,600,000			Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			4.5 billion (Approx.)			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.



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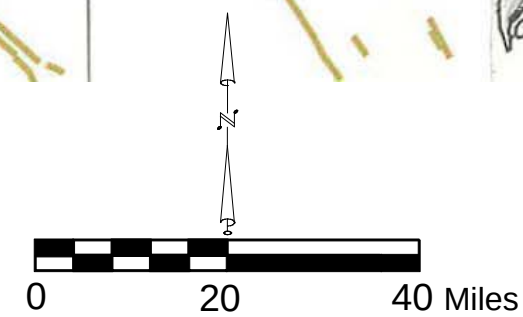
REGIONAL FAULT MAP		
321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD FMA BURLY, LLC WEST HOLLYWOOD, CALIFORNIA		
MAY, 2015	PROJECT NO. A9091-06-01	FIG. 3



EPICENTER MAP LEGEND

Period	1800 - 1868	1869 - 1931	1932 - 1999
≥ 7.0			
6.5 - 6.9			
6.0 - 6.4			
5.5 - 5.9			
5.0 - 5.4			
Historical Faulting			
Holocene Faulting			
Highways (Major)			
Highways (Minor)			
Lakes			
	Last two digits of M ≥ 6.5 earthquake year		

Reference: Topozada, T., Branum, D., Petersen, M., Hallstrom, C., Cramer, C., and Reichle, M., 2000, Epicenters and Areas Damaged by M≥5 California Earthquakes, 1800 - 1999, California Geological Survey, Map Sheet 49.



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REGIONAL SEISMICITY MAP

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WEST HOLLYWOOD, CALIFORNIA

MAY, 2015

PROJECT NO. A9091-06-01

FIG. 4



Project Name:	321-327 SHERBOURNE DR
Project No.	A9091-06-01
Boring No.	1

DESIGN EARTHQUAKE - EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.69
Peak Horiz. Acceleration PGA_M (g):	0.860
$2/3 PGA_M$ (g):	0.574
Calculated Mag.Wtg.Factor:	0.750
Historic High Groundwater:	10.0
Groundwater Depth During Exploration:	12.5

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N_{60} :	1.25
Rod Len.Corr. (CR) (0=no or 1=yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use K_{sigma} (0 or 1):	1.0

LIQ2_30.WQ1

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4														
Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	84.5	0	10.0	1.0	0	0		2.000	22.5	84.5	~	0.998	0.279	~
2.0	84.5	0	10.0	2.0	0	0		2.000	22.5	84.5	~	0.993	0.278	~
3.0	84.5	0	10.0	3.0	0	0		2.000	22.5	84.5	~	0.989	0.276	~
4.0	84.5	0	10.0	4.0	0	0		2.000	22.5	84.5	~	0.984	0.275	~
5.0	84.5	0	10.0	5.0	0	0		2.000	22.5	84.5	~	0.979	0.274	~
6.0	84.5	0	10.0	6.0	0	0		2.000	22.5	84.5	~	0.975	0.273	~
7.0	84.5	0	10.0	7.0	0	0		1.950	21.9	84.5	~	0.970	0.271	~
8.0	125.8	0	11.0	8.0	0	0		1.786	22.1	125.8	~	0.966	0.270	~
9.0	125.8	0	11.0	9.0	0	0		1.636	20.2	125.8	~	0.961	0.269	~
10.0	125.8	1	11.0	10.0	0	0		1.518	18.8	63.4	~	0.957	0.277	~
11.0	125.8	1	11.0	10.0	0	0		1.423	17.6	63.4	~	0.952	0.293	~
12.0	111.9	1	5.0	15.0	0	57		1.347	15.1	49.5	~	0.947	0.306	~
13.0	111.9	1	5.0	15.0	0	57		1.302	14.9	49.5	~	0.943	0.319	~
14.0	111.9	1	5.0	15.0	0	57		1.277	14.7	49.5	~	0.938	0.330	~
15.0	111.9	1	5.0	15.0	0	57		1.253	14.6	49.5	~	0.934	0.339	~
16.0	111.9	1	5.0	15.0	0	57		1.230	14.4	49.5	~	0.929	0.348	~
17.0	131.4	1	16.0	20.0	0	25		1.205	30.5	69.0	~	0.925	0.355	~
18.0	131.4	1	16.0	20.0	0	25		1.177	29.9	69.0	~	0.920	0.361	~
19.0	131.4	1	16.0	20.0	0	25		1.151	29.4	69.0	~	0.915	0.365	~
20.0	131.4	1	16.0	20.0	0	25		1.126	28.9	69.0	~	0.911	0.369	~
21.0	131.4	1	16.0	20.0	0	25		1.103	28.4	69.0	~	0.906	0.372	~
22.0	131.4	1	16.0	20.0	1	25	75	1.082	27.9	69.0	0.347	0.902	0.375	0.92
23.0	124.4	1	12.0	25.0	1	65	62	1.062	25.3	62.0	0.290	0.897	0.378	0.77
24.0	124.4	1	12.0	25.0	1	65	62	1.045	25.0	62.0	0.285	0.893	0.381	0.75
25.0	124.4	1	12.0	25.0	1	65	62	1.029	24.7	62.0	0.280	0.888	0.383	0.73
26.0	124.4	1	12.0	25.0	1	65	62	1.013	24.4	62.0	0.276	0.883	0.385	0.72
27.0	124.4	1	12.0	25.0	1	65	62	0.998	24.2	62.0	0.272	0.879	0.386	0.70
28.0	121.3	1	12.0	25.0	1	65	62	0.984	23.9	58.9	0.268	0.874	0.388	0.69
29.0	121.3	1	12.0	25.0	1	65	62	0.970	23.7	58.9	0.265	0.870	0.389	0.68
30.0	121.3	1	13.0	30.0	1	38	62	0.958	25.7	58.9	0.297	0.865	0.390	0.76
31.0	121.3	1	13.0	30.0	1	38	62	0.946	25.4	58.9	0.293	0.861	0.391	0.75
32.0	119.3	1	4.0	35.0	1	89	33	0.934	12.6	56.9	0.135	0.856	0.392	0.35
33.0	119.3	1	4.0	35.0	1	89	33	0.923	12.5	56.9	0.135	0.851	0.392	0.34
34.0	119.3	1	4.0	35.0	1	89	33	0.913	12.5	56.9	0.134	0.847	0.393	0.34
35.0	119.3	1	4.0	35.0	1	89	33	0.903	12.4	56.9	0.133	0.842	0.393	0.34
36.0	119.3	1	4.0	35.0	1	89	33	0.893	12.4	56.9	0.133	0.838	0.393	0.34
37.0	119.3	1	4.0	35.0	0	89		0.883	12.3	56.9	~	0.833	0.394	~
38.5	119.3	1	4.0	35.0	0	89		0.872	12.2	56.9	~	0.827	0.393	~
39.0	118.3	1	9.0	40.0	0	58		0.867	18.7	55.9	~	0.823	0.392	~
40.0	118.3	1	9.0	40.0	0	58		0.856	18.6	55.9	~	0.819	0.393	~
41.0	118.3	1	9.0	40.0	1	58	48	0.848	18.5	55.9	0.194	0.815	0.393	0.49
42.0	130.9	1	41.0	45.0	1	30	100	0.839	57.4	68.5	Inf.	0.810	0.392	Non-Liq.
43.0	130.9	1	41.0	45.0	1	30	100	0.830	56.9	68.5	Inf.	0.806	0.391	Non-Liq.
44.0	130.9	1	41.0	45.0	1	30	100	0.821	56.3	68.5	Inf.	0.801	0.390	Non-Liq.
45.0	130.9	1	41.0	45.0	1	30	100	0.812	55.7	68.5	Inf.	0.797	0.388	Non-Liq.
46.0	130.9	1	41.0	45.0	1	30	100	0.803	55.2	68.5	Inf.	0.792	0.387	Non-Liq.
47.0	130.9	1	41.0	45.0	1	30	100	0.795	54.7	68.5	Inf.	0.787	0.385	Non-Liq.
48.0	130.9	1	41.0	45.0	1	30	100	0.787	54.2	68.5	Inf.	0.783	0.384	Non-Liq.
49.0	130.9	1	41.0	45.0	1	30	100	0.779	53.7	68.5	Inf.	0.778	0.382	Non-Liq.
50.0	135.3	1	13.0	50.0	1	36	54	0.771	22.0	72.9	0.226	0.774	0.381	0.59
51.0	135.3	1	13.0	50.0	1	36	54	0.763	21.9	72.9	0.225	0.769	0.379	0.59
52.0	135.3	1	13.0	50.0	1	36	54	0.755	21.7	72.9	0.223	0.765	0.377	0.59
53.0	135.3	1	13.0	50.0	1	36	54	0.748	21.6	72.9	0.221	0.760	0.375	0.59
54.0	135.3	1	13.0	50.0	1	36	54	0.741	21.4	72.9	0.219	0.755	0.373	0.59
55.0	129.6	1	23.0	55.0	1	56	70	0.734	32.3	67.2	Inf.	0.751	0.372	Non-Liq.
56.0	129.6	1	23.0	55.0	1	56	70	0.728	32.1	67.2	Inf.	0.746	0.370	Non-Liq.
57.0	129.6	1	20.0	55.0	1	19	65	0.722	24.9	67.2	0.260	0.742	0.368	0.71
58.0	129.6	1	20.0	60.0	1	19	63	0.716	24.7	67.2	0.253	0.737	0.366	0.69
59.0	129.6	1	20.0	60.0	1	19	63	0.710	24.6	67.2	0.251	0.733	0.365	0.69
60.0	123.3	1	24.0	60.0	1	63	69	0.704	32.4	60.9	Inf.	0.728	0.363	Non-Liq.
61.0	123.3	1	24.0	60.0	1	63	69	0.699	32.2	60.9	Inf.	0.723	0.362	Non-Liq.
62.0	123.3	1	24.0	60.0	1	63	69	0.694	32.0	60.9	Inf.	0.719	0.360	Non-Liq.
63.0	123.3	1	20.0	65.0	1	63	62	0.690	27.7	60.9	0.302	0.714	0.358	0.84
64.0	123.3	1	20.0	65.0	1	63	62	0.685	27.5	60.9	0.299	0.710	0.357	0.84
65.0	123.3	1	20.0	65.0	1	63	62	0.680	27.4	60.9	0.295	0.705	0.355	0.83
66.0	118.0	1	12.0	65.0	1	0	48	0.676	12.2	55.6	0.118	0.701	0.353	0.33
67.0	118.0	1	12.0	65.0	1	0	48	0.672	12.1	55.6	0.117	0.696	0.352	0.33
68.0	118.0	1	12.0	65.0	1	0	48	0.668	12.0	55.6	0.116	0.691	0.350	0.33
69.0	118.0	1	16.0	70.0	1	0	54	0.664	15.9	55.6	0.152	0.687	0.349	0.43
70.0	118.0	1	16.0	70.0	1	0	54	0.660	15.8	55.6	0.151	0.682	0.347	0.43

Figure 5



Project Name:	321-327 SHERBOURNE DR
Project No:	A9091-06-01
Boring No:	1

LIQUEFACTION SETTLEMENT ANALYSIS DESIGN EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude: 6.69
PGAM (g): 0.860
2/3 PGAM (g): 0.57
Calculated Mag.Wtg.Factor: 0.750
Historic High Groundwater: 10.0
Groundwater @ Exploration: 12.5

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/O'₀	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e ₁₅] (%)	EQ. SETTLE. Pe (in.)
1	10	84.5	0.021	0.021		23	0.373	~	0.00	0.00
2	10	84.5	0.063	0.063		23	0.373	~	0.00	0.00
3	10	84.5	0.106	0.106		23	0.373	~	0.00	0.00
4	10	84.5	0.148	0.148		23	0.373	~	0.00	0.00
5	10	84.5	0.190	0.190		23	0.373	~	0.00	0.00
6	10	84.5	0.232	0.232		23	0.373	~	0.00	0.00
7	10	84.5	0.275	0.275		22	0.373	~	0.00	0.00
8	11	125.8	0.327	0.327		22	0.373	~	0.00	0.00
9	11	125.8	0.390	0.390		20	0.373	~	0.00	0.00
10	11	125.8	0.453	0.437		19	0.386	~	0.00	0.00
11	11	125.8	0.516	0.469		18	0.410	~	0.00	0.00
12	5	111.9	0.575	0.497		15	0.431	~	0.00	0.00
13	5	111.9	0.631	0.522		15	0.451	~	0.00	0.00
14	5	111.9	0.687	0.547		15	0.469	~	0.00	0.00
15	5	111.9	0.743	0.572		15	0.485	~	0.00	0.00
16	5	111.9	0.799	0.596		14	0.500	~	0.00	0.00
17	16	131.4	0.860	0.626		31	0.512	~	0.00	0.00
18	16	131.4	0.926	0.660		30	0.523	~	0.00	0.00
19	16	131.4	0.991	0.695		29	0.532	~	0.00	0.00
20	16	131.4	1.057	0.729		29	0.540	~	0.00	0.00
21	16	131.4	1.123	0.764		28	0.548	~	0.00	0.00
22	16	131.4	1.188	0.798	75	28	0.555	0.92	0.75	0.09
23	12	124.4	1.252	0.831	62	25	0.562	0.77	1.10	0.13
24	12	124.4	1.315	0.862	62	25	0.568	0.75	1.30	0.16
25	12	124.4	1.377	0.893	62	25	0.575	0.73	1.30	0.16
26	12	124.4	1.439	0.924	62	24	0.581	0.72	1.30	0.16
27	12	124.4	1.501	0.955	62	24	0.586	0.70	1.30	0.16
28	12	121.3	1.563	0.985	62	24	0.591	0.69	1.30	0.16
29	12	121.3	1.623	1.015	62	24	0.596	0.68	1.30	0.16
30	13	121.3	1.684	1.044	62	26	0.601	0.76	1.10	0.13
31	13	121.3	1.745	1.074	62	25	0.606	0.75	1.10	0.13
32	4	119.3	1.805	1.103	33	13	0.610	0.35	1.80	0.22
33	4	119.3	1.864	1.131	33	13	0.615	0.34	1.80	0.22
34	4	119.3	1.924	1.160	33	12	0.619	0.34	2.30	0.28
35	4	119.3	1.984	1.188	33	12	0.623	0.34	2.30	0.28
36	4	119.3	2.043	1.217	33	12	0.626	0.34	2.30	0.28
37	4	119.3	2.103	1.245		12	0.630	~	0.00	0.00
38,5	4	119.3	2.178	1.281		12	0.634	~	0.00	0.00
39	9	118.3	2.207	1.295		19	0.636	~	0.00	0.00
40	9	118.3	2.281	1.330		19	0.640	~	0.00	0.00
41	9	118.3	2.340	1.358	48	18	0.643	0.49	1.70	0.20
42	41	130.9	2.403	1.389	100	57	0.645	Non-Liq.	0.00	0.00
43	41	130.9	2.468	1.423	100	57	0.647	Non-Liq.	0.00	0.00
44	41	130.9	2.534	1.457	100	56	0.648	Non-Liq.	0.00	0.00
45	41	130.9	2.599	1.491	100	56	0.650	Non-Liq.	0.00	0.00
46	41	130.9	2.664	1.526	100	55	0.651	Non-Liq.	0.00	0.00
47	41	130.9	2.730	1.560	100	55	0.653	Non-Liq.	0.00	0.00
48	41	130.9	2.795	1.594	100	54	0.654	Non-Liq.	0.00	0.00
49	41	130.9	2.861	1.628	100	54	0.655	Non-Liq.	0.00	0.00
50	13	135.3	2.927	1.664	54	22	0.656	0.59	1.40	0.17
51	13	135.3	2.995	1.700	54	22	0.657	0.59	1.40	0.17
52	13	135.3	3.063	1.737	54	22	0.658	0.59	1.40	0.17
53	13	135.3	3.130	1.773	54	22	0.658	0.59	1.40	0.17
54	13	135.3	3.198	1.810	54	21	0.659	0.59	1.40	0.17
55	23	129.6	3.264	1.845	70	32	0.660	Non-Liq.	0.00	0.00
56	23	129.6	3.329	1.878	70	32	0.661	Non-Liq.	0.00	0.00
57	20	129.6	3.394	1.912	65	25	0.662	0.71	1.30	0.16
58	20	129.6	3.459	1.945	63	25	0.663	0.69	1.30	0.16
59	20	129.6	3.523	1.979	63	25	0.664	0.69	1.30	0.16
60	24	123.3	3.587	2.011	69	32	0.665	Non-Liq.	0.00	0.00
61	24	123.3	3.648	2.041	69	32	0.666	Non-Liq.	0.00	0.00
62	24	123.3	3.710	2.072	69	32	0.668	Non-Liq.	0.00	0.00
63	20	123.3	3.772	2.102	62	28	0.669	0.84	0.75	0.09
64	20	123.3	3.833	2.133	62	28	0.670	0.84	0.75	0.09
65	20	123.3	3.895	2.163	62	27	0.671	0.83	1.10	0.13
66	12	118	3.955	2.192	48	12	0.673	0.33	2.30	0.28
67	12	118	4.014	2.220	48	12	0.674	0.33	2.30	0.28
68	12	118	4.073	2.248	48	12	0.676	0.33	2.30	0.28
69	16	118	4.132	2.276	54	16	0.677	0.43	1.70	0.20
70	16	118	4.191	2.304	54	16	0.678	0.43	1.70	0.20

TOTAL SETTLEMENT = 5.7 INCHES

Figure 6



GEOCON

Project Name:	321-327 SHERBOURNE DR
Project No.	A9091-06-01
Boring No.	1

MAXIMUM CONSIDERED EARTHQUAKE - EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL

NCEER (1996) METHOD

By Thomas F. Blake (1994-1996)

LIQ2_30.WQ1

EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.74
Peak Horiz. Acceleration PGA_w (g):	0.860
Calculated Mag.Wtg.Factor:	0.764
Historic High Groundwater:	10.0
Groundwater Depth During Exploration:	12.5

ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N_{60} :	1.25
Rod Len.Corr. (CR) (0=no or 1=yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use K_{sigma} (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	84.5	0	10.0	1.0	0	0		2.000	22.5	84.5	~	0.998	0.426	~
2.0	84.5	0	10.0	2.0	0	0		2.000	22.5	84.5	~	0.993	0.424	~
3.0	84.5	0	10.0	3.0	0	0		2.000	22.5	84.5	~	0.989	0.422	~
4.0	84.5	0	10.0	4.0	0	0		2.000	22.5	84.5	~	0.984	0.420	~
5.0	84.5	0	10.0	5.0	0	0		2.000	22.5	84.5	~	0.979	0.419	~
6.0	84.5	0	10.0	6.0	0	0		2.000	22.5	84.5	~	0.975	0.417	~
7.0	84.5	0	10.0	7.0	0	0		1.950	21.9	84.5	~	0.970	0.415	~
8.0	125.8	0	11.0	8.0	0	0		1.786	22.1	125.8	~	0.966	0.413	~
9.0	125.8	0	11.0	9.0	0	0		1.636	20.2	125.8	~	0.961	0.411	~
10.0	125.8	1	11.0	10.0	0	0		1.518	18.8	63.4	~	0.957	0.423	~
11.0	125.8	1	11.0	10.0	0	0		1.423	17.6	63.4	~	0.952	0.447	~
12.0	111.9	1	5.0	15.0	0	57		1.347	15.1	49.5	~	0.947	0.468	~
13.0	111.9	1	5.0	15.0	0	57		1.302	14.9	49.5	~	0.943	0.487	~
14.0	111.9	1	5.0	15.0	0	57		1.277	14.7	49.5	~	0.938	0.504	~
15.0	111.9	1	5.0	15.0	0	57		1.253	14.6	49.5	~	0.934	0.519	~
16.0	111.9	1	5.0	15.0	0	57		1.230	14.4	49.5	~	0.929	0.532	~
17.0	131.4	1	16.0	20.0	0	25		1.205	30.5	69.0	~	0.925	0.543	~
18.0	131.4	1	16.0	20.0	0	25		1.177	29.9	69.0	~	0.920	0.551	~
19.0	131.4	1	16.0	20.0	0	25		1.151	29.4	69.0	~	0.915	0.558	~
20.0	131.4	1	16.0	20.0	0	25		1.126	28.9	69.0	~	0.911	0.564	~
21.0	131.4	1	16.0	20.0	0	25		1.103	28.4	69.0	~	0.906	0.569	~
22.0	131.4	1	16.0	20.0	1	25	75	1.082	27.9	69.0	0.347	0.902	0.574	0.60
23.0	124.4	1	12.0	25.0	1	65	62	1.062	25.3	62.0	0.290	0.897	0.578	0.50
24.0	124.4	1	12.0	25.0	1	65	62	1.045	25.0	62.0	0.285	0.893	0.582	0.49
25.0	124.4	1	12.0	25.0	1	65	62	1.029	24.7	62.0	0.280	0.888	0.585	0.48
26.0	124.4	1	12.0	25.0	1	65	62	1.013	24.4	62.0	0.276	0.883	0.588	0.47
27.0	124.4	1	12.0	25.0	1	65	62	0.998	24.2	62.0	0.272	0.879	0.590	0.46
28.0	121.3	1	12.0	25.0	1	65	62	0.984	23.9	58.9	0.268	0.874	0.592	0.45
29.0	121.3	1	12.0	25.0	1	65	62	0.970	23.7	58.9	0.265	0.870	0.594	0.45
30.0	121.3	1	13.0	30.0	1	38	62	0.958	25.7	58.9	0.297	0.865	0.596	0.50
31.0	121.3	1	13.0	30.0	1	38	62	0.946	25.4	58.9	0.293	0.861	0.597	0.49
32.0	119.3	1	4.0	35.0	1	89	33	0.934	12.6	56.9	0.135	0.856	0.599	0.23
33.0	119.3	1	4.0	35.0	1	89	33	0.923	12.5	56.9	0.135	0.851	0.600	0.22
34.0	119.3	1	4.0	35.0	1	89	33	0.913	12.5	56.9	0.134	0.847	0.600	0.22
35.0	119.3	1	4.0	35.0	1	89	33	0.903	12.4	56.9	0.133	0.842	0.601	0.22
36.0	119.3	1	4.0	35.0	1	89	33	0.893	12.4	56.9	0.133	0.838	0.601	0.22
37.0	119.3	1	4.0	35.0	0	89		0.883	12.3	56.9	~	0.833	0.601	~
38.5	119.3	1	4.0	35.0	0	89		0.872	12.2	56.9	~	0.827	0.601	~
39.0	118.3	1	9.0	40.0	0	58		0.867	18.7	55.9	~	0.823	0.599	~
40.0	118.3	1	9.0	40.0	0	58		0.856	18.6	55.9	~	0.819	0.601	~
41.0	118.3	1	9.0	40.0	1	58	48	0.848	18.5	55.9	0.194	0.815	0.600	0.32
42.0	130.9	1	41.0	45.0	1	30	100	0.839	57.4	68.5	Infin.	0.810	0.599	Non-Liq.
43.0	130.9	1	41.0	45.0	1	30	100	0.830	56.9	68.5	Infin.	0.806	0.597	Non-Liq.
44.0	130.9	1	41.0	45.0	1	30	100	0.821	56.3	68.5	Infin.	0.801	0.595	Non-Liq.
45.0	130.9	1	41.0	45.0	1	30	100	0.812	55.7	68.5	Infin.	0.797	0.593	Non-Liq.
46.0	130.9	1	41.0	45.0	1	30	100	0.803	55.2	68.5	Infin.	0.792	0.591	Non-Liq.
47.0	130.9	1	41.0	45.0	1	30	100	0.795	54.7	68.5	Infin.	0.787	0.589	Non-Liq.
48.0	130.9	1	41.0	45.0	1	30	100	0.787	54.2	68.5	Infin.	0.783	0.587	Non-Liq.
49.0	130.9	1	41.0	45.0	1	30	100	0.779	53.7	68.5	Infin.	0.778	0.584	Non-Liq.
50.0	135.3	1	13.0	50.0	1	36	54	0.771	22.0	72.9	0.226	0.774	0.582	0.39
51.0	135.3	1	13.0	50.0	1	36	54	0.763	21.9	72.9	0.225	0.769	0.579	0.39
52.0	135.3	1	13.0	50.0	1	36	54	0.755	21.7	72.9	0.223	0.765	0.576	0.39
53.0	135.3	1	13.0	50.0	1	36	54	0.748	21.6	72.9	0.221	0.760	0.573	0.39
54.0	135.3	1	13.0	50.0	1	36	54	0.741	21.4	72.9	0.219	0.755	0.570	0.38
55.0	129.6	1	23.0	55.0	1	56	70	0.734	32.3	67.2	Infin.	0.751	0.568	Non-Liq.
56.0	129.6	1	23.0	55.0	1	56	70	0.728	32.1	67.2	Infin.	0.746	0.565	Non-Liq.
57.0	129.6	1	20.0	55.0	1	19	65	0.722	24.9	67.2	0.260	0.742	0.563	0.46
58.0	129.6	1	20.0	60.0	1	19	63	0.716	24.7	67.2	0.253	0.737	0.560	0.45
59.0	129.6	1	20.0	60.0	1	19	63	0.710	24.6	67.2	0.251	0.733	0.557	0.45
60.0	123.3	1	24.0	60.0	1	63	69	0.704	32.4	60.9	Infin.	0.728	0.555	Non-Liq.
61.0	123.3	1	24.0	60.0	1	63	69	0.699	32.2	60.9	Infin.	0.723	0.552	Non-Liq.
62.0	123.3	1	24.0	60.0	1	63	69	0.694	32.0	60.9	Infin.	0.719	0.550	Non-Liq.
63.0	123.3	1	20.0	65.0	1	63	62	0.690	27.7	60.9	0.302	0.714	0.548	0.55
64.0	123.3	1	20.0	65.0	1	63	62	0.685	27.5	60.9	0.299	0.710	0.545	0.55
65.0	123.3	1	20.0	65.0	1	63	62	0.680	27.4	60.9	0.295	0.705	0.542	0.54
66.0	118.0	1	12.0	65.0	1	0	48	0.676	12.2	55.6	0.118	0.701	0.540	0.22
67.0	118.0	1	12.0	65.0	1	0	48	0.672	12.1	55.6	0.117	0.696	0.538	0.22
68.0	118.0	1	12.0	65.0	1	0	48	0.668	12.0	55.6	0.116	0.691	0.535	0.22
69.0	118.0	1	16.0	70.0	1	0	54	0.664	15.9	55.6	0.152	0.687	0.533	0.28
70.0	118.0	1	16.0	70.0	1	0	54	0.660	15.8	55.6	0.151	0.682	0.530	0.28

Figure 7



Project Name:	321-327 SHERBOURNE DR
Project No:	A9091-06-01
Boring No:	1

LIQUEFACTION SETTLEMENT ANALYSIS MAXIMUM CONSIDERED EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude: 6.74
PGA _M (g): 0.860
Calculated Mag.Wtg.Factor: 0.764
Historic High Groundwater: 10.0
Groundwater @ Exploration: 12.5

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/O _v	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [ε ₁₅] (%)	EQ. SETTLE. Pe (in.)
1	10	84.5	0.021	0.021		23	0.559	~	0.00	0.00
2	10	84.5	0.063	0.063		23	0.559	~	0.00	0.00
3	10	84.5	0.106	0.106		23	0.559	~	0.00	0.00
4	10	84.5	0.148	0.148		23	0.559	~	0.00	0.00
5	10	84.5	0.190	0.190		23	0.559	~	0.00	0.00
6	10	84.5	0.232	0.232		23	0.559	~	0.00	0.00
7	10	84.5	0.275	0.275		22	0.559	~	0.00	0.00
8	11	125.8	0.327	0.327		22	0.559	~	0.00	0.00
9	11	125.8	0.390	0.390		20	0.559	~	0.00	0.00
10	11	125.8	0.453	0.437		19	0.579	~	0.00	0.00
11	11	125.8	0.516	0.469		18	0.615	~	0.00	0.00
12	5	111.9	0.575	0.497		15	0.647	~	0.00	0.00
13	5	111.9	0.631	0.522		15	0.676	~	0.00	0.00
14	5	111.9	0.687	0.547		15	0.703	~	0.00	0.00
15	5	111.9	0.743	0.572		15	0.727	~	0.00	0.00
16	5	111.9	0.799	0.596		14	0.749	~	0.00	0.00
17	16	131.4	0.860	0.626		31	0.768	~	0.00	0.00
18	16	131.4	0.926	0.660		30	0.783	~	0.00	0.00
19	16	131.4	0.991	0.695		29	0.797	~	0.00	0.00
20	16	131.4	1.057	0.729		29	0.810	~	0.00	0.00
21	16	131.4	1.123	0.764		28	0.822	~	0.00	0.00
22	16	131.4	1.188	0.798	75	28	0.832	0.60	0.75	0.09
23	12	124.4	1.252	0.831	62	25	0.842	0.50	1.10	0.13
24	12	124.4	1.315	0.862	62	25	0.852	0.49	1.30	0.16
25	12	124.4	1.377	0.893	62	25	0.862	0.48	1.30	0.16
26	12	124.4	1.439	0.924	62	24	0.870	0.47	1.30	0.16
27	12	124.4	1.501	0.955	62	24	0.879	0.46	1.30	0.16
28	12	121.3	1.563	0.985	62	24	0.886	0.45	1.30	0.16
29	12	121.3	1.623	1.015	62	24	0.894	0.45	1.30	0.16
30	13	121.3	1.684	1.044	62	26	0.901	0.50	1.10	0.13
31	13	121.3	1.745	1.074	62	25	0.908	0.49	1.10	0.13
32	4	119.3	1.805	1.103	33	13	0.915	0.23	1.80	0.22
33	4	119.3	1.864	1.131	33	13	0.921	0.22	1.80	0.22
34	4	119.3	1.924	1.160	33	12	0.927	0.22	2.30	0.28
35	4	119.3	1.984	1.188	33	12	0.933	0.22	2.30	0.28
36	4	119.3	2.043	1.217	33	12	0.939	0.22	2.30	0.28
37	4	119.3	2.103	1.245		12	0.944	~	0.00	0.00
38.5	4	119.3	2.178	1.281		12	0.951	~	0.00	0.00
39	9	118.3	2.207	1.295		19	0.953	~	0.00	0.00
40	9	118.3	2.281	1.330		19	0.959	~	0.00	0.00
41	9	118.3	2.340	1.358	48	18	0.964	0.32	1.70	0.20
42	41	130.9	2.403	1.389	100	57	0.967	Non-Liq.	0.00	0.00
43	41	130.9	2.468	1.423	100	57	0.970	Non-Liq.	0.00	0.00
44	41	130.9	2.534	1.457	100	56	0.972	Non-Liq.	0.00	0.00
45	41	130.9	2.599	1.491	100	56	0.974	Non-Liq.	0.00	0.00
46	41	130.9	2.664	1.526	100	55	0.976	Non-Liq.	0.00	0.00
47	41	130.9	2.730	1.560	100	55	0.978	Non-Liq.	0.00	0.00
48	41	130.9	2.795	1.594	100	54	0.980	Non-Liq.	0.00	0.00
49	41	130.9	2.861	1.628	100	54	0.982	Non-Liq.	0.00	0.00
50	13	135.3	2.927	1.664	54	22	0.984	0.39	1.40	0.17
51	13	135.3	2.995	1.700	54	22	0.985	0.39	1.40	0.17
52	13	135.3	3.063	1.737	54	22	0.986	0.39	1.40	0.17
53	13	135.3	3.130	1.773	54	22	0.987	0.39	1.40	0.17
54	13	135.3	3.198	1.810	54	21	0.988	0.38	1.40	0.17
55	23	129.6	3.264	1.845	70	32	0.989	Non-Liq.	0.00	0.00
56	23	129.6	3.329	1.878	70	32	0.991	Non-Liq.	0.00	0.00
57	20	129.6	3.394	1.912	65	25	0.992	0.46	1.30	0.16
58	20	129.6	3.459	1.945	63	25	0.994	0.45	1.30	0.16
59	20	129.6	3.523	1.979	63	25	0.995	0.45	1.30	0.16
60	24	123.3	3.587	2.011	69	32	0.997	Non-Liq.	0.00	0.00
61	24	123.3	3.648	2.041	69	32	0.999	Non-Liq.	0.00	0.00
62	24	123.3	3.710	2.072	69	32	1.001	Non-Liq.	0.00	0.00
63	20	123.3	3.772	2.102	62	28	1.003	0.55	0.75	0.09
64	20	123.3	3.833	2.133	62	28	1.005	0.55	0.75	0.09
65	20	123.3	3.895	2.163	62	27	1.006	0.54	1.10	0.13
66	12	118	3.955	2.192	48	12	1.008	0.22	2.30	0.28
67	12	118	4.014	2.220	48	12	1.011	0.22	2.30	0.28
68	12	118	4.073	2.248	48	12	1.013	0.22	2.30	0.28
69	16	118	4.132	2.276	54	16	1.015	0.28	1.70	0.20
70	16	118	4.191	2.304	54	16	1.017	0.28	1.70	0.20

TOTAL SETTLEMENT = 5.7 INCHES

Figure 8



Project Name: 321-327 SHERBOURNE DR
Project No: A9091-06-01
Boring No: 1

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9 EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS

DE EARTHQUAKE INFORMATION:

Earthquake Magnitude	6.69
Peak Horiz. Acceleration (g)	0.860

Fig 4.1 Fig 4.2

Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tau]	Field SPT [N]	Correction Factor [C _{er}]	Relative Density [D _r] (%)	Correction Factor [C _n]	Corrected [N] ₁₆₀	rd Factor	Maximum Shear Mod. [G _{max}] (tsf)	[y _{eff}]/[C _{eff}] [G _{max}]	y _{eff} Shear Strain	[y _{eff}]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [N _c]	Corrected Vol. Strains [E _c]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	84.5	0.02	0.01	0.012	10	1.25	76.9	2.0	22.5	1.0	150.131	7.79E-05	1.40E-04	0.014	1.22E-02	8.5617	9.44E-03	0.00
2.0	1.0	1.5	84.5	0.06	0.04	0.035	10	1.25	75.4	2.0	22.5	1.0	260.035	1.32E-04	1.90E-04	0.019	1.65E-02	8.5617	1.28E-02	0.00
3.0	1.0	2.5	84.5	0.11	0.07	0.059	10	1.25	73.9	2.0	22.5	1.0	335.703	1.67E-04	1.90E-04	0.019	1.65E-02	8.5617	1.28E-02	0.00
4.0	1.0	3.5	84.5	0.15	0.10	0.083	10	1.25	72.5	2.0	22.5	1.0	397.210	1.94E-04	1.90E-04	0.019	1.65E-02	8.5617	1.28E-02	0.00
5.0	1.0	4.5	84.5	0.19	0.13	0.106	10	1.25	71.2	2.0	22.5	1.0	450.393	2.16E-04	1.60E-04	0.016	1.39E-02	8.5617	1.08E-02	0.00
6.0	1.0	5.5	84.5	0.23	0.16	0.130	10	1.25	70.0	2.0	22.5	1.0	497.929	2.34E-04	1.60E-04	0.016	1.39E-02	8.5617	1.08E-02	0.00
7.0	1.0	6.5	84.5	0.27	0.18	0.153	10	1.25	68.8	1.9	21.9	1.0	536.734	2.52E-04	1.60E-04	0.016	1.43E-02	8.5617	1.11E-02	0.00
8.0	1.0	7.5	125.8	0.47	0.32	0.262	11	1.25	70.8	1.8	22.1	1.0	705.284	3.24E-04	1.40E-04	0.014	1.24E-02	8.5617	9.65E-03	0.00
9.0	1.0	8.5	125.8	0.53	0.36	0.297	11	1.25	69.1	1.6	20.2	1.0	729.148	3.48E-04	1.40E-04	0.014	1.38E-02	8.5617	1.07E-02	0.00
10.0	1.0	9.5	125.8	0.60	0.40	0.331	11	1.25	68.0	1.5	18.8	1.0	751.878	3.71E-04	1.40E-04	0.014	1.51E-02	8.5617	1.17E-02	0.00
11.0	1.0	10.5	125.8	0.66	0.44	0.365	11	1.25	68.0	1.4	17.6	1.0	773.516	3.91E-04	1.40E-04	0.014	1.63E-02	8.5617	1.27E-02	0.00
12.0	1.0	11.5	111.9	0.64	0.43	0.355	5	1.25	43.8	1.3	15.1	0.9	726.191	3.98E-04	1.40E-04	0.014	1.95E-02	8.5617	1.52E-02	0.00
13.0	1.0	12.5	111.9	0.70	0.47	0.385	5	1.25	43.8	1.3	14.9	0.9	752.555	4.10E-04	1.40E-04	0.014	2.00E-02	8.5617	1.55E-02	0.00
14.0	1.0	13.5	111.9	0.76	0.51	0.415	5	1.25	43.8	1.3	14.7	0.9	779.375	4.21E-04	1.40E-04	0.014	2.02E-02	8.5617	1.57E-02	0.00
15.0	1.0	14.5	111.9	0.81	0.54	0.444	5	1.25	43.8	1.3	14.6	0.9	805.064	4.30E-04	1.40E-04	0.014	2.05E-02	8.5617	1.59E-02	0.00
16.0	1.0	15.5	111.9	0.87	0.58	0.473	5	1.25	43.8	1.2	14.4	0.9	829.743	4.38E-04	1.40E-04	0.014	2.07E-02	8.5617	1.61E-02	0.00
17.0	1.0	16.5	131.4	1.08	0.73	0.590	16	1.25	74.8	1.2	30.5	0.9	1190.753	7.75E-04	1.40E-04	0.014	8.42E-03	8.5617	6.55E-03	0.00
18.0	1.0	17.5	131.4	1.15	0.77	0.624	16	1.25	74.8	1.2	29.9	0.9	1218.237	8.82E-04	1.40E-04	0.014	8.63E-03	8.5617	6.70E-03	0.00
19.0	1.0	18.5	131.4	1.22	0.81	0.657	16	1.25	74.8	1.2	29.4	0.9	1244.715	3.89E-04	1.40E-04	0.014	8.82E-03	8.5617	6.86E-03	0.00
20.0	1.0	19.5	131.4	1.28	0.86	0.690	16	1.25	74.8	1.1	28.9	0.9	1270.278	3.95E-04	1.40E-04	0.014	9.02E-03	8.5617	7.01E-03	0.00
21.0	1.0	20.5	131.4	1.35	0.90	0.723	16	1.25	74.8	1.1	28.4	0.9	1295.004	4.00E-04	1.40E-04	0.014	9.20E-03	8.5617	7.15E-03	0.00
22.0	1.0	21.5	131.4	1.41	0.95	0.755	16	1.25	74.8	1.1	27.9	0.9	1318.961	4.06E-04	1.40E-04	0.014	9.39E-03	8.5617	7.29E-03	0.00
23.0	1.0	22.5	124.4	1.40	0.94	0.745	12	1.25	61.9	1.1	25.3	0.9	1270.187	4.10E-04	1.40E-04	0.014	1.06E-02	8.5617	8.22E-03	0.00
24.0	1.0	23.5	124.4	1.46	0.98	0.774	12	1.25	61.9	1.0	25.0	0.9	1292.971	4.14E-04	1.40E-04	0.014	1.07E-02	8.5617	8.33E-03	0.00
25.0	1.0	24.5	124.4	1.52	1.02	0.804	12	1.25	61.9	1.0	24.7	0.9	1315.161	4.18E-04	1.20E-04	0.012	9.32E-03	8.5617	7.24E-03	0.00
26.0	1.0	25.5	124.4	1.59	1.06	0.832	12	1.25	61.9	1.0	24.4	0.9	1336.797	4.21E-04	1.20E-04	0.012	9.45E-03	8.5617	7.34E-03	0.00
27.0	1.0	26.5	124.4	1.65	1.10	0.861	12	1.25	61.9	1.0	24.2	0.9	1357.915	4.24E-04	1.20E-04	0.012	9.57E-03	8.5617	7.43E-03	0.00
28.0	1.0	27.5	121.3	1.67	1.12	0.867	12	1.25	61.9	1.0	23.9	0.9	1361.378	4.21E-04	1.20E-04	0.012	9.68E-03	8.5617	7.52E-03	0.00
29.0	1.0	28.5	121.3	1.73	1.16	0.894	12	1.25	61.9	1.0	23.7	0.9	1381.526	4.24E-04	1.20E-04	0.012	9.79E-03	8.5617	7.61E-03	0.00
30.0	1.0	29.5	121.3	1.79	1.20	0.920	13	1.25	62.0	1.0	25.7	0.9	1443.858	4.13E-04	1.20E-04	0.012	8.89E-03	8.5617	6.91E-03	0.00
31.0	1.0	30.5	121.3	1.85	1.24	0.946	13	1.25	62.0	0.9	25.4	0.9	1463.594	4.15E-04	1.20E-04	0.012	8.99E-03	8.5617	6.99E-03	0.00
32.0	1.0	31.5	119.3	1.88	1.26	0.956	4	1.25	33.2	0.9	12.6	0.9	1167.221	5.20E-04	1.20E-04	0.012	2.09E-02	8.5617	1.62E-02	0.00
33.0	1.0	32.5	119.3	1.94	1.30	0.980	4	1.25	33.2	0.9	12.5	0.9	1183.547	5.22E-04	1.20E-04	0.012	2.10E-02	8.5617	1.63E-02	0.00
34.0	1.0	33.5	119.3	2.00	1.34	1.004	4	1.25	33.2	0.9	12.5	0.8	1199.594	5.22E-04	1.20E-04	0.012	2.11E-02	8.5617	1.64E-02	0.00
35.0	1.0	34.5	119.3	2.06	1.38	1.028	4	1.25	33.2	0.9	12.4	0.8	1215.376	5.23E-04	1.20E-04	0.012	2.13E-02	8.5617	1.65E-02	0.00
36.0	1.0	35.5	119.3	2.12	1.42	1.051	4	1.25	33.2	0.9	12.4	0.8	1230.904	5.24E-04	1.20E-04	0.012	2.14E-02	8.5617	1.66E-02	0.00
37.0	1.0	36.5	119.3	2.18	1.46	1.074	4	1.25	33.2	0.9	12.3	0.8	1246.191	5.24E-04	1.20E-04	0.012	2.15E-02	8.5617	1.67E-02	0.00
38.5	1.5	37.8	119.3	2.25	1.51	1.102	4	1.25	33.2	0.9	12.2	0.8	1264.975	5.24E-04	1.20E-04	0.012	2.17E-02	8.5617	1.68E-02	0.00
39.0	0.5	38.8	118.3	2.29	1.54	1.114	9	1.25	48.3	0.9	18.7	0.8	1470.486	4.53E-04	1.20E-04	0.012	1.30E-02	8.5617	1.01E-02	0.00
40.0	1.0	39.5	118.3	2.34	1.57	1.130	9	1.25	48.3	0.9	18.6	0.8	1480.813	4.53E-04	1.20E-04	0.012	1.31E-02	8.5617	1.02E-02	0.00
41.0	1.0	40.5	118.3	2.40	1.61	1.150	9	1.25	48.3	0.8	18.5	0.8	1496.422	4.53E-04	1.20E-04	0.012	1.32E-02	8.5617	1.03E-02	0.00
42.0	1.0	41.5	130.9	2.72	1.82	1.295	41	1.25	99.7	0.8	57.4	0.8	2326.737	3.26E-04	1.20E-04	0.012	3.38E-03	8.5617	2.63E-03	0.00
43.0	1.0	42.5	130.9	2.78	1.86	1.317	41	1.25	99.7	0.8	56.9	0.8	2346.567	3.26E-04	1.20E-04	0.012	3.42E-03	8.5617	2.66E-03	0.00
44.0	1.0	43.5	130.9	2.85	1.91	1.338	41	1.25	99.7	0.8	56.3	0.8	2366.101	3.27E-04	1.20E-04	0.012	3.47E-03	8.5617	2.69E-03	0.00
45.0	1.0	44.5	130.9	2.91	1.95	1.359	41	1.25	99.7	0.8	55.7	0.8	2385.349	3.27E-04	1.20E-04	0.012	3.51E-03	8.5617	2.73E-03	0.00
46.0	1.0	45.5	130.9	2.98	2.00	1.379	41	1.25	99.7	0.8	55.2	0.8	2404.324	3.27E-04	1.20E-04	0.012	3.55E-03	8.5617	2.76E-03	0.00
47.0	1.0	46.5	130.9	3.04	2.04	1.399	41	1.25	99.7	0.8	54.7	0.8	2423.034	3.27E-04	0.00E+00	0.000	0.00E+00	8.5617	0.00E+00	0.00
48.0	1.0	47.5	130.9	3.11	2.08	1.418	41	1.25	99.7	0.8	54.2	0.8	2441.489	3.27E-04	0.00E+00	0.000	0.00E+00	8.5617	0.00E+00	0.00
49.0	1.0	48.5	130.9	3.17	2.13	1.437	41	1.25	99.7	0.8	53.7	0.8	2459.698	3.27E-04	0.00E+00	0.000	0.00E+00	8.5617	0.00E+00	0.00



Project Name: 321-327 SHERBOURNE DR
Project No: A9091-06-01
Boring No: 1

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9 EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS

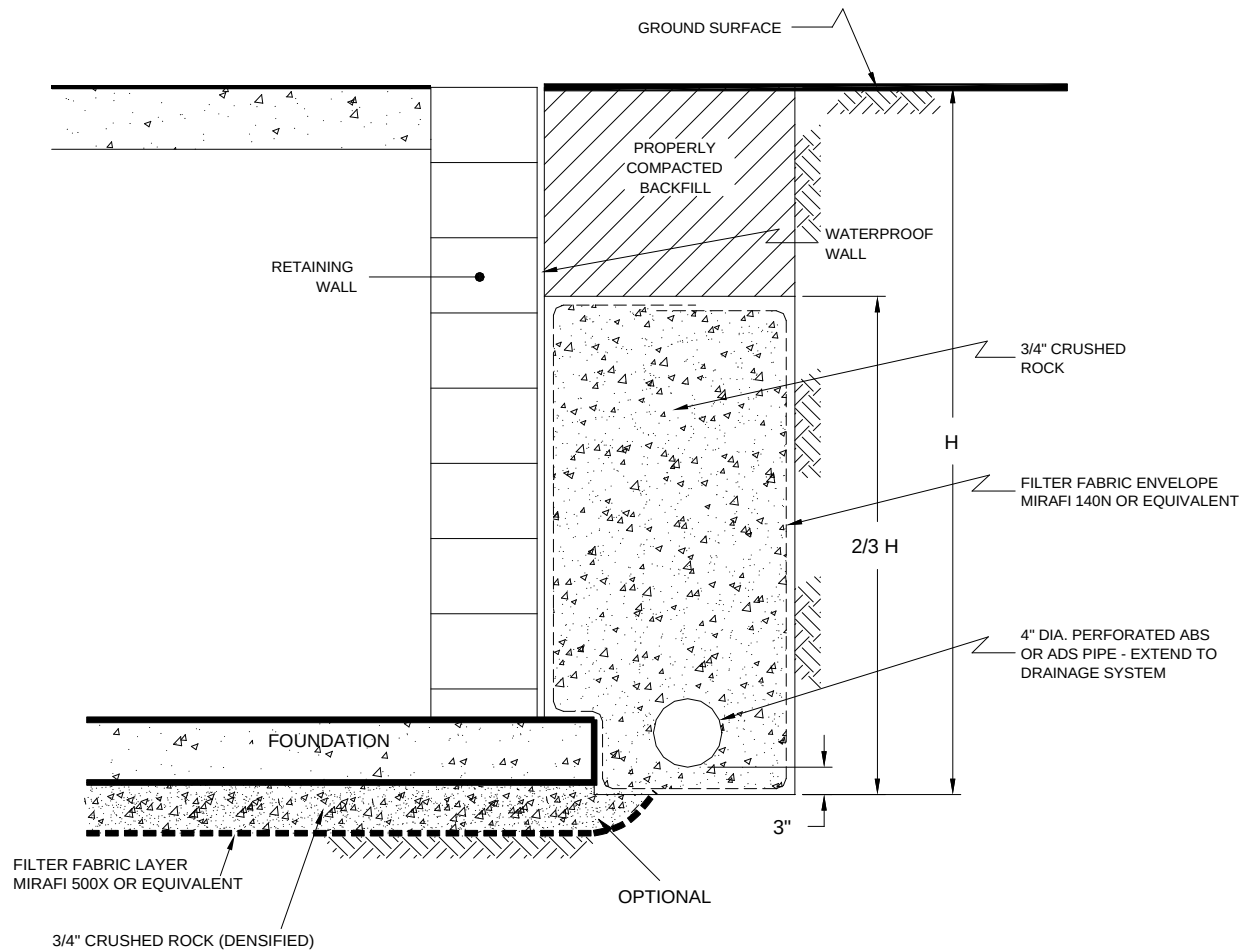
MCE EARTHQUAKE INFORMATION:

Earthquake Magnitude	6.74
Peak Horiz. Acceleration (g)	0.860

Fig 4.1 Fig 4.2

Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tau]	Field SPT [N]	Correction Factor [C _{er}]	Relative Density [D _r] (%)	Correction Factor [C _n]	Corrected [N] ₁₆₀	rd Factor	Maximum Shear Mod. [G _{max}] (tsf)	[y _{eff}]/[C _{eff}] [G _{max}]	y _{eff} Shear Strain	[y _{eff}]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [N _c]	Corrected Vol. Strains [E _c]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	84.5	0.02	0.01	0.012	10	1.25	76.9	2.0	22.5	1.0	150.131	7.79E-05	1.40E-04	0.014	1.22E-02	8.9108	9.62E-03	0.00
2.0	1.0	1.5	84.5	0.06	0.04	0.035	10	1.25	75.4	2.0	22.5	1.0	260.035	1.32E-04	1.90E-04	0.019	1.65E-02	8.9108	1.30E-02	0.00
3.0	1.0	2.5	84.5	0.11	0.07	0.059	10	1.25	73.9	2.0	22.5	1.0	335.703	1.67E-04	1.90E-04	0.019	1.65E-02	8.9108	1.30E-02	0.00
4.0	1.0	3.5	84.5	0.15	0.10	0.083	10	1.25	72.5	2.0	22.5	1.0	397.210	1.94E-04	1.90E-04	0.019	1.65E-02	8.9108	1.30E-02	0.00
5.0	1.0	4.5	84.5	0.19	0.13	0.106	10	1.25	71.2	2.0	22.5	1.0	450.393	2.16E-04	1.60E-04	0.016	1.39E-02	8.9108	1.10E-02	0.00
6.0	1.0	5.5	84.5	0.23	0.16	0.130	10	1.25	70.0	2.0	22.5	1.0	497.929	2.34E-04	1.60E-04	0.016	1.39E-02	8.9108	1.10E-02	0.00
7.0	1.0	6.5	84.5	0.27	0.18	0.153	10	1.25	68.8	1.9	21.9	1.0	536.734	2.52E-04	1.60E-04	0.016	1.43E-02	8.9108	1.13E-02	0.00
8.0	1.0	7.5	125.8	0.33	0.22	0.182	11	1.25	70.8	1.8	22.1	1.0	587.374	2.69E-04	1.40E-04	0.014	1.24E-02	8.9108	9.82E-03	0.00
9.0	1.0	8.5	125.8	0.39	0.26	0.217	11	1.25	69.1	1.6	20.2	1.0	622.829	2.97E-04	1.40E-04	0.014	1.38E-02	8.9108	1.09E-02	0.00
10.0	1.0	9.5	125.8	0.45	0.30	0.251	11	1.25	68.0	1.5	18.8	1.0	654.650	3.23E-04	1.40E-04	0.014	1.51E-02	8.9108	1.19E-02	0.00
11.0	1.0	10.5	125.8	0.52	0.35	0.285	11	1.25	68.0	1.4	17.6	1.0	683.647	3.45E-04	1.40E-04	0.014	1.63E-02	8.9108	1.29E-02	0.00
12.0	1.0	11.5	111.9	0.58	0.39	0.317	5	1.25	43.8	1.3	15.1	0.9	686.686	3.77E-04	1.40E-04	0.014	1.95E-02	8.9108	1.55E-02	0.00
13.0	1.0	12.5	111.9	0.63	0.42	0.347	5	1.25	43.8	1.3	14.9	0.9	714.978	3.90E-04	1.40E-04	0.014	2.00E-02	8.9108	1.58E-02	0.00
14.0	1.0	13.5	111.9	0.69	0.46	0.377	5	1.25	43.8	1.3	14.7	0.9	743.411	4.01E-04	1.40E-04	0.014	2.02E-02	8.9108	1.60E-02	0.00
15.0	1.0	14.5	111.9	0.74	0.50	0.407	5	1.25	43.8	1.3	14.6	0.9	770.534	4.11E-04	1.40E-04	0.014	2.05E-02	8.9108	1.62E-02	0.00
16.0	1.0	15.5	111.9	0.80	0.54	0.436	5	1.25	43.8	1.2	14.4	0.9	796.499	4.20E-04	1.40E-04	0.014	2.07E-02	8.9108	1.64E-02	0.00
17.0	1.0	16.5	131.4	0.86	0.58	0.468	16	1.25	74.8	1.2	30.5	0.9	1060.556	3.34E-04	1.40E-04	0.014	8.42E-03	8.9108	6.66E-03	0.00
18.0	1.0	17.5	131.4	0.93	0.62	0.502	16	1.25	74.8	1.2	29.9	0.9	1093.084	3.43E-04	1.40E-04	0.014	8.63E-03	8.9108	6.82E-03	0.00
19.0	1.0	18.5	131.4	0.99	0.66	0.536	16	1.25	74.8	1.2	29.4	0.9	1124.126	3.51E-04	1.40E-04	0.014	8.82E-03	8.9108	6.98E-03	0.00
20.0	1.0	19.5	131.4	1.06	0.71	0.569	16	1.25	74.8	1.1	28.9	0.9	1153.843	3.59E-04	1.40E-04	0.014	9.02E-03	8.9108	7.13E-03	0.00
21.0	1.0	20.5	131.4	1.12	0.75	0.602	16	1.25	74.8	1.1	28.4	0.9	1182.369	3.66E-04	1.40E-04	0.014	9.20E-03	8.9108	7.28E-03	0.00
22.0	1.0	21.5	131.4	1.19	0.80	0.635	16	1.25	74.8	1.1	27.9	0.9	1209.819	3.72E-04	1.40E-04	0.014	9.39E-03	8.9108	7.43E-03	0.00
23.0	1.0	22.5	124.4	1.25	0.84	0.666	12	1.25	61.9	1.1	25.3	0.9	1201.580	3.88E-04	1.40E-04	0.014	1.06E-02	8.9108	8.36E-03	0.00
24.0	1.0	23.5	124.4	1.31	0.88	0.696	12	1.25	61.9	1.0	25.0	0.9	1226.187	3.93E-04	1.40E-04	0.014	1.07E-02	8.9108	8.49E-03	0.00
25.0	1.0	24.5	124.4	1.38	0.92	0.726	12	1.25	61.9	1.0	24.7	0.9	1250.075	3.97E-04	1.40E-04	0.014	1.09E-02	8.9108	8.60E-03	0.00
26.0	1.0	25.5	124.4	1.44	0.96	0.755	12	1.25	61.9	1.0	24.4	0.9	1273.300	4.01E-04	1.40E-04	0.014	1.10E-02	8.9108	8.72E-03	0.00
27.0	1.0	26.5	124.4	1.50	1.01	0.784	12	1.25	61.9	1.0	24.2	0.9	1295.907	4.05E-04	1.20E-04	0.012	9.57E-03	8.9108	7.57E-03	0.00
28.0	1.0	27.5	121.3	1.56	1.05	0.812	12	1.25	61.9	1.0	23.9	0.9	1317.724	4.08E-04	1.20E-04	0.012	9.68E-03	8.9108	7.66E-03	0.00
29.0	1.0	28.5	121.3	1.62	1.09	0.839	12	1.25	61.9	1.0	23.7	0.9	1338.805	4.10E-04	1.20E-04	0.012	9.79E-03	8.9108	7.75E-03	0.00
30.0	1.0	29.5	121.3	1.68	1.13	0.866	13	1.25	62.0	1.0	25.7	0.9	1400.746	4.01E-04	1.20E-04	0.012	8.89E-03	8.9108	7.03E-03	0.00
31.0	1.0	30.5	121.3	1.74	1.17	0.892	13	1.25	62.0	0.9	25.4	0.9	1421.347	4.03E-04	1.20E-04	0.012	8.99E-03	8.9108	7.11E-03	0.00
32.0	1.0	31.5	119.3	1.80	1.21	0.918	4	1.25	33.2	0.9	12.6	0.9	1143.927	5.10E-04	1.20E-04	0.012	2.09E-02	8.9108	1.65E-02	0.00
33.0	1.0	32.5	119.3	1.86	1.25	0.943	4	1.25	33.2	0.9	12.5	0.9	1160.661	5.11E-04	1.20E-04	0.012	2.10E-02	8.9108	1.66E-02	0.00
34.0	1.0	33.5	119.3	1.92	1.29	0.967	4	1.25	33.2	0.9	12.5	0.8	1177.097	5.13E-04	1.20E-04	0.012	2.11E-02	8.9108	1.67E-02	0.00
35.0	1.0	34.5	119.3	1.98	1.33	0.991	4	1.25	33.2	0.9	12.4	0.8	1193.249	5.14E-04	1.20E-04	0.012	2.13E-02	8.9108	1.68E-02	0.00
36.0	1.0	35.5	119.3	2.04	1.37	1.014	4	1.25	33.2	0.9	12.4	0.8	1209.132	5.15E-04	1.20E-04	0.012	2.14E-02	8.9108	1.69E-02	0.00
37.0	1.0	36.5	119.3	2.10	1.41	1.037	4	1.25	33.2	0.9	12.3	0.8	1224.757	5.15E-04	1.20E-04	0.012	2.15E-02	8.9108	1.70E-02	0.00
38.5	1.5	37.8	119.3	2.18	1.46	1.065	4	1.25	33.2	0.9	12.2	0.8	1243.945	5.16E-04	1.20E-04	0.012	2.17E-02	8.9108	1.71E-02	0.00
39.0	0.5	38.8	118.3	2.24	1.50	1.087	9	1.25	48.3	0.9	18.7	0.8	1452.736	4.47E-04	1.20E-04	0.012	1.30E-02	8.9108	1.03E-02	0.00
40.0	1.0	39.5	118.3	2.28	1.53	1.103	9	1.25	48.3	0.9	18.6	0.8	1463.280	4.48E-04	1.20E-04	0.012	1.31E-02	8.9108	1.04E-02	0.00
41.0	1.0	40.5	118.3	2.34	1.57	1.124	9	1.25	48.3	0.8	18.5	0.8	1479.144	4.48E-04	1.20E-04	0.012	1.32E-02	8.9108	1.05E-02	0.00
42.0	1.0	41.5	130.9	2.40	1.61	1.146	41	1.25	99.7	0.8	57.4	0.8	2188.437	3.07E-04	1.20E-04	0.012	3.38E-03	8.9108	2.68E-03	0.00
43.0	1.0	42.5	130.9	2.47	1.65	1.169	41	1.25	99.7	0.8	56.9	0.8	2210.471	3.07E-04	1.20E-04	0.012	3.42E-03	8.9108	2.71E-03	0.00
44.0	1.0	43.5	130.9	2.53	1.70	1.191	41	1.25	99.7	0.8	56.3	0.8	2232.121	3.08E-04	1.20E-04	0.012	3.47E-03	8.9108	2.74E-03	0.00
45.0	1.0	44.5	130.9	2.60	1.74	1.213	41	1.25	99.7	0.8	55.7	0.8	2253.404	3.09E-04	1.20E-04	0.012	3.51E-03	8.9108	2.77E-03	0.00
46.0	1.0	45.5	130.9	2.66	1.79	1.234	41	1.25	99.7	0.8	55.2	0.8	2274.336	3.09E-04	1.20E-04	0.012	3.55E-03	8.9108	2.81E-03	0.00
47.0	1.0	46.5	130.9	2.73	1.83	1.255	41	1.25	99.7	0.8	54.7	0.8	2294.930	3.10E-04	1.20E-04	0.012	3.59E-03	8.9108	2.84E-03	0.00
48.0	1.0	47.5	130.9	2.80	1.87	1.275	41	1.25	99.7	0.8	54.2	0.8	2315.201	3.10E-04	1.20E-04	0.012	3.63E-03	8.9108	2.87E-03	0.00
49.0	1.0	48.5	130.9	2.86	1.92	1.295	41	1.25	99.7	0.8	53.7	0.8	2335.162	3.11E-04	1.20E-04	0.012	3.67E-03	8.9108	2.90E-03</	



NO SCALE

GEOCON
WEST, INC.



ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: CHL

CHECKED BY: HHD

RETAINING WALL DRAIN DETAIL

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD

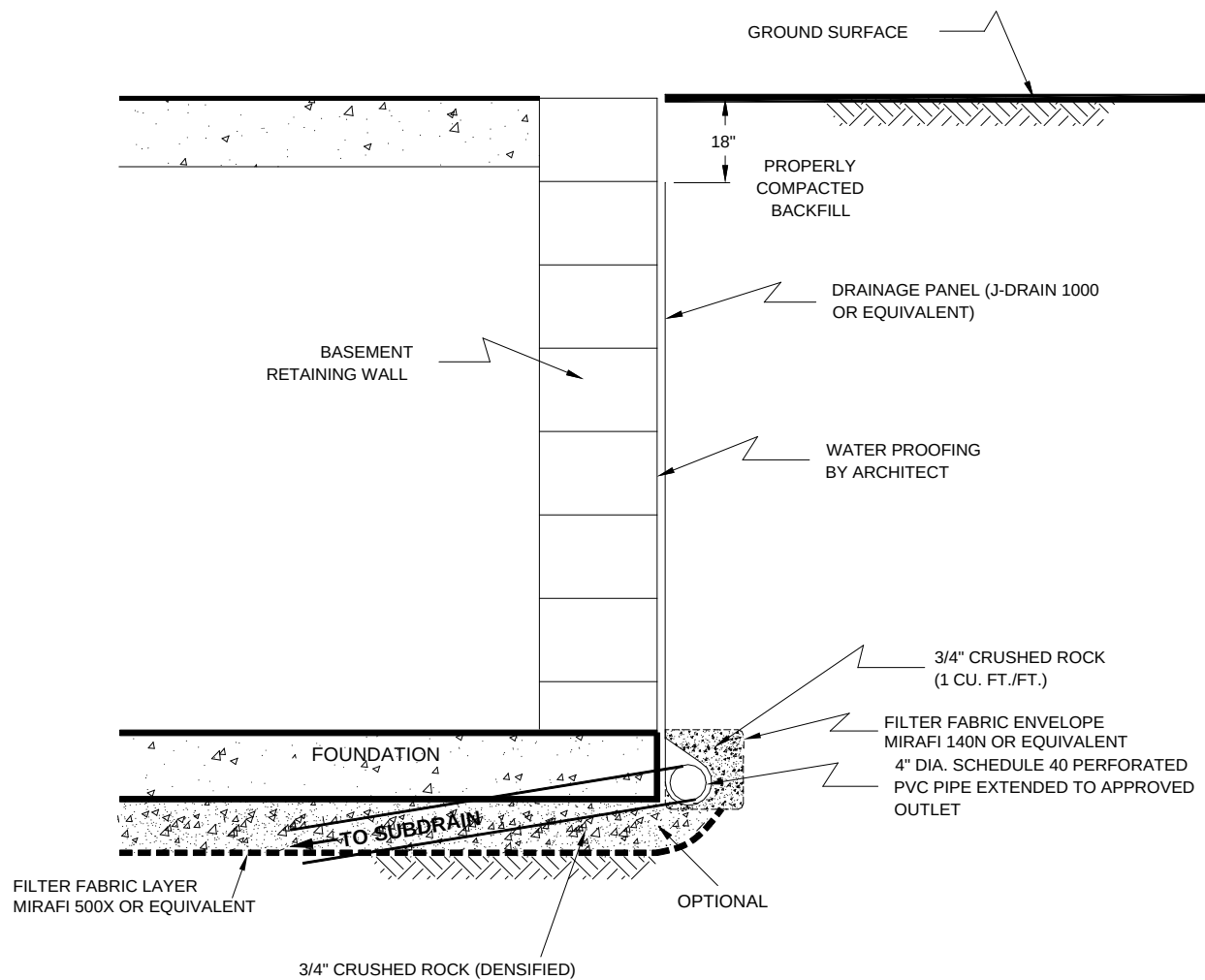
FMA BURLY, LLC

WEST HOLLYWOOD, CALIFORNIA

MAY 2015

PROJECT NO. A9091-06-01

FIG. 11



GEOCON
WEST, INC.



ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
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RETAINING WALL DRAIN DETAIL

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD

FMA BURLY, LLC

WEST HOLLYWOOD, CALIFORNIA

MAY 2015

PROJECT NO. A9091-06-01

FIG. 12

APPENDIX

A

APPENDIX A

FIELD INVESTIGATION

The site was explored on February 28 and October 18, 2013 by excavating three 8-inch diameter boring utilizing a truck-mounted hollow-stem auger drilling machine. The borings were excavated to depths between 45½ and 70½ feet below the existing ground surface. Representative and relatively undisturbed samples were obtained by driving a 3 inch O. D., California Modified Sampler into the “undisturbed” soil mass with blows from a 140-pound auto-hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch high by 2³/₈-inch diameter brass sampler rings to facilitate removal and testing. Standard Penetration Tests (SPTs) were performed in the boring and bulk samples were also obtained.

The soil conditions encountered in the boring were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The log of the borings are presented on Figures A1-A3. The log depicts the soil and geologic conditions encountered and the depth at which samples were obtained. The approximate location of the boring is indicated the Site Plan (see Figure 2).

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 1 ELEV. (MSL.) -- DATE COMPLETED <u>02/28/13</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>JMT</u>	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				MATERIAL DESCRIPTION			
2				ML	ASPHALT: 4" BASE: 4" ALLUVIUM Silt, firm, slightly moist, dark brown to reddish brown			
4	B1@2.5'				Clay, firm, slightly moist, dark brown to black, trace rootlets, slight organic odor	18	77.7	8.7
6	B1@5'				-Mottled dark brown and black and light gray	10	--	23.0
8	B1@7.5'				-Stiff, moist, mottled gray and light gray	39	98.0	28.4
10	B1@10'			CL	-Slight to moderate plasticity	11	--	27.1
12	BULK 10-12'				Sandy Clay, soft, moist to wet, dark brown to black, fine- to coarse-grained, low plasticity			
14	B1@12.5'					10	83.6	33.8
16	B1@15'				-Light gray with reddish brown oxidation staining	5	--	14.8
18	B1@17.5'			SP-SC	Clayey Sand, poorly graded, medium dense, saturated, gray, fine- to medium-grained with trace coarse-grained	32	111.1	18.3
20	B1@20'				-Trace fine gravel sized slate fragments	16	--	18.2
22	B1@22.5'				Silt and Clay with Sand, firm, moist, gray, fine- to medium-grained, trace rootlets	13	101.4	22.7
24	B1@25'			CL-ML	-Mottled gray with reddish brown oxidation staining, fine-grained with trace medium-grained, low plasticity	12	--	23.7
26								
28	B1@27.5'				-Soft, gray, moderate plasticity	9	99.8	21.5
				SC	Clayey Sand, medium dense, moist, gray, fine-grained			

Figure A1,
Log of Boring 1, Page 1 of 3

A9014-06-01 BORING LOG.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 1 ELEV. (MSL.) -- DATE COMPLETED <u>02/28/13</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>JMT</u>	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
30	B1@30'					13	--	24.1
32					Clay with Sand, firm, moist, dark gray, medium-grained with trace fine-grained			
34	B1@32.5'			CL-ML		14	88.4	35.0
36	B1@35'				-Soft	4	--	29.6
38	B1@37.5'				- Firm, mottled light gray and very pale gray	14	93.8	26.1
40	B1@40'			SC/CL	Clay and Sand, firm to medium dense, moist, grayish brown to pale brown, fine-grained	9	--	20.3
42					Silty Sand, medium dense, moist, reddish brown, fine- to medium-grained with some coarse-grained, some fine gravel sized slate fragments			
44	B1@42.5'					41	16.7	112.2
46	B1@45'				-Dense	41	--	15.7
48	B1@47.5'			SM	-Very dense, Grayish brown	50 (6")	125.7	10.6
50	B1@50'				-Medium Dense	13	--	22.0
52								
54	B1@52.5'				-Dense, gray, fine- to medium-grained with some coarse-grained, some coarse gravel sized slate fragments, silt lenses 1/8 to 1/4" thick	65	121.7	11.2
56	B1@55'			CL/ML	Clay, Silt, and Sand, firm to medium dense, moist, gray, fine-grained, low plasticity	23	--	20.0
58	B1@57.5'			SM	Silty Sand, medium dense, moist, gray, fine- to medium-grained with some coarse-grained -Dense	50 (6")	115.9	11.8

Figure A1,
Log of Boring 1, Page 2 of 3

A9014-06-01 BORING LOG.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 1 ELEV. (MSL.) - - DATE COMPLETED <u>02/28/13</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>JMT</u>	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
60	B1@60'			CL	MATERIAL DESCRIPTION			
					-Medium dense Sandy Clay, stiff, reddish brown, very fine- to fine-grained, non-plastic	10/12	--	19.1
62	B1@62.5'				-Hard, very fine- to medium-grained	50 (5")	101.8	21.1
64	B1@65'				-Stiff Clay with Sand, firm, moist, gray, moderate plasticity	10/6	--	34.1
66								
68	B1@67.5'				-Stiff, mottled gray to light gray	34	92.1	28.1
70	B1@70'					16	--	29.0
					End at 70.5 feet. No artificial fill encountered. Groundwater encountered at 12.5 feet. Backfilled with soil cuttings and tamped. Capped with asphalt patch. *Penetration resistance for 140 pound hammer falling 30 inches by auto-hammer. Blow counts shown as # / # indicate blows for each 6 inches of drive.			

Figure A1,
Log of Boring 1, Page 3 of 3

A9014-06-01 BORING LOG.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 2 ELEV. (MSL.) -- DATE COMPLETED <u>10/18/13</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>TL</u>	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				MATERIAL DESCRIPTION			
2	B1@2'			ML	ASPHALT: 4" BASE: 6.5" ARTIFICIAL FILL Sandy Silt, firm, slightly moist, brown, fine- to medium-grained, trace fine gravel	14		
4					ALLUVIUM Sandy Silt, firm, slightly moist, yellowish brown, fine-grained			
6	B1@5'				Clay, stiff, slightly moist, dark brown	37		
8	B1@8'				-Pale brown			
10				CL		26		
12	B1@11'					30		
14	B1@14'				-Sandy Clay, soft, wet, dark brown, fine- to medium-grained	7		
16								
18	B1@17'			SP-SM	Sand with Silt, poorly graded, medium dense, saturated, fine- to medium-grained	23		
20	B1@20'			SP	Sand, poorly graded, medium dense, saturated, medium-grained	44		
22	B1@22'				Clay, firm, moist, gray, trace fine-grained sand, trace fine gravel	16		
24	B1@24'			CL	-Olive brown to brown	18		
26	B1@26'					13		
28					-Grayish brown			
	B1@29'					18		

Figure A2,
Log of Boring 2, Page 1 of 2

A9091-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 2 ELEV. (MSL.) -- DATE COMPLETED <u>10/18/13</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>TL</u>	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30					MATERIAL DESCRIPTION			
32	B1@32'				-Soft, dark gray	10		
34								
36	B1@35'					9		
38				CL				
40	B1@40'				-Firm, olive brown to yellowish brown, some fine-grained sand	20		
42								
44					Gravel with Clay and Sand, well graded, dense, wet, dark gray to brown			
45	B1@45'			GW		78		
					Total depth of boring: 45.5 feet. Fill to 1.5 feet. Groundwater encountered at 14.7 feet during drilling. Backfilled with soil cuttings and tamped. Concrete patched. *Penetration resistance for 140 pound hammer falling 30 inches by auto-hammer.			

Figure A2,
Log of Boring 2, Page 2 of 2

A9091-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 3 ELEV. (MSL.) -- DATE COMPLETED <u>10/18/13</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>TL</u>	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					MATERIAL DESCRIPTION			
2					ASPHALT: 6" BASE: 4" ARTIFICIAL FILL Sandy Silt, firm, slightly moist, brown, fine- to medium-grained, trace fine gravel			
4	B2@3'					14		
6	B2@6'			ML	ALLUVIUM Sandy Silt, stiff, slightly moist	35		
8					Clay, soft, slightly moist, dark brown			
10	B2@9'			CL		10		
12	B2@12'				-Firm, dark olive brown, fine-grained, trace sand	15		
14					Silty Sand, loose, moist, gray, fine-grained			
16	B2@15'			SM		8		
18	B2@18'			ML	Sandy Silt, firm, moist, dark olive brown, fine-grained	15		
20	BULK 20-25'			CL	Sandy Clay, soft, moist, gray, fine- to medium-grained	8		
22	B2@21'							
24	B2@23'			SP	Sand, poorly graded, medium dense, moist, dark gray, fine- to medium-grained	24		
26	B2@25'			CL	Sandy Clay, firm, moist, dark gray, fine-grained	12		
28	B2@27'				-Brown to pale brown	18		
					Sand, poorly graded, medium dense, wet, dark brown to brown, fine- to			

Figure A3,
Log of Boring 3, Page 1 of 2

A9091-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 3 ELEV. (MSL.) -- DATE COMPLETED <u>10/18/13</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>TL</u>	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B2@30'				MATERIAL DESCRIPTION			
32				SP	medium-grained	25		
34								
36	B2@35'			ML	Silt, firm, moist, dark brown, trace fine-grained sand	14		
38								
40	B2@40'			SP-SM	Sand with Silt, poorly graded, medium dense, wet, dark olive brown to brown, fine- to medium-grained	42		
42								
44								
	B2@45'					35		
					Total depth of boring: 45.5 feet. Fill to 4 feet. Groundwater encountered at 18 feet during drilling. Backfilled with soil cuttings and tamped. Concrete patched. *Penetration resistance for 140 pound hammer falling 30 inches by auto-hammer.			

Figure A3,
Log of Boring 3, Page 2 of 2

A9091-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

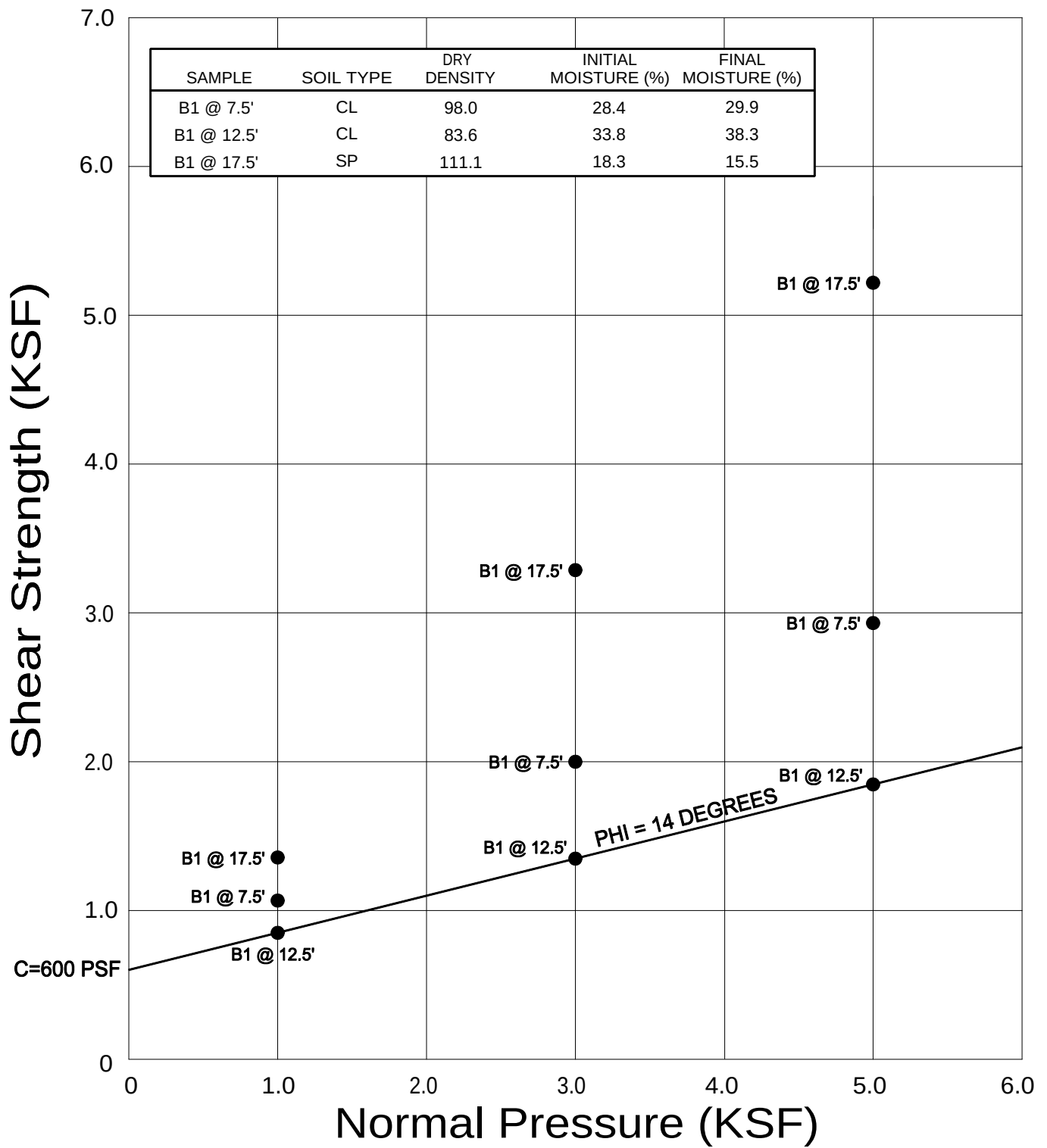
APPENDIX

B

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the “American Society for Testing and Materials (ASTM)”, or other suggested procedures. Selected samples were tested for direct shear strength, consolidation and expansion characteristics, moisture density relationships, plasticity indices, grain size distribution, in-place dry density and moisture content. The results of the laboratory tests are summarized in Figures B1 through B9. The in-place dry density and moisture content of the samples tested are presented in the boring logs, Appendix A.



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ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: JMT

CHECKED BY: HHD

DIRECT SHEAR TEST RESULTS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD

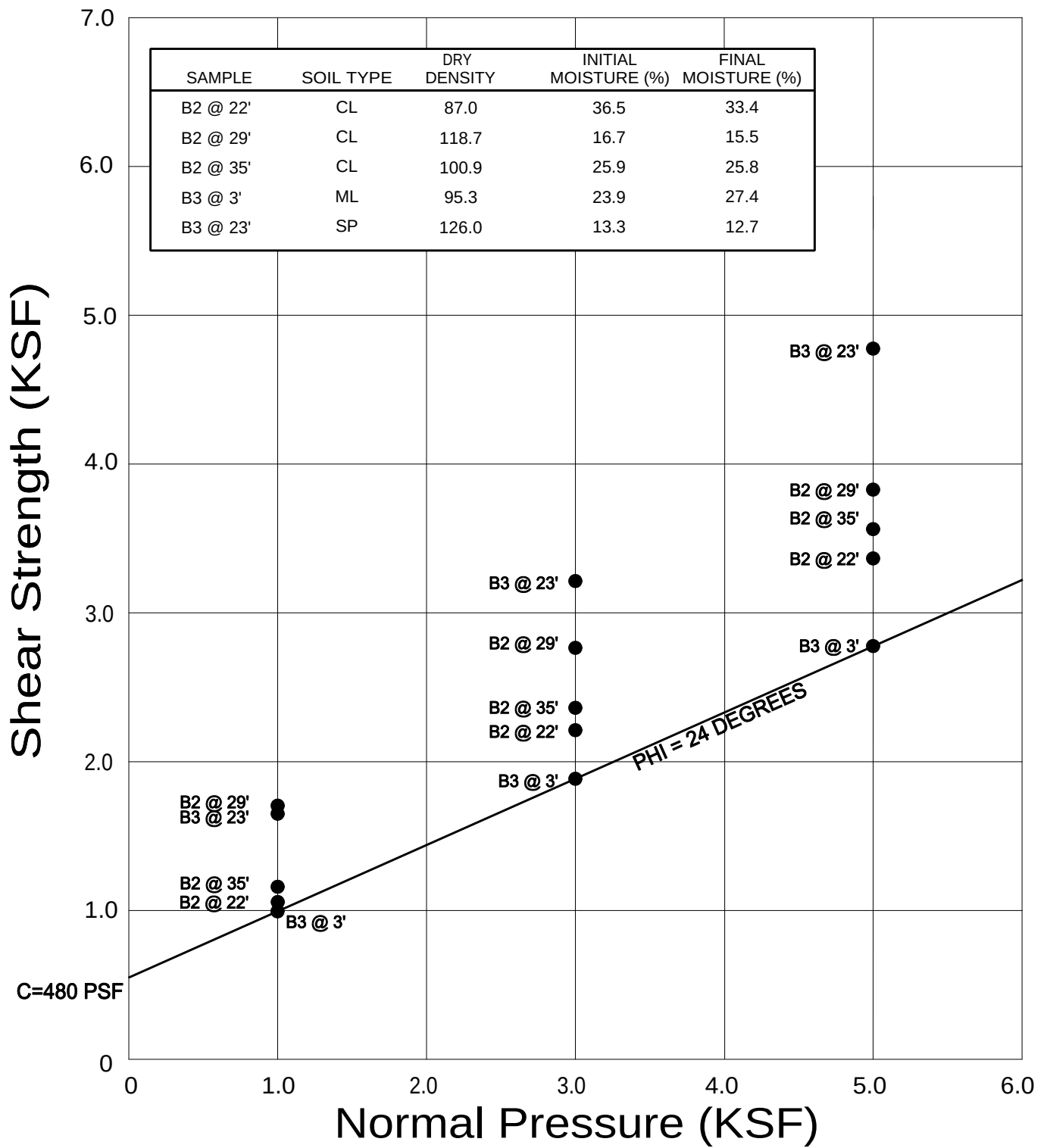
FMA BURLY, LLC

WEST HOLLYWOOD, CALIFORNIA

MAY 2015

PROJECT NO. A9091-06-01

FIG. B1



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DRAFTED BY: JMT

CHECKED BY: HHD

DIRECT SHEAR TEST RESULTS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD

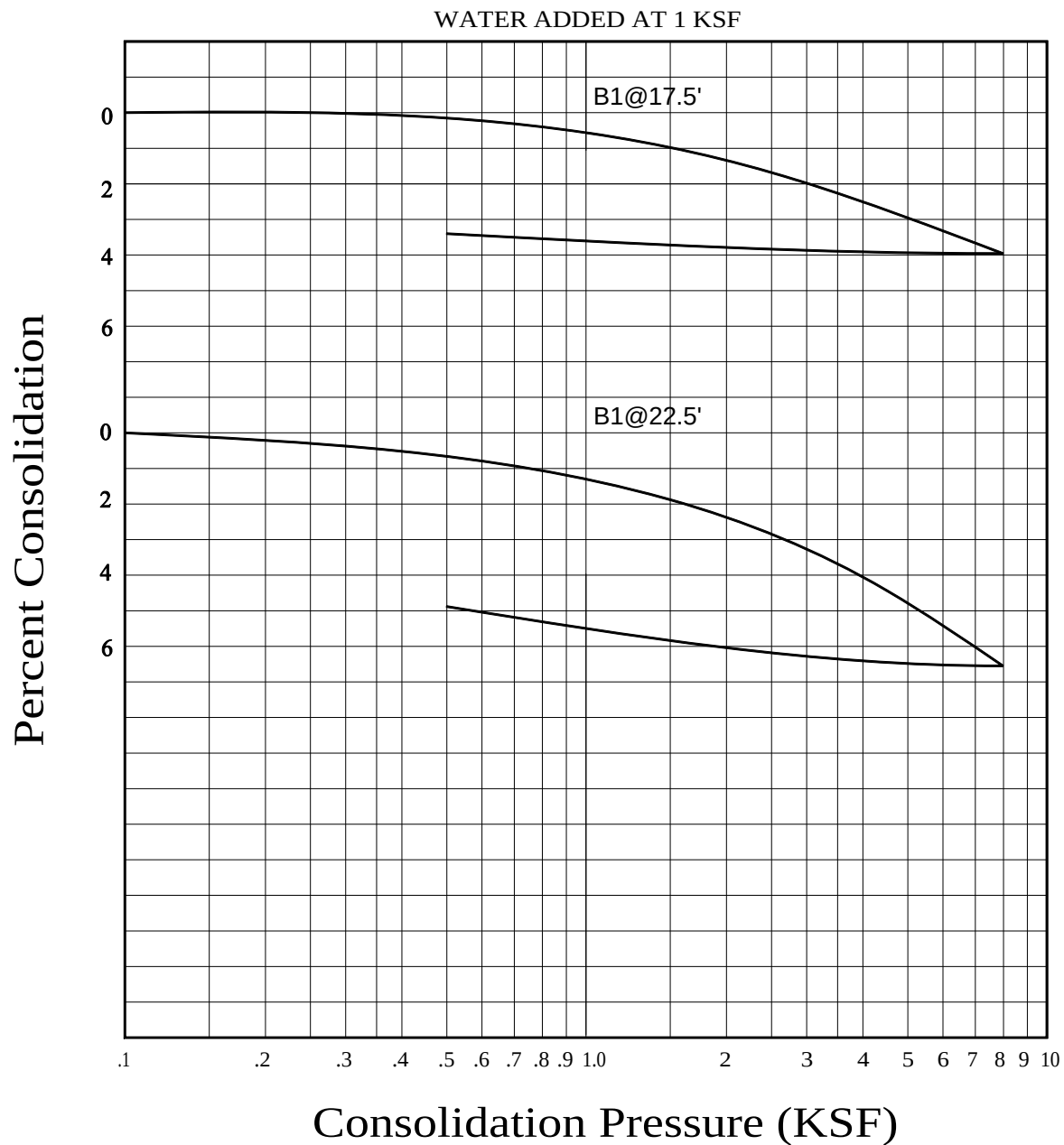
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FIG. B2



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DRAFTED BY: JMT

CHECKED BY: HHD

CONSOLIDATION TEST RESULTS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD

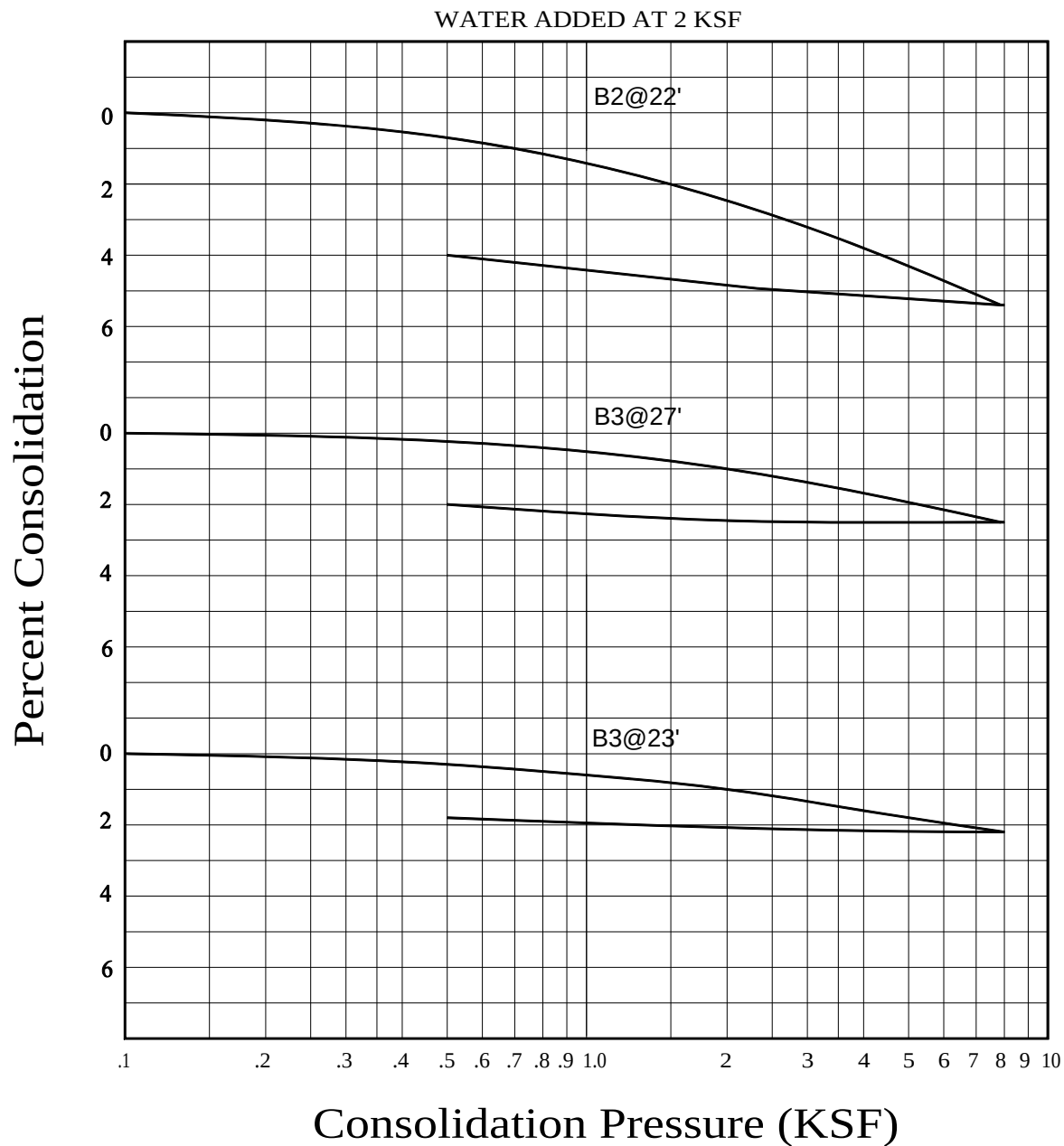
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FIG. B3



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DRAFTED BY: JMT

CHECKED BY: HHD

CONSOLIDATION TEST RESULTS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD

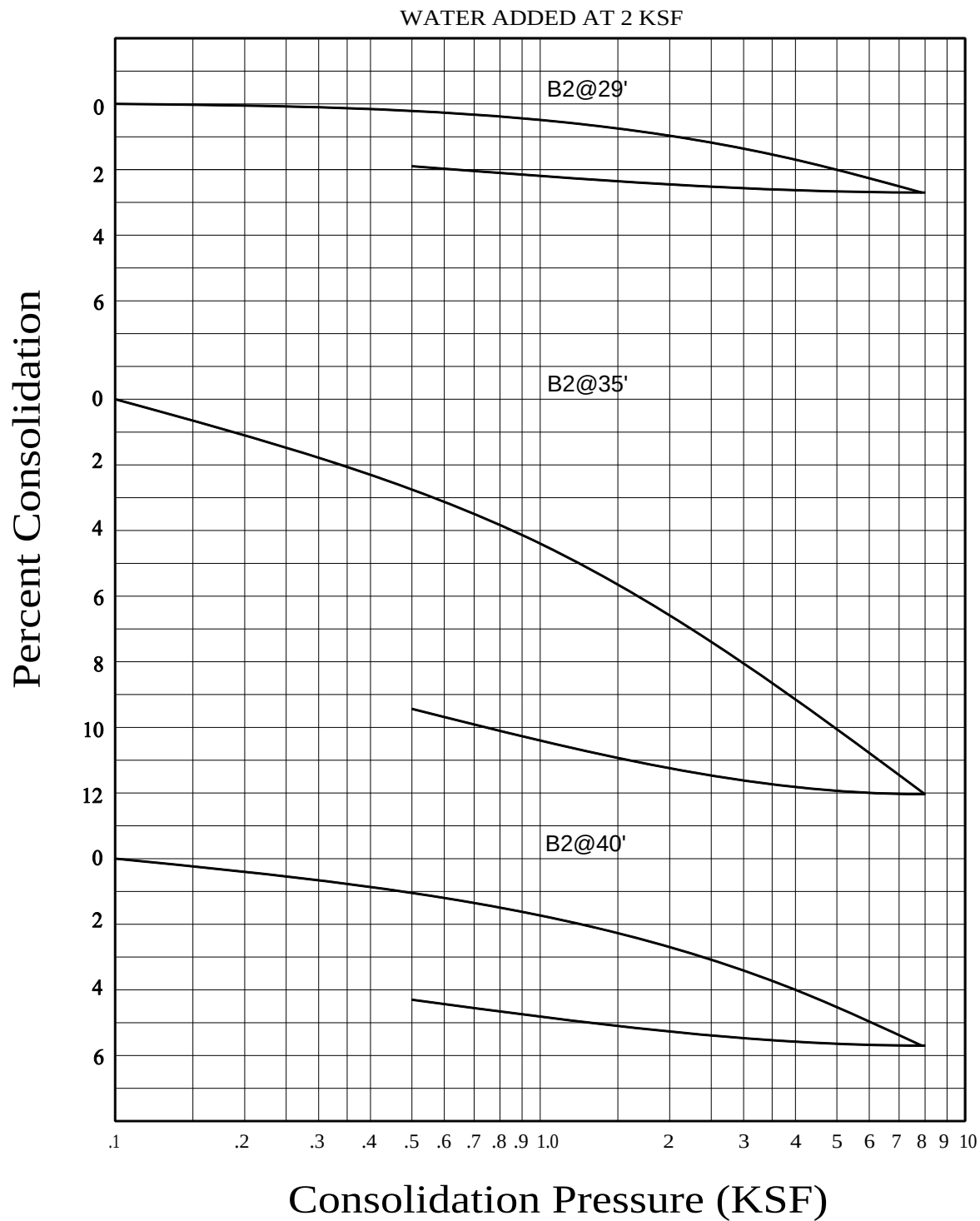
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FIG. B4



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DRAFTED BY: JMT

CHECKED BY: HHD

CONSOLIDATION TEST RESULTS

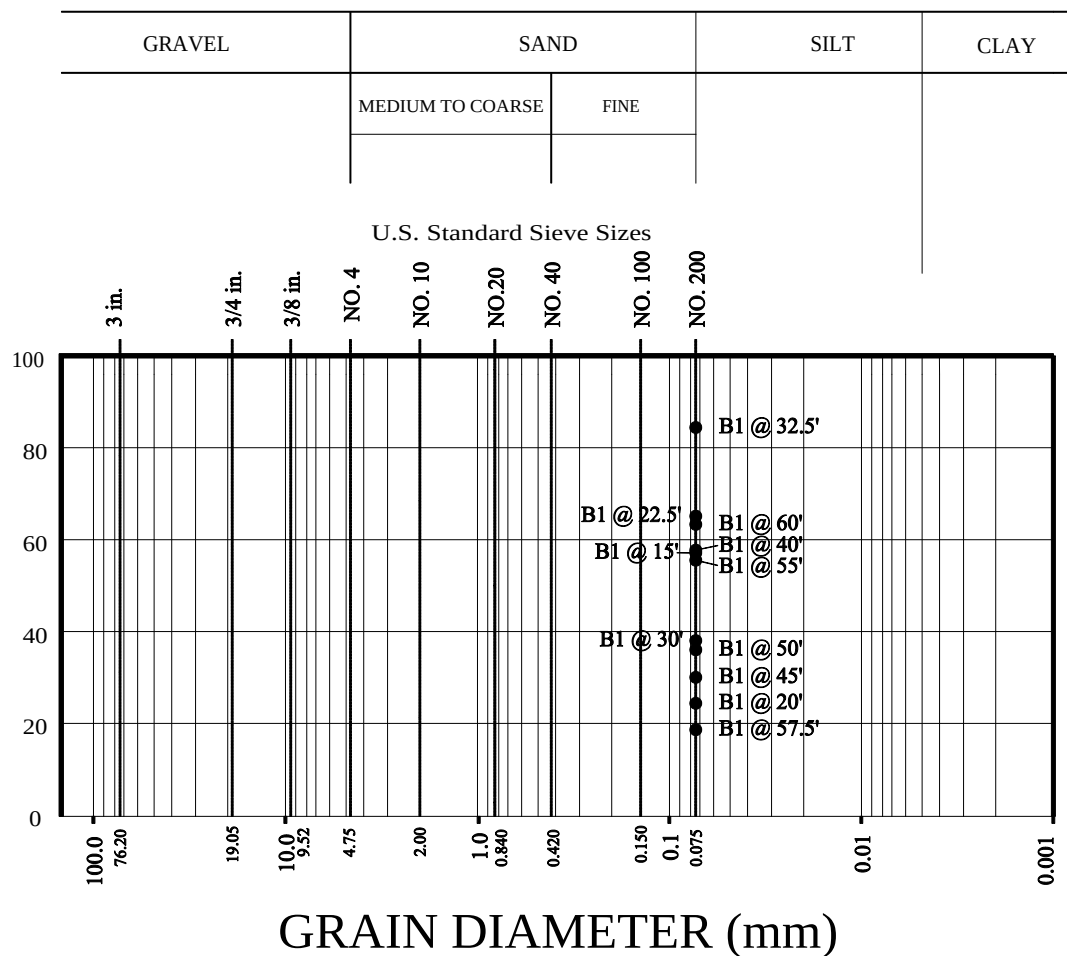
321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD
FMA BURLY, LLC
WEST HOLLYWOOD, CALIFORNIA

MAY 2015

PROJECT NO. A9091-06-01

FIG. B5

PERCENT PASSING NO. 200 SIEVE



SAMPLE PERCENT PASSING NO. 200 SIEVE

B1 @ 15'	57.1
B1 @ 20'	24.3
B1 @ 22.5'	65.1
B1 @ 30'	38.0
B1 @ 32.5'	89.4
B1 @ 40'	57.7
B1 @ 45'	30.0
B1 @ 50'	36.0
B1 @ 55' (Bottom 6")	55.5
B1 @ 57.5'	18.6
B1 @ 60' (Bottom 6")	63.3

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DRAFTED BY: JMT

CHECKED BY: HHD

GRAIN SIZE ANALYSIS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD

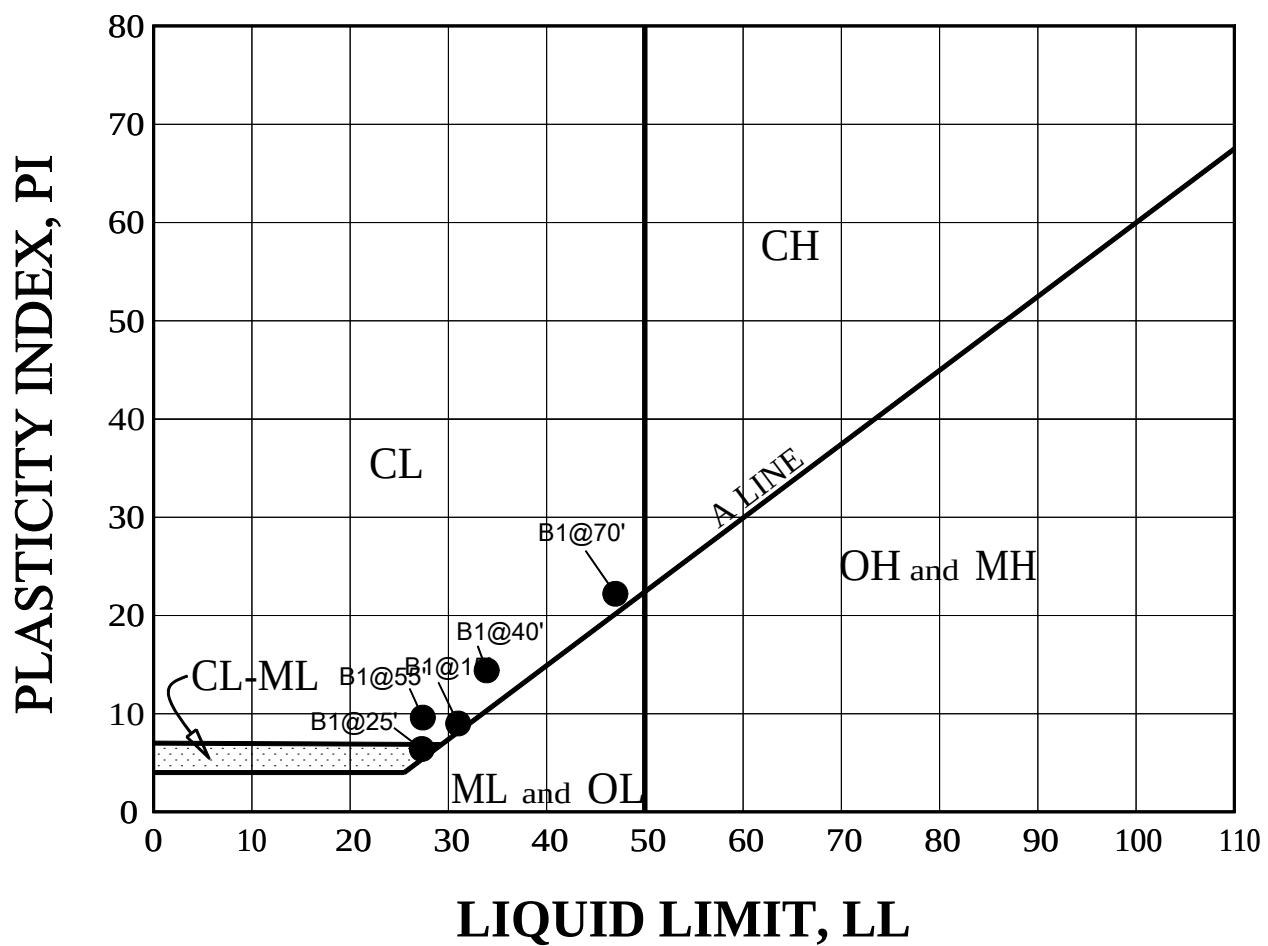
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MAY 2015

PROJECT NO. A9091-06-01

FIG. B6



BORING NUMBER	DEPTH (FEET)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
B1	15	31.0	22.0	9.0	--	--
B1	25	27.3	20.9	6.4	--	CL-ML
B1	40	33.9	19.5	14.4	--	CL
B1	55 (Upper 6")	27.4	17.8	9.6	--	CL
B1	62.5	N/P	N/P	N/P	--	--
B1	70	47.0	24.8	22.2	29.3	CL

*N/P indicates Non-Plastic

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DRAFTED BY: JMT

CHECKED BY: HHD

ATTERBERG LIMITS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD
FMA BURLY, LLC
WEST HOLLYWOOD, CALIFORNIA

MAY 2015

PROJECT NO. A9091-06-01

FIG. B7

SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS ASTM D 4829-11

Sample No.	Moisture Content (%)		Dry Density (pcf)	Expansion Index	*UBC Classification	**CBC Classification
	Before	After				
B2 @ 20-25'	9.4	22.0	113.2	54	Low	Expansive

* Reference: 1997 Uniform Building Code, Table 18-I-B.

** Reference: 2010 California Building Code, Section 1803.5.3

SUMMARY OF LABORATORY MAXIMUM DENSITY AND AND OPTIMUM MOISTURE CONTENT TEST RESULTS ASTM D 1557-12

Sample No.	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture (%)
B1 @ 0-5'	Brown Sandy Silt	114.5	15.5

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CHECKED BY: HHD

LABORATORY TEST RESULTS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD
FMA BURLY, LLC
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MAY 2015

PROJECT NO. A9091-06-01

FIG. B8

**SUMMARY OF LABORATORY POTENTIAL OF
HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
CALIFORNIA TEST NO. 643**

Sample No.	pH	Resistivity (Ohm Centimeters)
B2 @ 20-25'	7.25	1500 (Corrosive)

**SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
EPA NO. 325.3**

Sample No.	Chloride Ion Content (%)
B2 @ 20-25'	0.006

**SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
CALIFORNIA TEST NO. 417**

Sample No.	Water Soluble Sulfate (% SO ₄)	Sulfate Exposure*
B2 @ 20-25'	0.004	Negligible

* Reference: 2010 California Building Code, Section 1904.3 and ACI 381 Section 4.3.

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DRAFTED BY: TL

CHECKED BY: HHD

CORROSIVITY TEST RESULTS

321-327 N. SHERBOURNE DR & 8713 BEVERLY BLVD
FMA BURLY, LLC
WEST HOLLYWOOD, CALIFORNIA

MAY 2015

PROJECT NO. A9091-06-01

FIG. B9

Appendix C

Greenhouse Gas Emissions Modeling Results



8731 Beverly Blvd West Hollywood
Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3.42	1000sqft	0.10	3,416.00	0
Government (Civic Center)	0.50	1000sqft	0.03	500.00	0
Apartments Mid Rise	30.00	Dwelling Unit	0.10	30,000.00	86
Strip Mall	5.47	1000sqft	0.03	5,470.00	0
Enclosed Parking Structure	65.00	Space	0.10	26,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot Acreage is 0.36

Construction Phase - Start coating during construction

Vehicle Trips - Rates according to Traffic Study

Woodstoves - no one is using wood stoves

Construction Off-road Equipment Mitigation -

Grading - 0.36 site

Area Mitigation -

Demolition -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	328.00
tblConstructionPhase	NumDays	100.00	300.00
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	PhaseEndDate	7/24/2018	6/1/2017
tblConstructionPhase	PhaseEndDate	6/29/2017	5/18/2017
tblConstructionPhase	PhaseStartDate	4/21/2017	3/1/2016
tblConstructionPhase	PhaseStartDate	6/2/2017	4/21/2017
tblGrading	AcresOfGrading	0.00	0.36
tblGrading	AcresOfGrading	5.00	0.00
tblGrading	MaterialExported	0.00	11,832.00
tblLandUse	LandUseSquareFeet	3,420.00	3,416.00
tblLandUse	LotAcreage	0.08	0.10
tblLandUse	LotAcreage	0.01	0.03
tblLandUse	LotAcreage	0.79	0.10

tblLandUse	LotAcreage	0.13	0.03
tblLandUse	LotAcreage	0.59	0.10
tblProjectCharacteristics	OperationalYear	2014	2016
tblVehicleTrips	ST_TR	7.16	6.65
tblVehicleTrips	ST_TR	2.37	11.03
tblVehicleTrips	ST_TR	0.00	1.80
tblVehicleTrips	ST_TR	42.04	42.70
tblVehicleTrips	SU_TR	6.07	6.65
tblVehicleTrips	SU_TR	0.98	11.03
tblVehicleTrips	SU_TR	0.00	1.80
tblVehicleTrips	SU_TR	20.43	42.70
tblVehicleTrips	WD_TR	6.59	6.65
tblVehicleTrips	WD_TR	11.01	11.03
tblVehicleTrips	WD_TR	27.92	1.80
tblVehicleTrips	WD_TR	44.32	42.70

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.6157	2.3540	1.8936	3.2700e-003	0.0828	0.1466	0.2294	0.0241	0.1370	0.1611	0.0000	290.1161	290.1161	0.0470	0.0000	291.1035
2017	0.2648	0.7591	0.6509	1.0700e-003	0.0239	0.0499	0.0738	6.4000e-003	0.0467	0.0531	0.0000	92.5416	92.5416	0.0181	0.0000	92.9208
Total	0.8805	3.1131	2.5446	4.3400e-003	0.1067	0.1965	0.3032	0.0305	0.1837	0.2142	0.0000	382.6576	382.6576	0.0651	0.0000	384.0243

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.6157	2.3540	1.8936	3.2700e-003	0.0767	0.1466	0.2233	0.0213	0.1370	0.1583	0.0000	290.1159	290.1159	0.0470	0.0000	291.1033
2017	0.2648	0.7591	0.6509	1.0700e-003	0.0239	0.0499	0.0738	6.4000e-003	0.0467	0.0531	0.0000	92.5415	92.5415	0.0181	0.0000	92.9207
Total	0.8805	3.1131	2.5445	4.3400e-003	0.1006	0.1965	0.2971	0.0277	0.1837	0.2114	0.0000	382.6574	382.6574	0.0651	0.0000	384.0240

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	5.72	0.00	2.01	9.03	0.00	1.28	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3973	6.1700e-003	0.5032	3.2000e-004		0.0303	0.0303		0.0303	0.0303	3.1866	6.6307	9.8173	0.0100	2.2000e-004	10.0948
Energy	1.8900e-003	0.0163	7.9800e-003	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	137.8330	137.8330	5.8400e-003	1.4800e-003	138.4130
Mobile	0.3083	0.8485	3.3629	7.1500e-003	0.4738	0.0114	0.4852	0.1269	0.0105	0.1373	0.0000	571.9194	571.9194	0.0248	0.0000	572.4408
Waste						0.0000	0.0000		0.0000	0.0000	5.1905	0.0000	5.1905	0.3068	0.0000	11.6322
Water						0.0000	0.0000		0.0000	0.0000	0.9730	17.5134	18.4864	0.1007	2.5300e-003	21.3852
Total	0.7075	0.8709	3.8741	7.5700e-003	0.4738	0.0430	0.5168	0.1269	0.0421	0.1690	9.3501	733.8965	743.2466	0.4482	4.2300e-003	753.9660

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3973	6.1700e-003	0.5032	3.2000e-004		0.0303	0.0303		0.0303	0.0303	3.1866	6.6307	9.8173	0.0100	2.2000e-004	10.0948
Energy	1.8900e-003	0.0163	7.9800e-003	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	137.8330	137.8330	5.8400e-003	1.4800e-003	138.4130
Mobile	0.3083	0.8485	3.3629	7.1500e-003	0.4738	0.0114	0.4852	0.1269	0.0105	0.1373	0.0000	571.9194	571.9194	0.0248	0.0000	572.4408
Waste						0.0000	0.0000		0.0000	0.0000	5.1905	0.0000	5.1905	0.3068	0.0000	11.6322
Water						0.0000	0.0000		0.0000	0.0000	0.9730	17.5134	18.4864	0.1007	2.5200e-003	21.3836
Total	0.7075	0.8709	3.8741	7.5700e-003	0.4738	0.0430	0.5168	0.1269	0.0421	0.1690	9.3501	733.8965	743.2466	0.4482	4.2200e-003	753.9644

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	1/14/2016	5	10	
2	Site Preparation	Site Preparation	1/15/2016	1/28/2016	5	10	
3	Grading	Grading	1/29/2016	2/25/2016	5	20	
4	Building Construction	Building Construction	2/26/2016	4/20/2017	5	300	
5	Architectural Coating	Architectural Coating	3/1/2016	6/1/2017	5	328	
6	Paving	Paving	4/21/2017	5/18/2017	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0.36

Acres of Paving: 0

Residential Indoor: 60,750; Residential Outdoor: 20,250; Non-Residential Indoor: 53,079; Non-Residential Outdoor: 17,693 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Rubber Tired Dozers	1	1.00	255	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	226	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	15.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1,479.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	36.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	7.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6100e-003	0.0000	1.6100e-003	2.4000e-004	0.0000	2.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5600e-003	0.0562	0.0435	6.0000e-005		4.0200e-003	4.0200e-003		3.8400e-003	3.8400e-003	0.0000	5.4141	5.4141	1.0800e-003	0.0000	5.4369
Total	6.5600e-003	0.0562	0.0435	6.0000e-005	1.6100e-003	4.0200e-003	5.6300e-003	2.4000e-004	3.8400e-003	4.0800e-003	0.0000	5.4141	5.4141	1.0800e-003	0.0000	5.4369

3.2 Demolition - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	2.2200e-003	1.6800e-003	1.0000e-005	1.3000e-004	3.0000e-005	1.6000e-004	4.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.5116	0.5116	0.0000	0.0000	0.5117
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	3.2000e-004	3.3300e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5346	0.5346	3.0000e-005	0.0000	0.5353
Total	3.6000e-004	2.5400e-003	5.0100e-003	2.0000e-005	6.8000e-004	4.0000e-005	7.1000e-004	1.9000e-004	3.0000e-005	2.1000e-004	0.0000	1.0463	1.0463	3.0000e-005	0.0000	1.0470

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3000e-004	0.0000	6.3000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5600e-003	0.0562	0.0435	6.0000e-005		4.0200e-003	4.0200e-003		3.8400e-003	3.8400e-003	0.0000	5.4141	5.4141	1.0800e-003	0.0000	5.4369
Total	6.5600e-003	0.0562	0.0435	6.0000e-005	6.3000e-004	4.0200e-003	4.6500e-003	1.0000e-004	3.8400e-003	3.9400e-003	0.0000	5.4141	5.4141	1.0800e-003	0.0000	5.4369

3.2 Demolition - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	2.2200e-003	1.6800e-003	1.0000e-005	1.3000e-004	3.0000e-005	1.6000e-004	4.0000e-005	3.0000e-005	6.0000e-005	0.0000	0.5116	0.5116	0.0000	0.0000	0.5117
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	3.2000e-004	3.3300e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5346	0.5346	3.0000e-005	0.0000	0.5353
Total	3.6000e-004	2.5400e-003	5.0100e-003	2.0000e-005	6.8000e-004	4.0000e-005	7.1000e-004	1.9000e-004	3.0000e-005	2.1000e-004	0.0000	1.0463	1.0463	3.0000e-005	0.0000	1.0470

3.3 Site Preparation - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-003	0.0682	0.0367	5.0000e-005		4.1700e-003	4.1700e-003		3.8400e-003	3.8400e-003	0.0000	4.4138	4.4138	1.3300e-003	0.0000	4.4418
Total	6.8000e-003	0.0682	0.0367	5.0000e-005	0.0000	4.1700e-003	4.1700e-003	0.0000	3.8400e-003	3.8400e-003	0.0000	4.4138	4.4138	1.3300e-003	0.0000	4.4418

3.3 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.6000e-004	1.6600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2673	0.2673	2.0000e-005	0.0000	0.2676
Total	1.1000e-004	1.6000e-004	1.6600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2673	0.2673	2.0000e-005	0.0000	0.2676

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-003	0.0682	0.0367	5.0000e-005		4.1700e-003	4.1700e-003		3.8400e-003	3.8400e-003	0.0000	4.4138	4.4138	1.3300e-003	0.0000	4.4418
Total	6.8000e-003	0.0682	0.0367	5.0000e-005	0.0000	4.1700e-003	4.1700e-003	0.0000	3.8400e-003	3.8400e-003	0.0000	4.4138	4.4138	1.3300e-003	0.0000	4.4418

3.3 Site Preparation - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.6000e-004	1.6600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2673	0.2673	2.0000e-005	0.0000	0.2676
Total	1.1000e-004	1.6000e-004	1.6600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2673	0.2673	2.0000e-005	0.0000	0.2676

3.4 Grading - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.3900e-003	0.0000	8.3900e-003	4.2600e-003	0.0000	4.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0131	0.1124	0.0871	1.2000e-004		8.0400e-003	8.0400e-003		7.6700e-003	7.6700e-003	0.0000	10.8283	10.8283	2.1600e-003	0.0000	10.8737
Total	0.0131	0.1124	0.0871	1.2000e-004	8.3900e-003	8.0400e-003	0.0164	4.2600e-003	7.6700e-003	0.0119	0.0000	10.8283	10.8283	2.1600e-003	0.0000	10.8737

3.4 Grading - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0135	0.2184	0.1655	5.5000e-004	0.0127	3.0700e-003	0.0157	3.4700e-003	2.8300e-003	6.3000e-003	0.0000	50.4450	50.4450	3.8000e-004	0.0000	50.4529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	6.4000e-004	6.6500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0693	1.0693	6.0000e-005	0.0000	1.0706
Total	0.0140	0.2190	0.1722	5.6000e-004	0.0138	3.0800e-003	0.0168	3.7600e-003	2.8400e-003	6.6000e-003	0.0000	51.5143	51.5143	4.4000e-004	0.0000	51.5235

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.2700e-003	0.0000	3.2700e-003	1.6600e-003	0.0000	1.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0131	0.1124	0.0871	1.2000e-004		8.0400e-003	8.0400e-003		7.6700e-003	7.6700e-003	0.0000	10.8282	10.8282	2.1600e-003	0.0000	10.8737
Total	0.0131	0.1124	0.0871	1.2000e-004	3.2700e-003	8.0400e-003	0.0113	1.6600e-003	7.6700e-003	9.3300e-003	0.0000	10.8282	10.8282	2.1600e-003	0.0000	10.8737

3.4 Grading - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0135	0.2184	0.1655	5.5000e-004	0.0127	3.0700e-003	0.0157	3.4700e-003	2.8300e-003	6.3000e-003	0.0000	50.4450	50.4450	3.8000e-004	0.0000	50.4529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	6.4000e-004	6.6500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0693	1.0693	6.0000e-005	0.0000	1.0706
Total	0.0140	0.2190	0.1722	5.6000e-004	0.0138	3.0800e-003	0.0168	3.7600e-003	2.8400e-003	6.6000e-003	0.0000	51.5143	51.5143	4.4000e-004	0.0000	51.5235

3.5 Building Construction - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1527	1.5145	0.9074	1.2500e-003		0.1039	0.1039		0.0955	0.0955	0.0000	118.1430	118.1430	0.0356	0.0000	118.8913
Total	0.1527	1.5145	0.9074	1.2500e-003		0.1039	0.1039		0.0955	0.0955	0.0000	118.1430	118.1430	0.0356	0.0000	118.8913

3.5 Building Construction - 2016**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9400e-003	0.0910	0.1182	2.2000e-004	6.1000e-003	1.3700e-003	7.4700e-003	1.7400e-003	1.2600e-003	3.0000e-003	0.0000	19.7989	19.7989	1.5000e-004	0.0000	19.8020
Worker	0.0174	0.0254	0.2646	5.5000e-004	0.0436	4.2000e-004	0.0440	0.0116	3.9000e-004	0.0120	0.0000	42.5359	42.5359	2.4100e-003	0.0000	42.5866
Total	0.0263	0.1164	0.3828	7.7000e-004	0.0497	1.7900e-003	0.0515	0.0133	1.6500e-003	0.0150	0.0000	62.3348	62.3348	2.5600e-003	0.0000	62.3887

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1527	1.5145	0.9074	1.2500e-003		0.1039	0.1039		0.0955	0.0955	0.0000	118.1428	118.1428	0.0356	0.0000	118.8912
Total	0.1527	1.5145	0.9074	1.2500e-003		0.1039	0.1039		0.0955	0.0955	0.0000	118.1428	118.1428	0.0356	0.0000	118.8912

3.5 Building Construction - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9400e-003	0.0910	0.1182	2.2000e-004	6.1000e-003	1.3700e-003	7.4700e-003	1.7400e-003	1.2600e-003	3.0000e-003	0.0000	19.7989	19.7989	1.5000e-004	0.0000	19.8020
Worker	0.0174	0.0254	0.2646	5.5000e-004	0.0436	4.2000e-004	0.0440	0.0116	3.9000e-004	0.0120	0.0000	42.5359	42.5359	2.4100e-003	0.0000	42.5866
Total	0.0263	0.1164	0.3828	7.7000e-004	0.0497	1.7900e-003	0.0515	0.0133	1.6500e-003	0.0150	0.0000	62.3348	62.3348	2.5600e-003	0.0000	62.3887

3.5 Building Construction - 2017**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.5006	0.3176	4.5000e-004		0.0338	0.0338		0.0311	0.0311	0.0000	41.5504	41.5504	0.0127	0.0000	41.8178
Total	0.0503	0.5006	0.3176	4.5000e-004		0.0338	0.0338		0.0311	0.0311	0.0000	41.5504	41.5504	0.0127	0.0000	41.8178

3.5 Building Construction - 2017**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9100e-003	0.0296	0.0400	8.0000e-005	2.1800e-003	4.4000e-004	2.6200e-003	6.2000e-004	4.0000e-004	1.0200e-003	0.0000	6.9644	6.9644	5.0000e-005	0.0000	6.9654
Worker	5.5600e-003	8.2100e-003	0.0854	2.0000e-004	0.0156	1.4000e-004	0.0157	4.1400e-003	1.3000e-004	4.2700e-003	0.0000	14.6353	14.6353	8.0000e-004	0.0000	14.6521
Total	8.4700e-003	0.0378	0.1254	2.8000e-004	0.0178	5.8000e-004	0.0184	4.7600e-003	5.3000e-004	5.2900e-003	0.0000	21.5997	21.5997	8.5000e-004	0.0000	21.6175

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.5006	0.3176	4.5000e-004		0.0338	0.0338		0.0311	0.0311	0.0000	41.5504	41.5504	0.0127	0.0000	41.8177
Total	0.0503	0.5006	0.3176	4.5000e-004		0.0338	0.0338		0.0311	0.0311	0.0000	41.5504	41.5504	0.0127	0.0000	41.8177

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9100e-003	0.0296	0.0400	8.0000e-005	2.1800e-003	4.4000e-004	2.6200e-003	6.2000e-004	4.0000e-004	1.0200e-003	0.0000	6.9644	6.9644	5.0000e-005	0.0000	6.9654
Worker	5.5600e-003	8.2100e-003	0.0854	2.0000e-004	0.0156	1.4000e-004	0.0157	4.1400e-003	1.3000e-004	4.2700e-003	0.0000	14.6353	14.6353	8.0000e-004	0.0000	14.6521
Total	8.4700e-003	0.0378	0.1254	2.8000e-004	0.0178	5.8000e-004	0.0184	4.7600e-003	5.3000e-004	5.2900e-003	0.0000	21.5997	21.5997	8.5000e-004	0.0000	21.6175

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0404	0.2598	0.2063	3.3000e-004		0.0215	0.0215		0.0215	0.0215	0.0000	27.9581	27.9581	3.3000e-003	0.0000	28.0274
Total	0.3925	0.2598	0.2063	3.3000e-004		0.0215	0.0215		0.0215	0.0215	0.0000	27.9581	27.9581	3.3000e-003	0.0000	28.0274

3.6 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	4.8900e-003	0.0510	1.1000e-004	8.4000e-003	8.0000e-005	8.4800e-003	2.2300e-003	7.0000e-005	2.3100e-003	0.0000	8.1960	8.1960	4.7000e-004	0.0000	8.2058
Total	3.3500e-003	4.8900e-003	0.0510	1.1000e-004	8.4000e-003	8.0000e-005	8.4800e-003	2.2300e-003	7.0000e-005	2.3100e-003	0.0000	8.1960	8.1960	4.7000e-004	0.0000	8.2058

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3521					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0404	0.2598	0.2063	3.3000e-004		0.0215	0.0215		0.0215	0.0215	0.0000	27.9581	27.9581	3.3000e-003	0.0000	28.0273
Total	0.3925	0.2598	0.2063	3.3000e-004		0.0215	0.0215		0.0215	0.0215	0.0000	27.9581	27.9581	3.3000e-003	0.0000	28.0273

3.6 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	4.8900e-003	0.0510	1.1000e-004	8.4000e-003	8.0000e-005	8.4800e-003	2.2300e-003	7.0000e-005	2.3100e-003	0.0000	8.1960	8.1960	4.7000e-004	0.0000	8.2058
Total	3.3500e-003	4.8900e-003	0.0510	1.1000e-004	8.4000e-003	8.0000e-005	8.4800e-003	2.2300e-003	7.0000e-005	2.3100e-003	0.0000	8.1960	8.1960	4.7000e-004	0.0000	8.2058

3.6 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1753					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.1191	0.1018	1.6000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	13.9152	13.9152	1.4700e-003	0.0000	13.9461
Total	0.1934	0.1191	0.1018	1.6000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	13.9152	13.9152	1.4700e-003	0.0000	13.9461

3.6 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4900e-003	2.2000e-003	0.0229	5.0000e-005	4.1800e-003	4.0000e-005	4.2200e-003	1.1100e-003	4.0000e-005	1.1500e-003	0.0000	3.9264	3.9264	2.1000e-004	0.0000	3.9309
Total	1.4900e-003	2.2000e-003	0.0229	5.0000e-005	4.1800e-003	4.0000e-005	4.2200e-003	1.1100e-003	4.0000e-005	1.1500e-003	0.0000	3.9264	3.9264	2.1000e-004	0.0000	3.9309

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1753					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.1191	0.1018	1.6000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	13.9152	13.9152	1.4700e-003	0.0000	13.9461
Total	0.1934	0.1191	0.1018	1.6000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	13.9152	13.9152	1.4700e-003	0.0000	13.9461

3.6 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4900e-003	2.2000e-003	0.0229	5.0000e-005	4.1800e-003	4.0000e-005	4.2200e-003	1.1100e-003	4.0000e-005	1.1500e-003	0.0000	3.9264	3.9264	2.1000e-004	0.0000	3.9309
Total	1.4900e-003	2.2000e-003	0.0229	5.0000e-005	4.1800e-003	4.0000e-005	4.2200e-003	1.1100e-003	4.0000e-005	1.1500e-003	0.0000	3.9264	3.9264	2.1000e-004	0.0000	3.9309

3.7 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0104	0.0983	0.0724	1.1000e-004		6.0200e-003	6.0200e-003		5.5700e-003	5.5700e-003	0.0000	9.6972	9.6972	2.6900e-003	0.0000	9.7538
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0104	0.0983	0.0724	1.1000e-004		6.0200e-003	6.0200e-003		5.5700e-003	5.5700e-003	0.0000	9.6972	9.6972	2.6900e-003	0.0000	9.7538

3.7 Paving - 2017**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	1.0400e-003	0.0108	3.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8526	1.8526	1.0000e-004	0.0000	1.8547
Total	7.0000e-004	1.0400e-003	0.0108	3.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8526	1.8526	1.0000e-004	0.0000	1.8547

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0104	0.0983	0.0724	1.1000e-004		6.0200e-003	6.0200e-003		5.5700e-003	5.5700e-003	0.0000	9.6972	9.6972	2.6900e-003	0.0000	9.7538
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0104	0.0983	0.0724	1.1000e-004		6.0200e-003	6.0200e-003		5.5700e-003	5.5700e-003	0.0000	9.6972	9.6972	2.6900e-003	0.0000	9.7538

3.7 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	1.0400e-003	0.0108	3.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8526	1.8526	1.0000e-004	0.0000	1.8547
Total	7.0000e-004	1.0400e-003	0.0108	3.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	2.0000e-005	5.4000e-004	0.0000	1.8526	1.8526	1.0000e-004	0.0000	1.8547

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3083	0.8485	3.3629	7.1500e-003	0.4738	0.0114	0.4852	0.1269	0.0105	0.1373	0.0000	571.9194	571.9194	0.0248	0.0000	572.4408
Unmitigated	0.3083	0.8485	3.3629	7.1500e-003	0.4738	0.0114	0.4852	0.1269	0.0105	0.1373	0.0000	571.9194	571.9194	0.0248	0.0000	572.4408

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	199.50	199.50	199.50	681,722	681,722
General Office Building	37.72	37.72	37.72	121,522	121,522
Government (Civic Center)	0.90	0.90	0.90	2,779	2,779
Strip Mall	233.57	233.57	233.57	444,387	444,387
Enclosed Parking Structure	0.00	0.00	0.00		
Total	471.69	471.69	471.69	1,250,410	1,250,410

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Government (Civic Center)	16.60	8.40	6.90	75.00	20.00	5.00	50	34	16
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15
Enclosed Parking Structure	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.533598	0.058434	0.178244	0.125508	0.038944	0.006283	0.016425	0.031066	0.002453	0.003157	0.003691	0.000543	0.001655

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	119.1708	119.1708	5.4800e-003	1.1300e-003	119.6372
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	119.1708	119.1708	5.4800e-003	1.1300e-003	119.6372
NaturalGas Mitigated	1.8900e-003	0.0163	7.9800e-003	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	18.6622	18.6622	3.6000e-004	3.4000e-004	18.7758
NaturalGas Unmitigated	1.8900e-003	0.0163	7.9800e-003	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	18.6622	18.6622	3.6000e-004	3.4000e-004	18.7758

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	37336.9	2.0000e-004	1.8300e-003	1.5400e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	1.9924	1.9924	4.0000e-005	4.0000e-005	2.0046
Government (Civic Center)	5465	3.0000e-005	2.7000e-004	2.3000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2916	0.2916	1.0000e-005	1.0000e-005	0.2934
Strip Mall	9299	5.0000e-005	4.6000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4962	0.4962	1.0000e-005	1.0000e-005	0.4993
Apartments Mid Rise	297615	1.6000e-003	0.0137	5.8400e-003	9.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	15.8819	15.8819	3.0000e-004	2.9000e-004	15.9785
Total		1.8800e-003	0.0163	7.9900e-003	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	18.6622	18.6622	3.6000e-004	3.5000e-004	18.7758

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	37336.9	2.0000e-004	1.8300e-003	1.5400e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	1.9924	1.9924	4.0000e-005	4.0000e-005	2.0046
Government (Civic Center)	5465	3.0000e-005	2.7000e-004	2.3000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2916	0.2916	1.0000e-005	1.0000e-005	0.2934
Strip Mall	9299	5.0000e-005	4.6000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4962	0.4962	1.0000e-005	1.0000e-005	0.4993
Apartments Mid Rise	297615	1.6000e-003	0.0137	5.8400e-003	9.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	15.8819	15.8819	3.0000e-004	2.9000e-004	15.9785
Total		1.8800e-003	0.0163	7.9900e-003	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003	0.0000	18.6622	18.6622	3.6000e-004	3.5000e-004	18.7758

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	106259	30.4078	1.4000e-003	2.9000e-004	30.5268
Enclosed Parking Structure	170300	48.7342	2.2400e-003	4.6000e-004	48.9249
General Office Building	49634.5	14.2037	6.5000e-004	1.4000e-004	14.2593
Government (Civic Center)	7265	2.0790	1.0000e-004	2.0000e-005	2.0871
Strip Mall	82979.9	23.7461	1.0900e-003	2.3000e-004	23.8390
Total		119.1708	5.4800e-003	1.1400e-003	119.6372

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	106259	30.4078	1.4000e-003	2.9000e-004	30.5268
Enclosed Parking Structure	170300	48.7342	2.2400e-003	4.6000e-004	48.9249
General Office Building	49634.5	14.2037	6.5000e-004	1.4000e-004	14.2593
Government (Civic Center)	7265	2.0790	1.0000e-004	2.0000e-005	2.0871
Strip Mall	82979.9	23.7461	1.0900e-003	2.3000e-004	23.8390
Total		119.1708	5.4800e-003	1.1400e-003	119.6372

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3973	6.1700e-003	0.5032	3.2000e-004		0.0303	0.0303		0.0303	0.0303	3.1866	6.6307	9.8173	0.0100	2.2000e-004	10.0948
Unmitigated	0.3973	6.1700e-003	0.5032	3.2000e-004		0.0303	0.0303		0.0303	0.0303	3.1866	6.6307	9.8173	0.0100	2.2000e-004	10.0948

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0527					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2363					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0983	2.4900e-003	0.1885	3.0000e-004		0.0287	0.0287		0.0286	0.0286	3.1866	6.1235	9.3101	9.5000e-003	2.2000e-004	9.5767
Landscaping	9.9700e-003	3.6800e-003	0.3147	2.0000e-005		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	0.5072	0.5072	5.2000e-004	0.0000	0.5181
Total	0.3972	6.1700e-003	0.5032	3.2000e-004		0.0304	0.0304		0.0303	0.0303	3.1866	6.6307	9.8173	0.0100	2.2000e-004	10.0948

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0527					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2363					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0983	2.4900e-003	0.1885	3.0000e-004		0.0287	0.0287		0.0286	0.0286	3.1866	6.1235	9.3101	9.5000e-003	2.2000e-004	9.5767
Landscaping	9.9700e-003	3.6800e-003	0.3147	2.0000e-005		1.7000e-003	1.7000e-003		1.7000e-003	1.7000e-003	0.0000	0.5072	0.5072	5.2000e-004	0.0000	0.5181
Total	0.3972	6.1700e-003	0.5032	3.2000e-004		0.0304	0.0304		0.0303	0.0303	3.1866	6.6307	9.8173	0.0100	2.2000e-004	10.0948

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	18.4864	0.1007	2.5200e-003	21.3836
Unmitigated	18.4864	0.1007	2.5300e-003	21.3852

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.95462 / 1.23226	11.8211	0.0642	1.6100e-003	13.6687
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.607849 / 0.372553	3.6423	0.0200	5.0000e-004	4.2167
Government (Civic Center)	0.0993298 / 0.008706	0.5952	3.2600e-003	8.0000e-005	0.6891
Strip Mall	0.405177 / 0.248334	2.4278	0.0133	3.3000e-004	2.8107
Total		18.4864	0.1008	2.5200e-003	21.3852

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.95462 / 1.23226	11.8211	0.0642	1.6100e-003	13.6677
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.607849 / 0.372553	3.6423	0.0200	5.0000e-004	4.2164
Government (Civic Center)	0.0993298 / 0.008706	0.5952	3.2600e-003	8.0000e-005	0.6890
Strip Mall	0.405177 / 0.248334	2.4278	0.0133	3.3000e-004	2.8105
Total		18.4864	0.1007	2.5200e-003	21.3836

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.1905	0.3068	0.0000	11.6322
Unmitigated	5.1905	0.3068	0.0000	11.6322

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	13.8	2.8013	0.1656	0.0000	6.2778
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.18	0.6455	0.0382	0.0000	1.4466
Government (Civic Center)	2.85	0.5785	0.0342	0.0000	1.2965
Strip Mall	5.74	1.1652	0.0689	0.0000	2.6112
Total		5.1905	0.3068	0.0000	11.6322

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	13.8	2.8013	0.1656	0.0000	6.2778
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
General Office Building	3.18	0.6455	0.0382	0.0000	1.4466
Government (Civic Center)	2.85	0.5785	0.0342	0.0000	1.2965
Strip Mall	5.74	1.1652	0.0689	0.0000	2.6112
Total		5.1905	0.3068	0.0000	11.6322

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Greenhouse Gas Emission Worksheet
N2O Mobile Emissions

8713 Beverly Boulevard West Hollywood

From CalEEMod Vehicle Fleet Mix Output:

Annual VMT: 1,250,410

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	53.4%	0.04	0.02136	0.04	0.02136
Light Truck < 3750 lbs	5.8%	0.05	0.0029	0.06	0.00348
Light Truck 3751-5750 lbs	17.8%	0.05	0.0089	0.06	0.01068
Med Truck 5751-8500 lbs	12.6%	0.12	0.01512	0.2	0.0252
Lite-Heavy Truck 8501-10,000 lbs	3.9%	0.12	0.00468	0.2	0.0078
Lite-Heavy Truck 10,001-14,000 lbs	0.6%	0.09	0.00054	0.125	0.00075
Med-Heavy Truck 14,001-33,000 lbs	1.6%	0.06	0.00096	0.05	0.0008
Heavy-Heavy Truck 33,001-60,000 lbs	3.1%	0.06	0.00186	0.05	0.00155
Other Bus	0.2%	0.06	0.00012	0.05	0.0001
Urban Bus	0.3%	0.06	0.00018	0.05	0.00015
Motorcycle	0.4%	0.09	0.00036	0.01	0.00004
School Bus	0.1%	0.06	0.00006	0.05	0.00005
Motor Home	0.2%	0.09	0.00018	0.125	0.00025
Total	100.0%		0.05722		0.07221

Total Emissions (metric tons) =

Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4 21 GWP
N2O 310 GWP
1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

	Total Emissions	Total CO2e units
N2O Emissions:	0.0903 metric tons N2O	28 metric tons CO2e
	Project Total:	28 metric tons CO2e

References

* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).
in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
Assume Model year 2000-present, gasoline fueled.

** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.

*** From URBEMIS 2007 results for mobile sources

Appendix D

Noise Measurement Data and Traffic Noise Modeling Results



Freq Weight : A
 Time Weight : FAST
 Level Range : 40-100
 Max dB : 79.8 - 2015/11/19 17:57:44
 Level Range : 40-100
 SEL : 88.7
 Leq : 59.2

No.s	Date Time	(dB)				
1	2015/11/19 17:56:19	58.4	57.3	57.1	56.6	57.4
6	2015/11/19 17:56:24	57.8	58.4	59.1	59.8	58.1
11	2015/11/19 17:56:29	58.1	58.4	62.9	62.6	61.4
16	2015/11/19 17:56:34	58.1	58.1	57.6	59.7	58.2
21	2015/11/19 17:56:39	58.1	58.7	58.8	58.7	59.7
26	2015/11/19 17:56:44	59.7	62.7	61.6	59.5	58.1
31	2015/11/19 17:56:49	59.1	56.7	59.0	57.5	58.4
36	2015/11/19 17:56:54	57.9	57.1	58.6	59.3	58.9
41	2015/11/19 17:56:59	60.3	59.4	58.8	59.3	59.2
46	2015/11/19 17:57:04	59.8	60.2	62.6	60.4	60.4
51	2015/11/19 17:57:09	61.0	60.6	58.4	59.6	59.6
56	2015/11/19 17:57:14	59.6	59.4	59.2	60.8	59.7
61	2015/11/19 17:57:19	63.0	60.3	60.1	61.4	62.0
66	2015/11/19 17:57:24	60.8	58.5	57.8	57.3	56.4
71	2015/11/19 17:57:29	55.6	56.0	56.4	57.0	56.6
76	2015/11/19 17:57:34	59.4	61.6	62.9	62.0	64.9
81	2015/11/19 17:57:39	63.1	70.9	74.5	78.7	79.7
86	2015/11/19 17:57:44	75.1	67.8	64.9	61.9	60.2
91	2015/11/19 17:57:49	58.9	57.7	57.7	59.8	59.0
96	2015/11/19 17:57:54	57.8	59.1	57.9	58.4	58.0
101	2015/11/19 17:57:59	60.5	60.6	59.0	57.5	57.7
106	2015/11/19 17:58:04	57.5	57.0	57.9	60.1	58.0
111	2015/11/19 17:58:09	57.6	56.8	56.1	56.0	58.0
116	2015/11/19 17:58:14	55.6	55.3	55.6	55.3	55.6
121	2015/11/19 17:58:19	55.5	55.9	56.5	56.4	59.5
126	2015/11/19 17:58:24	56.9	54.1	54.2	54.0	53.4
131	2015/11/19 17:58:29	53.5	52.7	52.4	52.5	52.6
136	2015/11/19 17:58:34	52.3	52.3	52.7	52.9	52.9
141	2015/11/19 17:58:39	52.8	53.2	53.2	53.3	53.0
146	2015/11/19 17:58:44	54.4	55.3	55.5	55.5	56.5
151	2015/11/19 17:58:49	57.3	56.9	57.1	57.8	57.7
156	2015/11/19 17:58:54	57.5	57.4	56.9	56.7	57.5
161	2015/11/19 17:58:59	57.2	57.3	55.8	56.0	56.0
166	2015/11/19 17:59:04	56.0	56.5	56.5	55.6	54.9
171	2015/11/19 17:59:09	55.4	55.0	54.9	55.1	55.6
176	2015/11/19 17:59:14	56.3	56.2	55.1	56.3	56.0
181	2015/11/19 17:59:19	55.3	55.6	55.2	54.4	55.0
186	2015/11/19 17:59:24	54.1	53.8	54.4	56.1	53.9
191	2015/11/19 17:59:29	53.9	53.8	55.0	55.5	53.8
196	2015/11/19 17:59:34	53.2	53.8	52.9	53.2	53.2
201	2015/11/19 17:59:39	53.6	53.5	53.5	54.1	53.9
206	2015/11/19 17:59:44	54.4	54.4	54.6	55.2	55.9
211	2015/11/19 17:59:49	55.9	56.2	56.2	56.9	56.7
216	2015/11/19 17:59:54	56.5	56.4	56.4	56.0	56.1
221	2015/11/19 17:59:59	55.9	56.2	56.1	56.5	56.2
226	2015/11/19 18:00:04	56.4	57.5	58.3	63.8	66.8
231	2015/11/19 18:00:09	60.9	61.1	57.3	56.1	56.6
236	2015/11/19 18:00:14	57.1	58.3	57.8	58.2	57.5
241	2015/11/19 18:00:19	57.9	57.6	56.3	60.1	65.8
246	2015/11/19 18:00:24	65.9	58.3	55.1	54.8	55.7
251	2015/11/19 18:00:29	55.3	54.6	55.0	54.5	54.2
256	2015/11/19 18:00:34	54.7	54.8	55.4	56.2	59.5
261	2015/11/19 18:00:39	64.1	65.4	61.4	58.1	56.2
266	2015/11/19 18:00:44	56.6	59.7	58.5	55.9	58.0
271	2015/11/19 18:00:49	58.5	56.6	56.0	58.0	59.1
276	2015/11/19 18:00:54	58.3	58.7	58.0	57.2	58.3
281	2015/11/19 18:00:59	57.7	56.7	58.7	56.4	56.3
286	2015/11/19 18:01:04	56.6	57.4	57.9	56.9	57.7
291	2015/11/19 18:01:09	55.8	55.0	55.4	55.0	54.5
296	2015/11/19 18:01:14	54.9	54.7	54.4	54.0	54.1
301	2015/11/19 18:01:19	53.5	54.3	55.0	56.3	59.4
306	2015/11/19 18:01:24	59.9	60.5	57.3	54.8	54.1
311	2015/11/19 18:01:29	54.6	54.8	54.7	53.7	53.4
316	2015/11/19 18:01:34	53.9	53.9	53.2	54.0	53.8
321	2015/11/19 18:01:39	53.4	53.5	55.0	54.9	54.2
326	2015/11/19 18:01:44	53.8	53.5	55.0	54.2	54.3
331	2015/11/19 18:01:49	55.2	55.3	55.4	54.7	56.0
336	2015/11/19 18:01:54	56.1	55.5	55.6	55.3	55.4
341	2015/11/19 18:01:59	55.5	55.7	55.5	55.7	55.6
346	2015/11/19 18:02:04	56.2	55.7	55.4	55.0	55.4
351	2015/11/19 18:02:09	55.5	55.3	54.8	55.6	57.0
356	2015/11/19 18:02:14	59.8	60.9	58.8	56.7	55.4
361	2015/11/19 18:02:19	54.9	54.9	54.4	53.8	54.0
366	2015/11/19 18:02:24	54.0	53.4	53.1	53.7	53.8
371	2015/11/19 18:02:29	53.6	53.4	52.9	53.0	54.1
376	2015/11/19 18:02:34	53.7	53.6	53.7	54.0	53.4
381	2015/11/19 18:02:39	54.3	53.9	54.4	54.2	53.3
386	2015/11/19 18:02:44	55.0	55.8	56.2	57.1	57.0
391	2015/11/19 18:02:49	56.6	56.8	56.8	56.4	57.0
396	2015/11/19 18:02:54	57.1	57.3	57.1	56.1	56.8
401	2015/11/19 18:02:59	56.0	57.5	56.8	56.6	55.9
406	2015/11/19 18:03:04	55.8	55.7	55.4	55.1	55.3
411	2015/11/19 18:03:09	54.8	55.3	55.1	55.0	55.4
416	2015/11/19 18:03:14	54.7	55.6	54.8	55.8	55.8
421	2015/11/19 18:03:19	56.3	55.3	56.0	55.7	56.6

426	2015/11/19	18:03:24	55.5	56.1	56.8	57.6	57.3
431	2015/11/19	18:03:29	57.3	55.9	55.9	55.3	56.1
436	2015/11/19	18:03:34	55.8	56.6	59.2	57.3	55.3
441	2015/11/19	18:03:39	55.2	57.5	54.5	56.6	57.6
446	2015/11/19	18:03:44	54.7	54.0	54.1	54.1	58.5
451	2015/11/19	18:03:49	55.5	56.4	60.1	58.7	59.8
456	2015/11/19	18:03:54	66.8	64.8	54.9	55.0	55.5
461	2015/11/19	18:03:59	55.9	56.6	57.4	58.8	60.1
466	2015/11/19	18:04:04	61.7	61.7	62.0	59.0	56.0
471	2015/11/19	18:04:09	54.7	55.3	54.5	55.6	54.4
476	2015/11/19	18:04:14	54.2	54.3	53.8	54.1	53.9
481	2015/11/19	18:04:19	53.8	54.6	54.6	54.4	55.4

Freq Weight : A
 Time Weight : FAST
 Level Range : 40-100
 Max dB : 87.3 - 2015/11/19 18:21:44
 Level Range : 40-100
 SEL : 99.5
 Leq : 70.0

No.s	Date Time	(dB)				
1	2015/11/19 18:15:23	72.2	72.4	72.4	73.3	71.8
6	2015/11/19 18:15:28	72.2	71.7	71.5	73.5	72.8
11	2015/11/19 18:15:33	75.4	74.7	74.9	75.6	74.5
16	2015/11/19 18:15:38	74.0	71.9	70.3	68.6	66.8
21	2015/11/19 18:15:43	65.6	64.6	65.2	68.7	69.7
26	2015/11/19 18:15:48	68.7	68.5	67.7	67.0	64.6
31	2015/11/19 18:15:53	63.8	63.9	65.1	67.7	72.0
36	2015/11/19 18:15:58	69.2	65.6	63.7	64.5	69.5
41	2015/11/19 18:16:03	71.8	66.7	64.1	62.9	63.2
46	2015/11/19 18:16:08	63.4	66.9	65.8	68.2	67.6
51	2015/11/19 18:16:13	68.0	66.3	65.8	63.4	62.4
56	2015/11/19 18:16:18	61.9	62.0	62.7	60.9	60.9
61	2015/11/19 18:16:23	61.2	61.1	61.0	60.8	61.3
66	2015/11/19 18:16:28	60.9	61.4	76.3	62.3	62.5
71	2015/11/19 18:16:33	64.2	68.2	73.6	74.8	75.6
76	2015/11/19 18:16:38	74.8	73.4	71.1	72.6	75.0
81	2015/11/19 18:16:43	76.2	76.2	76.1	75.1	75.5
86	2015/11/19 18:16:48	77.3	75.5	76.5	77.6	78.9
91	2015/11/19 18:16:53	78.1	76.8	75.6	78.5	78.0
96	2015/11/19 18:16:58	76.1	74.8	73.2	75.9	78.7
101	2015/11/19 18:17:03	78.6	77.0	77.7	78.3	78.8
106	2015/11/19 18:17:08	78.2	76.0	76.5	75.0	73.4
111	2015/11/19 18:17:13	71.7	70.7	70.0	69.2	72.0
116	2015/11/19 18:17:18	73.7	75.5	71.7	69.3	68.1
121	2015/11/19 18:17:23	65.5	65.7	63.3	62.5	63.9
126	2015/11/19 18:17:28	63.2	63.5	64.7	66.8	67.3
131	2015/11/19 18:17:33	69.4	66.9	64.6	63.7	65.1
136	2015/11/19 18:17:38	69.1	68.4	68.6	69.6	68.6
141	2015/11/19 18:17:43	70.6	71.2	71.5	72.4	72.6
146	2015/11/19 18:17:48	71.5	70.7	69.9	70.2	69.9
151	2015/11/19 18:17:53	69.6	69.5	70.0	71.9	72.2
156	2015/11/19 18:17:58	68.9	69.0	68.7	68.4	67.8
161	2015/11/19 18:18:03	67.9	68.1	67.4	67.7	67.4
166	2015/11/19 18:18:08	67.4	66.9	69.4	69.2	68.7
171	2015/11/19 18:18:13	69.3	69.3	68.8	72.2	69.8
176	2015/11/19 18:18:18	67.3	65.7	63.9	64.2	62.2
181	2015/11/19 18:18:23	63.1	64.8	61.3	61.2	61.5
186	2015/11/19 18:18:28	60.0	61.7	60.9	61.1	61.9
191	2015/11/19 18:18:33	61.2	60.3	60.3	60.3	60.0
196	2015/11/19 18:18:38	60.0	60.6	60.9	61.4	61.2
201	2015/11/19 18:18:43	60.9	61.5	61.8	62.7	65.9
206	2015/11/19 18:18:48	65.9	70.0	72.1	72.3	71.9
211	2015/11/19 18:18:53	75.9	75.0	74.4	73.2	75.3
216	2015/11/19 18:18:58	74.7	72.2	70.7	71.1	70.5
221	2015/11/19 18:19:03	69.4	70.1	69.0	69.0	69.8
226	2015/11/19 18:19:08	70.5	70.8	70.2	70.1	70.7
231	2015/11/19 18:19:13	70.6	70.1	71.2	72.3	71.1
236	2015/11/19 18:19:18	70.9	69.5	71.2	71.4	67.8
241	2015/11/19 18:19:23	66.6	64.8	72.7	64.6	64.3
246	2015/11/19 18:19:28	65.4	64.3	64.5	64.6	65.9
251	2015/11/19 18:19:33	68.3	67.0	66.2	66.2	67.9
256	2015/11/19 18:19:38	69.6	70.0	70.0	70.7	70.8
261	2015/11/19 18:19:43	70.3	70.8	69.6	71.1	69.9
266	2015/11/19 18:19:48	71.5	72.9	72.3	72.0	72.4
271	2015/11/19 18:19:53	73.7	72.4	72.7	70.7	69.3
276	2015/11/19 18:19:58	68.7	65.4	65.9	64.3	63.4
281	2015/11/19 18:20:03	63.4	63.0	62.8	63.6	63.0
286	2015/11/19 18:20:08	64.3	66.1	62.5	64.4	63.0
291	2015/11/19 18:20:13	64.7	62.8	63.8	62.2	62.9
296	2015/11/19 18:20:18	64.2	63.4	63.5	64.4	65.6
301	2015/11/19 18:20:23	67.5	69.9	70.6	69.0	67.0
306	2015/11/19 18:20:28	66.4	67.8	71.2	70.4	69.6
311	2015/11/19 18:20:33	64.7	62.1	61.0	60.5	60.8
316	2015/11/19 18:20:38	61.4	61.4	61.9	61.5	62.0
321	2015/11/19 18:20:43	63.2	62.2	63.4	65.5	67.1
326	2015/11/19 18:20:48	71.0	77.0	76.6	72.0	72.0
331	2015/11/19 18:20:53	70.8	74.2	76.7	75.3	75.9
336	2015/11/19 18:20:58	74.4	74.3	72.0	73.1	76.9
341	2015/11/19 18:21:03	74.0	73.4	76.6	75.0	73.8
346	2015/11/19 18:21:08	75.3	75.3	75.3	74.8	74.4
351	2015/11/19 18:21:13	74.1	72.5	72.7	73.4	74.8
356	2015/11/19 18:21:18	77.6	74.7	74.8	76.9	75.0
361	2015/11/19 18:21:23	72.7	70.2	69.4	72.7	71.8
366	2015/11/19 18:21:28	71.9	73.3	70.5	69.9	69.1
371	2015/11/19 18:21:33	71.2	70.1	74.2	78.6	77.8
376	2015/11/19 18:21:38	74.9	77.6	72.9	68.2	71.6
381	2015/11/19 18:21:43	78.3	81.8	73.4	72.2	67.6
386	2015/11/19 18:21:48	62.9	62.7	62.5	64.5	62.7
391	2015/11/19 18:21:53	68.0	72.3	69.3	65.3	64.6
396	2015/11/19 18:21:58	63.1	62.8	62.4	63.0	62.7
401	2015/11/19 18:22:03	62.9	63.0	62.7	62.4	63.2
406	2015/11/19 18:22:08	62.9	62.9	62.5	62.4	63.2
411	2015/11/19 18:22:13	62.3	62.8	62.2	62.7	62.6
416	2015/11/19 18:22:18	62.3	61.8	62.0	62.0	62.5
421	2015/11/19 18:22:23	61.8	62.9	62.6	62.8	62.9

426	2015/11/19	18:22:28	63.4	63.3	62.7	62.6	62.7
431	2015/11/19	18:22:33	62.4	62.9	62.5	62.8	62.5
436	2015/11/19	18:22:38	63.1	63.0	63.2	65.3	63.8
441	2015/11/19	18:22:43	64.3	65.9	65.9	69.6	77.9
446	2015/11/19	18:22:48	75.2	71.9	71.4	74.7	74.2
451	2015/11/19	18:22:53	76.0	77.7	79.3	78.2	77.7
456	2015/11/19	18:22:58	78.3	77.3	78.2	76.0	74.2
461	2015/11/19	18:23:03	75.3	76.2	82.7	75.4	76.2
466	2015/11/19	18:23:08	75.0	79.6	78.1	79.4	76.6
471	2015/11/19	18:23:13	74.6	72.5	72.0	71.6	70.3
476	2015/11/19	18:23:18	68.7	74.5	69.0	68.9	69.0
481	2015/11/19	18:23:23	69.1	67.9	68.8	67.8	68.3
486	2015/11/19	18:23:28	67.9	66.6	66.6	65.2	65.9
491	2015/11/19	18:23:33	64.8	64.3	70.4	72.0	71.2
496	2015/11/19	18:23:38	74.7	69.4	69.2	70.5	68.1
501	2015/11/19	18:23:43	65.4	67.2	67.2	67.7	68.9
506	2015/11/19	18:23:48	69.3	69.8	71.6	72.5	72.3
511	2015/11/19	18:23:53	73.5	73.9	74.7	76.5	71.6
516	2015/11/19	18:23:58	72.7	70.8	69.7	68.9	68.5
521	2015/11/19	18:24:03	67.1	66.7	66.9	65.4	66.4
526	2015/11/19	18:24:08	65.6	64.1	64.5	65.6	70.8
531	2015/11/19	18:24:13	68.6	73.6	68.5	66.9	64.5
536	2015/11/19	18:24:18	62.4	62.0	61.1	61.9	64.3
541	2015/11/19	18:24:23	69.8	72.2	70.7	67.5	66.1
546	2015/11/19	18:24:28	64.9	63.8	63.5	64.7	62.7
551	2015/11/19	18:24:33	67.4	69.9	69.8	67.9	63.9
556	2015/11/19	18:24:38	61.7	61.3	61.1	61.3	62.0
561	2015/11/19	18:24:43	62.8	63.7	64.4	67.0	70.2
566	2015/11/19	18:24:48	71.6	74.8	76.0	73.6	73.7
571	2015/11/19	18:24:53	73.6	72.3	72.0	70.8	69.5
576	2015/11/19	18:24:58	71.6	68.9	73.0	73.4	72.5
581	2015/11/19	18:25:03	71.5	69.7	69.2	68.4	68.6
586	2015/11/19	18:25:08	68.0	71.2	70.1	70.1	68.9
591	2015/11/19	18:25:13	71.1	69.9	69.9	67.1	67.7
596	2015/11/19	18:25:18	65.3	64.4	64.1	65.0	63.4
601	2015/11/19	18:25:23	70.5	68.4	68.6	74.0	74.6
606	2015/11/19	18:25:28	74.3	76.2	82.7	71.7	68.8
611	2015/11/19	18:25:33	80.1	77.9	75.1	80.3	72.5
616	2015/11/19	18:25:38	72.0	73.3	73.5	74.5	78.8
621	2015/11/19	18:25:43	79.2	78.7	78.9	78.1	74.3
626	2015/11/19	18:25:48	73.4	73.9	77.0	75.3	74.1
631	2015/11/19	18:25:53	73.3	73.5	74.7	74.0	75.0
636	2015/11/19	18:25:58	73.1	71.2	70.8	70.6	71.2
641	2015/11/19	18:26:03	72.0	76.2	72.3	71.1	69.6
646	2015/11/19	18:26:08	70.5	76.2	68.4	67.8	67.1

RESULTS: SOUND LEVELS
8713 Beverly Blvd

Rincon Consultants, Inc.												
<Analysis By?>												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:												
RUN:												
BARRIER DESIGN:												
ATMOSPHERICS:												
Receiver												
Name												
No.												
#DUs												
Existing												
LAeq1h												
No Barrier												
LAeq1h												
Calculated												
Crit'n												
Increase over existing												
Calculated												
Crit'n												
Sub'l Inc												
Type												
Impact												
Calculated												
LAeq1h												
Noise Reduction												
Calculated												
Goal												
Calculated												
minus												
Goal												
dB												
dB												
dB												
dB												
Sensitive Receptors												
1												
1												
0.0												
61.9												
66												
61.9												
10												

61.9												
0.0												
8												
-8.0												
Noise Measurement Location 2												
6												
1												
0.0												
68.4												
66												
68.4												
10												
Snd Lvl												
68.4												
0.0												
8												
-8.0												
Noise Measurement Location 1												
7												
1												
0.0												
62.8												
66												
62.8												
10												

62.8												
0.0												
8												
-8.0												
Dwelling Units												
# DUs												
Noise Reduction												
Min												
Avg												
Max												
dB												
dB												
dB												
All Selected												
3												
0.0												
0.0												
All Impacted												
1												
0.0												
0.0												
All that meet NR Goal												
0												
0.0												
0.0												

8713 Beverly Blvd

C:\TNM25\PROGRAM\8713 BEVERLY BLVD\Cumulative

8713 Beverly Blvd

C:\TNM25\PROGRAM\8713 BEVERLY BLVD\Cumulative Plus Project

Existing	Auto	Med	Heavy
N Robertson Blvd	1233	37	25
S Robertson Blvd	1157	35	23
George Burns Road	481	14	10
W Beverly Blvd	2116	63	42
Beverly Blvd	2326	70	47
San Vicente Blvd S	2263	68	45
San Vicente Blvd N	2055	62	41

Existing Plus Project	Auto	Med	Heavy
N Robertson Blvd	1235	37	25
S Robertson Blvd	1159	35	23
George Burns Road	481	14	10
W Beverly Blvd	2127	64	42
Beverly Blvd	2346	70	47
San Vicente Blvd S	2271	68	45
San Vicente Blvd N	2059	62	41

Cumulative	Auto	Med	Heavy
N Robertson Blvd	1520	46	30
S Robertson Blvd	1440	43	29
George Burns Road	529	16	11
W Beverly Blvd	2415	72	48
Beverly Blvd	2664	80	53
San Vicente Blvd S	2617	79	52
San Vicente Blvd N	2423	73	48

Cumulative Plus Project	Auto	Med	Heavy
N Robertson Blvd	1522	46	30
S Robertson Blvd	1442	43	29
George Burns Road	529	16	11
W Beverly Blvd	2426	73	49
Beverly Blvd	2684	81	54
San Vicente Blvd S	2625	79	53
San Vicente Blvd N	2427	73	49



Appendix E

Transportation Study

Draft Transportation Study for the 8713 Beverly Boulevard Mixed-Use Project

Prepared by

FEHR & PEERS

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January 2016

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1. INTRODUCTION

This report documents the assumptions, methodologies, and findings of a study conducted by Fehr & Peers to evaluate the potential traffic impacts for the proposed mixed-use development located at 8713 Beverly Boulevard in West Hollywood, California.

PROJECT DESCRIPTION

The project is located at 8713 Beverly Boulevard. The project site is currently occupied by a night club. The site is generally bordered by Beverly Boulevard to the south, adjacent buildings to the west (Dominick's restaurant), and adjacent building to the east (restaurant space previously Jerry's deli). The property is bounded by apartments to the north that front Bonner Drive. Figure 1 illustrates the location of the project site in relation to the surrounding street system.

The proposed project involves the construction of a mixed-use development containing 30 residential apartments (including six affordable housing units), 5,475 square feet (sf) of ground floor retail space, 3,416 sf of office space, and 500 sf of ground floor gallery space. Parking will be provided in an underground multi-level parking garage. A total of 65 parking spaces will be provided.

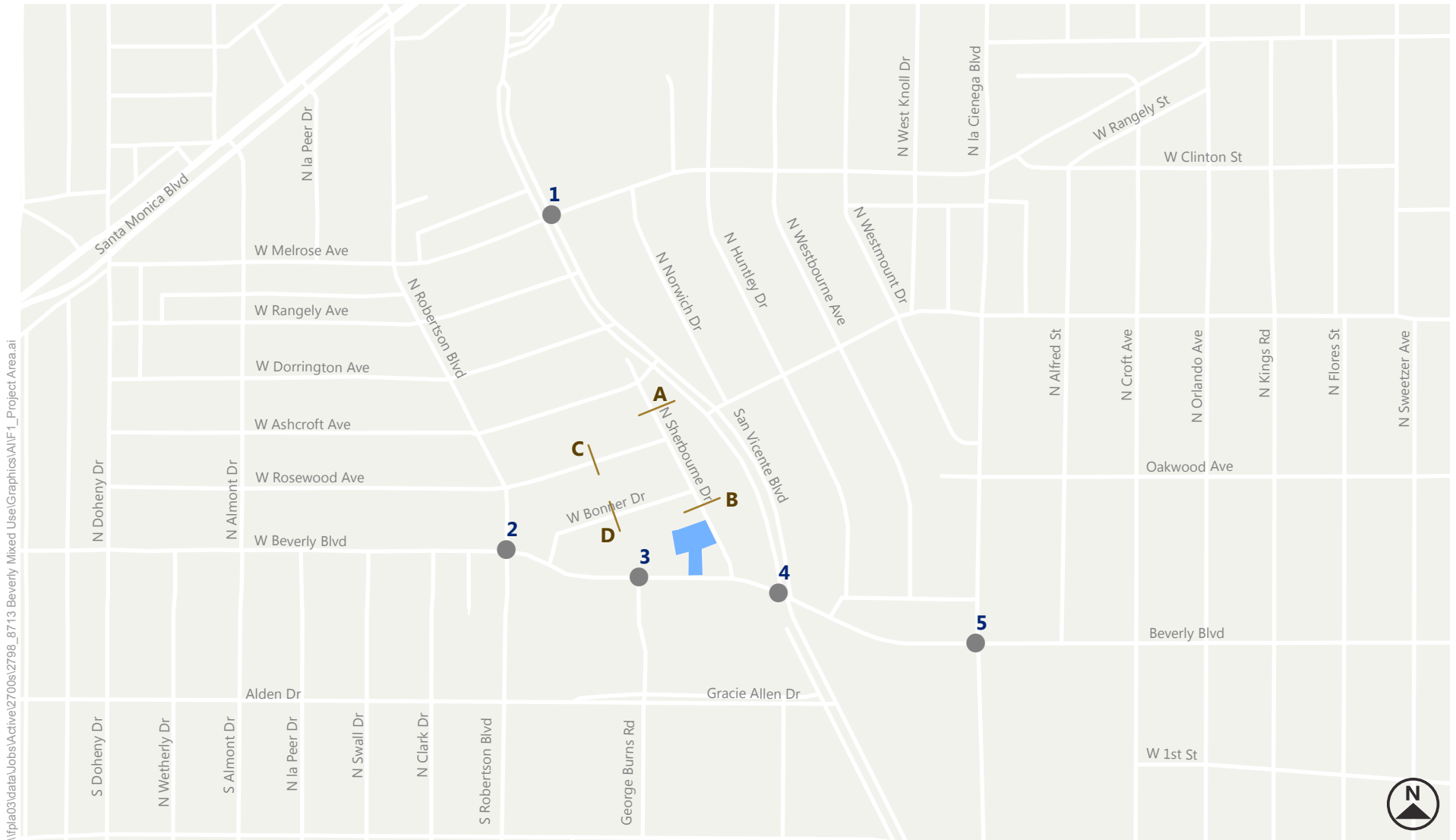
Vehicular access to the project site would be provided by a driveway on Sherbourne Drive. The driveway would allow for right-in/right-out access as well as left-in access. The driveway will be restricted to outbound right-turns only. Figure 2 illustrates the ground level site plan of the proposed development.

STUDY SCOPE

The scope of work for this study was developed in conjunction with City of West Hollywood Transportation Division staff. The base assumptions and technical methodologies and geographic coverage were identified with city staff as part of the study approach. The study, which analyzes potential project-generated traffic impacts on the adjacent street system, anticipates that the project would be completed by 2018. The analysis of cumulative year traffic forecasts was based on projected conditions in 2018 both with and without the addition of the project traffic. The following traffic scenarios have been developed and analyzed as part of this study:

- Existing (2015) Conditions – The analysis of existing traffic conditions was intended to provide a basis for the remainder of the study. The existing conditions analysis included a description of the street system serving the site, current traffic volumes, and an assessment of the operating conditions at these locations.
- Existing (2015) plus Project Conditions – This traffic scenario includes the proposed project, provides projected traffic volumes, and an assessment of operating conditions under existing conditions with the addition of project-generated traffic. The impacts of the proposed project on existing traffic operating conditions can then be identified.





- Study Locations
- Analyzed Street Segments
- Project Site



Figure 1
Project Area

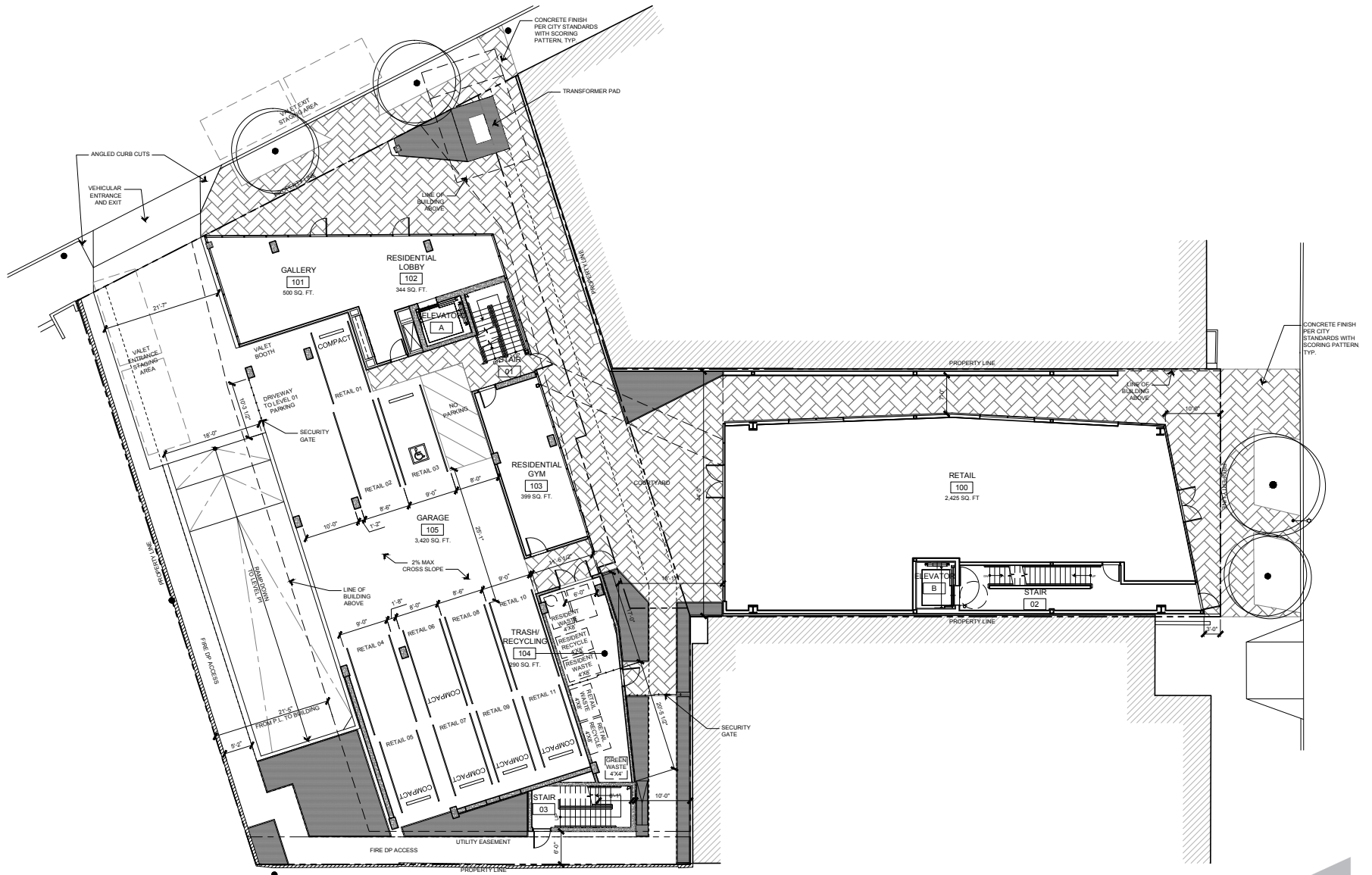


Figure 2
Site Plan

- Cumulative Base (2018) Conditions – Cumulative traffic conditions without the proposed project were developed for the year 2018. The objective of this analysis was to project cumulative traffic growth and operating conditions that could be expected to result from regional growth and related projects in the vicinity of the project site by the year 2018.
- Cumulative (2018) plus Project Conditions – This traffic scenario provided projected traffic volumes and an assessment of operating conditions under cumulative conditions with the addition of project-generated traffic. The impacts of the proposed project on cumulative traffic operating conditions could then be identified.

Five intersections were identified for analysis in consultation with West Hollywood staff. All the study intersections are in the City of West Hollywood with the exception of La Cienega Boulevard & Beverly Boulevard, which is fully within the City of Los Angeles's jurisdiction. All study intersections operate under traffic signal control.

1. San Vicente Boulevard and Melrose Boulevard
2. Robertson Boulevard and Beverly Boulevard
3. George Burns Road and Beverly Boulevard
4. San Vicente Boulevard and Beverly Boulevard
5. La Cienega Boulevard and Beverly Boulevard

Four street segments were also selected for analysis:

- A. Sherbourne Drive between Ashcroft Avenue and Rosewood Avenue
- B. Sherbourne Drive between Bonner Drive and Project Site Driveway
- C. Rosewood Avenue between Robertson Boulevard and Sherbourne Drive
- D. Bonner Drive between Beverly Boulevard and Sherbourne Drive

Figure 1 illustrates the locations of the five intersections and four segments selected for analysis.

ORGANIZATION OF REPORT

This report is divided into 9 chapters, including this introduction. Chapter 2 describes the existing circulation system, traffic volumes, and traffic conditions in the study area. The methodologies used to generate and distribute traffic for the proposed project, as well as the methodologies used to forecast existing plus project traffic conditions are described and applied in Chapter 3. The methodologies used to forecast cumulative traffic volumes are described and applied in Chapter 4. Chapter 5 presents an assessment of potential traffic impacts for the existing plus project and cumulative plus project scenarios. Alternative transportation impacts are addressed in Chapter 6. Issues regarding on-site parking and site access are evaluated in Chapter 7. Chapter 8 describes construction impacts. Chapter 9 presents the study conclusions. Details of the technical analysis are included in the appendices.



2. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions in the study area. The assessment of conditions relevant to this study included an inventory of the street system, traffic volumes on these facilities and operating conditions at key intersections.

STREET SYSTEM

As discussed, the study intersections were determined in consultation with City of West Hollywood staff. The study area for this analysis is generally bordered by Sunset Boulevard to the north, Kings Road to the east, Melrose Avenue to the south, and San Vicente Boulevard to the west. Primary regional access to the study area is provided by Santa Monica Boulevard, which runs east-west through the study area, and the Hollywood Freeway (US 101), which generally runs northwest-southeast approximately two miles northeast of the project site. Access to the US 101 is provided at the Highland Avenue interchange.

Surface street north-south regional project access is provided by San Vicente Boulevard and La Cienega Boulevard; east-west regional access is provided by Sunset Boulevard and Santa Monica Boulevard. Localized access is provided by Melrose Avenue, Fountain Avenue, Westbourne Drive, and North West Knoll Drive.

The following is a brief description of the streets in the vicinity of the project site:

- Beverly Boulevard – Beverly Boulevard is an east-west arterial street directly south of the project site. It provides two lanes in each direction during the peak hours. Parking is generally allowed on both sides of the street near the study area. The posted speed limit is 35 miles per hour (mph).
- San Vicente Boulevard – San Vicente Boulevard is a north-south arterial south of Santa Monica Boulevard and a collector between Santa Monica Boulevard and Sunset Boulevard west of the project site. It provides two lanes in each direction during the peak hours. Parking is generally allowed on both sides of the street near the study area, with some segments including diagonal parking south of Santa Monica Boulevard. The posted speed limit is 35 miles per hour (mph).
- Robertson Boulevard – Robertson Boulevard is a north-south collector south of Santa Monica Boulevard and a collector between Santa Monica Boulevard and Sunset Boulevard west of the project site. It provides one lane in each direction during the peak hours. Parking is generally allowed on both sides of the street near the study area. The speed limit is 25 miles per hour (mph).
- La Cienega Boulevard – La Cienega Boulevard is a north-south arterial south of Santa Monica Boulevard and a collector between Santa Monica Boulevard and Sunset Boulevard east of the project site. It provides four travel lanes with two lanes in each direction. La Cienega also provides regional access with a connection to the I-10 ramps, south of the study area. Parking is generally allowed on both sides of the street in the project vicinity. The posted speed limit is 35 mph.
- Melrose Avenue – Melrose Avenue is an east-west collector. Between San Vicente Boulevard and La Cienega Boulevard, generally two travel lanes and a shared center turn lane are provided.



Parking is available on both sides of the street, and is metered between 8:00AM and 7:00PM. The posted speed limit is 35 mph.

- Sherbourne Drive – Sherbourne Drive is a north-south local street that provides access to the project site. Two travel lanes are provided on the undivided roadway; parking is available on the street. The speed limit is 25 mph.
- Bonner Drive – Bonner Drive is an east-west local street to the north of the project site that connects Beverly Boulevard to Sherbourne Drive. Two travel lanes are provided on the undivided roadway; parking is available on the street. The speed limit is 25 miles per hour.
- Rosewood Avenue – Rosewood Avenue is an east-west local street to the north of the project site that connects Robertson Boulevard to Sherbourne Drive. Two travel lanes are provided on the undivided roadway; parking is available on the street. The speed limit is 25 miles per hour.

TRANSIT SERVICE

The Los Angeles County Metropolitan Transportation Authority (Metro) and City of West Hollywood CityLine system provide existing public transit service in the vicinity of the proposed project. A number of bus routes serve the surrounding area, including municipal bus lines, Metro local service to and from downtown Los Angeles, east-west local services to other areas, north-south local service to other areas, limited service in the peak hours, and Metro Rapid service. The transit lines serving the study area are described below.

Metro Bus Lines

- Metro Line 10 – Line 10 is a local east-west line that travels from West Los Angeles to Downtown Los Angeles via Temple Street and Melrose Avenue. Line 10 travels along Melrose Avenue in the study area. The lines operate at average 10-minute headways in the AM and PM peak hours.
- Metro Line 14 – Line 14 is a local east-west line that travels from West Los Angeles to Downtown Los Angeles via First Street and Beverly Boulevard. Line 14 travels along Beverly Boulevard in the study area. The lines operate at average 5- to 10-minute headways in the AM and PM peak hours.
- Metro Line 220 – Line 220 is a local north-south line that travels from Cedars-Sinai Medical Center to the Beverly Center via Robertson Boulevard and Beverly Boulevard. Line 220 travels along Robertson Boulevard and Beverly Boulevard in the study area. The lines operate at an average 60-minute headways in the AM and PM peak hours.
- Metro Lines 30 and 330 – Line 30 is a local east-west line that travels from Mid-City to east Los Angeles. Line 330 is a Metro line that provides limited-stop service from West Hollywood to east Los Angeles. Line 30 and Line 330 provide service to Mid-city, downtown Los Angeles, Boyle Heights, and east Los Angeles, with Line 330 also serving West Hollywood and Beverly Hills. Lines 30 and 330 both travel along San Vicente Boulevard in the study area. In the AM peak hour, Metro Line 30 operates at six-minute headways and Line 330 operates with 30-minute headways. In the PM peak hour, Line 30 operates at seven-minute headways and Line 330 operates with 30-minute headways.



- Metro Lines 105 and 705 – Line 105 is a local southeast-northwest line that travels from West Hollywood to Vernon. Line 705 is a Metro Rapid line that provides limited-stop service along the same route. Line 105 and Line 705 provide service to West Hollywood, Beverly Hills, Baldwin Hills, Liemert Park, Exposition Park, and Vernon. Lines 105 and 705 both travel along La Cienega Boulevard in the study area. In the AM peak hour, Metro Line 105 and 705 operate at 10-minute headways. In the PM peak hour, the lines operate at 20-minute headways.

West Hollywood CityLine

- Blue Route – The West Hollywood CityLine Blue Route provides local circulation service to the City of West Hollywood, linking the east and west communities while primarily traveling on Santa Monica Boulevard. Near the project site, the Blue Route stops include Cedars Sinai Medical Center and San Vicente Boulevard & Beverly Boulevard. The Blue Route operates at 35- to 70-minute headways during the day.
- Orange Route – The West Hollywood CityLine Orange Route provides local circulation service to the City of West Hollywood, linking the east and west communities to Plummer Park while primarily traveling on Santa Monica Boulevard. Near the project site, the Orange Route stops include Cedars Sinai Medical Center and San Vicente Boulevard & Beverly Boulevard. The Orange Route operates at 35- to 70-minute headways during the day.

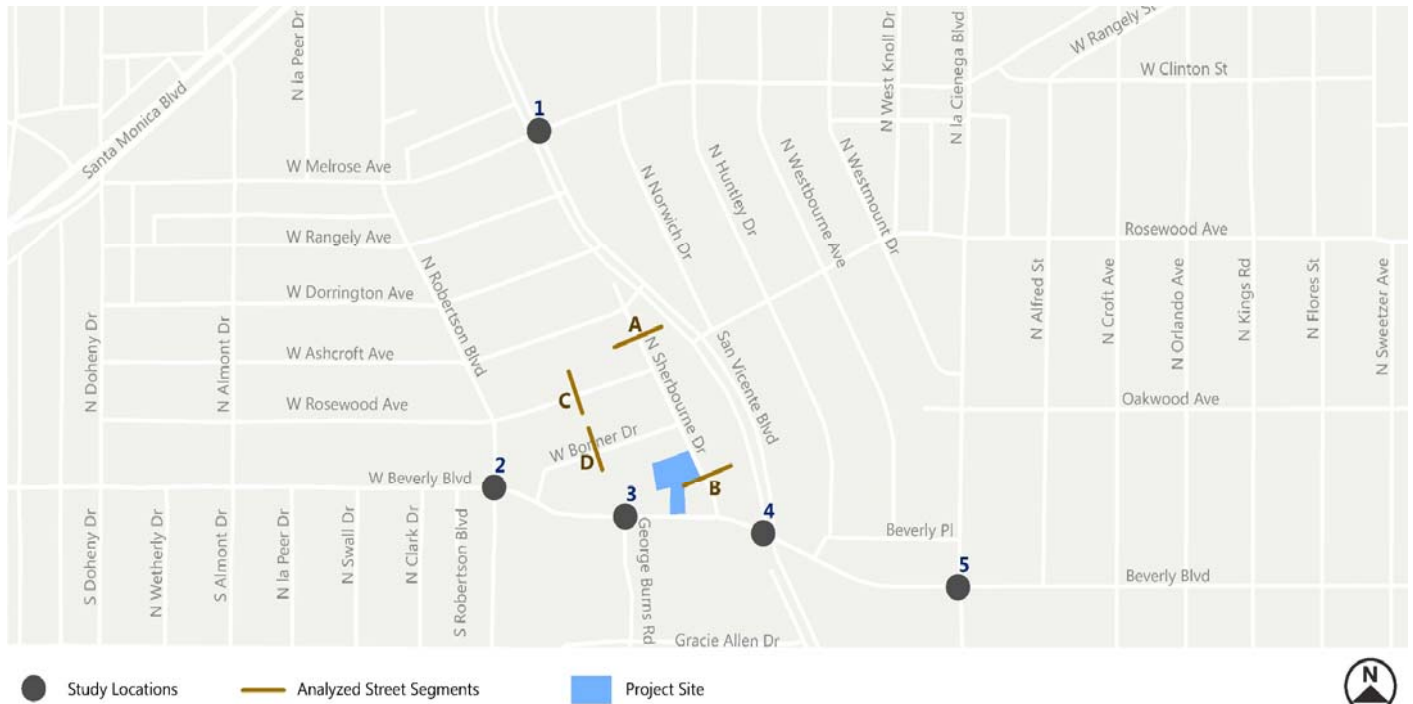
TRAFFIC VOLUMES AND OPERATIONS

The following sections discuss the methodology used to analyze the intersection traffic conditions and present the intersection peak hour traffic volumes and the resulting level of service (LOS) at each of the study intersections under existing conditions.

Traffic Volumes

New weekday AM and PM peak hour turning movement traffic counts were collected in November 2015 at all study intersections. Daily traffic counts were collected in November 2015 at all study segments as well. Figure 3 shows the existing intersection volumes for the AM and PM peak hours. Traffic counts are provided in Appendix A.





1. San Vicente Blvd/Melrose Ave 58 (53) 504 (542) 76 (112) 175 (268) 796 (503) 124 (180) 32 (95) 539 (593) 42 (101) 85 (77) 628 (705) 147 (127) San Vicente Blvd Melrose Ave	2. Robertson Blvd/Beverly Blvd 386 (144) 407 (382) 31 (58) 56 (81) 1,216 (856) 71 (90) 71 (132) 809 (930) 108 (75) 61 (76) 346 (436) 92 (98) Robertson Blvd Beverly Blvd	3. George Burns Rd/Beverly Blvd 0 (6) 0 (1) 1 (3) 10 (12) 1,256 (906) 212 (172) 8 (3) 798 (1,036) 128 (50) 26 (82) 1 (1) 166 (175) George Burns Rd Beverly Blvd	4. San Vicente Blvd/Beverly Blvd 155 (100) 561 (657) 101 (209) 136 (170) 1,119 (837) 99 (58) 53 (58) 763 (1,036) 152 (142) 127 (114) 708 (861) 82 (431) San Vicente Blvd Beverly Blvd
5. La Cienega Blvd/Beverly Blvd 224 (128) 992 (819) 84 (98) 76 (142) 1,117 (846) 314 (269) 121 (370) 709 (1,183) 68 (111) 75 (81) 763 (922) 260 (379) La Cienega Blvd Beverly Blvd			

Figure 3
Peak Hour Traffic Volumes and Lane Configurations -
Existing (2015) Conditions



Level of Service Methodology

LOS is a qualitative measure used to describe the traffic flow conditions, ranging from excellent (LOS A) to overloaded (LOS F) conditions. A variety of methodologies are available to analyze LOS depending on the type of intersection control. In accordance with policies established by the City of West Hollywood, the "Operational Analysis" method from the Highway Capacity Manual (HCM) was used to perform signalized intersection LOS analysis at all signalized and unsignalized study intersections, including those partially or wholly within the City of Los Angeles.

The HCM operational method determines two key operating characteristics of signalized intersections. The first characteristic is the average stopped delay experienced per vehicle. The second is the volume-to-capacity (V/C) ratio at intersections based on the amount of traffic traveling through the intersection, the lane geometries, and other factors affecting capacity such as on-street parking and pedestrian volumes at crosswalks. These characteristics are used to evaluate the operation of each signalized intersection, which is described generally in terms of level of service and expressed in terms of seconds of delay.

The intersection in the City of Los Angeles was analyzed per the requirements in *Traffic Study Policies and Procedures* (LADOT, August 2014). Per City of Los Angeles requirements, the Critical Movement Analysis (CMA) method of intersection capacity calculation (Transportation Research Board, 1980) was used to analyze the signalized intersection in the City of Los Angeles. The V/C ratio is used to find the corresponding LOS based on the definitions in Table 1. Under the CMA methodology, a V/C ratio is generated for each study intersection based on factors such as the volume of traffic and the number of lanes providing for such vehicle movement and an LOS grade.

The City of Los Angeles' Automated Traffic Surveillance and Control (ATSAC) system is a computer-based traffic signal control system that monitors traffic conditions and system performance to allow ATSAC operations to manage signal timing to improve traffic flow conditions. The Adaptive Traffic Control System (ATCS) is an enhancement to ATSAC and provides fully traffic-adaptive signal control based on real-time traffic conditions. All of the study intersections located in the City of Los Angeles are currently operating under the City's ATSAC system and ATCS control. ATSAC and ATCS provide improved operating conditions. Therefore, in accordance with City of Los Angeles procedures, a credit of 0.07 V/C reduction was applied at each intersection where ATSAC is implemented and an additional 0.03 V/C reduction was applied at each intersection where ATCS is implemented. Level of service definitions for HCM and CMA methodologies for signalized intersections can be found in Table 1, respectively.

Traffic Operations

The traffic volumes presented in Figure 3 were analyzed using the HCM methodology to determine current operating conditions at the five study intersections. Table 2 summarizes the existing weekday AM and PM peak hour delay and the corresponding LOS for each of the study intersections.

Of the four City of West Hollywood intersections, the Robertson Boulevard & Beverly Boulevard intersection is currently operating at LOS E during the AM peak period. All other intersections are operating at LOS D or better.

The City of Los Angeles intersection, La Cienega Boulevard & Beverly Boulevard, is currently operating at LOS F during the PM peak period. Appendix B contains the LOS calculation worksheets.



TABLE 1
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS
WEST HOLLYWOOD AND LOS ANGELES

Level of Service	HCM Methodology [a] Average Stopped Delay per Vehicle (seconds)	CMA Methodology [b] Volume/Capacity Ratio	Definition
A	≤ 10	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	> 10 and ≤ 20	> 0.600 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	> 20 and ≤ 35	> 0.700 - 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	> 35 and ≤ 55	> 0.800 - 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	> 55 and ≤ 80	> 0.900 - 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 80	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

[a] *Highway Capacity Manual*, Transportation Research Board, 2010.

[b] *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*, Transportation Research Board, 1980.

TABLE 2
EXISTING INTERSECTION LEVEL OF SERVICE ANALYSIS
8713 BEVERLY BOULEVARD MIXED USE PROJECT

Intersection	Jurisdiction	Peak Hour	Existing (Year 2015)	
			V/C or Delay	LOS
1. San Vicente Blvd & Melrose Blvd	WH	AM	31.6	C
		PM	24.6	C
2. Robertson Blvd & Beverly Blvd	WH	AM	67.6	E
		PM	40.5	D
3. George Burns Rd & Beverly Blvd	WH	AM	7.0	A
		PM	8.0	A
4. San Vicente Blvd & Beverly Blvd	WH	AM	17.5	B
		PM	18.1	B
5. La Cienega Blvd & Beverly Blvd	LA	AM	0.828	D
		PM	1.021	F

Notes:

LA Los Angeles

WH West Hollywood

3. PROJECT TRAFFIC GENERATION AND DISTRIBUTION

PROJECT TRAFFIC VOLUMES

The development of traffic generation estimates for the proposed project involves the use of a three-step process similar to the process described below for cumulative projects.

Project Traffic Generation

The trip rates from *Trip Generation 9th Edition* were used to estimate the number of trips generated by the proposed project. Table 3 provides a summary of the proposed project trip generation.

As shown in Table 3, a pass-by trip credit was considered for application to the trip generation estimates. Pass-by trips measure the level of traffic that is already on the roadway system that visits one of the uses at the project site. These trips are not considered new trips generated by the project because they were already on adjacent roadways, though they are accounted for at driveway access locations. A 10 percent pass-by credit was applied to the retail use.

The proposed project, following the application of the trip credits described above, would generate approximately 303 net new daily trips, including 24 AM (9 inbound, 15 outbound) and 42 PM (22 inbound, 20 outbound) peak hour trips.

Project Traffic Distribution

The geographic distribution of trips generated by the proposed project is dependent on the surrounding land uses, characteristics of the street system serving the site, and the level of accessibility of routes to and from the proposed project site. The general distribution pattern for this study was estimated based on the City of West Hollywood Travel Demand Forecasting Model. Figure 4 shows the trip distribution for the proposed project.

Project Traffic Assignment

The trip generation estimates summarized in Table 3 and the distribution patterns illustrated in Figure 4 were used to assign the project-generated traffic to the local and regional street system. Figure 5 illustrates the proposed project-generated peak hour traffic volumes at the five analyzed intersections during typical the weekday AM and PM peak hours.

Existing plus Project Traffic Conditions

The project traffic estimated under the aforementioned section was added to the existing (Year 2015) traffic volumes to estimate existing plus project traffic volumes. Figure 6 shows turning movement traffic volumes for the existing plus project scenario.



TABLE 3
PROJECT TRIP GENERATION ESTIMATES
8713 BEVERLY BOULEVARD MIXED USE PROJECT

Trip Generation Rates [a]									
Land Use	ITE#	Rate	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Residential Apartments	220	per dwelling unit	6.65	20%	80%	0.51	65%	35%	0.62
Office	710	per 1,000 square feet	11.03	88%	12%	1.56	17%	83%	1.49
Retail	820	per 1,000 square feet	42.70	62%	38%	0.96	48%	52%	3.71
Gallery	[b]	per 1,000 square feet	1.80	86%	14%	0.28	16%	84%	0.18

Trip Generation Estimates									
Land Use	ITE#	Size	Weekday Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Proposed Project									
Residential Apartments	220	30 du	200	3	12	15	12	7	19
Office	710	3.416 ksf	38	4	1	5	1	4	5
Retail	820	5.475 ksf	234	3	2	5	10	10	20
Pass-by Credit (10%)	[c]		(23)	(1)	0	(1)	(1)	(1)	(2)
Total Retail Trips			211	2	2	4	9	9	18
Gallery	[b]	0.500 ksf	1	0	0	0	0	0	0
Existing Land Uses									
Night Club	[d]	3.272 ksf	147	0	0	0	0	0	0
Total Existing Trips			147	0	0	0	0	0	0
Total New Driveway Trips			450*	9	15	24	22	20	42
Total Net Difference in Trips			303	9	15	24	22	20	42

Notes:

* To be conservative, all new proposed daily project trips were used for the segment analysis.

[a] Source for trip generation rates: *Trip Generation, 9th Edition*, Institute of Transportation Engineers (ITE), 2012

[b] Trip generation rates ITE 580 museum were used for Art Gallery. Since ITE does not provide a daily trip rate for this use, the PM peak hour rate was multiplied by 10 to develop the daily trip estimate.

[c] A 10% pass-by credit was applied to the retail

[d] Nightclub uses on project site open at 9:00 PM and operate until 2:00 AM on weeknights. Assume no AM or PM peak hour traffic generated by these uses.

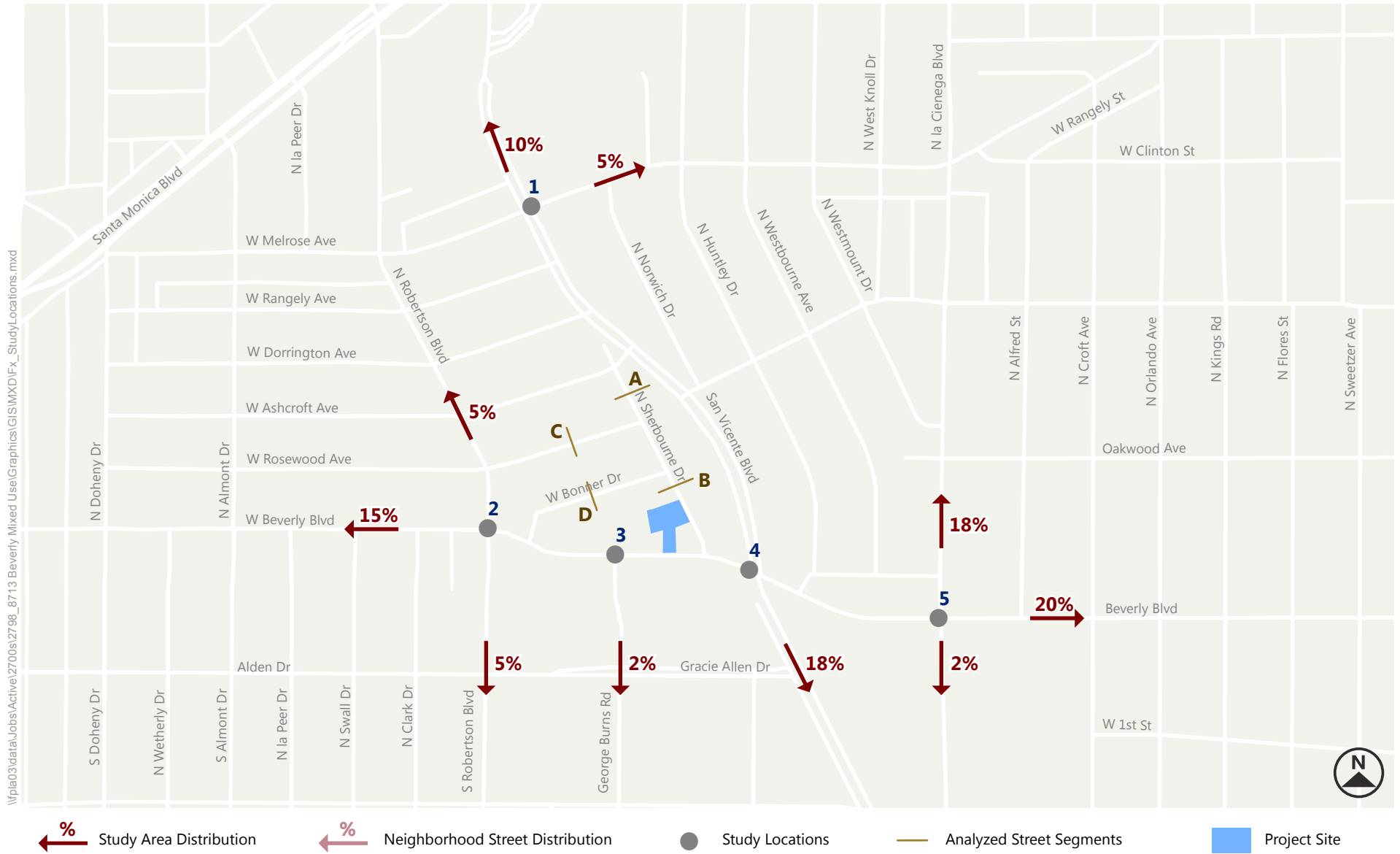


Figure 4
Trip Distribution

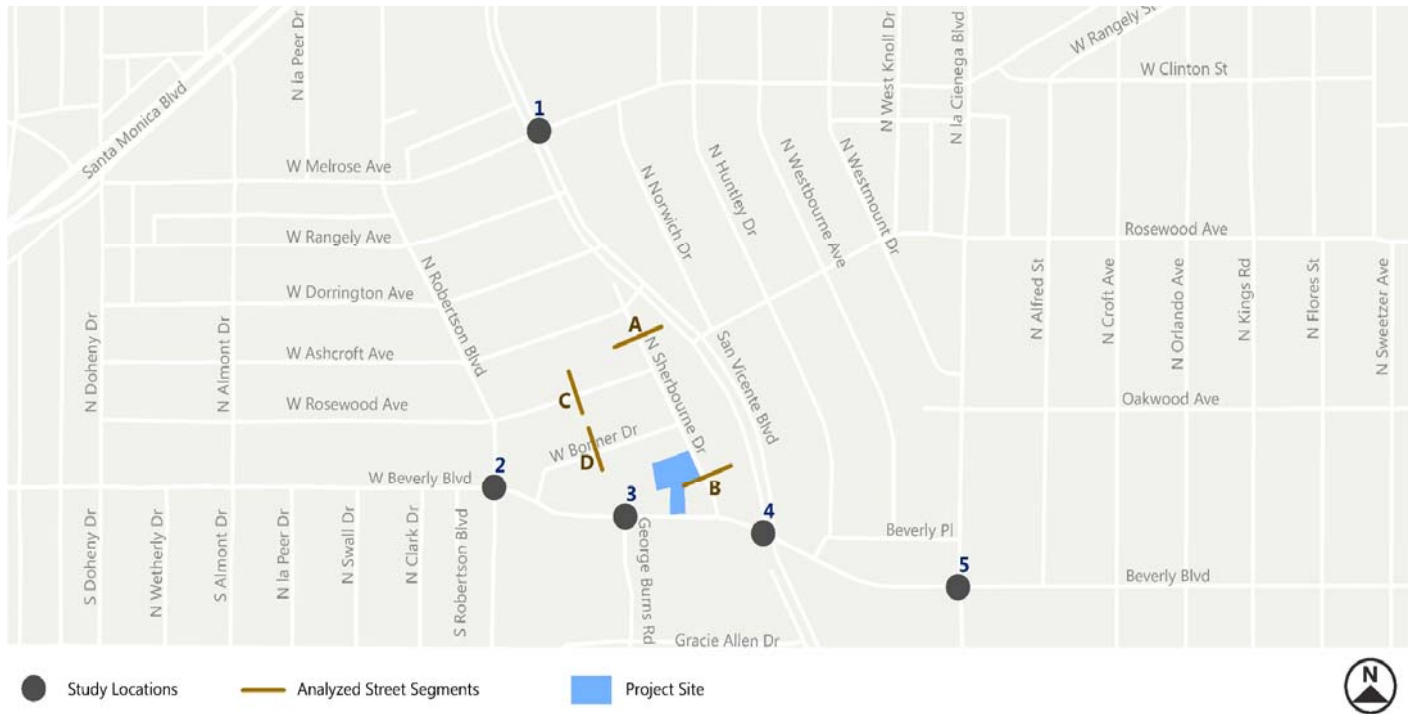
Existing plus Project Traffic Level of Service

The existing plus project peak hour traffic volumes illustrated in Figure 6 were analyzed to determine the projected existing (year 2015) operating conditions with the completion of the proposed project. Table 4 summarizes these results. As shown in Table 4, two of the five study intersections are projected to operate at LOS E or F during one or more of the analyzed peak hours with the addition of project traffic. Detailed LOS worksheets are presented in Appendix B. The intersections projected to operate at poor levels of service are:

2. Robertson Boulevard & Beverly Boulevard (AM peak hour)
5. La Cienega Boulevard & Beverly Boulevard (PM peak hour)

The remaining three intersections are projected to operate at LOS D or better during all analyzed peak hours.

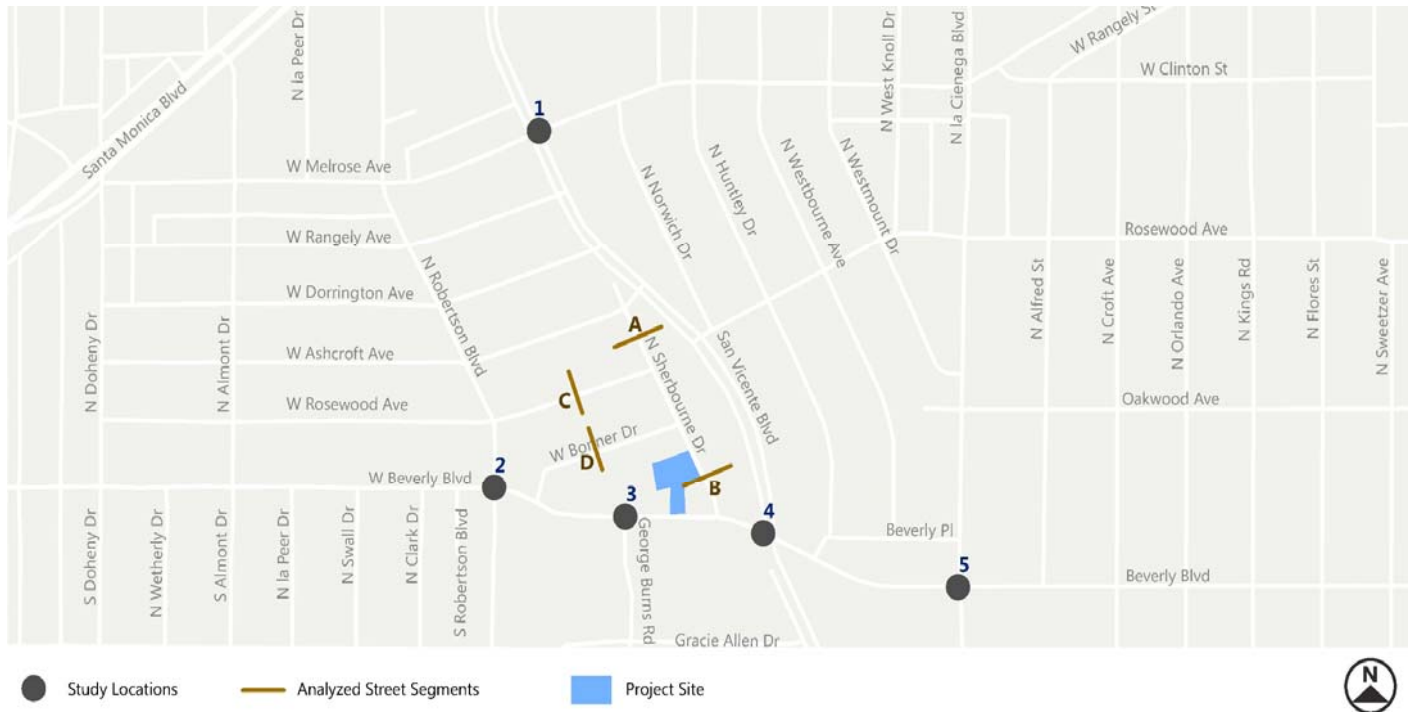




1. San Vicente Blvd/Melrose Ave	2. Robertson Blvd/Beverly Blvd	3. George Burns Rd/Beverly Blvd	4. San Vicente Blvd/Beverly Blvd
San Vicente Blvd Melrose Ave 0 (0) 1 (2) 0 (0) 0 (0) 0 (0) 0 (1) 0 (0) 0 (0) 0 (0) 0 (0) 2 (2) 1 (1)	Robertson Blvd Beverly Blvd 0 (0) 0 (0) 0 (1) 1 (1) 2 (3) 1 (1) 0 (0) 1 (3) 0 (0) 0 (0) 0 (0) 0 (1)	George Burns Rd Beverly Blvd 0 (0) 0 (0) 0 (0) 0 (0) 4 (5) 0 (0) 0 (0) 2 (6) 0 (0) 0 (0) 0 (0) 0 (0)	San Vicente Blvd Beverly Blvd 0 (1) 0 (0) 0 (0) 0 (0) 4 (9) 0 (0) 2 (3) 6 (8) 3 (4) 2 (4) 0 (0) 0 (0)
5. La Cienega Blvd/Beverly Blvd			
La Cienega Blvd Beverly Blvd 2 (4) 0 (0) 0 (0) 0 (0) 2 (4) 0 (0) 3 (4) 3 (4) 0 (0) 0 (0) 0 (0) 0 (0)			

Figure 5
Peak Hour Traffic Volumes and Lane Configurations
Project Only





1. San Vicente Blvd/Melrose Ave 58 (53) 505 (544) 76 (112) 175 (268) 796 (503) 124 (181) 32 (95) 539 (593) 42 (101) 85 (77) 630 (707) 148 (128) San Vicente Blvd Melrose Ave	2. Robertson Blvd/Beverly Blvd 386 (144) 407 (382) 31 (59) 57 (82) 1,218 (859) 72 (91) 71 (132) 810 (933) 108 (75) 61 (76) 346 (436) 92 (99) Robertson Blvd Beverly Blvd	3. George Burns Rd/Beverly Blvd 0 (6) 0 (1) 1 (3) 10 (12) 1,260 (911) 212 (172) 8 (3) 800 (1,042) 128 (50) 26 (82) 1 (1) 166 (175) George Burns Rd Beverly Blvd	4. San Vicente Blvd/Beverly Blvd 155 (101) 561 (657) 101 (209) 136 (170) 1,123 (846) 99 (58) 55 (61) 769 (1,044) 155 (146) 129 (118) 708 (861) 82 (431) San Vicente Blvd Beverly Blvd
5. La Cienega Blvd/Beverly Blvd 226 (132) 992 (819) 84 (98) 76 (142) 1,119 (850) 314 (269) 124 (374) 712 (1,187) 68 (111) 75 (81) 763 (922) 260 (379) La Cienega Blvd Beverly Blvd			

Figure 6
Peak Hour Traffic Volumes and Lane Configurations
Existing plus Project (2015) Conditions



TABLE 4
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE ANALYSIS
8713 BEVERLY BOULEVARD MIXED USE PROJECT

Intersection	Jurisdiction	Peak Hour	Existing (Year 2015)		With Project (Year 2015)			
			V/C or Delay	LOS	V/C or Delay	LOS	Change in V/C or Delay	Impact?
1. San Vicente Blvd & Melrose Blvd	WH	AM PM	31.6 24.6	C C	31.7 24.6	C C	<1.0 <1.0	No No
2. Robertson Blvd & Beverly Blvd	WH	AM PM	67.6 40.5	E D	68.1 41.1	E D	<1.0 <1.0	No No
3. George Burns Rd & Beverly Blvd	WH	AM PM	7.0 8.0	A A	7.0 8.1	A A	<1.0 <1.0	No No
4. San Vicente Blvd & Beverly Blvd	WH	AM PM	17.5 18.1	B B	17.5 18.1	B B	<1.0 <1.0	No No
5. La Cienega Blvd & Beverly Blvd	LA	AM PM	0.828 1.021	D F	0.831 1.026	D F	0.003 0.005	No No

Notes:

LA Los Angeles

WH West Hollywood

4. CUMULATIVE (2018) TRAFFIC CONDITIONS

To evaluate the potential impacts of the proposed project on cumulative (Year 2018) conditions, it was necessary to develop estimates of cumulative traffic conditions in the area both without and with project traffic. First, estimates of traffic growth were developed for the study area to forecast cumulative conditions without the project. These forecasts included traffic increases as a result of both regional ambient traffic growth and traffic generated by specific developments in the vicinity of the project (related projects). These projected traffic volumes, identified herein as the cumulative base conditions, represent the cumulative study year conditions without the proposed project. The traffic generated by the proposed project was then estimated and assigned to the surrounding street system. The project traffic was added to the cumulative base to form the cumulative plus project traffic conditions, which were analyzed to determine the incremental traffic impacts attributable to the project itself.

The assumptions and analysis methodology used to develop each of the cumulative year scenarios discussed above are described in more detail in the following sections.

TRANSPORTATION IMPROVEMENTS

There is a planned transportation network improvement at the intersection of George Burns Road & Beverly Boulevard that is projected to be by 2018. The northbound approach will be altered from a shared all-way single lane approach to provide a separate right-turn lane. The resulting configuration in the northbound direction will be a shared through-left lane and a right-turn lane. This configuration was included in the cumulative base traffic network, per discussions with City of West Hollywood staff.

CUMULATIVE BASE TRAFFIC PROJECTIONS

The cumulative base traffic projections reflect growth in traffic over existing conditions from two sources. The first source is the ambient growth in traffic. Ambient growth reflects increases in traffic as a result of regional growth and development. The second source is growth due to traffic generated by specific projects in or near the study area. The methods and assumptions used to develop cumulative base traffic projections are described in more detail below.

Areawide Traffic Growth

Existing traffic is expected to increase between year 2015 and year 2018 as a result of general areawide and regional growth and development. Based on historical trends and in consultation with City of West Hollywood staff, an ambient growth factor of one percent per year was used to adjust the existing year 2015 traffic volumes to reflect the effects of regional growth and development by the year 2018. The result was a total adjustment of three percent applied from 2015 to 2018.

Project Traffic Generation and Assignment

Cumulative base traffic forecasts include the effects of specific projects, called related projects, expected to be implemented in the vicinity of the study area prior to the buildout date of the proposed project. The list of related projects was obtained from the City of West Hollywood, LADOT, City of Beverly Hills and



other traffic studies conducted in the vicinity of the proposed project. A total of 70 related projects were identified, and details are provided in Appendix C.

Trip generation estimates for the related projects were calculated using a combination of previous study findings and the trip generation rates contained in *Trip Generation, 9th Edition* (Institute of Transportation Engineers, 2012). Appendix C shows that the 70 related projects would generate a combined approximate total of 99,785 daily trips. Approximately 5,413 vehicles per hour (vph) are estimated to travel during the weekday AM peak hour and 7,151 vph during the PM peak hour. Some of these projections are conservative in that they do not account for the existing uses to be removed or the use of alternative travel modes (transit, walk, etc.). Figure 7 illustrates the locations of the related projects.

Using the trip generation estimates and trip distribution patterns dependent on the type and density of the proposed land use, the geographic distribution of population from which the employees and potential patrons of proposed commercial projects could be drawn, and the location of the projects in relation to the surrounding street system, traffic expected to be generated by the identified related projects was assigned to the street network. These related project traffic volumes were then added to the existing traffic volumes after the adjustment for area-wide growth to represent cumulative base conditions (i.e., cumulative conditions without the proposed project). Figure 8 illustrates the projected cumulative base traffic conditions for the weekday peak hours in 2018.

Cumulative Base Intersection Traffic Conditions

The cumulative base peak hour traffic volumes illustrated in Figure 8 were analyzed to determine delay and corresponding LOS for each of the analyzed intersections under year 2018 cumulative conditions without the proposed project, taking into account ambient growth and related projects. Table 5 summarizes these results. Detailed LOS worksheets are presented in Appendix B.

Under year 2018 cumulative base conditions, three intersections are projected to operate at LOS E or F during one or more of the analyzed peak hours are:

1. San Vicente Boulevard & Melrose Boulevard (PM peak hour)
2. Robertson Boulevard & Beverly Boulevard (AM and PM peak hours)
5. La Cienega Boulevard & Beverly Boulevard (AM and PM peak hours)

CUMULATIVE PLUS PROJECT TRAFFIC PROJECTIONS

The project-generated traffic volumes shown in Figure 5 were added to the cumulative base traffic projections shown in Figure 8. Figure 9 illustrates the resulting projected cumulative plus project AM and PM peak hour traffic volumes. These volumes represent projected cumulative weekday peak hour traffic conditions with the completion of the proposed project.

Cumulative plus Project Intersection Traffic Operations

The cumulative plus project peak hour traffic volumes illustrated in Figure 9 were analyzed to determine the projected year 2018 cumulative operating conditions with the completion of the proposed project. Table 5 summarizes these results. As shown in Table 5, three of the five analyzed intersections are



projected to operate at LOS E or F during one or more of the analyzed peak hours with the addition of project traffic:

1. San Vicente Boulevard & Melrose Boulevard (PM peak hour)
2. Robertson Boulevard & Beverly Boulevard (AM and PM peak hours)
5. La Cienega Boulevard & Beverly Boulevard (AM and PM peak hours)



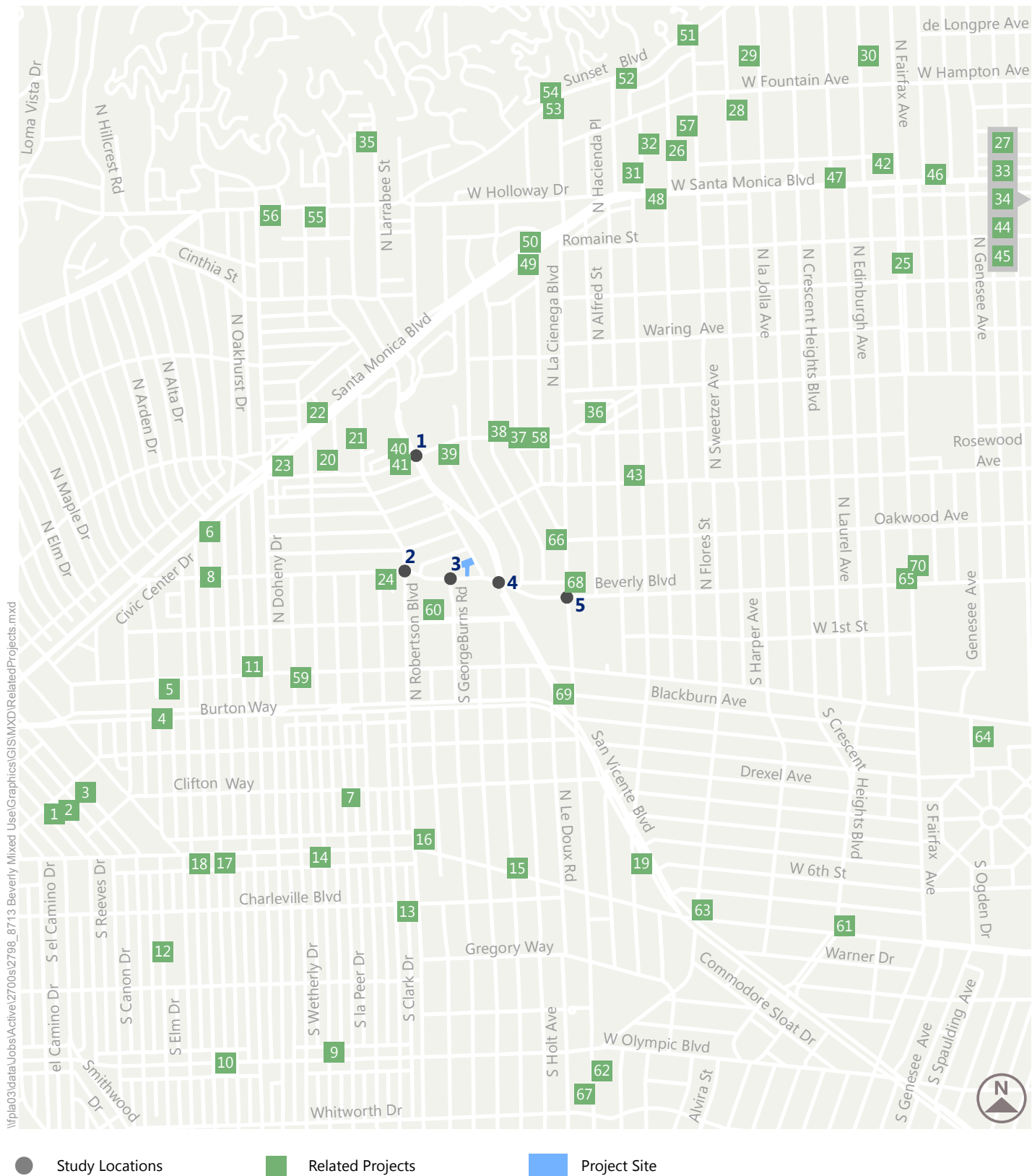
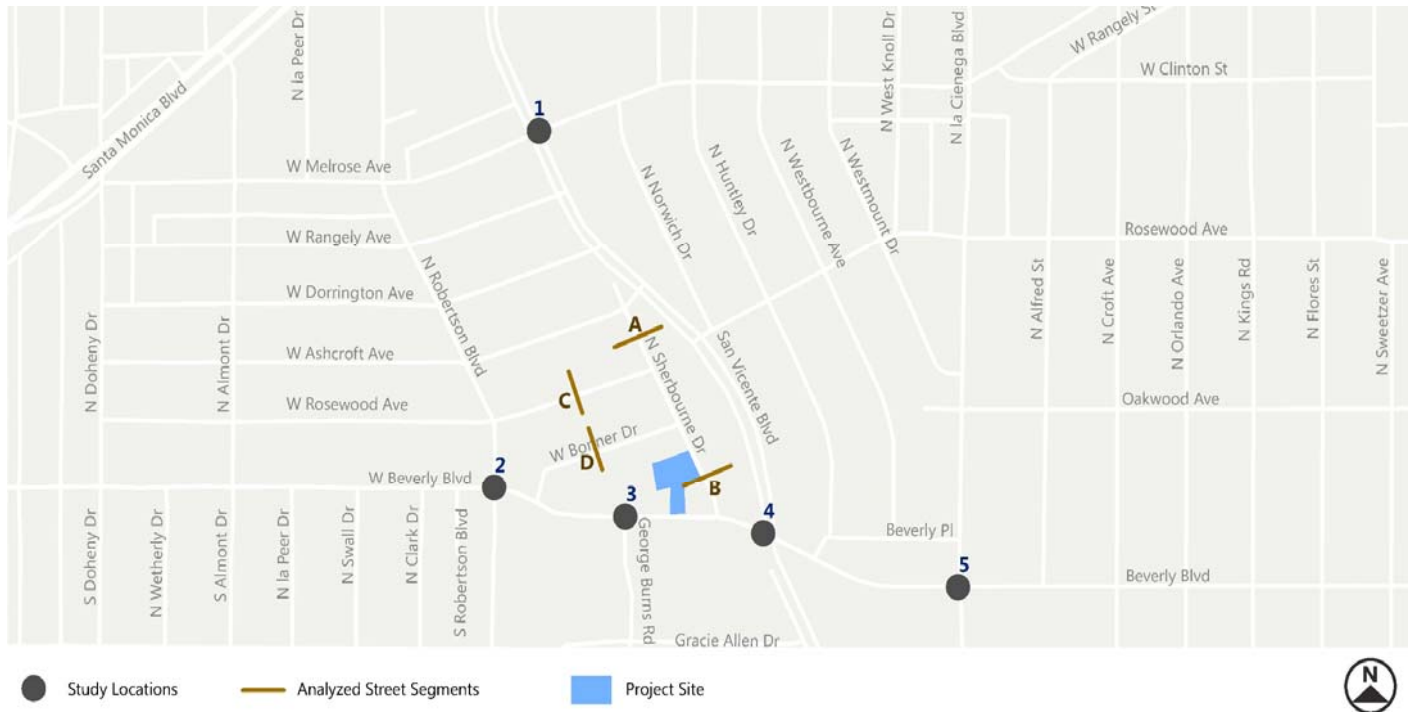


Figure 7
Related Projects



1. San Vicente Blvd/Melrose Ave San Vicente Blvd Melrose Ave 61 (60) 567 (608) 81 (125) 184 (292) 955 (735) 131 (188) 35 (106) 640 (826) 72 (201) 136 (167) 690 (790) 153 (135)	2. Robertson Blvd/Beverly Blvd Robertson Blvd Beverly Blvd 410 (156) 471 (485) 39 (82) 65 (101) 1,362 (970) 78 (96) 78 (150) 910 (1,056) 131 (104) 84 (103) 403 (546) 96 (106)	3. George Burns Rd/Beverly Blvd George Burns Rd Beverly Blvd 0 (6) 0 (1) 1 (3) 10 (12) 1,415 (1,043) 239 (189) 8 (3) 906 (1,193) 132 (52) 27 (84) 1 (1) 177 (202)	4. San Vicente Blvd/Beverly Blvd San Vicente Blvd Beverly Blvd 163 (105) 647 (804) 112 (236) 158 (190) 1,282 (968) 102 (60) 56 (63) 863 (1,203) 171 (154) 140 (130) 803 (1,025) 84 (444)
5. La Cienega Blvd/Beverly Blvd La Cienega Blvd Beverly Blvd 283 (169) 1,177 (1,008) 103 (123) 95 (172) 1,235 (944) 340 (294) 155 (437) 774 (1,300) 78 (128) 92 (95) 906 (1,155) 282 (407)			

Figure 8
Peak Hour Traffic Volumes and Lane Configurations
Cumulative Base (2018) Conditions



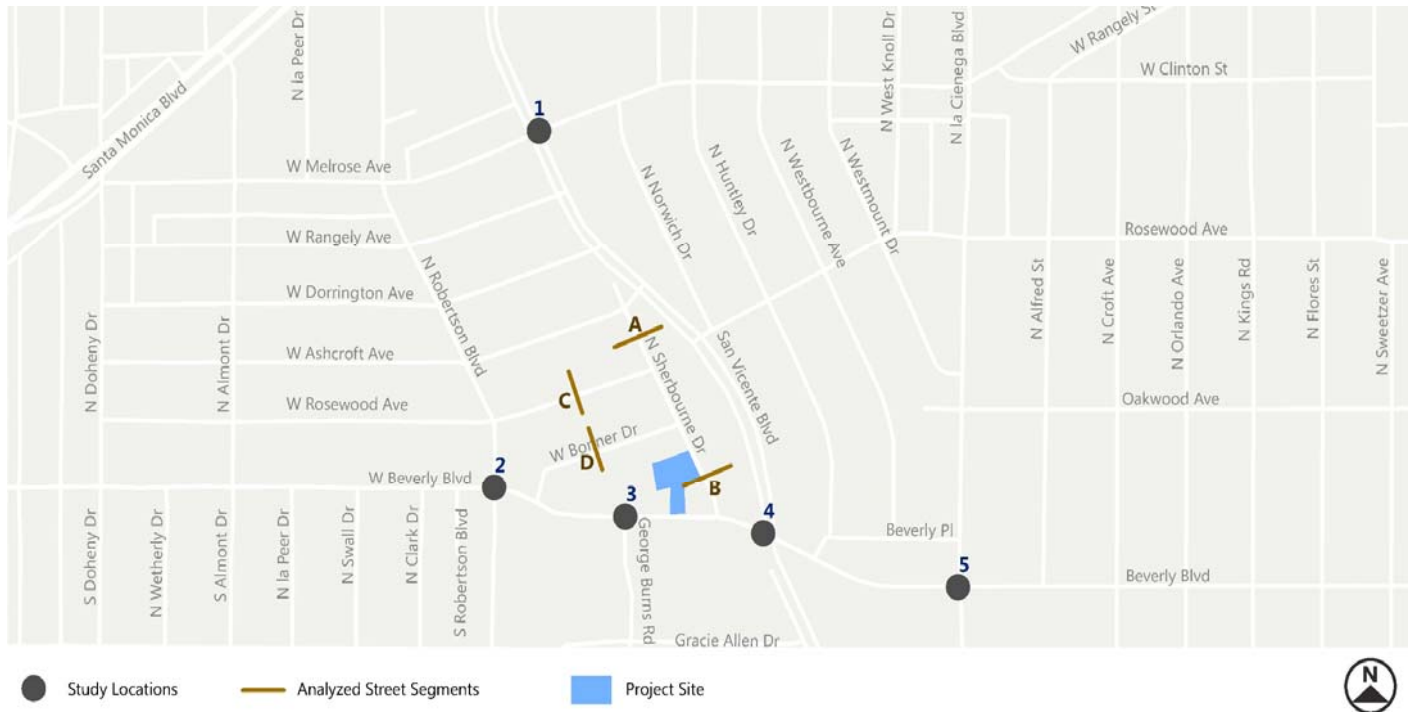
TABLE 5
CUMULATIVE INTERSECTION LEVEL OF SERVICE ANALYSIS
8713 BEVERLY BOULEVARD MIXED USE PROJECT

Intersection	Jurisdiction	Peak Hour	Cumulative (Year 2018)		With Project (Year 2018)			
			V/C or Delay	LOS	V/C or Delay	LOS	Change in V/C or Delay	Impact?
1. San Vicente Blvd & Melrose Blvd	WH	AM	45.2	D	45.4	D	<1.0	No
		PM	61.9	E	62.0	E	<1.0	No
2. Robertson Blvd & Beverly Blvd	WH	AM	101.9	F	102.5	F	<1.0	No
		PM	68.1	E	68.8	E	<1.0	No
3. George Burns Rd & Beverly Blvd	WH	AM	7.6	A	7.6	A	<1.0	No
		PM	7.6	A	7.6	A	<1.0	No
4. San Vicente Blvd & Beverly Blvd	WH	AM	19.0	B	19.0	B	<1.0	No
		PM	29.4	C	29.4	C	<1.0	No
5. La Cienega Blvd & Beverly Blvd	LA	AM	0.969	E	0.972	E	0.003	No
		PM	1.219	F	1.223	F	0.004	No

Notes:

LA Los Angeles

WH West Hollywood



1. San Vicente Blvd/Melrose Ave 61 (60) 568 (610) 81 (125) 184 (292) 955 (735) 131 (189) 35 (106) 640 (826) 72 (201) 136 (167) 692 (792) 154 (136) San Vicente Blvd Melrose Ave	2. Robertson Blvd/Beverly Blvd 410 (156) 471 (485) 39 (83) 66 (102) 1,364 (973) 79 (97) 78 (150) 911 (1,059) 131 (104) 84 (103) 403 (546) 96 (107) Robertson Blvd Beverly Blvd	3. George Burns Rd/Beverly Blvd 0 (6) 0 (1) 1 (3) 10 (12) 1,419 (1,048) 239 (189) 8 (3) 908 (1,199) 132 (52) 27 (84) 1 (1) 177 (202) George Burns Rd Beverly Blvd	4. San Vicente Blvd/Beverly Blvd 163 (106) 647 (804) 112 (236) 158 (190) 1,286 (977) 102 (60) 58 (66) 869 (1,211) 174 (158) 142 (134) 803 (1,025) 84 (444) San Vicente Blvd Beverly Blvd
5. La Cienega Blvd/Beverly Blvd 285 (173) 1,177 (1,008) 103 (123) 95 (172) 1,237 (948) 340 (294) 158 (441) 777 (1,304) 78 (128) 92 (95) 906 (1,155) 282 (407) La Cienega Blvd Beverly Blvd			

Figure 9
Peak Hour Traffic Volumes and Lane Configurations
Cumulative plus Project (2018) Conditions



5. TRAFFIC IMPACT ANALYSIS

INTERSECTION IMPACT ANALYSIS

The intersection impact analysis compares the projected levels of service at each study intersection under the existing and cumulative plus project conditions to estimate the incremental increase in delay or v/c caused by the proposed project. This provides the information needed to assess the potential impact of the project using the significance criteria established by the City of West Hollywood and the City of Los Angeles.

INTERSECTION SIGNIFICANT IMPACT CRITERIA

The intersections selected for analysis span the jurisdictions of West Hollywood and Los Angeles; the following summarizes the significant traffic impact criteria established by each jurisdiction.

City of West Hollywood

The intersection threshold criteria used to determine if a project has an adverse significant traffic impact at signalized intersections in the City of West Hollywood are as follows:

- Signalized intersections formed by two commercial corridors are significantly impacted if:
 - o The addition of project traffic results in a LOS D and in an increase in delay of 12 seconds or greater, or
 - o The addition of project traffic results in a LOS E or F and an increase in delay of eight seconds or greater.
- All other signalized and/or four-way stop intersections are significantly impacted if:
 - o The addition of project traffic results in a LOS D and in an increase in delay of eight seconds or greater, or
 - o The addition of project traffic results in a LOS E or F and an increase in delay of five seconds or greater.

City of Los Angeles

The City of Los Angeles has established threshold criteria to determine significant traffic impact of a proposed Project in its jurisdiction. Under the LADOT guidelines, an intersection would be significantly impacted with an increase in V/C ratio equal to or greater than 0.04 for intersections operating at LOS C, equal to or greater than 0.02 for intersections operating at LOS D, and equal to or greater than 0.01 for intersections operating at LOS E or F after the addition of project traffic. Intersections operating at LOS A or B after the addition of the project traffic are not considered significantly impacted regardless of the increase in V/C ratio. The following summarizes the impact criteria:



LOS	Final V/C Ratio	Project-Related Increase in V/C
C	> 0.700 - 0.800	equal to or greater than 0.040
D	> 0.800 - 0.900	equal to or greater than 0.020
E or F	> 0.900	equal to or greater than 0.010

The foregoing criteria were applied to the locations as required by the respective jurisdictions.

PROJECT IMPACT ANALYSIS

Existing (2015) plus Project Conditions

Using the City of West Hollywood's and City of Los Angeles criteria for determining the significance of the project impacts, it was determined that the project would not result in significant impacts under existing plus project conditions.

Cumulative (2018) plus Project Conditions

Using the City of West Hollywood's and City of Los Angeles' criteria for determining the significance of the project impacts, it was determined that the project would not result in significant impacts under cumulative plus project conditions.

STREET SEGMENT IMPACT ANALYSIS

A street segment impact analysis was performed to assess the impacts along adjacent neighborhood streets under typical weekday conditions. In consultation with City of West Hollywood staff, four segments were identified for analysis. The segments selected are located in the City of West Hollywood, as follows:

- A. Sherbourne Drive between Ashcroft Avenue and Rosewood Avenue
- B. Sherbourne Drive between Bonner Drive and Project Site Driveway
- C. Rosewood Avenue between Robertson Boulevard and Sherbourne Drive
- D. Bonner Drive between Beverly Boulevard and Sherbourne Drive

As discussed in Chapter 2, 24-hour (daily) segment volumes were used to perform this analysis.

STREET SEGMENT IMPACT CRITERIA

The street segments were analyzed using the City of West Hollywood's impact criteria. These criteria are summarized below.



West Hollywood

The street segment impact criteria used by the City of West Hollywood defines an adverse significant traffic impact as:

- An average daily traffic (ADT) of 2,000 vehicles or less and a project-related ADT increase of 12% or greater; or
- An ADT between 2,000 to 3,000 vehicles and a project-related ADT increase of 10% or greater; or
- An ADT between 3,000 to 6,750 vehicles and a project-related ADT increase of 8% or greater; or
- An ADT of more than 6,750 vehicles and a project-related ADT increase of 6.25% or more.

EXISTING PLUS PROJECT STREET SEGMENT TRAFFIC PROJECTIONS

The traffic volumes used to perform the existing street segment analysis were developed from the existing ADT counts in a manner consistent with the development of the volumes used for the intersection analyses. The project traffic volumes were added to the existing volumes to develop the existing plus project volumes. The segment volumes for the existing with project scenario were calculated using the trip distribution shown in Figure 4. Table 6 summarizes the weekday ADT volumes used for this analysis.

CUMULATIVE PLUS PROJECT STREET SEGMENT TRAFFIC PROJECTIONS

The traffic volumes used to perform the cumulative street segment analysis were developed from the existing ADT counts in a manner consistent with the development of the volumes used for the intersection analyses. The existing volumes were factored to year 2018 (from 2015) levels and the daily traffic expected to be generated by the cumulative projects was added to the cumulative base conditions. Similarly, the project traffic volumes were added to the cumulative base volumes to develop the cumulative plus project volumes. The segment volumes for the cumulative with project scenario were calculated using the trip distribution shown in Figure 4. Table 7 summarizes the weekday ADT volumes used for this analysis.

Analysis of Impacts

The street segments in West Hollywood were analyzed using the criteria described above. The percentage increase in weekday ADT on the selected segments ranges from 0.6 to 1.8 percent. According to the City of West Hollywood segment impact criteria, none of the segments are adversely impacted by the proposed project under both existing with project and cumulative with project conditions.



TABLE 6
EXISTING PLUS PROJECT WEEKDAY ROADWAY SEGMENT IMPACT ANALYSIS
FOR 8713 BEVERLY BOULEVARD MIXED USE PROJECT

Segment	Existing Daily Count (2015)	Allowable Increase	Proposed Project			
			Project Only ADT	Ex + Project (2015)	% Increase	Significant Impact?
A. Sherbourne Drive b/w Ashcroft Avenue & Rosewood Avenue	1,717	12%	25	1,742	1.5%	No
B. Sherbourne Drive b/w Bonner Drive & Project Site Driveway	1,365	12%	25	1,390	1.8%	No
C. Rosewood Avenue b/w Robertson Boulevard & Sherbourne Drive	830	12%	10	840	1.2%	No
D. Bonner Drive b/w Beverly Boulevard & Sherbourne Drive	862	12%	5	867	0.6%	No

Notes:

Impact criteria based on City of West Hollywood *Traffic Study Thresholds*, (October, 2009).

TABLE 7
CUMULATIVE PLUS PROJECT WEEKDAY ROADWAY SEGMENT IMPACT ANALYSIS
FOR 8713 BEVERLY BOULEVARD MIXED USE PROJECT

Segment	Existing Daily Count (2015)	Cumulative Base Daily Traffic (2018)	Allowable Increase	Proposed Project			
				Project Only ADT	Cum + Project (2018)	% Increase	Significant Impact?
A. Sherbourne Drive b/w Ashcroft Avenue & Rosewood Avenue	1,717	1,769	12%	25	1,794	1.4%	No
B. Sherbourne Drive b/w Bonner Drive & Project Site Driveway	1,365	1,406	12%	25	1,431	1.8%	No
C. Rosewood Avenue b/w Robertson Boulevard & Sherbourne Drive	830	855	12%	10	865	1.2%	No
D. Bonner Drive b/w Beverly Boulevard & Sherbourne Drive	862	888	12%	5	893	0.6%	No

Notes:

Impact criteria based on City of West Hollywood *Traffic Study Thresholds*, (October, 2009).

6. ALTERNATIVE TRANSPORTATION MODE IMPACTS

This section reviews the impacts of the project on the bicycle and pedestrian facilities in the study area. Potential impacts may include disruptions to existing facilities, interference with planned facilities, and conflicts with adopted plans, guidelines, policies, or standards.

SIGNIFICANCE CRITERIA

A project impact would be considered significant if:

- The project disrupts existing facilities
- The project interferes with planned facilities
- The project conflicts or creates inconsistencies with adopted guidelines, plans, policies, or standards

BICYCLE FACILITY IMPACTS

The existing bicycle network in the study area consists of Class II facilities (designated bicycle lane, noted by striping and signage) on San Vicente Boulevard between Santa Monica Boulevard and Beverly Boulevard. Also present are Class III facilities (shared roadway, noted by signage) on Melrose Avenue between Santa Monica Boulevard and North Croft Avenue and on Beverly Boulevard between Doheny Drive and San Vicente Boulevard.

Disruptions to Existing Facilities

There is an existing Class III bicycle facility on Beverly Boulevard immediately south of the project site. The proposed project would not modify the bicycle lane on Beverly Boulevard or alter access to the existing facility. Therefore, the project impact is less than significant and no mitigation is required.

PEDESTRIAN FACILITY IMPACTS

The pedestrian network in the study area consists of crosswalks, pedestrian crossings, and sidewalks. Sidewalks are available on all streets bordering the project site and all study intersections have a crosswalk on at least one approach.

Disruptions to Existing Facilities

There is an existing crosswalk immediately to the south of the project parking facility entrance. The proposed project would not modify or alter access to the existing pedestrian facilities. Therefore, the project impact is less than significant and no mitigation is required.



TRANSIT FACILITY IMPACTS

The transit facilities in the study area consist of bus stops with benches and shelters. Bus stops are available along the project frontage on Beverly Boulevard.

Disruptions to Existing Facilities

The project frontage along Beverly Boulevard is not expected to interfere with the existing bus stops, which are located on frontages of nearby properties. Therefore, the project impact is less than significant and no mitigation is required.



7. PARKING, SITE ACCESS AND CIRCULATION

The parking system was analyzed by comparing the available supply to the applicable code requirements specified by the City of West Hollywood. Items relating to the project's proposed site access and internal circulation design were also evaluated using standard guides for the types of vehicles expected to use these facilities.

The proposed project involves the construction of a mixed-use development containing 30 residential apartments (including six affordable housing units), 5,475 square feet (sf) of ground floor retail space, 3,416 sf of office space, and 500 sf of ground floor gallery space. Parking will be provided in an underground multi-level parking garage.

PARKING CODE ANALYSIS

Section 19.28.040 of the City of West Hollywood Municipal Code (WHMC) provides the minimum off-street parking requirements of new developments. For developments that provide affordable housing units, the affordable housing parking space requirements per Section 19.28.050 of the WHMC are applicable. The WHMC indicates the following parking requirements:

Office space	3.5 spaces per 1,000 sf
Retail space	3.5 spaces per 1,000 sf
Gallery space	2 spaces per 1,000 sf
Residential spaces (per Section 19.28.050):	
0-1 Bedrooms	1 space per dwelling unit
2-3 Bedrooms	2 spaces per dwelling unit
4+ Bedrooms	2.5 spaces per dwelling unit

Section 19.28.160 of the WHMC requires one loading space per 20,000 sf for non-residential space. The non-residential portion of the project is less than 20,000 sf; therefore, loading spaces would not be required. However, any loading for the retail or office space is anticipated to be accommodated on Beverly Boulevard in front of the property.

Section 19.28.170 of the WHMC requires two percent of all parking spaces in parking lots contain twenty-five or more parking spaces to be designated for preferential parking for alternative fuel vehicles. Based on WHMC, the project would require one alternative fuel vehicle parking space. The project is providing two alternative fuel vehicle spaces and would meet the requirement for alternative fuel vehicles.

Lastly, Section 1129B of the 2010 California Building Code requires a minimum of three spaces of the total number of parking spaces in garages providing 51-75 spaces to be designated for accessible parking. Based on the provided parking, the project would require three accessible parking spaces. The project is supplying three accessible parking spaces and is meeting Section 1129B requirements.

As shown in Table 8, the total parking requirement for the project would be 65 spaces. The site plan indicates that 65 spaces would be provided for the project; therefore, the supply would meet the City's parking space requirement.



**TABLE 8
PARKING REQUIREMENT ESTIMATES
8713 BEVERLY BOULEVARD MIXED USE PROJECT**

Parking Ratio			
Land Use		Ratio	
Residential Apartments	0-1 Bedroom	1.00	per du
	2-3 Bedroom	2.00	per du
	4+ Bedroom	2.50	per du
Office		3.50	per ksf
Retail		3.50	per ksf
Gallery		2.00	per ksf

Parking Requirements per Code			
Land Use		Size	Required Spaces
Residential Apartments	0-1 Bedroom	28 du	28
	2-3 Bedroom	2 du	4
	4+ Bedroom	0 du	0
Office		3.416 ksf	12
Retail		5.475 ksf	20
Gallery		0.500 ksf	1
TOTAL REQUIRED			65
SPACES PROVIDED			65
TOTAL NEEDED			0

NON-STANDARD REQUIRED PARKING		Required Spaces
Accessible	3 spaces per 51-75 spaces	3
Alternative Fuel Vehicle Parking	2%	1
Loading	1 per 20 ksf	0

Notes:

Source: West Hollywood Municipal Code Sec 19.28.040 Table 3-6, Sec 19.28.050, Sec 19.22.050, Sec 19.28.160, and Sec 19.28.170 Updated February 16, 2007. 2010 California Building Code Section 1129B Accessible Parking Required.

BICYCLE PARKING CODE ANALYSIS

Section 19.28.150 of the WHMC provides the minimum bicycle parking requirements of new developments. The WHMC indicated the following requirements:

Residential	1 residential space per each four dwelling units
Non-Residential	1 employee space per 7,500 sf
Non-Residential	1 visitor space per 10,000 sf

As shown in Table 9, the total bicycle parking requirement for the project would be 10 spaces, including one space for commercial employees and one space for visitors.

Section 19.28.150 of the WHMC requires shower facilities and clothing lockers for non-residential spaces greater than 10,000. Given the non-residential uses are less than 10,000 sf, the project is not required to provide employee lockers or showers.

The site plan indicates that 10 bicycle parking spaces would be provided for the project on the first level of the subterranean parking garage. This supply meets the City requirements. Commercial visitor parking should be located where accessible to nearby commercial uses.

SITE ACCESS

As shown in Figure 2, one unsignalized, stop-controlled driveway on Sherbourne Drive will provide vehicular site access between Bonner Drive and Beverly Boulevard. The driveway would serve both inbound and outbound traffic. The driveway will allow for right-turn-in, right-turn-out, and inbound left-turn movements. However, outbound left-turns will be restricted. Retail and commercial parking would be provided on the ground level and the first underground level.

SITE CIRCULATION

Driveways, Drive Aisles and Access Ramps

The Sherbourne Drive driveway will be 21 feet 7 inches wide. Inside the parking structure, the drive aisle widths vary from approximately 21 to 26 feet, with two-way operation. Between the north and south side of the parking structure, the aisle width is approximately 11 feet on subterranean level 1 and level 2; at these locations, one vehicle at a time may proceed through this location.

Ramps providing access between the parking levels vary from 10 to 18 feet in width. The ramp that provides access from the subterranean level 1 to level 2 is 10 feet wide which provides adequate space for one vehicle to be on the ramp at a time. Parking ramp notification lights will be installed for both directions of traffic flow to communicate to drivers when a user is on the ramp.

The commercial parking on the ground-floor level of the Project would be exclusively used for valet parking to ensure efficient use of the parking supply, including tandem parking of vehicles. Some parking stalls are proposed to be perpendicular to other parking spaces such that a parked car would obstruct entry and exit from the adjacent parking stalls. This placement of parking spaces is found on two of the three parking levels.



In general, the drive aisle widths meet the minimum recommended width for two-way operation, with the exception of the areas identified above where parking stalls limit the drive aisle widths that may need to serve two-way traffic. In relation to circulation between parking levels, the ramps between the ground level and the subterranean level 1 meet an acceptable width for two-way operation of a ramp between floors, but the ramp width between subterranean levels 1 to level 2 is not wide enough for two-way operations.

Most of the proposed parking spaces are 8 feet 6 inches by 18 feet or 9 feet by 18 feet in compliance with WHMC 19.28.090. Eight of the proposed parking spaces are compact parking spaces measuring 8 feet by 15 feet and six of the parking spaces are modified spaces measuring 9 feet by 16 feet and 3 inches. To discourage traffic from passing too closely to the parked cars and support columns, yellow pavement markings out from the columns should delineate parking from the travel lanes. The placement of support columns in the parking structure is such that they would allow for the visibility and maneuverability around turns and the accessibility into and out of parking spaces.

Ramp and Parking Area Slopes

Section 19.28.110 of the WHMC requires ramps with greater than a 10 percent grade to have a transition at the top and bottom of the ramp. The project ramp has a 20 percent grade with a 10 percent grade transitions at the top and bottom of the ramp. The five feet of driveway closest to the inside property line shall not exceed a slope of 3 percent. The ramp designs meets design guidelines.

According to code, the parking area slopes shall not exceed 5 percent. Design plans include a proposed 2 percent slope on the ground floor of the garage but do not show parking slopes on the two subterranean levels.

Loading Docks/Areas

As mentioned previously, the site is not required to provide loading parking spaces. However the planned loading area, serving the retail and office uses on the project site, is designated to access the site from Beverly Boulevard. Moving trucks for the residential units may frequent the site occasionally. Larger moving trucks may utilize Sherbourne Drive to park temporarily. Smaller moving trucks, or vans, may park within the subterranean parking structure.



TABLE 9
BICYCLE PARKING REQUIREMENT ESTIMATES
8713 BEVERLY BOULEVARD MIXED USE PROJECT

Parking Ratio	
Land Use	Ratio
Residential	1 per each 4 dwelling units
Commercial Employee	0.133 per ksf
Commercial Visitor	0.10 per ksf
Bicycle Showers	1 per 10,000 - 24,999 sf
Bicycle Clothing Lockers	1 per emp bicycle parking space

Parking Requirements per Code		
Land Use	Size	Required Spaces
Residential	30 units	8
Commercial - Employee	9.391 ksf	1
Commercial - Visitor	9.391 ksf	1
TOTAL SPACES REQUIRED		10
TOTAL SPACES PROVIDED		10

Notes:

Source: West Hollywood Municipal Code, Sec 19.28.150, Updated February 16, 2007.

8. CONSTRUCTION IMPACTS

Short-term adverse traffic and parking impacts could occur in the project vicinity during construction of the project. Additional trips generated by the truck deliveries and construction employees could affect traffic flow in the study area; construction activity could impact traffic along Beverly Boulevard and Sherbourne Drive; pedestrian traffic flow near the project site could be altered as a result of construction; and the availability of parking, especially on-street parking in the study area, could be impacted if on-site parking for construction employees were not provided.

CONSTRUCTION MITIGATION PLAN

The developer must comply with the standard City of West Hollywood development permit conditions relating to construction activities:

Grading and other construction activities shall be limited to the hours of 8:00 AM to 7:00 PM, Monday through Friday, and shall be limited to interior construction during the same hours on Saturday. No construction activity shall be permitted on Sundays and City or national holidays. The use of heavy equipment shall be restricted to the hours of 8:00 AM to 7:00 PM, Monday through Friday. Trucks and other heavy equipment and vehicles shall not arrive before 8:00 AM. Employees for the project shall not arrive at the site prior to 7:45 AM on any working day. All construction equipment and materials shall be stored on site.

To minimize construction impacts, City policy and procedure requires that the developer submit a Construction Mitigation Plan to the City for review as part of the project approval process. The elements of the proposed plan are described below.

Staging Area

The staging area for construction will be determined in consultation with the project applicant and City staff.

Haul Route

Locally, the following haul routes are available for construction truck trips:

- East on Beverly Boulevard to US-101
- South on San Vicente Boulevard to I-10
- West on Beverly Boulevard to Santa Monica Boulevard to I-405



Employee Parking

The developer must ensure that construction period employees can either park on-site or at an off-site location. Off-site parking in the adjacent residential neighborhoods is strictly prohibited.

Pedestrian Safety

If sidewalks are to be closed during construction, pedestrians would need to be advised of the closure with signage. It may also be necessary for the applicant to provide a protected walkway, approved by the City.



9. SUMMARY AND CONCLUSIONS

This study was undertaken to analyze the potential traffic impacts of the proposed mixed-use development. The following summarizes the findings of this analysis:

- The proposed project involves the construction of a mixed-use development containing 30 residential apartments, 5,475 square feet (sf) of ground floor retail space, 3,416 sf of office space, and 500 sf of ground floor gallery space. Parking will be provided in an underground multi-level parking garage. A total of 65 parking spaces will be provided.
- Five intersections and four street segments within the cities of West Hollywood and Los Angeles were analyzed for this project. Two of the analyzed intersections operate at LOS E or F during at least one of the peak hours under existing conditions.
- The proposed project is expected to generate a net increase of approximately 303 daily trips, 24 trips during the AM peak hour and 42 trips during the PM peak hour.
- Analysis of projected year 2015 existing plus project conditions indicates that two intersections are projected to operate at LOS E or F during the analyzed peak hours.
- The 2018 cumulative base conditions include ambient growth and 70 related projects. The analysis of cumulative base conditions indicates that three intersections are projected to operate at LOS E or F during both analyzed peak hours; the remaining intersections are projected to operate at LOS D or better during analyzed peak hours.
- Analysis of projected year 2018 cumulative plus project conditions indicates that three intersections are projected to operate at LOS E or F during the analyzed peak hours.
- No intersections or neighborhood street segments would be significantly impacted by project-related trips under existing plus project and cumulative plus project conditions based on City of West Hollywood and City of Los Angeles thresholds of significance.
- According to the WHMC, the vehicle parking requirement for the proposed project is 65 spaces. Sixty-five parking spaces will be provided in a subterranean parking structure.
- According to the WHMC, the bicycle parking requirement for the proposed project is 10 spaces with one for employees and one for visitors. The proposed project would provide 10 spaces in the parking structure and is in compliance with the municipal code requirement for bicycle parking spaces.
- Site access and circulation review indicates that there is one inbound/out driveway to the project site on Sherbourne Drive between Bonner Drive and Beverly Boulevard. Left-turn outbound access is restricted and outbound right-turns are the only permitted movements onto Sherbourne Drive.
- The potential for short-term adverse impacts related to construction traffic was examined. There could be impacts caused by lane and sidewalk closures and the loss of parking. The project applicant is required to develop, for approval, a construction staging and Traffic Management Plan outlining specific mitigation measures for potential construction impacts.



REFERENCES

City of West Hollywood Municipal Code, City of West Hollywood, April 2009.

Highway Capacity Manual, Transportation Research Board, 2010.

Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration, 2003.

Metro Bicycle Transportation Strategic Plan, Metro.

Traffic Study Policies and Procedures, Los Angeles Department of Transportation, August 2014.

Transportation Research Circular Number 212, Interim Materials on Highway Capacity, Transportation Research Board, 1980.

Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012.

West Hollywood Bicycle and Pedestrian Mobility Plan, City of West Hollywood, 2003.

APPENDIX A: TRAFFIC COUNTS

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-001

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

AM													
NS/EW Streets:	Robertson Blvd			Robertson Blvd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	12	48	12	2	89	74	8	100	22	16	175	4	562
7:15 AM	9	60	22	5	85	118	12	119	26	28	239	9	732
7:30 AM	10	60	35	4	96	120	9	161	33	25	275	8	836
7:45 AM	20	73	31	8	122	92	6	204	26	17	276	9	884
8:00 AM	8	93	25	8	101	103	13	222	22	26	286	12	919
8:15 AM	10	74	28	10	113	119	17	190	18	23	294	11	907
8:30 AM	14	77	28	10	105	108	16	191	30	20	308	12	919
8:45 AM	18	92	23	3	98	80	17	202	27	10	311	20	901
9:00 AM	19	103	13	8	91	79	21	226	33	18	303	13	927
9:15 AM	11	86	22	12	69	92	21	203	20	27	271	11	845
9:30 AM	15	93	29	9	92	96	17	206	21	23	262	23	886
9:45 AM	10	76	31	19	102	68	20	228	17	30	270	17	888
TOTAL VOLUMES :	NL 156	NT 935	NR 299	SL 98	ST 1163	SR 1149	EL 177	ET 2252	ER 295	WL 263	WT 3270	WR 149	TOTAL 10206
APPROACH %'s :	11.22%	67.27%	21.51%	4.07%	48.26%	47.68%	6.50%	82.67%	10.83%	7.14%	88.81%	4.05%	
PEAK HR START TIME :	815 AM												TOTAL
PEAK HR VOL :	61	346	92	31	407	386	71	809	108	71	1216	56	3654
PEAK HR FACTOR :	0.924			0.851			0.882			0.985			0.985

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-001

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

PM													
NS/EW Streets:	Robertson Blvd			Robertson Blvd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	18	97	40	18	79	48	26	203	9	24	245	27	834
4:15 PM	12	94	32	12	62	50	31	209	14	22	256	23	817
4:30 PM	18	103	31	14	71	35	30	213	24	24	222	27	812
4:45 PM	18	96	36	13	88	38	26	196	21	18	226	26	802
5:00 PM	13	107	33	9	82	37	31	193	26	22	219	23	795
5:15 PM	13	130	31	14	74	33	30	207	13	14	267	19	845
5:30 PM	23	119	23	13	65	48	27	185	10	16	230	19	778
5:45 PM	19	124	31	10	88	34	34	199	10	12	214	20	795
6:00 PM	24	131	21	19	99	34	29	216	20	23	253	14	883
6:15 PM	20	95	28	18	98	31	34	232	20	21	207	19	823
6:30 PM	9	114	31	5	97	37	29	216	13	20	189	23	783
6:45 PM	23	96	18	16	88	42	40	266	22	26	207	25	869
TOTAL VOLUMES :	NL 210	NT 1306	NR 355	SL 161	ST 991	SR 467	EL 367	ET 2535	ER 202	WL 242	WT 2735	WR 265	TOTAL 9836
APPROACH %'s :	11.22%	69.80%	18.97%	9.94%	61.21%	28.84%	11.82%	81.67%	6.51%	7.46%	84.36%	8.17%	
PEAK HR START TIME :	600 PM												TOTAL
PEAK HR VOL :	76	436	98	58	382	144	132	930	75	90	856	81	3358
PEAK HR FACTOR :	0.866			0.961			0.867			0.885			0.951

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-002

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

AM													
NS/EW Streets:	George Burns Rd			George Burns Rd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	3	0	18	0	0	0	0	98	20	48	198	0	385
7:15 AM	3	0	16	0	0	0	0	118	24	35	287	1	484
7:30 AM	5	0	59	0	0	0	1	155	30	51	300	1	602
7:45 AM	10	0	61	0	0	0	0	189	45	65	280	1	651
8:00 AM	5	1	37	0	0	0	2	213	31	48	309	1	647
8:15 AM	8	0	42	0	0	0	4	200	23	55	325	2	659
8:30 AM	3	0	26	1	0	0	2	196	29	44	342	6	649
8:45 AM	8	1	41	1	0	5	5	172	22	47	315	11	628
9:00 AM	10	0	26	1	0	2	2	209	35	48	331	4	668
9:15 AM	5	1	30	2	0	0	2	196	16	43	283	1	579
9:30 AM	6	1	34	0	0	1	4	218	30	29	332	3	658
9:45 AM	11	0	35	0	0	1	1	243	30	40	294	6	661
TOTAL VOLUMES :	NL 77	NT 4	NR 425	SL 5	ST 0	SR 9	EL 23	ET 2207	ER 335	WL 553	WT 3596	WR 37	TOTAL 7271
APPROACH %'s :	15.22%	0.79%	83.99%	35.71%	0.00%	64.29%	0.90%	86.04%	13.06%	13.21%	85.91%	0.88%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	26	1	166	1	0	0	8	798	128	212	1256	10	2606
PEAK HR FACTOR :	0.680			0.250			0.949			0.943			0.989

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-002

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

PM													
NS/EW Streets:	George Burns Rd			George Burns Rd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
4:00 PM	30	2	52	2	1	4	0	224	21	23	257	3	619
4:15 PM	34	1	52	0	2	5	0	233	22	26	256	1	632
4:30 PM	25	1	67	2	2	4	1	224	17	17	222	2	584
4:45 PM	45	0	59	3	1	1	0	222	21	27	224	1	604
5:00 PM	34	1	73	1	4	2	0	238	8	21	238	1	621
5:15 PM	39	1	74	4	1	4	1	216	7	16	227	2	592
5:30 PM	35	0	54	3	1	6	1	225	8	21	231	2	587
5:45 PM	27	1	50	1	2	1	0	226	12	26	221	2	569
6:00 PM	20	0	38	2	1	3	3	245	12	39	244	1	608
6:15 PM	20	1	46	1	0	2	0	250	14	33	223	4	594
6:30 PM	24	0	54	0	0	0	0	257	14	57	217	3	626
6:45 PM	18	0	37	0	0	1	0	284	10	43	222	4	619
TOTAL VOLUMES :	NL 351	NT 8	NR 656	SL 19	ST 15	SR 33	EL 6	ET 2844	ER 166	WL 349	WT 2782	WR 26	TOTAL 7255
APPROACH %'s :	34.58%	0.79%	64.63%	28.36%	22.39%	49.25%	0.20%	94.30%	5.50%	11.05%	88.12%	0.82%	
PEAK HR START TIME :	600 PM												TOTAL
PEAK HR VOL :	82	1	175	3	1	6	3	1036	50	172	906	12	2447
PEAK HR FACTOR :	0.827			0.417			0.926			0.960			0.977

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-003

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

AM													
NS/EW Streets:	San Vicente Blvd			San Vicente Blvd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 3	WR 0	TOTAL
7:00 AM	15	93	13	10	86	20	6	86	18	23	213	15	598
7:15 AM	18	141	13	15	92	32	4	83	15	31	275	26	745
7:30 AM	20	130	11	18	106	25	15	191	22	35	297	32	902
7:45 AM	24	164	29	12	149	42	12	173	34	25	279	23	966
8:00 AM	14	139	23	17	122	33	15	193	41	34	306	35	972
8:15 AM	29	143	11	17	133	57	12	182	35	26	284	21	950
8:30 AM	22	128	12	16	132	40	6	175	37	20	317	23	928
8:45 AM	34	194	9	26	149	39	7	170	43	22	296	29	1018
9:00 AM	29	201	16	18	126	41	13	180	42	22	305	34	1027
9:15 AM	26	205	22	27	152	44	17	186	25	27	264	30	1025
9:30 AM	39	159	20	28	111	29	11	191	41	24	293	31	977
9:45 AM	33	143	24	28	172	41	12	206	44	26	257	41	1027
TOTAL VOLUMES :	NL 303	NT 1840	NR 203	SL 232	ST 1530	SR 443	EL 130	ET 2016	ER 397	WL 315	WT 3386	WR 340	TOTAL 11135
APPROACH %'s :	12.92%	78.43%	8.65%	10.52%	69.39%	20.09%	5.11%	79.28%	15.61%	7.80%	83.79%	8.41%	
PEAK HR START TIME :	900 AM												TOTAL
PEAK HR VOL :	127	708	82	101	561	155	53	763	152	99	1119	136	4056
PEAK HR FACTOR :	0.906			0.848			0.924			0.938			0.987

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-003

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

PM													
NS/EW Streets:	San Vicente Blvd			San Vicente Blvd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 3	WR 0	TOTAL
4:00 PM	23	173	94	43	179	25	16	224	37	24	227	35	1100
4:15 PM	41	144	95	62	150	40	21	231	20	22	204	42	1072
4:30 PM	40	171	87	66	155	42	12	253	26	29	174	28	1083
4:45 PM	36	184	106	52	154	47	20	250	34	19	187	36	1125
5:00 PM	21	226	110	53	173	44	12	269	28	20	174	40	1170
5:15 PM	24	200	102	60	142	30	18	268	27	16	199	53	1139
5:30 PM	29	229	130	63	165	21	13	256	43	10	197	37	1193
5:45 PM	29	205	98	34	162	26	10	262	44	12	210	49	1141
6:00 PM	32	227	101	52	188	23	17	250	28	20	231	31	1200
6:15 PM	35	161	71	42	166	25	14	271	20	23	236	35	1099
6:30 PM	33	211	101	47	125	21	19	245	31	22	221	34	1110
6:45 PM	30	167	69	39	144	13	25	264	22	18	219	36	1046
TOTAL VOLUMES :	NL 373	NT 2298	NR 1164	SL 613	ST 1903	SR 357	EL 197	ET 3043	ER 360	WL 235	WT 2479	WR 456	TOTAL 13478
APPROACH %'s :	9.73%	59.92%	30.35%	21.34%	66.24%	12.43%	5.47%	84.53%	10.00%	7.41%	78.20%	14.38%	
PEAK HR START TIME :	515 PM												TOTAL
PEAK HR VOL :	114	861	431	209	657	100	58	1036	142	58	837	170	4673
PEAK HR FACTOR :	0.906			0.918			0.978			0.944			0.974

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-004

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

AM													
NS/EW Streets:	La Cienega Blvd			La Cienega Blvd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 3	SR 0	EL 2	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
7:00 AM	10	129	29	13	239	42	8	82	9	69	206	10	846
7:15 AM	14	151	32	18	251	43	16	95	13	61	307	8	1009
7:30 AM	17	189	58	15	303	59	31	136	12	83	284	20	1207
7:45 AM	18	191	63	17	284	45	38	176	10	73	287	17	1219
8:00 AM	15	201	51	25	290	53	36	172	22	79	298	25	1267
8:15 AM	27	162	43	11	231	46	26	173	15	82	266	16	1098
8:30 AM	16	173	59	11	295	72	18	128	12	72	236	13	1105
8:45 AM	24	198	58	17	274	57	22	183	10	73	277	14	1207
9:00 AM	16	190	68	28	272	60	34	160	7	82	301	20	1238
9:15 AM	19	185	66	16	206	43	28	199	22	74	282	18	1158
9:30 AM	16	190	68	23	240	64	37	167	29	85	257	24	1200
9:45 AM	14	167	59	21	229	59	39	170	31	52	262	25	1128
TOTAL VOLUMES :	206	2126	654	215	3114	643	333	1841	192	885	3263	210	13682
APPROACH %'s :	6.90%	71.20%	21.90%	5.41%	78.40%	16.19%	14.07%	77.81%	8.11%	20.31%	74.87%	4.82%	
PEAK HR START TIME :	845 AM												TOTAL
PEAK HR VOL :	75	763	260	84	992	224	121	709	68	314	1117	76	4803
PEAK HR FACTOR :	0.980			0.903			0.902			0.935			0.970

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-004

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

PM													
NS/EW Streets:	La Cienega Blvd			La Cienega Blvd			Beverly Blvd			Beverly Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 3	SR 0	EL 2	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
4:00 PM	23	262	84	28	236	47	73	212	32	67	172	27	1263
4:15 PM	21	223	76	18	183	33	81	273	34	62	194	23	1221
4:30 PM	29	275	104	29	216	25	70	263	17	63	138	26	1255
4:45 PM	30	208	73	32	195	41	83	292	35	59	206	33	1287
5:00 PM	33	235	96	33	229	21	77	280	33	67	180	27	1311
5:15 PM	23	207	98	27	216	26	109	316	24	60	207	36	1349
5:30 PM	23	240	94	29	213	29	91	281	24	69	210	38	1341
5:45 PM	16	208	79	18	166	35	97	310	30	70	222	41	1292
6:00 PM	19	267	108	24	224	38	73	276	33	70	207	27	1366
6:15 PM	17	235	75	22	178	30	95	308	27	56	221	31	1295
6:30 PM	28	270	88	22	212	35	84	267	21	49	224	25	1325
6:45 PM	13	236	96	18	144	41	68	322	34	48	220	22	1262
TOTAL VOLUMES :	275	2866	1071	300	2412	401	1001	3400	344	740	2401	356	15567
APPROACH %'s :	6.53%	68.04%	25.43%	9.64%	77.48%	12.88%	21.10%	71.65%	7.25%	21.16%	68.66%	10.18%	
PEAK HR START TIME :	515 PM												TOTAL
PEAK HR VOL :	81	922	379	98	819	128	370	1183	111	269	846	142	5348
PEAK HR FACTOR :	0.877			0.913			0.927			0.944			0.979

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-005

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

AM													
NS/EW Streets:	San Vicente Blvd			San Vicente Blvd			Melrose Ave			Melrose Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 1	WR 1	TOTAL
7:00 AM	4	89	12	5	65	15	5	47	7	42	181	28	500
7:15 AM	5	86	11	7	82	12	5	57	3	36	225	22	551
7:30 AM	11	91	21	15	94	9	9	75	5	39	249	21	639
7:45 AM	15	155	28	22	109	10	5	106	8	40	196	39	733
8:00 AM	18	133	21	28	106	10	4	122	7	37	217	35	738
8:15 AM	17	128	25	23	154	14	3	146	9	32	225	22	798
8:30 AM	13	115	15	20	120	15	9	132	12	54	230	30	765
8:45 AM	16	173	36	15	136	12	10	137	11	24	209	37	816
9:00 AM	22	124	30	19	125	18	8	132	12	41	197	42	770
9:15 AM	15	175	47	22	141	19	10	115	12	29	186	44	815
9:30 AM	32	156	34	20	102	9	4	155	7	30	204	52	805
9:45 AM	20	101	43	32	102	14	9	137	10	29	189	44	730
TOTAL VOLUMES :	NL 188	NT 1526	NR 323	SL 228	ST 1336	SR 157	EL 81	ET 1361	ER 103	WL 433	WT 2508	WR 416	TOTAL 8660
APPROACH %'s :	9.23%	74.91%	15.86%	13.25%	77.63%	9.12%	5.24%	88.09%	6.67%	12.90%	74.71%	12.39%	
PEAK HR START TIME :	845 AM												TOTAL
PEAK HR VOL :	85	628	147	76	504	58	32	539	42	124	796	175	3206
PEAK HR FACTOR :	0.907			0.876			0.923			0.957			0.982

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5771-005

Day: Wednesday

City: West Hollywood

Date: 11/18/2015

PM													
NS/EW Streets:	San Vicente Blvd			San Vicente Blvd			Melrose Ave			Melrose Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 1	WR 1	TOTAL
4:00 PM	16	112	26	34	148	15	17	140	33	34	103	30	708
4:15 PM	8	163	29	28	139	18	11	182	20	30	112	43	783
4:30 PM	21	143	41	28	128	15	13	160	23	33	93	49	747
4:45 PM	26	166	45	25	138	11	23	141	24	42	112	57	810
5:00 PM	28	176	36	31	143	13	16	153	30	49	127	53	855
5:15 PM	19	164	28	29	142	16	18	144	30	49	98	46	783
5:30 PM	16	175	34	31	152	21	28	149	26	36	115	64	847
5:45 PM	18	181	19	31	119	8	24	150	21	47	135	61	814
6:00 PM	25	180	36	26	149	13	22	131	29	50	132	68	861
6:15 PM	18	169	38	24	122	11	21	163	25	47	121	75	834
6:30 PM	18	159	33	28	114	9	19	130	30	36	128	75	779
6:45 PM	19	179	30	23	106	12	16	172	30	41	118	48	794
TOTAL VOLUMES :	NL 232	NT 1967	NR 395	SL 338	ST 1600	SR 162	EL 228	ET 1815	ER 321	WL 494	WT 1394	WR 669	TOTAL 9615
APPROACH %'s :	8.94%	75.83%	15.23%	16.10%	76.19%	7.71%	9.64%	76.78%	13.58%	19.32%	54.52%	26.16%	
PEAK HR START TIME :	530 PM												TOTAL
PEAK HR VOL :	77	705	127	112	542	53	95	593	101	180	503	268	3356
PEAK HR FACTOR :	0.943			0.866			0.944			0.951			0.974

CONTROL : Signalized

VOLUME

Rosewood Ave Bet. Sherbourne Dr & Robertson Blvd

Day: Wednesday
Date: 11/18/2015City: West Hollywood
Project #: CA15_5772_001

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						555	275	830	
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL			
00:00			0	0	0		12:00			4	3	7			
00:15			1	0	1		12:15			6	6	12			
00:30			0	0	0		12:30			9	2	11			
00:45			0	1	0	1	12:45			6	25	4	15	10	40
01:00			0	0	0		13:00			11	6	17			
01:15			0	0	0		13:15			10	6	16			
01:30			0	0	0		13:30			7	3	10			
01:45			1	1	0	1	13:45			10	38	4	19	14	57
02:00			0	0	0		14:00			13	4	17			
02:15			1	0	1		14:15			7	9	16			
02:30			0	0	0		14:30			9	7	16			
02:45			0	1	0	1	14:45			20	49	2	22	22	71
03:00			0	0	0		15:00			8	5	13			
03:15			0	0	0		15:15			9	5	14			
03:30			0	0	0		15:30			5	1	6			
03:45			0	0	0		15:45			8	30	1	12	9	42
04:00			0	0	0		16:00			14	5	19			
04:15			1	2	3		16:15			12	4	16			
04:30			1	0	1		16:30			7	5	12			
04:45			0	2	0	2	16:45			10	43	6	20	16	63
05:00			0	0	0		17:00			14	1	15			
05:15			1	0	1		17:15			24	3	27			
05:30			0	0	0		17:30			29	2	31			
05:45			0	1	0	1	17:45			24	91	2	8	26	99
06:00			1	0	1		18:00			28	4	32			
06:15			1	1	2		18:15			33	2	35			
06:30			0	1	1		18:30			21	3	24			
06:45			5	7	3	5	18:45			16	98	3	12	19	110
07:00			2	2	4		19:00			8	2	10			
07:15			2	3	5		19:15			5	2	7			
07:30			1	3	4		19:30			8	2	10			
07:45			3	8	7	15	19:45			4	25	1	7	5	32
08:00			3	7	10		20:00			6	2	8			
08:15			2	3	5		20:15			2	0	2			
08:30			6	21	27		20:30			4	2	6			
08:45			5	16	13	44	20:45			4	16	1	5	5	21
09:00			5	13	18		21:00			1	1	2			
09:15			5	3	8		21:15			2	2	4			
09:30			7	8	15		21:30			3	1	4			
09:45			7	24	3	27	21:45			2	8	0	4	2	12
10:00			11	8	19		22:00			1	0	1			
10:15			11	11	22		22:15			2	0	2			
10:30			2	3	5		22:30			1	1	2			
10:45			7	31	8	30	22:45			3	7	1	2	4	9
11:00			6	6	12		23:00			1	0	1			
11:15			7	8	15		23:15			0	1	1			
11:30			7	6	13		23:30			3	0	3			
11:45			9	29	4	24	23:45			0	4	1	2	1	6
TOTALS			121	147	268		TOTALS			434	128	562			
SPLIT %			45.1%	54.9%	32.3%		SPLIT %			77.2%	22.8%	67.7%			

DAILY TOTALS					NB	SB						EB	WB	Total	
					0	0						555	275	830	
AM Peak Hour			09:30	08:15	08:30		PM Peak Hour			17:30	13:45	17:30			
AM Pk Volume			36	50	71		PM Pk Volume			114	24	124			
Pk Hr Factor			0.818	0.595	0.657		Pk Hr Factor			0.864	0.667	0.886			
7 - 9 Volume	0	0	24	59	83		4 - 6 Volume	0	0	134	28	162			
7 - 9 Peak Hour			08:00	08:00	08:00		4 - 6 Peak Hour			17:00	16:00	17:00			
7 - 9 Pk Volume	0	0	16	44	60		4 - 6 Pk Volume	0	0	91	20	99			
Pk Hr Factor	0.000	0.000	0.667	0.524	0.556		Pk Hr Factor	0.000	0.000	0.784	0.833	0.798			

VOLUME

Bonner Dr Bet. Sherbourne Dr & Beverly Blvd

Day: Wednesday

Date: 11/18/2015

City: West Hollywood

Project #: CA15_5772_002

DAILY TOTALS					NB	SB	EB					WB	Total	
					0	0						620		
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00			1	0	1		12:00			5	3	8		
00:15			1	2	3		12:15			10	4	14		
00:30			1	0	1		12:30			13	5	18		
00:45			0	3	0	2	0	5		6	34	6	18	
							12:45			6	34	6	52	
01:00			1	0	1		13:00			10	3	13		
01:15			1	0	1		13:15			8	5	13		
01:30			0	0	0		13:30			9	1	10		
01:45			0	2	1	1	1	3		7	34	3	46	
							13:45			7	34	3	12	
02:00			1	0	1		14:00			10	6	16		
02:15			0	0	0		14:15			16	2	18		
02:30			0	1	1		14:30			13	5	18		
02:45			0	1	0	1	0	2		21	60	9	82	
							14:45			21	60	9	22	
03:00			0	0	0		15:00			15	5	20		
03:15			0	1	1		15:15			13	3	16		
03:30			0	0	0		15:30			14	5	19		
03:45			0	0	0	1	0	1		14	56	7	20	
							15:45			14	56	7	76	
04:00			0	0	0		16:00			26	5	31		
04:15			1	1	2		16:15			23	3	26		
04:30			0	0	0		16:30			24	3	27		
04:45			0	1	0	1	0	2		20	93	2	106	
							16:45			20	93	2	13	
05:00			0	0	0		17:00			26	6	32		
05:15			0	1	1		17:15			23	4	27		
05:30			0	0	0		17:30			13	5	18		
05:45			0	0	0	1	0	1		17	79	4	19	
							17:45			17	79	4	98	
06:00			2	1	3		18:00			18	1	19		
06:15			2	1	3		18:15			22	5	27		
06:30			1	0	1		18:30			16	4	20		
06:45			2	7	1	3	3	10		12	68	8	86	
							18:45			12	68	8	18	
07:00			2	1	3		19:00			17	4	21		
07:15			2	0	2		19:15			6	2	8		
07:30			1	3	4		19:30			4	4	8		
07:45			1	6	5	9	6	15		11	38	1	11	
							19:45			11	38	1	49	
08:00			1	3	4		20:00			7	1	8		
08:15			5	3	8		20:15			7	0	7		
08:30			5	8	13		20:30			1	2	3		
08:45			4	15	5	19	9	34		4	19	0	3	
							20:45			4	19	0	22	
09:00			7	14	21		21:00			2	1	3		
09:15			8	8	16		21:15			2	2	4		
09:30			6	6	12		21:30			3	0	3		
09:45			9	30	10	38	19	68		0	7	1	4	
							21:45			0	7	1	11	
10:00			4	3	7		22:00			0	1	1		
10:15			8	8	16		22:15			2	0	2		
10:30			11	3	14		22:30			1	1	2		
10:45			3	26	1	15	4	41		0	3	1	3	
							22:45			0	3	1	6	
11:00			4	2	6		23:00			0	1	1		
11:15			9	3	12		23:15			3	1	4		
11:30			14	0	14		23:30			1	0	1		
11:45			7	34	1	6	8	40		0	4	0	2	
							23:45			0	4	0	6	
TOTALS			125	97	222		TOTALS			495	145	640		
SPLIT %			56.3%	43.7%	25.8%		SPLIT %			77.3%	22.7%	74.2%		

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						620	242						862
AM Peak Hour			11:30	09:00	09:00		PM Peak Hour			16:00	14:00	16:30							
AM Pk Volume			36	38	68		PM Pk Volume			93	22	108							
Pk Hr Factor			0.643	0.679	0.810		Pk Hr Factor			0.894	0.611	0.844							
7 - 9 Volume	0	0	21	28	49		4 - 6 Volume	0	0	172	32	204							
7 - 9 Peak Hour			08:00	07:45	08:00		4 - 6 Peak Hour			16:00	17:00	16:30							
7 - 9 Pk Volume	0	0	15	19	34		4 - 6 Pk Volume	0	0	93	19	108							
Pk Hr Factor	0.000	0.000	0.750	0.594	0.654		Pk Hr Factor	0.000	0.000	0.894	0.792	0.844							

VOLUME

Sherbourne Dr N/O Rosewood Ave

Day: Wednesday
Date: 11/18/2015City: West Hollywood
Project #: CA15_5772_003

DAILY TOTALS					NB	SB	EB					WB	Total
					1,205	512						0	0
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	1	0			1	12:00	20	4			24		
00:15	1	1			2	12:15	21	10			31		
00:30	2	0			2	12:30	13	8			21		
00:45	0	4	1	2	1 6	12:45	18	72	7	29	25 101		
01:00	0	0			0	13:00	16	12			28		
01:15	1	0			1	13:15	20	14			34		
01:30	2	1			3	13:30	14	3			17		
01:45	1	4	0	1	1 5	13:45	21	71	4	33	25 104		
02:00	1	0			1	14:00	25	11			36		
02:15	1	0			1	14:15	17	9			26		
02:30	2	1			3	14:30	22	13			35		
02:45	0	4	0	1	0 5	14:45	26	90	8	41	34 131		
03:00	0	1			1	15:00	26	7			33		
03:15	0	0			0	15:15	29	14			43		
03:30	0	0			0	15:30	30	7			37		
03:45	0	0	1		0 1	15:45	25	110	14	42	39 152		
04:00	0	1			1	16:00	40	11			51		
04:15	1	1			2	16:15	43	10			53		
04:30	1	0			1	16:30	35	8			43		
04:45	0	2	0	2	0 4	16:45	24	142	9	38	33 180		
05:00	1	1			2	17:00	35	4			39		
05:15	0	0			0	17:15	48	7			55		
05:30	1	0			1	17:30	40	9			49		
05:45	7	9	2	3	9 12	17:45	28	151	5	25	33 176		
06:00	3	4			7	18:00	48	9			57		
06:15	2	3			5	18:15	50	11			61		
06:30	4	3			7	18:30	31	5			36		
06:45	7	16	4	14	11 30	18:45	35	164	11	36	46 200		
07:00	8	2			10	19:00	21	1			22		
07:15	8	2			10	19:15	13	2			15		
07:30	15	6			21	19:30	16	7			23		
07:45	8	39	6	16	14 55	19:45	15	65	2	12	17 77		
08:00	11	11			22	20:00	7	1			8		
08:15	8	17			25	20:15	14	0			14		
08:30	13	10			23	20:30	6	3			9		
08:45	9	41	18	56	27 97	20:45	9	36	3	7	12 43		
09:00	7	27			34	21:00	9	2			11		
09:15	16	16			32	21:15	2	1			3		
09:30	11	10			21	21:30	4	1			5		
09:45	10	44	10	63	20 107	21:45	3	18	3	7	6 25		
10:00	9	12			21	22:00	2	1			3		
10:15	14	12			26	22:15	4	0			4		
10:30	18	10			28	22:30	4	3			7		
10:45	9	50	6	40	15 90	22:45	3	13	0	4	3 17		
11:00	10	11			21	23:00	1	1			2		
11:15	12	8			20	23:15	2	2			4		
11:30	11	10			21	23:30	6	0			6		
11:45	16	49	5	34	21 83	23:45	2	11	2	5	4 16		
TOTALS	262	233			495	TOTALS	943	279			1222		
SPLIT %	52.9%	47.1%			28.8%	SPLIT %	77.2%	22.8%			71.2%		

DAILY TOTALS					NB	SB						EB	WB						Total
					1,205	512						0	0						1,717

AM Peak Hour	11:45	08:15			08:30	PM Peak Hour	17:30	15:15			17:30
AM Pk Volume	70	72			116	PM Pk Volume	166	46			200
Pk Hr Factor	0.833	0.667			0.853	Pk Hr Factor	0.830	0.821			0.820
7 - 9 Volume	80	72	0	0	152	4 - 6 Volume	293	63	0	0	356
7 - 9 Peak Hour	07:15	08:00			08:00	4 - 6 Peak Hour	17:00	16:00			16:00
7 - 9 Pk Volume	42	56	0	0	97	4 - 6 Pk Volume	151	38	0	0	180
Pk Hr Factor	0.700	0.778	0.000	0.000	0.898	Pk Hr Factor	0.786	0.864	0.000	0.000	0.849

VOLUME

Sherbourne Dr N/O Beverly Blvd

Day: Wednesday
Date: 11/18/2015City: West Hollywood
Project #: CA15_5772_004

DAILY TOTALS					NB	SB					EB	WB	Total
					682	683					0	0	1,365
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	1	0			1	12:00	5	10			15		
00:15	1	0			1	12:15	13	10			23		
00:30	1	0			1	12:30	13	16			29		
00:45	0	3	0		0	12:45	20	51	13	49	33	100	
01:00	0	1			1	13:00	13	14			27		
01:15	0	1			1	13:15	11	19			30		
01:30	2	0			2	13:30	7	19			26		
01:45	1	3	1	3	2	13:45	7	38	11	63	18	101	
02:00	0	0			0	14:00	16	14			30		
02:15	1	0			1	14:15	6	13			19		
02:30	2	1			3	14:30	13	19			32		
02:45	0	3	0	1	0	14:45	13	48	23	69	36	117	
03:00	0	1			1	15:00	10	9			19		
03:15	0	0			0	15:15	6	7			13		
03:30	0	0			0	15:30	16	7			23		
03:45	0	0	1		0	15:45	8	40	12	35	20	75	
04:00	0	1			1	16:00	17	11			28		
04:15	1	0			1	16:15	10	10			20		
04:30	0	0			0	16:30	13	9			22		
04:45	0	1	0	1	0	16:45	10	50	7	37	17	87	
05:00	1	1			2	17:00	9	14			23		
05:15	0	1			1	17:15	13	14			27		
05:30	0	0			0	17:30	12	17			29		
05:45	7	8	3	5	10	17:45	13	47	23	68	36	115	
06:00	4	3			7	18:00	15	21			36		
06:15	3	3			6	18:15	10	18			28		
06:30	3	6			9	18:30	6	11			17		
06:45	6	16	5	17	11	18:45	17	48	10	60	27	108	
07:00	7	3			10	19:00	9	8			17		
07:15	8	5			13	19:15	13	5			18		
07:30	13	6			19	19:30	10	2			12		
07:45	16	44	4	18	20	19:45	7	39	8	23	15	62	
08:00	10	5			15	20:00	7	7			14		
08:15	7	11			18	20:15	9	4			13		
08:30	9	8			17	20:30	8	9			17		
08:45	11	37	12	36	23	20:45	8	32	6	26	14	58	
09:00	10	11			21	21:00	5	2			7		
09:15	8	10			18	21:15	1	2			3		
09:30	12	8			20	21:30	3	3			6		
09:45	11	41	12	41	23	21:45	5	14	2	9	7	23	
10:00	9	13			22	22:00	3	2			5		
10:15	14	17			31	22:15	5	4			9		
10:30	17	9			26	22:30	1	1			2		
10:45	18	58	14	53	32	22:45	1	10	2	9	3	19	
11:00	7	9			16	23:00	1	0			1		
11:15	10	20			30	23:15	1	2			3		
11:30	14	11			25	23:30	3	2			5		
11:45	13	44	14	54	27	23:45	2	7	1	5	3	12	
TOTALS	258	230			488	TOTALS	424	453			877		
SPLIT %	52.9%	47.1%			35.8%	SPLIT %	48.3%	51.7%			64.2%		

DAILY TOTALS					NB	SB					EB	WB	Total
					682	683					0	0	1,365

AM Peak Hour	10:00	11:15			10:00	PM Peak Hour	12:15	17:30			17:30		
AM Pk Volume	58	55			111	PM Pk Volume	59	79			129		
Pk Hr Factor	0.806	0.688			0.867	Pk Hr Factor	0.738	0.859			0.896		
7 - 9 Volume	81	54	0	0	135	4 - 6 Volume	97	105	0	0	202		
7 - 9 Peak Hour	07:15	08:00			08:00	4 - 6 Peak Hour	16:00	17:00			17:00		
7 - 9 Pk Volume	47	36	0	0	73	4 - 6 Pk Volume	50	68	0	0	115		
Pk Hr Factor	0.734	0.750	0.000	0.000	0.793	Pk Hr Factor	0.735	0.739	0.000	0.000	0.799		

APPENDIX B:
LEVEL OF SERVICE WORKSHEETS

EXISTING CONDITIONS

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	539	42	124	796	175	85	628	147	76	504	58
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	33	550	43	127	812	179	87	641	150	78	514	59
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1665	130	472	932	792	210	746	174	112	926	414
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	566	2837	221	821	1588	1350	836	2429	568	683	3018	1350
Grp Volume(v), veh/h	33	292	301	127	812	179	87	398	393	78	514	59
Grp Sat Flow(s),veh/h/ln	566	1509	1549	821	1588	1350	836	1509	1488	683	1509	1350
Q Serve(g_s), s	5.2	9.9	10.0	9.4	43.2	6.3	9.7	24.8	24.9	5.8	14.2	3.2
Cycle Q Clear(g_c), s	48.4	9.9	10.0	19.3	43.2	6.3	23.9	24.8	24.9	30.7	14.2	3.2
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	160	886	909	472	932	792	210	463	457	112	926	414
V/C Ratio(X)	0.21	0.33	0.33	0.27	0.87	0.23	0.41	0.86	0.86	0.70	0.55	0.14
Avail Cap(c_a), veh/h	160	886	909	472	932	792	210	463	457	112	926	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	37.9	10.6	10.6	15.5	17.4	9.8	38.9	32.6	32.6	48.5	28.9	25.1
Incr Delay (d2), s/veh	2.8	1.0	0.9	1.4	11.0	0.7	5.9	18.3	18.7	30.2	2.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	4.5	2.3	21.6	2.5	2.6	12.6	12.5	3.1	6.2	1.3
LnGrp Delay(d),s/veh	40.7	11.5	11.5	16.9	28.4	10.5	44.9	51.0	51.4	78.7	31.3	25.8
LnGrp LOS	D	B	B	B	C	B	D	D	D	E	C	C
Approach Vol, veh/h		626			1118			878			651	
Approach Delay, s/veh		13.1			24.2			50.5			36.5	
Approach LOS		B			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		36.0		64.0		36.0				
Change Period (Y+Rc), s		* 5.3		* 5.3		* 5.3		* 5.3				
Max Green Setting (Gmax), s		* 59		* 31		* 59		* 31				
Max Q Clear Time (g_c+l1), s		50.4		26.9		45.2		32.7				
Green Ext Time (p_c), s		1.9		1.2		2.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				31.6								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	809	108	71	1216	56	61	346	92	31	407	386
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	2451	1667	1667	1667	1700
Adj Flow Rate, veh/h	72	817	109	72	1228	57	62	349	93	31	411	390
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	932	124	156	1022	47	120	1266	732	552	407	386
Arrive On Green	0.33	0.33	0.33	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.51
Sat Flow, veh/h	449	2809	375	631	3082	143	710	2451	1417	990	788	747
Grp Volume(v), veh/h	72	460	466	72	630	655	62	349	93	31	0	801
Grp Sat Flow(s),veh/h/ln	449	1583	1601	631	1583	1641	710	2451	1417	990	0	1535
Q Serve(g_s), s	0.0	16.4	16.5	3.4	19.9	19.9	0.0	4.8	2.0	1.1	0.0	31.0
Cycle Q Clear(g_c), s	19.9	16.4	16.5	19.9	19.9	19.9	31.0	4.8	2.0	5.9	0.0	31.0
Prop In Lane	1.00		0.23	1.00		0.09	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	120	525	531	156	525	544	120	1266	732	552	0	793
V/C Ratio(X)	0.60	0.88	0.88	0.46	1.20	1.20	0.52	0.28	0.13	0.06	0.00	1.01
Avail Cap(c_a), veh/h	120	525	531	156	525	544	120	1266	732	552	0	793
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	18.9	18.9	32.4	23.3	23.3	30.0	8.2	7.5	9.8	0.0	14.6
Incr Delay (d2), s/veh	20.2	18.3	18.2	6.8	102.9	103.3	15.0	0.5	0.4	0.2	0.0	34.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	9.8	9.9	1.5	23.7	24.6	1.5	3.4	0.9	0.3	0.0	20.6
LnGrp Delay(d),s/veh	50.2	37.2	37.1	39.2	126.3	126.6	45.0	8.7	7.9	10.0	0.0	49.1
LnGrp LOS	D	D	D	D	F	F	D	A	A	B		F
Approach Vol, veh/h		998			1357			504			832	
Approach Delay, s/veh		38.1			121.8			13.0			47.7	
Approach LOS		D			F			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.4		35.6		24.4		35.6				
Change Period (Y+Rc), s		* 4.8		* 5.2		* 4.8		* 5.2				
Max Green Setting (Gmax), s		* 20		* 30		* 20		* 30				
Max Q Clear Time (g_c+l1), s		21.9		33.0		21.9		33.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				67.6								
HCM 2010 LOS				E								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Bervely Dr/Beverly Dr

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	798	128	212	1256	10	26	1	166	1	0	0
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1620	1620	1588	1620
Adj Flow Rate, veh/h	8	806	129	214	1269	10	26	1	168	1	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	1529	245	516	1800	14	114	15	212	303	0	0
Arrive On Green	1.00	1.00	1.00	0.59	0.59	0.57	0.18	0.18	0.18	0.18	0.00	0.00
Sat Flow, veh/h	431	2606	417	596	3069	24	108	81	1178	761	0	0
Grp Volume(v), veh/h	8	467	468	214	624	655	195	0	0	1	0	0
Grp Sat Flow(s),veh/h/ln	431	1509	1515	596	1509	1584	1367	0	0	761	0	0
Q Serve(g_s), s	0.4	0.0	0.0	10.0	12.6	12.6	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.0	0.0	0.0	10.0	12.6	12.6	5.9	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.28	1.00		0.02	0.13		0.86	1.00		0.00
Lane Grp Cap(c), veh/h	293	885	889	516	885	929	340	0	0	303	0	0
V/C Ratio(X)	0.03	0.53	0.53	0.41	0.70	0.70	0.57	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	293	885	889	516	885	929	865	0	0	771	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.51	0.51	0.68	0.68	0.68	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.2	0.0	0.0	5.8	6.3	6.3	17.0	0.0	0.0	14.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	1.2	1.7	3.2	3.1	1.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.3	1.8	5.8	6.1	2.4	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	3.3	1.2	1.2	7.4	9.5	9.4	18.5	0.0	0.0	14.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B			B		
Approach Vol, veh/h		943			1493			195			1	
Approach Delay, s/veh		1.2			9.2			18.5			14.6	
Approach LOS		A			A			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		46.7		13.3		46.7		13.3				
Change Period (Y+Rc), s		5.2		5.5		5.2		5.5				
Max Green Setting (Gmax), s		24.8		24.5		24.8		24.5				
Max Q Clear Time (g_c+l1), s		14.6		2.1		15.0		7.9				
Green Ext Time (p_c), s		7.9		0.8		7.6		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			7.0									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary

4: Beverly Dr & San Vicente Blvd

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	763	152	99	1119	136	127	708	82	101	561	155
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	54	771	154	100	1130	137	128	715	83	102	567	157
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	1478	661	335	1478	661	321	1457	652	275	1457	652
Arrive On Green	0.93	0.93	0.93	0.62	0.62	0.62	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	457	3167	1417	632	3167	1417	763	3167	1417	712	3167	1417
Grp Volume(v), veh/h	54	771	154	100	1130	137	128	715	83	102	567	157
Grp Sat Flow(s),veh/h/ln	457	1583	1417	632	1583	1417	763	1583	1417	712	1583	1417
Q Serve(g_s), s	10.8	3.8	1.1	10.1	30.9	5.1	15.9	18.9	4.0	14.0	14.1	8.1
Cycle Q Clear(g_c), s	41.7	3.8	1.1	13.9	30.9	5.1	30.1	18.9	4.0	32.9	14.1	8.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	1478	661	335	1478	661	321	1457	652	275	1457	652
V/C Ratio(X)	0.35	0.52	0.23	0.30	0.76	0.21	0.40	0.49	0.13	0.37	0.39	0.24
Avail Cap(c_a), veh/h	156	1478	661	335	1478	661	321	1457	652	275	1457	652
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	0.26	0.26	0.26	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	2.3	2.2	15.8	18.0	13.1	31.2	22.6	18.6	34.1	21.3	19.7
Incr Delay (d2), s/veh	5.3	1.1	0.7	0.6	1.0	0.2	3.7	1.2	0.4	3.8	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.5	0.5	1.8	13.6	2.0	3.7	8.5	1.6	3.0	6.3	3.3
LnGrp Delay(d),s/veh	20.6	3.4	2.9	16.4	19.0	13.3	34.9	23.8	19.0	37.9	22.1	20.6
LnGrp LOS	C	A	A	B	B	B	C	C	B	D	C	C
Approach Vol, veh/h		979			1367			926			826	
Approach Delay, s/veh		4.3			18.2			24.9			23.8	
Approach LOS		A			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.5		59.5		60.5		59.5				
Change Period (Y+Rc), s		* 6.4		* 5.8		* 6.4		* 5.8				
Max Green Setting (Gmax), s		* 54		* 54		* 54		* 54				
Max Q Clear Time (g_c+l1), s		32.9		34.9		43.7		32.1				
Green Ext Time (p_c), s		13.9		9.5		8.1		10.2				
Intersection Summary												
HCM 2010 Ctrl Delay			17.5									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	95	593	101	180	503	268	77	705	127	112	542	53
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	98	611	104	186	519	276	79	727	131	115	559	55
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1023	174	243	629	535	373	1204	217	257	1422	636
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	680	2581	438	733	1588	1350	805	2556	460	641	3018	1350
Grp Volume(v), veh/h	98	357	358	186	519	276	79	429	429	115	559	55
Grp Sat Flow(s),veh/h/ln	680	1509	1511	733	1588	1350	805	1509	1507	641	1509	1350
Q Serve(g_s), s	8.3	15.0	15.0	16.7	23.4	12.4	5.7	16.8	16.8	12.9	9.6	1.8
Cycle Q Clear(g_c), s	31.7	15.0	15.0	31.7	23.4	12.4	15.3	16.8	16.8	29.8	9.6	1.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	160	598	599	243	629	535	373	711	710	257	1422	636
V/C Ratio(X)	0.61	0.60	0.60	0.77	0.82	0.52	0.21	0.60	0.60	0.45	0.39	0.09
Avail Cap(c_a), veh/h	160	598	599	243	629	535	373	711	710	257	1422	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	37.0	19.1	19.1	33.1	21.7	18.3	18.7	15.6	15.6	26.6	13.7	11.7
Incr Delay (d2), s/veh	12.8	3.4	3.4	20.3	11.7	3.5	1.3	3.8	3.8	5.4	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	6.7	6.8	5.5	12.3	5.1	1.4	7.7	7.7	2.7	4.1	0.7
LnGrp Delay(d),s/veh	49.8	22.5	22.5	53.5	33.4	21.9	20.0	19.4	19.4	32.1	14.5	11.9
LnGrp LOS	D	C	C	D	C	C	B	B	B	C	B	B
Approach Vol, veh/h		813			981			937			729	
Approach Delay, s/veh		25.8			33.9			19.5			17.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.0		43.0		37.0		43.0				
Change Period (Y+Rc), s		* 5.3		* 5.3		* 5.3		* 5.3				
Max Green Setting (Gmax), s		* 32		* 38		* 32		* 38				
Max Q Clear Time (g_c+l1), s		33.7		18.8		33.7		31.8				
Green Ext Time (p_c), s		0.0		2.5		0.0		1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			24.6									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	132	930	75	90	856	81	76	436	98	58	382	144
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	139	979	79	95	901	85	80	459	103	61	402	152
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	984	79	122	970	92	350	861	732	415	596	225
Arrive On Green	0.33	0.33	0.33	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.51
Sat Flow, veh/h	597	2968	239	557	2925	276	893	1667	1417	886	1154	436
Grp Volume(v), veh/h	139	522	536	95	488	498	80	459	103	61	0	554
Grp Sat Flow(s),veh/h/ln	597	1583	1624	557	1583	1618	893	1667	1417	886	0	1590
Q Serve(g_s), s	1.8	19.7	19.7	0.2	18.1	18.1	4.4	11.0	2.3	3.0	0.0	15.6
Cycle Q Clear(g_c), s	19.9	19.7	19.7	19.9	18.1	18.1	19.9	11.0	2.3	14.0	0.0	15.6
Prop In Lane	1.00		0.15	1.00		0.17	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	138	525	539	122	525	537	350	861	732	415	0	821
V/C Ratio(X)	1.01	0.99	0.99	0.78	0.93	0.93	0.23	0.53	0.14	0.15	0.00	0.67
Avail Cap(c_a), veh/h	138	525	539	122	525	537	350	861	732	415	0	821
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	20.0	20.0	33.3	22.6	22.7	18.2	9.7	7.6	14.3	0.0	10.8
Incr Delay (d2), s/veh	79.0	37.9	37.5	32.6	21.8	21.4	1.5	2.4	0.4	0.7	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	14.1	14.4	2.7	11.0	11.2	1.2	5.5	1.0	0.8	0.0	7.8
LnGrp Delay(d),s/veh	109.0	57.9	57.5	65.9	44.4	44.1	19.7	12.0	8.0	15.1	0.0	15.2
LnGrp LOS	F	E	E	E	D	D	B	B	A	B		B
Approach Vol, veh/h		1197			1081			642			615	
Approach Delay, s/veh		63.6			46.1			12.3			15.2	
Approach LOS		E			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.4		35.6		24.4		35.6				
Change Period (Y+Rc), s		* 4.8		* 5.2		* 4.8		* 5.2				
Max Green Setting (Gmax), s		* 20		* 30		* 20		* 30				
Max Q Clear Time (g_c+l1), s		21.9		17.6		21.9		21.9				
Green Ext Time (p_c), s		0.0		5.1		0.0		4.0				
Intersection Summary												
HCM 2010 Ctrl Delay				40.5								
HCM 2010 LOS				D								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Beverly Dr/Beverly Dr

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	1036	50	172	906	12	82	1	175	3	1	6
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1620	1620	1588	1620
Adj Flow Rate, veh/h	3	1057	51	176	924	12	84	1	179	3	1	6
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	1600	77	431	1665	22	182	25	222	159	69	192
Arrive On Green	1.00	1.00	1.00	0.37	0.37	0.36	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	596	2931	141	507	3050	40	338	106	935	248	292	809
Grp Volume(v), veh/h	3	544	564	176	457	479	264	0	0	10	0	0
Grp Sat Flow(s),veh/h/ln	596	1509	1563	507	1509	1581	1379	0	0	1349	0	0
Q Serve(g_s), s	0.1	0.0	0.0	13.4	11.2	11.2	5.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.3	0.0	0.0	13.4	11.2	11.2	8.4	0.0	0.0	0.2	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.03	0.32		0.68	0.30		0.60
Lane Grp Cap(c), veh/h	336	824	853	431	824	863	429	0	0	420	0	0
V/C Ratio(X)	0.01	0.66	0.66	0.41	0.55	0.55	0.62	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	336	824	853	431	824	863	825	0	0	802	0	0
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	0.33	0.72	0.72	0.72	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.5	0.0	0.0	10.9	10.3	10.3	16.7	0.0	0.0	13.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	1.3	2.0	1.9	1.8	1.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.3	2.1	5.1	5.3	3.3	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	2.5	1.4	1.3	13.0	12.2	12.1	18.1	0.0	0.0	13.7	0.0	0.0
LnGrp LOS	A	A	A	B	B	B	B			B		
Approach Vol, veh/h	1111			1112			264			10		
Approach Delay, s/veh	1.4			12.3			18.1			13.7		
Approach LOS	A			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	43.5			16.5			43.5			16.5		
Change Period (Y+Rc), s	5.2			5.5			5.2			5.5		
Max Green Setting (Gmax), s	24.8			24.5			24.8			24.5		
Max Q Clear Time (g_c+l1), s	15.4			2.2			13.3			10.4		
Green Ext Time (p_c), s	7.0			1.2			8.2			1.0		
Intersection Summary												
HCM 2010 Ctrl Delay	8.0											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

4: San Vicente Blvd & Beverly Dr

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	1036	142	58	837	170	114	861	431	209	657	100
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	2500	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	60	1068	146	60	863	175	118	888	0	215	677	103
Adj No. of Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	1478	661	251	1225	248	287	1457	652	223	1457	652
Arrive On Green	0.93	0.93	0.93	0.93	0.93	0.90	0.46	0.46	0.00	0.46	0.46	0.46
Sat Flow, veh/h	568	3167	1417	481	2624	532	724	3167	1417	654	3167	1417
Grp Volume(v), veh/h	60	1068	146	60	521	517	118	888	0	215	677	103
Grp Sat Flow(s),veh/h/ln	568	1583	1417	481	1583	1573	724	1583	1417	654	1583	1417
Q Serve(g_s), s	3.4	8.3	1.0	4.1	7.7	8.7	16.1	25.3	0.0	29.9	17.6	5.1
Cycle Q Clear(g_c), s	12.1	8.3	1.0	12.4	7.7	8.7	33.7	25.3	0.0	55.2	17.6	5.1
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	1478	661	251	739	734	287	1457	652	223	1457	652
V/C Ratio(X)	0.21	0.72	0.22	0.24	0.70	0.70	0.41	0.61	0.00	0.96	0.46	0.16
Avail Cap(c_a), veh/h	284	1478	661	251	739	734	287	1457	652	223	1457	652
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	0.56	0.56	0.56	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.7	2.4	2.2	3.7	2.4	2.8	33.8	24.3	0.0	48.6	22.3	18.9
Incr Delay (d2), s/veh	1.2	2.2	0.5	1.3	3.2	3.2	4.3	1.9	0.0	51.4	1.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.4	0.4	0.6	3.3	3.7	3.6	11.4	0.0	10.3	7.9	2.1
LnGrp Delay(d),s/veh	4.9	4.6	2.7	4.9	5.6	6.0	38.1	26.2	0.0	100.0	23.3	19.4
LnGrp LOS	A	A	A	A	A	A	D	C		F	C	B
Approach Vol, veh/h	1274				1098				1006		995	
Approach Delay, s/veh	4.4				5.8				27.6		39.5	
Approach LOS	A				A				C		D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	60.5		59.5		60.5		59.5					
Change Period (Y+Rc), s	* 6.4		* 5.8		* 6.4		* 5.8					
Max Green Setting (Gmax), s	* 54		* 54		* 54		* 54					
Max Q Clear Time (g_c+l1), s	14.4		57.2		14.1		35.7					
Green Ext Time (p_c), s	19.3		0.0		19.3		11.2					
Intersection Summary												
HCM 2010 Ctrl Delay	18.1											
HCM 2010 LOS	B											
Notes												

Level of Service Worksheet (Circular 212 Method)



I/S #:
5

PROJECT TITLE: 8731 Beverly Mixed-Use Project

North-South Street: La Cienega Boulevard

East-West Street: Beverly Boulevard

Scenario: Existing

Count Date: 1/0/1900

Analyst: <Fehr & Peers>

Date: <date>

		AM			PM		
		No. of Phases			No. of Phases		
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				4			4
Right Turns: FREE-1, NRTOR-2 or OLA-3?				0			0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	75	1	75	81	1	81
	Left-Through		0			0	
	Through	763	1	512	922	1	651
	Through-Right		1			1	
	Right	260	0	260	379	0	379
	Left-Through-Right		0			0	
SOUTHBOUND	Left	84	1	84	98	1	98
	Left-Through		0			0	
	Through	992	2	405	819	2	316
	Through-Right		1			1	
	Right	224	0	224	128	0	128
	Left-Through-Right		0			0	
EASTBOUND	Left	121	1	121	370	1	370
	Left-Through		0			0	
	Through	709	2	355	1183	2	592
	Through-Right		0			0	
	Right	68	1	0	111	1	30
	Left-Through-Right		0			0	
WESTBOUND	Left	314	2	173	269	2	148
	Left-Through		0			0	
	Through	1117	2	559	846	2	423
	Through-Right		0			0	
	Right	76	1	34	142	1	93
	Left-Through-Right		0			0	
CRITICAL VOLUMES		North-South:		596	North-South:		749
		East-West:		680	East-West:		793
		SUM:		1276	SUM:		1542
VOLUME/CAPACITY (V/C) RATIO:				0.928			1.121
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.828			1.021
LEVEL OF SERVICE (LOS):				D			F

EXISTING PLUS PROJECT CONDITIONS

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	539	42	124	796	175	85	630	148	76	505	58
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	33	550	43	127	812	179	87	643	151	78	515	59
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1665	130	472	932	792	209	745	175	111	926	414
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	566	2837	221	821	1588	1350	835	2427	569	681	3018	1350
Grp Volume(v), veh/h	33	292	301	127	812	179	87	399	395	78	515	59
Grp Sat Flow(s),veh/h/ln	566	1509	1549	821	1588	1350	835	1509	1488	681	1509	1350
Q Serve(g_s), s	5.2	9.9	10.0	9.4	43.2	6.3	9.7	24.9	25.0	5.7	14.3	3.2
Cycle Q Clear(g_c), s	48.4	9.9	10.0	19.3	43.2	6.3	24.0	24.9	25.0	30.7	14.3	3.2
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	160	886	909	472	932	792	209	463	457	111	926	414
V/C Ratio(X)	0.21	0.33	0.33	0.27	0.87	0.23	0.42	0.86	0.86	0.70	0.56	0.14
Avail Cap(c_a), veh/h	160	886	909	472	932	792	209	463	457	111	926	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	37.9	10.6	10.6	15.5	17.4	9.8	39.0	32.7	32.7	48.6	29.0	25.1
Incr Delay (d2), s/veh	2.8	1.0	0.9	1.4	11.0	0.7	6.0	18.7	19.1	31.1	2.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	4.5	2.3	21.6	2.5	2.6	12.7	12.6	3.1	6.2	1.3
LnGrp Delay(d),s/veh	40.7	11.5	11.5	16.9	28.4	10.5	45.0	51.3	51.8	79.7	31.3	25.8
LnGrp LOS	D	B	B	B	C	B	D	D	D	E	C	C
Approach Vol, veh/h		626			1118			881			652	
Approach Delay, s/veh		13.1			24.2			50.9			36.6	
Approach LOS		B			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		36.0		64.0		36.0				
Change Period (Y+Rc), s		* 5.3		* 5.3		* 5.3		* 5.3				
Max Green Setting (Gmax), s		* 59		* 31		* 59		* 31				
Max Q Clear Time (g_c+I1), s		50.4		27.0		45.2		32.7				
Green Ext Time (p_c), s		1.9		1.2		2.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				31.7								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	810	108	72	1218	57	61	346	92	31	407	386
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	2451	1667	1667	1667	1700
Adj Flow Rate, veh/h	72	818	109	73	1230	58	62	349	93	31	411	390
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	932	124	156	1021	48	120	1266	732	552	407	386
Arrive On Green	0.33	0.33	0.33	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.51
Sat Flow, veh/h	448	2810	374	631	3079	145	710	2451	1417	990	788	747
Grp Volume(v), veh/h	72	461	466	73	632	656	62	349	93	31	0	801
Grp Sat Flow(s),veh/h/ln	448	1583	1601	631	1583	1641	710	2451	1417	990	0	1535
Q Serve(g_s), s	0.0	16.5	16.5	3.4	19.9	19.9	0.0	4.8	2.0	1.1	0.0	31.0
Cycle Q Clear(g_c), s	19.9	16.5	16.5	19.9	19.9	19.9	31.0	4.8	2.0	5.9	0.0	31.0
Prop In Lane	1.00		0.23	1.00		0.09	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	120	525	531	156	525	544	120	1266	732	552	0	793
V/C Ratio(X)	0.60	0.88	0.88	0.47	1.20	1.21	0.52	0.28	0.13	0.06	0.00	1.01
Avail Cap(c_a), veh/h	120	525	531	156	525	544	120	1266	732	552	0	793
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.70	0.70	0.70	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	18.9	18.9	32.4	23.3	23.3	30.0	8.2	7.5	9.8	0.0	14.6
Incr Delay (d2), s/veh	20.2	18.4	18.3	6.9	104.1	104.5	15.0	0.5	0.4	0.2	0.0	34.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	9.9	9.9	1.5	23.8	24.8	1.5	3.4	0.9	0.3	0.0	20.6
LnGrp Delay(d),s/veh	50.2	37.3	37.2	39.4	127.4	127.8	45.0	8.7	7.9	10.0	0.0	49.1
LnGrp LOS	D	D	D	D	F	F	D	A	A	B		F
Approach Vol, veh/h		999			1361			504			832	
Approach Delay, s/veh		38.2			122.9			13.0			47.7	
Approach LOS		D			F			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.4		35.6		24.4		35.6				
Change Period (Y+Rc), s		* 4.8		* 5.2		* 4.8		* 5.2				
Max Green Setting (Gmax), s		* 20		* 30		* 20		* 30				
Max Q Clear Time (g_c+l1), s		21.9		33.0		21.9		33.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				68.1								
HCM 2010 LOS				E								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Beverly Dr/Beverly Dr

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	800	128	212	1260	10	26	1	166	1	0	0
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1620	1620	1588	1620
Adj Flow Rate, veh/h	8	808	129	214	1273	10	26	1	168	1	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	1530	244	516	1800	14	114	15	212	303	0	0
Arrive On Green	1.00	1.00	1.00	0.59	0.59	0.57	0.18	0.18	0.18	0.18	0.00	0.00
Sat Flow, veh/h	429	2607	416	595	3069	24	108	81	1178	761	0	0
Grp Volume(v), veh/h	8	468	469	214	626	657	195	0	0	1	0	0
Grp Sat Flow(s),veh/h/ln	429	1509	1515	595	1509	1584	1367	0	0	761	0	0
Q Serve(g_s), s	0.4	0.0	0.0	10.0	12.7	12.7	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.1	0.0	0.0	10.0	12.7	12.7	5.9	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.27	1.00		0.02	0.13		0.86	1.00		0.00
Lane Grp Cap(c), veh/h	292	885	889	516	885	929	340	0	0	303	0	0
V/C Ratio(X)	0.03	0.53	0.53	0.42	0.71	0.71	0.57	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	292	885	889	516	885	929	865	0	0	771	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.51	0.51	0.68	0.68	0.68	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.3	0.0	0.0	5.8	6.3	6.3	17.0	0.0	0.0	14.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	1.2	1.7	3.2	3.1	1.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.3	1.8	5.8	6.1	2.4	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	3.4	1.2	1.2	7.4	9.6	9.4	18.5	0.0	0.0	14.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B			B		
Approach Vol, veh/h		945			1497			195			1	
Approach Delay, s/veh		1.2			9.2			18.5			14.6	
Approach LOS		A			A			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		46.7		13.3		46.7		13.3				
Change Period (Y+Rc), s		5.2		5.5		5.2		5.5				
Max Green Setting (Gmax), s		24.8		24.5		24.8		24.5				
Max Q Clear Time (g_c+I1), s		14.7		2.1		15.1		7.9				
Green Ext Time (p_c), s		7.9		0.8		7.6		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			7.0									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary

4: Beverly Dr & San Vicente Blvd

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	55	769	155	99	1123	136	129	708	82	101	561	155
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	56	777	157	100	1134	137	130	715	83	102	567	157
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	1478	661	332	1478	661	321	1457	652	275	1457	652
Arrive On Green	0.93	0.93	0.93	0.62	0.62	0.62	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	455	3167	1417	626	3167	1417	763	3167	1417	712	3167	1417
Grp Volume(v), veh/h	56	777	157	100	1134	137	130	715	83	102	567	157
Grp Sat Flow(s),veh/h/ln	455	1583	1417	626	1583	1417	763	1583	1417	712	1583	1417
Q Serve(g_s), s	11.5	3.9	1.1	10.3	31.1	5.1	16.2	18.9	4.0	14.0	14.1	8.1
Cycle Q Clear(g_c), s	42.6	3.9	1.1	14.1	31.1	5.1	30.4	18.9	4.0	32.9	14.1	8.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	1478	661	332	1478	661	321	1457	652	275	1457	652
V/C Ratio(X)	0.36	0.53	0.24	0.30	0.77	0.21	0.41	0.49	0.13	0.37	0.39	0.24
Avail Cap(c_a), veh/h	154	1478	661	332	1478	661	321	1457	652	275	1457	652
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	0.26	0.26	0.26	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	2.3	2.2	15.8	18.0	13.1	31.3	22.6	18.6	34.1	21.3	19.7
Incr Delay (d2), s/veh	5.6	1.2	0.7	0.6	1.0	0.2	3.8	1.2	0.4	3.8	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.5	0.5	1.8	13.7	2.0	3.8	8.5	1.6	3.0	6.3	3.3
LnGrp Delay(d),s/veh	21.3	3.4	2.9	16.4	19.1	13.3	35.1	23.8	19.0	37.9	22.1	20.6
LnGrp LOS	C	A	A	B	B	B	D	C	B	D	C	C
Approach Vol, veh/h	990				1371				928			
Approach Delay, s/veh	4.4				18.3				24.9			
Approach LOS	A				B				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	60.5		59.5		60.5		59.5					
Change Period (Y+Rc), s	* 6.4		* 5.8		* 6.4		* 5.8					
Max Green Setting (Gmax), s	* 54		* 54		* 54		* 54					
Max Q Clear Time (g_c+l1), s	33.1		34.9		44.6		32.4					
Green Ext Time (p_c), s	13.9		9.5		7.5		10.2					
Intersection Summary												
HCM 2010 Ctrl Delay	17.5											
HCM 2010 LOS	B											
Notes												

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	95	593	101	181	503	268	77	707	128	112	544	53
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	98	611	104	187	519	276	79	729	132	115	561	55
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	1023	174	243	629	535	372	1203	218	256	1422	636
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	680	2581	438	733	1588	1350	803	2553	462	639	3018	1350
Grp Volume(v), veh/h	98	357	358	187	519	276	79	431	430	115	561	55
Grp Sat Flow(s),veh/h/ln	680	1509	1511	733	1588	1350	803	1509	1507	639	1509	1350
Q Serve(g_s), s	8.3	15.0	15.0	16.7	23.4	12.4	5.7	16.9	16.9	13.0	9.7	1.8
Cycle Q Clear(g_c), s	31.7	15.0	15.0	31.7	23.4	12.4	15.3	16.9	16.9	29.9	9.7	1.8
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	160	598	599	243	629	535	372	711	710	256	1422	636
V/C Ratio(X)	0.61	0.60	0.60	0.77	0.82	0.52	0.21	0.61	0.61	0.45	0.39	0.09
Avail Cap(c_a), veh/h	160	598	599	243	629	535	372	711	710	256	1422	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	37.0	19.1	19.1	33.2	21.7	18.3	18.7	15.7	15.7	26.7	13.7	11.7
Incr Delay (d2), s/veh	12.8	3.4	3.4	20.7	11.7	3.5	1.3	3.8	3.8	5.5	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	6.7	6.8	5.5	12.3	5.1	1.4	7.7	7.7	2.7	4.1	0.7
LnGrp Delay(d),s/veh	49.8	22.5	22.5	53.9	33.4	21.9	20.0	19.5	19.5	32.2	14.5	11.9
LnGrp LOS	D	C	C	D	C	C	C	B	B	C	B	B
Approach Vol, veh/h		813			982			940			731	
Approach Delay, s/veh		25.8			34.0			19.5			17.1	
Approach LOS		C			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.0		43.0		37.0		43.0				
Change Period (Y+Rc), s		* 5.3		* 5.3		* 5.3		* 5.3				
Max Green Setting (Gmax), s		* 32		* 38		* 32		* 38				
Max Q Clear Time (g_c+l1), s		33.7		18.9		33.7		31.9				
Green Ext Time (p_c), s		0.0		2.5		0.0		1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			24.6									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	132	933	75	91	859	82	76	436	99	59	382	144
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	139	982	79	96	904	86	80	459	104	62	402	152
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	137	985	79	121	969	92	350	861	732	415	596	225
Arrive On Green	0.33	0.33	0.33	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.51
Sat Flow, veh/h	594	2969	239	556	2923	278	893	1667	1417	886	1154	436
Grp Volume(v), veh/h	139	524	537	96	490	500	80	459	104	62	0	554
Grp Sat Flow(s),veh/h/ln	594	1583	1625	556	1583	1618	893	1667	1417	886	0	1590
Q Serve(g_s), s	1.7	19.8	19.8	0.1	18.2	18.2	4.4	11.0	2.3	3.0	0.0	15.6
Cycle Q Clear(g_c), s	19.9	19.8	19.8	19.9	18.2	18.2	19.9	11.0	2.3	14.0	0.0	15.6
Prop In Lane	1.00		0.15	1.00		0.17	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	137	525	539	121	525	537	350	861	732	415	0	821
V/C Ratio(X)	1.02	1.00	1.00	0.80	0.93	0.93	0.23	0.53	0.14	0.15	0.00	0.67
Avail Cap(c_a), veh/h	137	525	539	121	525	537	350	861	732	415	0	821
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	20.0	20.0	33.3	22.7	22.7	18.2	9.7	7.6	14.4	0.0	10.8
Incr Delay (d2), s/veh	81.3	38.6	38.1	34.3	22.2	21.9	1.5	2.4	0.4	0.8	0.0	4.4
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	14.2	14.5	2.7	11.2	11.4	1.2	5.5	1.0	0.8	0.0	7.8
LnGrp Delay(d),s/veh	111.4	58.6	58.2	67.6	44.9	44.6	19.7	12.0	8.0	15.1	0.0	15.2
LnGrp LOS	F	E	E	E	D	D	B	B	A	B		B
Approach Vol, veh/h		1200			1086			643			616	
Approach Delay, s/veh		64.5			46.8			12.3			15.2	
Approach LOS		E			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.4		35.6		24.4		35.6				
Change Period (Y+Rc), s		* 4.8		* 5.2		* 4.8		* 5.2				
Max Green Setting (Gmax), s		* 20		* 30		* 20		* 30				
Max Q Clear Time (g_c+l1), s		21.9		17.6		21.9		21.9				
Green Ext Time (p_c), s		0.0		5.1		0.0		4.0				
Intersection Summary												
HCM 2010 Ctrl Delay				41.1								
HCM 2010 LOS				D								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Bervely Dr/Beverly Dr

12/7/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	1042	50	172	911	12	82	1	175	3	1	6
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1620	1620	1588	1620
Adj Flow Rate, veh/h	3	1063	51	176	930	12	84	1	179	3	1	6
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	334	1600	77	430	1665	21	182	25	222	159	69	192
Arrive On Green	1.00	1.00	1.00	0.37	0.37	0.36	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	593	2932	141	504	3051	39	338	106	935	248	292	809
Grp Volume(v), veh/h	3	547	567	176	460	482	264	0	0	10	0	0
Grp Sat Flow(s),veh/h/ln	593	1509	1563	504	1509	1581	1379	0	0	1349	0	0
Q Serve(g_s), s	0.1	0.0	0.0	13.5	11.3	11.3	5.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.4	0.0	0.0	13.5	11.3	11.3	8.4	0.0	0.0	0.2	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.02	0.32		0.68	0.30		0.60
Lane Grp Cap(c), veh/h	334	824	853	430	824	863	429	0	0	420	0	0
V/C Ratio(X)	0.01	0.66	0.66	0.41	0.56	0.56	0.62	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	334	824	853	430	824	863	825	0	0	802	0	0
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	0.71	0.71	0.71	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.5	0.0	0.0	11.0	10.3	10.3	16.7	0.0	0.0	13.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	1.3	2.0	1.9	1.9	1.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.3	2.1	5.2	5.4	3.3	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	2.6	1.4	1.3	13.0	12.2	12.1	18.1	0.0	0.0	13.7	0.0	0.0
LnGrp LOS	A	A	A	B	B	B	B			B		
Approach Vol, veh/h	1117			1118			264			10		
Approach Delay, s/veh	1.4			12.3			18.1			13.7		
Approach LOS	A			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	43.5			16.5			43.5			16.5		
Change Period (Y+Rc), s	5.2			5.5			5.2			5.5		
Max Green Setting (Gmax), s	24.8			24.5			24.8			24.5		
Max Q Clear Time (g_c+l1), s	15.5			2.2			13.4			10.4		
Green Ext Time (p_c), s	7.0			1.2			8.2			1.0		
Intersection Summary												
HCM 2010 Ctrl Delay	8.1											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

4: San Vicente Blvd & Beverly Dr

12/7/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	61	1044	146	58	846	170	118	861	431	209	657	101	
Number	1	6	16	5	2	12	3	8	18	7	4	14	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	2500	1667	1667	1667	1667	1667	1667	
Adj Flow Rate, veh/h	63	1076	151	60	872	175	122	888	0	215	677	104	
Adj No. of Lanes	1	2	1	1	2	0	1	2	1	1	2	1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	281	1478	661	248	1227	246	286	1457	652	223	1457	652	
Arrive On Green	0.93	0.93	0.93	0.93	0.93	0.90	0.46	0.46	0.00	0.46	0.46	0.46	
Sat Flow, veh/h	563	3167	1417	475	2629	528	723	3167	1417	654	3167	1417	
Grp Volume(v), veh/h	63	1076	151	60	525	522	122	888	0	215	677	104	
Grp Sat Flow(s),veh/h/ln	563	1583	1417	475	1583	1574	723	1583	1417	654	1583	1417	
Q Serve(g_s), s	3.7	8.5	1.1	4.2	7.9	8.9	16.7	25.3	0.0	29.9	17.6	5.1	
Cycle Q Clear(g_c), s	12.7	8.5	1.1	12.7	7.9	8.9	34.3	25.3	0.0	55.2	17.6	5.1	
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	281	1478	661	248	739	734	286	1457	652	223	1457	652	
V/C Ratio(X)	0.22	0.73	0.23	0.24	0.71	0.71	0.43	0.61	0.00	0.96	0.46	0.16	
Avail Cap(c_a), veh/h	281	1478	661	248	739	734	286	1457	652	223	1457	652	
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.71	0.71	0.71	0.56	0.56	0.56	1.00	1.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	3.8	2.4	2.2	3.7	2.4	2.8	34.0	24.3	0.0	48.6	22.3	18.9	
Incr Delay (d2), s/veh	1.3	2.3	0.6	1.3	3.3	3.3	4.6	1.9	0.0	51.4	1.1	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.7	3.5	0.4	0.6	3.3	4.0	3.7	11.4	0.0	10.3	7.9	2.1	
LnGrp Delay(d),s/veh	5.1	4.7	2.7	5.0	5.7	6.1	38.6	26.2	0.0	100.0	23.3	19.4	
LnGrp LOS	A	A	A	A	A	A	D	C		F	C	B	
Approach Vol, veh/h	1290				1107				1010				996
Approach Delay, s/veh	4.5				5.8				27.7				39.5
Approach LOS	A				A				C				D
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	2			4		6		8					
Phs Duration (G+Y+Rc), s	60.5			59.5		60.5		59.5					
Change Period (Y+Rc), s	* 6.4			* 5.8		* 6.4		* 5.8					
Max Green Setting (Gmax), s	* 54			* 54		* 54		* 54					
Max Q Clear Time (g_c+l1), s	14.7			57.2		14.7		36.3					
Green Ext Time (p_c), s	19.6			0.0		19.6		10.9					
Intersection Summary													
HCM 2010 Ctrl Delay	18.1												
HCM 2010 LOS	B												
Notes													

Level of Service Worksheet (Circular 212 Method)



I/S #:
5

PROJECT TITLE: 8731 Beverly Mixed-Use Project

North-South Street: La Cienega Boulevard

East-West Street: Beverly Boulevard

Scenario: Existing

Count Date: 1/0/1900

Analyst: <Fehr & Peers>

Date: <date>

		AM			PM		
		No. of Phases			No. of Phases		
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				4			4
Right Turns: FREE-1, NRTOR-2 or OLA-3?				0			0
ATSAC-1 or ATSAC+ATCS-2?				2			2
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	75	1	75	81	1	81
	Left-Through		0			0	
	Through	763	1	512	922	1	651
	Through-Right		1			1	
	Right	260	0	260	379	0	379
	Left-Through-Right		0			0	
SOUTHBOUND	Left	84	1	84	98	1	98
	Left-Through		0			0	
	Through	992	2	406	819	2	317
	Through-Right		1			1	
	Right	226	0	226	132	0	132
	Left-Through-Right		0			0	
EASTBOUND	Left	124	1	124	374	1	374
	Left-Through		0			0	
	Through	712	2	356	1187	2	594
	Through-Right		0			0	
	Right	68	1	0	111	1	30
	Left-Through-Right		0			0	
WESTBOUND	Left	314	2	173	269	2	148
	Left-Through		0			0	
	Through	1119	2	560	850	2	425
	Through-Right		0			0	
	Right	76	1	34	142	1	93
	Left-Through-Right		0			0	
CRITICAL VOLUMES		North-South:		596	North-South:		749
		East-West:		684	East-West:		799
		SUM:		1280	SUM:		1548
VOLUME/CAPACITY (V/C) RATIO:				0.931			1.126
V/C LESS ATSAC/ATCS ADJUSTMENT:				0.831			1.026
LEVEL OF SERVICE (LOS):				D			F

CUMULATIVE BASE CONDITIONS

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	640	72	131	955	184	136	690	153	81	567	61
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	36	653	73	134	974	188	139	704	156	83	579	62
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	1607	179	404	932	792	184	754	167	90	926	414
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	481	2737	306	725	1588	1350	785	2457	544	640	3018	1350
Grp Volume(v), veh/h	36	360	366	134	974	188	139	432	428	83	579	62
Grp Sat Flow(s),veh/h/ln	481	1509	1534	725	1588	1350	785	1509	1492	640	1509	1350
Q Serve(g_s), s	0.0	12.9	13.0	12.3	58.7	6.7	14.2	27.8	27.9	2.8	16.5	3.3
Cycle Q Clear(g_c), s	58.7	12.9	13.0	25.3	58.7	6.7	30.7	27.8	27.9	30.7	16.5	3.3
Prop In Lane	1.00		0.20	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	72	886	901	404	932	792	184	463	458	90	926	414
V/C Ratio(X)	0.50	0.41	0.41	0.33	1.04	0.24	0.76	0.93	0.93	0.92	0.62	0.15
Avail Cap(c_a), veh/h	72	886	901	404	932	792	184	463	458	90	926	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	50.0	11.2	11.2	18.1	20.6	9.9	44.3	33.7	33.7	49.7	29.7	25.2
Incr Delay (d2), s/veh	21.8	1.3	1.3	2.2	41.8	0.7	24.8	28.0	28.4	74.1	3.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.6	5.7	2.7	36.2	2.6	5.1	15.1	15.0	4.1	7.2	1.3
LnGrp Delay(d),s/veh	71.8	12.5	12.5	20.3	62.5	10.6	69.0	61.7	62.1	123.8	32.9	25.9
LnGrp LOS	E	B	B	C	F	B	E	E	E	F	C	C
Approach Vol, veh/h		762			1296			999			724	
Approach Delay, s/veh		15.3			50.6			62.9			42.7	
Approach LOS		B			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		36.0		64.0		36.0				
Change Period (Y+Rc), s		* 5.3		* 5.3		* 5.3		* 5.3				
Max Green Setting (Gmax), s		* 59		* 31		* 59		* 31				
Max Q Clear Time (g_c+I1), s		60.7		32.7		60.7		32.7				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			45.2									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/8/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	78	910	131	78	1362	65	84	403	96	39	471	410	
Number	1	6	16	5	2	12	3	8	18	7	4	14	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	2451	1667	1667	1667	1700	
Adj Flow Rate, veh/h	79	919	132	79	1376	66	85	407	97	39	476	414	
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	120	922	132	121	1020	49	120	1266	732	513	426	370	
Arrive On Green	0.33	0.33	0.33	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.51	
Sat Flow, veh/h	387	2780	399	561	3077	147	653	2451	1417	935	824	716	
Grp Volume(v), veh/h	79	523	528	79	707	735	85	407	97	39	0	890	
Grp Sat Flow(s),veh/h/ln	387	1583	1596	561	1583	1641	653	2451	1417	935	0	1540	
Q Serve(g_s), s	0.0	19.8	19.8	0.1	19.9	19.9	0.0	5.8	2.1	1.5	0.0	31.0	
Cycle Q Clear(g_c), s	19.9	19.8	19.8	19.9	19.9	19.9	31.0	5.8	2.1	7.3	0.0	31.0	
Prop In Lane	1.00		0.25	1.00		0.09	1.00		1.00	1.00		0.47	
Lane Grp Cap(c), veh/h	120	525	529	121	525	544	120	1266	732	513	0	796	
V/C Ratio(X)	0.66	1.00	1.00	0.65	1.35	1.35	0.71	0.32	0.13	0.08	0.00	1.12	
Avail Cap(c_a), veh/h	120	525	529	121	525	544	120	1266	732	513	0	796	
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	30.0	20.0	20.1	33.3	23.3	23.3	30.0	8.4	7.5	10.5	0.0	14.6	
Incr Delay (d2), s/veh	24.9	38.4	38.3	15.1	163.3	165.1	29.7	0.7	0.4	0.3	0.0	69.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.1	14.2	14.3	1.8	32.5	33.9	2.4	4.1	0.9	0.4	0.0	28.4	
LnGrp Delay(d),s/veh	54.9	58.4	58.4	48.4	186.6	188.5	59.7	9.1	7.9	10.8	0.0	84.3	
LnGrp LOS	D	E	E	D	F	F	E	A	A	B		F	
Approach Vol, veh/h	1130			1521				589				929	
Approach Delay, s/veh	58.2			180.3				16.2				81.2	
Approach LOS	E			F				B				F	
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	2			4		6		8					
Phs Duration (G+Y+Rc), s	24.4			35.6		24.4		35.6					
Change Period (Y+Rc), s	* 4.8			* 5.2		* 4.8		* 5.2					
Max Green Setting (Gmax), s	* 20			* 30		* 20		* 30					
Max Q Clear Time (g_c+l1), s	21.9			33.0		21.9		33.0					
Green Ext Time (p_c), s	0.0			0.0		0.0		0.0					
Intersection Summary													
HCM 2010 Ctrl Delay	101.9												
HCM 2010 LOS	F												
Notes													

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Beverly Dr/Beverly Dr

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	906	132	239	1415	10	27	1	177	1	0	0
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1588	1620	1588	1620
Adj Flow Rate, veh/h	8	915	133	241	1429	10	27	1	179	1	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	254	1562	227	484	1814	13	403	12	236	359	0	0
Arrive On Green	1.00	1.00	1.00	0.59	0.59	0.58	0.17	0.17	0.17	0.17	0.00	0.00
Sat Flow, veh/h	370	2645	384	536	3072	21	1366	66	1350	1097	0	0
Grp Volume(v), veh/h	8	522	526	241	702	737	28	0	179	1	0	0
Grp Sat Flow(s),veh/h/ln	370	1509	1520	536	1509	1584	1433	0	1350	1098	0	0
Q Serve(g_s), s	0.6	0.0	0.0	14.4	15.3	15.3	0.0	0.0	5.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.9	0.0	0.0	14.4	15.3	15.3	0.6	0.0	5.4	0.7	0.0	0.0
Prop In Lane	1.00		0.25	1.00		0.01	0.96		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	254	891	898	484	891	936	415	0	236	359	0	0
V/C Ratio(X)	0.03	0.59	0.59	0.50	0.79	0.79	0.07	0.00	0.76	0.00	0.00	0.00
Avail Cap(c_a), veh/h	254	891	898	484	891	936	974	0	769	833	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	0.52	0.52	0.52	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.8	0.0	0.0	6.6	6.7	6.7	14.9	0.0	16.9	15.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.9	0.9	1.9	3.8	3.6	0.1	0.0	5.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.2	2.3	7.2	7.5	0.3	0.0	2.3	0.0	0.0	0.0
LnGrp Delay(d),s/veh	4.9	0.9	0.9	8.5	10.5	10.4	15.0	0.0	21.9	15.2	0.0	0.0
LnGrp LOS	A	A	A	A	B	B	B		C	B		
Approach Vol, veh/h	1056				1680			207			1	
Approach Delay, s/veh	0.9				10.2			20.9			15.2	
Approach LOS	A				B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		47.0		13.0		47.0		13.0				
Change Period (Y+Rc), s		5.2		5.5		5.2		5.5				
Max Green Setting (Gmax), s		24.8		24.5		24.8		24.5				
Max Q Clear Time (g_c+l1), s		17.3		2.7		17.9		7.4				
Green Ext Time (p_c), s		6.5		0.8		6.0		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay	7.6											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

4: Beverly Dr & San Vicente Blvd

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	863	171	102	1282	158	140	803	84	112	647	163
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	57	872	173	103	1295	160	141	811	85	113	654	165
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1478	661	300	1478	661	283	1457	652	238	1457	652
Arrive On Green	0.93	0.93	0.93	0.62	0.62	0.62	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	382	3167	1417	564	3167	1417	698	3167	1417	649	3167	1417
Grp Volume(v), veh/h	57	872	173	103	1295	160	141	811	85	113	654	165
Grp Sat Flow(s),veh/h/ln	382	1583	1417	564	1583	1417	698	1583	1417	649	1583	1417
Q Serve(g_s), s	15.2	4.9	1.3	12.5	40.8	6.0	20.7	22.3	4.1	18.4	16.9	8.5
Cycle Q Clear(g_c), s	56.0	4.9	1.3	17.4	40.8	6.0	37.5	22.3	4.1	40.7	16.9	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	1478	661	300	1478	661	283	1457	652	238	1457	652
V/C Ratio(X)	0.53	0.59	0.26	0.34	0.88	0.24	0.50	0.56	0.13	0.47	0.45	0.25
Avail Cap(c_a), veh/h	108	1478	661	300	1478	661	283	1457	652	238	1457	652
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	2.3	2.2	16.9	19.9	13.3	34.8	23.5	18.6	38.3	22.0	19.8
Incr Delay (d2), s/veh	14.1	1.4	0.8	0.3	0.8	0.1	6.2	1.5	0.4	6.7	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.0	0.5	2.0	17.7	2.3	4.5	10.0	1.7	3.7	7.6	3.5
LnGrp Delay(d),s/veh	39.6	3.7	3.0	17.1	20.6	13.4	41.0	25.1	19.0	44.9	23.1	20.7
LnGrp LOS	D	A	A	B	C	B	D	C	B	D	C	C
Approach Vol, veh/h	1102				1558				1037			
Approach Delay, s/veh	5.5				19.7				26.7			
Approach LOS	A				B				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2				4				6			
Phs Duration (G+Y+Rc), s	60.5				59.5				59.5			
Change Period (Y+Rc), s	* 6.4				* 5.8				* 6.4			
Max Green Setting (Gmax), s	* 54				* 54				* 54			
Max Q Clear Time (g_c+l1), s	42.8				42.7				39.5			
Green Ext Time (p_c), s	9.4				7.5				9.1			
Intersection Summary												
HCM 2010 Ctrl Delay	19.0											
HCM 2010 LOS	B											
Notes												

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	106	826	201	188	735	292	167	790	135	125	608	60
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	109	852	207	194	758	301	172	814	139	129	627	62
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	954	232	125	629	535	340	1215	208	223	1422	636
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	531	2409	585	531	1588	1350	751	2579	440	586	3018	1350
Grp Volume(v), veh/h	109	534	525	194	758	301	172	476	477	129	627	62
Grp Sat Flow(s),veh/h/ln	531	1509	1485	531	1588	1350	751	1509	1511	586	1509	1350
Q Serve(g_s), s	0.0	26.4	26.4	5.3	31.7	13.9	15.9	19.5	19.5	17.4	11.1	2.0
Cycle Q Clear(g_c), s	31.7	26.4	26.4	31.7	31.7	13.9	27.0	19.5	19.5	36.9	11.1	2.0
Prop In Lane	1.00		0.39	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	90	598	588	125	629	535	340	711	712	223	1422	636
V/C Ratio(X)	1.21	0.89	0.89	1.55	1.20	0.56	0.51	0.67	0.67	0.58	0.44	0.10
Avail Cap(c_a), veh/h	90	598	588	125	629	535	340	711	712	223	1422	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	40.0	22.6	22.6	39.3	24.1	18.8	23.1	16.3	16.3	30.6	14.1	11.7
Incr Delay (d2), s/veh	151.0	14.8	15.1	284.7	106.5	4.2	5.3	5.0	5.0	10.3	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	13.4	13.3	12.6	32.4	5.7	3.7	9.1	9.1	3.5	4.8	0.8
LnGrp Delay(d),s/veh	191.0	37.4	37.6	323.9	130.7	23.0	28.4	21.3	21.3	40.9	15.1	12.0
LnGrp LOS	F	D	D	F	F	C	C	C	C	D	B	B
Approach Vol, veh/h	1168			1253			1125			818		
Approach Delay, s/veh	51.8			134.7			22.4			18.9		
Approach LOS	D			F			C			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	37.0			43.0		37.0		43.0				
Change Period (Y+Rc), s	* 5.3			* 5.3		* 5.3		* 5.3				
Max Green Setting (Gmax), s	* 32			* 38		* 32		* 38				
Max Q Clear Time (g_c+I1), s	33.7			29.0		33.7		38.9				
Green Ext Time (p_c), s	0.0			2.7		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	61.9											
HCM 2010 LOS	E											
Notes												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	150	1056	104	96	970	101	103	546	106	82	485	156
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	158	1112	109	101	1021	106	108	575	112	86	511	164
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	967	95	120	961	100	250	861	732	327	625	201
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.52	0.52	0.52	0.52	0.52	0.51
Sat Flow, veh/h	522	2914	285	478	2896	301	798	1667	1417	789	1210	388
Grp Volume(v), veh/h	158	604	617	101	558	569	108	575	112	86	0	675
Grp Sat Flow(s),veh/h/ln	522	1583	1616	478	1583	1614	798	1667	1417	789	0	1598
Q Serve(g_s), s	0.0	19.9	19.9	0.0	19.9	19.9	7.9	15.3	2.5	5.4	0.0	21.2
Cycle Q Clear(g_c), s	19.9	19.9	19.9	19.9	19.9	19.9	29.1	15.3	2.5	20.7	0.0	21.2
Prop In Lane	1.00		0.18	1.00		0.19	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	120	525	536	120	525	535	250	861	732	327	0	826
V/C Ratio(X)	1.32	1.15	1.15	0.84	1.06	1.06	0.43	0.67	0.15	0.26	0.00	0.82
Avail Cap(c_a), veh/h	120	525	536	120	525	535	250	861	732	327	0	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	20.0	20.1	30.0	20.0	20.1	24.3	10.7	7.6	18.3	0.0	12.2
Incr Delay (d2), s/veh	189.4	87.5	88.0	39.8	52.4	52.4	5.4	4.1	0.4	2.0	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	21.4	21.9	3.0	16.3	16.6	2.1	7.8	1.1	1.3	0.0	11.2
LnGrp Delay(d),s/veh	219.4	107.6	108.1	69.8	72.5	72.5	29.7	14.8	8.1	20.3	0.0	21.0
LnGrp LOS	F	F	F	E	F	F	C	B	A	C		C
Approach Vol, veh/h		1379			1228			795			761	
Approach Delay, s/veh		120.6			72.3			15.9			20.9	
Approach LOS		F			E			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.4		35.6		24.4		35.6				
Change Period (Y+Rc), s		* 4.8		* 5.2		* 4.8		* 5.2				
Max Green Setting (Gmax), s		* 20		* 30		* 20		* 30				
Max Q Clear Time (g_c+l1), s		21.9		23.2		21.9		31.1				
Green Ext Time (p_c), s		0.0		4.4		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				68.1								
HCM 2010 LOS				E								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Beverly Dr/Beverly Dr

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	1193	52	189	1043	12	84	1	202	3	1	6
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1588	1620	1588	1620
Adj Flow Rate, veh/h	3	1217	53	193	1064	12	86	1	206	3	1	6
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	310	1670	73	407	1732	20	449	4	281	153	65	170
Arrive On Green	1.00	1.00	1.00	0.38	0.38	0.37	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	522	2946	128	434	3057	34	1390	20	1350	233	311	816
Grp Volume(v), veh/h	3	623	647	193	525	551	87	0	206	10	0	0
Grp Sat Flow(s),veh/h/ln	522	1509	1566	434	1509	1582	1410	0	1350	1361	0	0
Q Serve(g_s), s	0.1	0.0	0.0	17.6	12.6	12.6	2.1	0.0	6.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.8	0.0	0.0	17.6	12.6	12.6	2.3	0.0	6.4	0.2	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.02	0.99		1.00	0.30		0.60
Lane Grp Cap(c), veh/h	310	855	887	407	855	897	453	0	281	387	0	0
V/C Ratio(X)	0.01	0.73	0.73	0.47	0.61	0.61	0.19	0.00	0.73	0.03	0.00	0.00
Avail Cap(c_a), veh/h	310	855	887	407	855	897	929	0	738	831	0	0
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.56	0.56	0.56	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.2	0.0	0.0	11.5	9.9	9.9	15.0	0.0	16.6	14.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.5	2.2	1.9	1.8	0.2	0.0	3.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	2.3	5.6	5.9	0.9	0.0	2.6	0.1	0.0	0.0
LnGrp Delay(d),s/veh	3.2	0.5	0.5	13.7	11.8	11.7	15.2	0.0	20.3	14.2	0.0	0.0
LnGrp LOS	A	A	A	B	B	B	B		C	B		
Approach Vol, veh/h	1273			1269			293			10		
Approach Delay, s/veh	0.5			12.0			18.8			14.2		
Approach LOS	A			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.2		14.8		45.2		14.8				
Change Period (Y+Rc), s		5.2		5.5		5.2		5.5				
Max Green Setting (Gmax), s		24.8		24.5		24.8		24.5				
Max Q Clear Time (g_c+l1), s		19.6		2.2		14.8		8.4				
Green Ext Time (p_c), s		4.5		1.3		8.2		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				7.6								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

4: San Vicente Blvd & Beverly Dr

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	1203	154	60	968	190	130	1025	444	236	804	105
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	2500	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	65	1240	159	62	998	196	134	1057	0	243	829	108
Adj No. of Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	1478	661	200	1232	242	228	1457	652	166	1457	652
Arrive On Green	0.93	0.93	0.93	0.93	0.93	0.90	0.46	0.46	0.00	0.46	0.46	0.46
Sat Flow, veh/h	490	3167	1417	403	2641	518	625	3167	1417	558	3167	1417
Grp Volume(v), veh/h	65	1240	159	62	598	596	134	1057	0	243	829	108
Grp Sat Flow(s),veh/h/ln	490	1583	1417	403	1583	1575	625	1583	1417	558	1583	1417
Q Serve(g_s), s	6.5	14.4	1.2	8.2	12.3	13.9	24.0	32.5	0.0	22.7	23.0	5.3
Cycle Q Clear(g_c), s	20.4	14.4	1.2	22.6	12.3	13.9	46.9	32.5	0.0	55.2	23.0	5.3
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	1478	661	200	739	735	228	1457	652	166	1457	652
V/C Ratio(X)	0.28	0.84	0.24	0.31	0.81	0.81	0.59	0.73	0.00	1.47	0.57	0.17
Avail Cap(c_a), veh/h	232	1478	661	200	739	735	228	1457	652	166	1457	652
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.67	0.38	0.38	0.38	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.6	2.6	2.2	6.1	2.5	3.0	40.9	26.3	0.0	52.7	23.7	18.9
Incr Delay (d2), s/veh	2.0	4.0	0.6	1.5	3.7	3.8	10.7	3.2	0.0	239.8	1.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.6	0.5	1.0	5.1	5.6	4.8	14.7	0.0	16.5	10.3	2.2
LnGrp Delay(d),s/veh	7.7	6.6	2.7	7.6	6.3	6.8	51.6	29.4	0.0	292.6	25.3	19.5
LnGrp LOS	A	A	A	A	A	A	D	C		F	C	B
Approach Vol, veh/h	1464			1256			1191			1180		
Approach Delay, s/veh	6.3			6.6			31.9			79.8		
Approach LOS	A			A			C			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	60.5		59.5		60.5		59.5					
Change Period (Y+Rc), s	* 6.4		* 5.8		* 6.4		* 5.8					
Max Green Setting (Gmax), s	* 54		* 54		* 54		* 54					
Max Q Clear Time (g_c+l1), s	24.6		57.2		22.4		48.9					
Green Ext Time (p_c), s	19.9		0.0		20.9		4.2					
Intersection Summary												
HCM 2010 Ctrl Delay	29.4											
HCM 2010 LOS	C											
Notes												

Level of Service Worksheet (Circular 212 Method)



I/S #:
5

PROJECT TITLE: 8731 Beverly Mixed-Use Project

North-South Street: La Cienega Boulevard

East-West Street: Beverly Boulevard

Scenario: Existing

Count Date: 1/0/1900

Analyst: <Fehr & Peers>

Date: <date>

		AM			PM		
		No. of Phases			No. of Phases		
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?		4			4		
Right Turns: FREE-1, NRTOR-2 or OLA-3?		0			0		
ATSAC-1 or ATSAC+ATCS-2?		2			2		
Override Capacity		0			0		
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	92	1	92	95	1	95
	Left-Through		0			0	
	Through	906	1	594	1155	1	781
	Through-Right		1			1	
	Right	282	0	282	407	0	407
	Left-Through-Right		0			0	
SOUTHBOUND	Left	103	1	103	123	1	123
	Left-Through		0			0	
	Through	1177	2	487	1008	2	392
	Through-Right		1			1	
	Right	283	0	283	169	0	169
	Left-Through-Right		0			0	
EASTBOUND	Left	155	1	155	437	1	437
	Left-Through		0			0	
	Through	774	2	387	1300	2	650
	Through-Right		0			0	
	Right	78	1	0	128	1	33
	Left-Through-Right		0			0	
WESTBOUND	Left	340	2	187	294	2	162
	Left-Through		0			0	
	Through	1235	2	618	944	2	472
	Through-Right		0			0	
	Right	95	1	44	172	1	111
	Left-Through-Right		0			0	
CRITICAL VOLUMES		North-South: 697 East-West: 773 SUM: 1470			North-South: 904 East-West: 909 SUM: 1813		
VOLUME/CAPACITY (V/C) RATIO:		1.069			1.319		
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.969			1.219		
LEVEL OF SERVICE (LOS):		E			F		

CUMULATIVE PLUS PROJECT CONDITIONS

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	640	72	131	955	184	136	692	154	81	568	61
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	36	653	73	134	974	188	139	706	157	83	580	62
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	1607	179	404	932	792	183	754	168	89	926	414
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	481	2737	306	725	1588	1350	784	2455	546	638	3018	1350
Grp Volume(v), veh/h	36	360	366	134	974	188	139	434	429	83	580	62
Grp Sat Flow(s),veh/h/ln	481	1509	1534	725	1588	1350	784	1509	1492	638	1509	1350
Q Serve(g_s), s	0.0	12.9	13.0	12.3	58.7	6.7	14.2	28.0	28.0	2.7	16.5	3.3
Cycle Q Clear(g_c), s	58.7	12.9	13.0	25.3	58.7	6.7	30.7	28.0	28.0	30.7	16.5	3.3
Prop In Lane	1.00		0.20	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	72	886	901	404	932	792	183	463	458	89	926	414
V/C Ratio(X)	0.50	0.41	0.41	0.33	1.04	0.24	0.76	0.94	0.94	0.93	0.63	0.15
Avail Cap(c_a), veh/h	72	886	901	404	932	792	183	463	458	89	926	414
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	50.0	11.2	11.2	18.1	20.6	9.9	44.3	33.7	33.7	49.7	29.7	25.2
Incr Delay (d2), s/veh	21.8	1.3	1.3	2.2	41.8	0.7	25.0	28.6	29.0	76.8	3.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	5.6	5.7	2.7	36.2	2.6	5.1	15.2	15.1	4.2	7.3	1.3
LnGrp Delay(d),s/veh	71.8	12.5	12.5	20.3	62.5	10.6	69.3	62.3	62.7	126.5	32.9	25.9
LnGrp LOS	E	B	B	C	F	B	E	E	E	F	C	C
Approach Vol, veh/h		762			1296			1002			725	
Approach Delay, s/veh		15.3			50.6			63.4			43.0	
Approach LOS		B			D			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		36.0		64.0		36.0				
Change Period (Y+Rc), s		* 5.3		* 5.3		* 5.3		* 5.3				
Max Green Setting (Gmax), s		* 59		* 31		* 59		* 31				
Max Q Clear Time (g_c+I1), s		60.7		32.7		60.7		32.7				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			45.4									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	78	911	131	79	1364	66	84	403	96	39	471	410
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	2451	1667	1667	1667	1700
Adj Flow Rate, veh/h	79	920	132	80	1378	67	85	407	97	39	476	414
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	922	132	121	1020	49	120	1266	732	513	426	370
Arrive On Green	0.33	0.33	0.33	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.51
Sat Flow, veh/h	386	2781	399	561	3074	149	653	2451	1417	935	824	716
Grp Volume(v), veh/h	79	524	528	80	708	737	85	407	97	39	0	890
Grp Sat Flow(s),veh/h/ln	386	1583	1596	561	1583	1640	653	2451	1417	935	0	1540
Q Serve(g_s), s	0.0	19.8	19.8	0.1	19.9	19.9	0.0	5.8	2.1	1.5	0.0	31.0
Cycle Q Clear(g_c), s	19.9	19.8	19.8	19.9	19.9	19.9	31.0	5.8	2.1	7.3	0.0	31.0
Prop In Lane	1.00		0.25	1.00		0.09	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	120	525	529	121	525	544	120	1266	732	513	0	796
V/C Ratio(X)	0.66	1.00	1.00	0.66	1.35	1.35	0.71	0.32	0.13	0.08	0.00	1.12
Avail Cap(c_a), veh/h	120	525	529	121	525	544	120	1266	732	513	0	796
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	20.0	20.1	33.3	23.3	23.3	30.0	8.4	7.5	10.5	0.0	14.6
Incr Delay (d2), s/veh	24.9	38.6	38.6	15.6	164.4	166.4	29.7	0.7	0.4	0.3	0.0	69.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	14.2	14.3	1.8	32.6	34.1	2.4	4.1	0.9	0.4	0.0	28.4
LnGrp Delay(d),s/veh	54.9	58.7	58.6	48.9	187.8	189.7	59.7	9.1	7.9	10.8	0.0	84.3
LnGrp LOS	D	E	E	D	F	F	E	A	A	B		F
Approach Vol, veh/h		1131			1525			589			929	
Approach Delay, s/veh		58.4			181.4			16.2			81.2	
Approach LOS		E			F			B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.4		35.6		24.4		35.6				
Change Period (Y+Rc), s		* 4.8		* 5.2		* 4.8		* 5.2				
Max Green Setting (Gmax), s		* 20		* 30		* 20		* 30				
Max Q Clear Time (g_c+l1), s		21.9		33.0		21.9		33.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			102.5									
HCM 2010 LOS			F									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Beverly Dr/Beverly Dr

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	908	132	239	1419	10	27	1	177	1	0	0
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1588	1620	1588	1620
Adj Flow Rate, veh/h	8	917	133	241	1433	10	27	1	179	1	0	0
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	1562	227	483	1814	13	403	12	236	359	0	0
Arrive On Green	1.00	1.00	1.00	0.59	0.59	0.58	0.17	0.17	0.17	0.17	0.00	0.00
Sat Flow, veh/h	368	2646	384	535	3072	21	1366	66	1350	1097	0	0
Grp Volume(v), veh/h	8	523	527	241	704	739	28	0	179	1	0	0
Grp Sat Flow(s),veh/h/ln	368	1509	1521	535	1509	1584	1433	0	1350	1098	0	0
Q Serve(g_s), s	0.6	0.0	0.0	14.4	15.4	15.4	0.0	0.0	5.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	16.0	0.0	0.0	14.4	15.4	15.4	0.6	0.0	5.4	0.7	0.0	0.0
Prop In Lane	1.00		0.25	1.00		0.01	0.96		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	253	891	898	483	891	936	415	0	236	359	0	0
V/C Ratio(X)	0.03	0.59	0.59	0.50	0.79	0.79	0.07	0.00	0.76	0.00	0.00	0.00
Avail Cap(c_a), veh/h	253	891	898	483	891	936	974	0	769	833	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	0.52	0.52	0.52	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.9	0.0	0.0	6.6	6.8	6.8	14.9	0.0	16.9	15.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.9	0.9	1.9	3.8	3.6	0.1	0.0	5.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.2	2.3	7.2	7.5	0.3	0.0	2.3	0.0	0.0	0.0
LnGrp Delay(d),s/veh	4.9	0.9	0.9	8.5	10.6	10.4	15.0	0.0	21.9	15.2	0.0	0.0
LnGrp LOS	A	A	A	A	B	B	B		C	B		
Approach Vol, veh/h	1058				1684				207		1	
Approach Delay, s/veh	0.9				10.2				20.9		15.2	
Approach LOS	A				B				C		B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	47.0			13.0		47.0		13.0				
Change Period (Y+Rc), s	5.2			5.5		5.2		5.5				
Max Green Setting (Gmax), s	24.8			24.5		24.8		24.5				
Max Q Clear Time (g_c+l1), s	17.4			2.7		18.0		7.4				
Green Ext Time (p_c), s	6.4			0.8		6.0		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay				7.6								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

4: Beverly Dr & San Vicente Blvd

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	869	174	102	1286	158	142	803	84	112	647	163
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	59	878	176	103	1299	160	143	811	85	113	654	165
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	1478	661	298	1478	661	283	1457	652	238	1457	652
Arrive On Green	0.93	0.93	0.93	0.62	0.62	0.62	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	380	3167	1417	560	3167	1417	698	3167	1417	649	3167	1417
Grp Volume(v), veh/h	59	878	176	103	1299	160	143	811	85	113	654	165
Grp Sat Flow(s),veh/h/ln	380	1583	1417	560	1583	1417	698	1583	1417	649	1583	1417
Q Serve(g_s), s	14.9	5.0	1.3	12.7	41.1	6.0	21.0	22.3	4.1	18.4	16.9	8.5
Cycle Q Clear(g_c), s	56.0	5.0	1.3	17.7	41.1	6.0	37.9	22.3	4.1	40.7	16.9	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	1478	661	298	1478	661	283	1457	652	238	1457	652
V/C Ratio(X)	0.55	0.59	0.27	0.35	0.88	0.24	0.51	0.56	0.13	0.47	0.45	0.25
Avail Cap(c_a), veh/h	107	1478	661	298	1478	661	283	1457	652	238	1457	652
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	2.3	2.2	16.9	19.9	13.3	35.0	23.5	18.6	38.3	22.0	19.8
Incr Delay (d2), s/veh	15.5	1.4	0.8	0.3	0.8	0.1	6.3	1.5	0.4	6.7	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.0	0.5	2.0	17.7	2.3	4.5	10.0	1.7	3.7	7.6	3.5
LnGrp Delay(d),s/veh	41.5	3.7	3.0	17.2	20.7	13.4	41.3	25.1	19.0	44.9	23.1	20.7
LnGrp LOS	D	A	A	B	C	B	D	C	B	D	C	C
Approach Vol, veh/h	1113			1562				1039			932	
Approach Delay, s/veh	5.6			19.7				26.8			25.3	
Approach LOS	A			B				C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	60.5			59.5			60.5			59.5		
Change Period (Y+Rc), s	* 6.4			* 5.8			* 6.4			* 5.8		
Max Green Setting (Gmax), s	* 54			* 54			* 54			* 54		
Max Q Clear Time (g_c+l1), s	43.1			42.7			58.0			39.9		
Green Ext Time (p_c), s	9.2			7.6			0.0			8.9		
Intersection Summary												
HCM 2010 Ctrl Delay	19.0											
HCM 2010 LOS	B											
Notes												

HCM 2010 Signalized Intersection Summary

5: Beverly Dr & La Cienega Blvd

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	158	777	78	340	1237	95	92	906	282	103	1177	285
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	163	801	80	351	1275	98	95	934	291	106	1213	294
Adj No. of Lanes	2	2	1	2	2	0	1	2	1	1	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	1301	643	205	1225	94	146	1048	547	171	1225	297
Arrive On Green	0.11	0.82	0.80	0.07	0.41	0.40	0.05	0.33	0.32	0.06	0.33	0.32
Sat Flow, veh/h	3079	3167	1417	3079	2981	229	1587	3167	1417	1587	3657	886
Grp Volume(v), veh/h	163	801	80	351	676	697	95	934	291	106	1006	501
Grp Sat Flow(s),veh/h/ln	1540	1583	1417	1540	1583	1626	1587	1583	1417	1587	1517	1510
Q Serve(g_s), s	6.3	11.0	1.4	8.0	49.3	49.3	4.8	33.6	19.1	5.3	39.6	39.6
Cycle Q Clear(g_c), s	6.3	11.0	1.4	8.0	49.3	49.3	4.8	33.6	19.1	5.3	39.6	39.6
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h	172	1301	643	205	650	668	146	1048	547	171	1016	506
V/C Ratio(X)	0.95	0.62	0.12	1.71	1.04	1.04	0.65	0.89	0.53	0.62	0.99	0.99
Avail Cap(c_a), veh/h	172	1301	643	205	650	668	153	1048	547	171	1016	506
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	7.3	6.1	56.0	35.4	35.4	31.2	38.1	28.5	30.6	39.7	40.1
Incr Delay (d2), s/veh	47.1	1.8	0.3	339.3	45.8	46.6	8.9	11.4	3.7	6.6	26.0	37.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.8	0.6	13.1	29.8	30.7	2.4	16.3	8.0	2.6	20.3	21.9
LnGrp Delay(d),s/veh	100.2	9.1	6.4	395.3	81.2	82.1	40.0	49.5	32.2	37.2	65.7	77.8
LnGrp LOS	F	A	A	F	F	F	D	D	C	D	E	E
Approach Vol, veh/h	1044				1724			1320			1613	
Approach Delay, s/veh	23.1				145.5			45.0			67.6	
Approach LOS	C				F			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	53.3	10.5	44.2	12.0	53.3	11.0	43.7				
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.4	* 5.3	* 5.3	4.0	5.4				
Max Green Setting (Gmax), s	8.0	* 48	7.0	38.3	* 6.7	* 48	7.0	38.3				
Max Q Clear Time (g_c+I1), s	10.0	13.0	6.8	41.6	8.3	51.3	7.3	35.6				
Green Ext Time (p_c), s	0.0	5.8	0.0	0.0	0.0	0.0	0.0	2.5				
Intersection Summary												
HCM 2010 Ctrl Delay	77.8											
HCM 2010 LOS	E											
Notes												

HCM 2010 Signalized Intersection Summary

1: San Vicente Blvd & Melrose Ave

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	106	826	201	189	735	292	167	792	136	125	610	60
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1588	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	109	852	207	195	758	301	172	816	140	129	629	62
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	954	232	125	629	535	339	1214	208	222	1422	636
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	531	2409	585	531	1588	1350	749	2577	442	585	3018	1350
Grp Volume(v), veh/h	109	534	525	195	758	301	172	478	478	129	629	62
Grp Sat Flow(s),veh/h/ln	531	1509	1485	531	1588	1350	749	1509	1510	585	1509	1350
Q Serve(g_s), s	0.0	26.4	26.4	5.3	31.7	13.9	15.9	19.6	19.6	17.5	11.1	2.0
Cycle Q Clear(g_c), s	31.7	26.4	26.4	31.7	31.7	13.9	27.1	19.6	19.6	37.1	11.1	2.0
Prop In Lane	1.00		0.39	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	90	598	588	125	629	535	339	711	712	222	1422	636
V/C Ratio(X)	1.21	0.89	0.89	1.56	1.20	0.56	0.51	0.67	0.67	0.58	0.44	0.10
Avail Cap(c_a), veh/h	90	598	588	125	629	535	339	711	712	222	1422	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	40.0	22.6	22.6	39.3	24.1	18.8	23.2	16.4	16.4	30.7	14.1	11.7
Incr Delay (d2), s/veh	151.0	14.8	15.1	288.1	106.5	4.2	5.3	5.0	5.0	10.4	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	13.4	13.3	12.7	32.4	5.7	3.8	9.1	9.1	3.5	4.8	0.8
LnGrp Delay(d),s/veh	191.0	37.4	37.6	327.3	130.7	23.0	28.5	21.4	21.4	41.2	15.1	12.0
LnGrp LOS	F	D	D	F	F	C	C	C	C	D	B	B
Approach Vol, veh/h	1168			1254				1128			820	
Approach Delay, s/veh	51.8			135.4				22.5			19.0	
Approach LOS	D			F				C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	37.0			43.0			37.0			43.0		
Change Period (Y+Rc), s	* 5.3			* 5.3			* 5.3			* 5.3		
Max Green Setting (Gmax), s	* 32			* 38			* 32			* 38		
Max Q Clear Time (g_c+l1), s	33.7			29.1			33.7			39.1		
Green Ext Time (p_c), s	0.0			2.7			0.0			0.0		
Intersection Summary												
HCM 2010 Ctrl Delay	62.1											
HCM 2010 LOS	E											
Notes												

HCM 2010 Signalized Intersection Summary

2: Bervely Blvd/Bervely Dr & Robertson Blvd

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	150	1059	104	97	973	102	103	546	107	83	485	156
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1700	1667	1667	1700	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	158	1115	109	102	1024	107	108	575	113	87	511	164
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	120	967	94	120	960	100	250	861	732	327	625	201
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.52	0.52	0.52	0.52	0.52	0.51
Sat Flow, veh/h	520	2915	285	476	2894	302	798	1667	1417	789	1210	388
Grp Volume(v), veh/h	158	605	619	102	560	571	108	575	113	87	0	675
Grp Sat Flow(s),veh/h/ln	520	1583	1616	476	1583	1613	798	1667	1417	789	0	1598
Q Serve(g_s), s	0.0	19.9	19.9	0.0	19.9	19.9	7.9	15.3	2.5	5.5	0.0	21.2
Cycle Q Clear(g_c), s	19.9	19.9	19.9	19.9	19.9	19.9	29.1	15.3	2.5	20.8	0.0	21.2
Prop In Lane	1.00		0.18	1.00		0.19	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	120	525	536	120	525	535	250	861	732	327	0	826
V/C Ratio(X)	1.32	1.15	1.15	0.85	1.07	1.07	0.43	0.67	0.15	0.27	0.00	0.82
Avail Cap(c_a), veh/h	120	525	536	120	525	535	250	861	732	327	0	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	20.0	20.1	30.0	20.0	20.1	24.3	10.7	7.6	18.4	0.0	12.2
Incr Delay (d2), s/veh	189.4	88.6	89.1	41.0	53.6	53.6	5.4	4.1	0.4	2.0	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	21.5	22.1	3.0	16.4	16.7	2.1	7.8	1.1	1.4	0.0	11.2
LnGrp Delay(d),s/veh	219.4	108.6	109.2	71.0	73.7	73.7	29.7	14.8	8.1	20.3	0.0	21.0
LnGrp LOS	F	F	F	E	F	F	C	B	A	C		C
Approach Vol, veh/h	1382			1233			796			762		
Approach Delay, s/veh	121.5			73.5			15.9			20.9		
Approach LOS	F			E			B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	24.4			35.6		24.4		35.6				
Change Period (Y+Rc), s	* 4.8			* 5.2		* 4.8		* 5.2				
Max Green Setting (Gmax), s	* 20			* 30		* 20		* 30				
Max Q Clear Time (g_c+l1), s	21.9			23.2		21.9		31.1				
Green Ext Time (p_c), s	0.0			4.4		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	68.8											
HCM 2010 LOS	E											
Notes												

HCM 2010 Signalized Intersection Summary

3: George Burns Rd & Bervely Dr/Beverly Dr

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	1199	52	189	1048	12	84	1	202	3	1	6
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1620	1588	1588	1620	1588	1620
Adj Flow Rate, veh/h	3	1223	53	193	1069	12	86	1	206	3	1	6
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	1670	72	405	1732	19	449	4	281	153	65	170
Arrive On Green	1.00	1.00	1.00	0.38	0.38	0.37	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	520	2947	128	432	3057	34	1390	20	1350	233	311	816
Grp Volume(v), veh/h	3	626	650	193	528	553	87	0	206	10	0	0
Grp Sat Flow(s),veh/h/ln	520	1509	1566	432	1509	1582	1410	0	1350	1361	0	0
Q Serve(g_s), s	0.1	0.0	0.0	17.7	12.7	12.7	2.1	0.0	6.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.8	0.0	0.0	17.7	12.7	12.7	2.3	0.0	6.4	0.2	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.02	0.99		1.00	0.30		0.60
Lane Grp Cap(c), veh/h	308	855	887	405	855	897	453	0	281	387	0	0
V/C Ratio(X)	0.01	0.73	0.73	0.48	0.62	0.62	0.19	0.00	0.73	0.03	0.00	0.00
Avail Cap(c_a), veh/h	308	855	887	405	855	897	929	0	738	831	0	0
HCM Platoon Ratio	2.00	2.00	2.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.55	0.55	0.55	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.2	0.0	0.0	11.5	10.0	10.0	15.0	0.0	16.6	14.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.5	2.2	1.8	1.8	0.2	0.0	3.7	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	2.3	5.7	5.9	0.9	0.0	2.6	0.1	0.0	0.0
LnGrp Delay(d),s/veh	3.2	0.5	0.5	13.7	11.8	11.7	15.2	0.0	20.3	14.2	0.0	0.0
LnGrp LOS	A	A	A	B	B	B	B		C	B		
Approach Vol, veh/h	1279			1274			293			10		
Approach Delay, s/veh	0.5			12.1			18.8			14.2		
Approach LOS	A			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.2		14.8		45.2		14.8				
Change Period (Y+Rc), s		5.2		5.5		5.2		5.5				
Max Green Setting (Gmax), s		24.8		24.5		24.8		24.5				
Max Q Clear Time (g_c+l1), s		19.7		2.2		14.8		8.4				
Green Ext Time (p_c), s		4.4		1.3		8.2		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				7.6								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

4: San Vicente Blvd & Beverly Dr

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	66	1211	158	60	977	190	134	1025	444	236	804	106
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	2500	1667	1667	1667	1667	1667	1667
Adj Flow Rate, veh/h	68	1248	163	62	1007	196	138	1057	0	243	829	109
Adj No. of Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	1478	661	196	1234	240	228	1457	652	166	1457	652
Arrive On Green	0.93	0.93	0.93	0.93	0.93	0.90	0.46	0.46	0.00	0.46	0.46	0.46
Sat Flow, veh/h	486	3167	1417	398	2645	514	624	3167	1417	558	3167	1417
Grp Volume(v), veh/h	68	1248	163	62	602	601	138	1057	0	243	829	109
Grp Sat Flow(s),veh/h/ln	486	1583	1417	398	1583	1576	624	1583	1417	558	1583	1417
Q Serve(g_s), s	7.1	14.9	1.2	8.5	12.7	14.3	24.9	32.5	0.0	22.7	23.0	5.4
Cycle Q Clear(g_c), s	21.5	14.9	1.2	23.4	12.7	14.3	47.9	32.5	0.0	55.2	23.0	5.4
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	1478	661	196	739	735	228	1457	652	166	1457	652
V/C Ratio(X)	0.30	0.84	0.25	0.32	0.81	0.82	0.61	0.73	0.00	1.47	0.57	0.17
Avail Cap(c_a), veh/h	229	1478	661	196	739	735	228	1457	652	166	1457	652
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	0.37	0.37	0.37	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.9	2.6	2.2	6.3	2.6	3.0	41.2	26.3	0.0	52.7	23.7	19.0
Incr Delay (d2), s/veh	2.2	4.2	0.6	1.6	3.8	3.9	11.4	3.2	0.0	239.8	1.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.1	0.5	1.0	5.1	6.0	5.0	14.7	0.0	16.5	10.3	2.2
LnGrp Delay(d),s/veh	8.1	6.8	2.8	7.9	6.3	6.9	52.7	29.4	0.0	292.6	25.3	19.5
LnGrp LOS	A	A	A	A	A	A	D	C		F	C	B
Approach Vol, veh/h	1479				1265				1195			
Approach Delay, s/veh	6.4				6.7				32.1			
Approach LOS	A				A				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	60.5			59.5		60.5		59.5				
Change Period (Y+Rc), s	* 6.4			* 5.8		* 6.4		* 5.8				
Max Green Setting (Gmax), s	* 54			* 54		* 54		* 54				
Max Q Clear Time (g_c+I1), s	25.4			57.2		23.5		49.9				
Green Ext Time (p_c), s	19.7			0.0		20.6		3.4				
Intersection Summary												
HCM 2010 Ctrl Delay	29.4											
HCM 2010 LOS	C											
Notes												

HCM 2010 Signalized Intersection Summary

5: Beverly Dr & La Cienega Blvd

12/8/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			  	
Volume (veh/h)	441	1304	128	294	948	172	95	1155	407	123	1008	173
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1667	1667	1667	1700	1667	1667	1667	1667	1667	1700
Adj Flow Rate, veh/h	450	1331	131	300	967	176	97	1179	415	126	1029	177
Adj No. of Lanes	2	2	1	2	2	0	1	2	1	1	3	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	1301	645	205	1100	200	188	1048	547	153	1306	224
Arrive On Green	0.11	0.82	0.80	0.07	0.41	0.40	0.06	0.33	0.32	0.06	0.33	0.32
Sat Flow, veh/h	3079	3167	1417	3079	2677	487	1587	3167	1417	1587	3910	671
Grp Volume(v), veh/h	450	1331	131	300	572	571	97	1179	415	126	798	408
Grp Sat Flow(s),veh/h/ln	1540	1583	1417	1540	1583	1581	1587	1583	1417	1587	1517	1548
Q Serve(g_s), s	6.7	49.3	2.5	8.0	39.9	40.1	4.9	39.7	30.5	6.4	28.5	28.7
Cycle Q Clear(g_c), s	6.7	49.3	2.5	8.0	39.9	40.1	4.9	39.7	30.5	6.4	28.5	28.7
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	172	1301	645	205	650	649	188	1048	547	153	1013	517
V/C Ratio(X)	2.62	1.02	0.20	1.46	0.88	0.88	0.52	1.13	0.76	0.83	0.79	0.79
Avail Cap(c_a), veh/h	172	1301	645	205	650	649	193	1048	547	153	1013	517
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.17	0.17	0.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	10.7	6.2	56.0	32.6	32.8	29.2	40.2	32.0	31.4	36.1	36.4
Incr Delay (d2), s/veh	730.7	16.9	0.1	232.4	15.6	15.7	2.2	69.0	9.5	29.5	6.2	11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.3	22.9	1.0	10.0	20.3	20.3	2.2	27.4	13.4	4.1	12.8	13.9
LnGrp Delay(d),s/veh	784.0	27.6	6.3	288.4	48.2	48.6	31.4	109.2	41.6	60.9	42.3	48.0
LnGrp LOS	F	F	A	F	D	D	C	F	D	E	D	D
Approach Vol, veh/h	1912				1443				1691			
Approach Delay, s/veh	204.1				98.3				88.1			
Approach LOS	F				F				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	53.3	10.6	44.1	12.0	53.3	11.0	43.7				
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.4	* 5.3	* 5.3	4.0	5.4				
Max Green Setting (Gmax), s	8.0	* 48	7.0	38.3	* 6.7	* 48	7.0	38.3				
Max Q Clear Time (g_c+I1), s	10.0	51.3	6.9	30.7	8.7	42.1	8.4	41.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	6.5	0.0	2.8	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	116.4											
HCM 2010 LOS	F											
Notes												

Level of Service Worksheet (Circular 212 Method)



I/S #:
5

PROJECT TITLE: 8731 Beverly Mixed-Use Project

North-South Street: La Cienega Boulevard

East-West Street: Beverly Boulevard

Scenario: Existing

Count Date: 1/0/1900

Analyst: <Fehr & Peers>

Date: <date>

		AM			PM		
		No. of Phases			No. of Phases		
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?		4			4		
Right Turns: FREE-1, NRTOR-2 or OLA-3?		0			0		
ATSAC-1 or ATSAC+ATCS-2?		2			2		
Override Capacity		0			0		
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	92	1	92	95	1	95
	Left-Through		0			0	
	Through	906	1	594	1155	1	781
	Through-Right		1			1	
	Right	282	0	282	407	0	407
	Left-Through-Right		0			0	
SOUTHBOUND	Left	103	1	103	123	1	123
	Left-Through		0			0	
	Through	1177	2	487	1008	2	392
	Through-Right		1			1	
	Right	283	0	283	169	0	169
	Left-Through-Right		0			0	
EASTBOUND	Left	155	1	155	437	1	437
	Left-Through		0			0	
	Through	774	2	387	1300	2	650
	Through-Right		0			0	
	Right	78	1	0	128	1	33
	Left-Through-Right		0			0	
WESTBOUND	Left	340	2	187	294	2	162
	Left-Through		0			0	
	Through	1235	2	618	944	2	472
	Through-Right		0			0	
	Right	95	1	44	172	1	111
	Left-Through-Right		0			0	
CRITICAL VOLUMES		North-South: 697 East-West: 773 SUM: 1470			North-South: 904 East-West: 909 SUM: 1813		
VOLUME/CAPACITY (V/C) RATIO:		1.069			1.319		
V/C LESS ATSAC/ATCS ADJUSTMENT:		0.969			1.219		
LEVEL OF SERVICE (LOS):		E			F		

**APPENDIX C:
RELATED PROJECTS**

8713 BEVERLY MIXED-USE - RELATED PROJECT TRIP GENERATION

ID	PROJECT LAND USE DESCRIPTION	PROJECT LOCATION	JURISDICTION	TRIP GENERATION ESTIMATES							
				DAILY	WEEKDAY			PM PEAK HOUR			
					IN	OUT	TOTAL	IN	OUT	TOTAL	
City of Beverly Hills*											
1	15.899 KSF retail shopping center, 26.196 KSF office, 1.8 restaurant ¹	257 North Canon Drive	Beverly Hills	1,200	57	21	78	48	71	119	
2	7.1 KSF Quality Restaurant	246 North Canon Drive	Beverly Hills	630	24	12	36	39	24	63	
3	8 Condominiums	250 North Crescent Drive	Beverly Hills	46	1	3	4	3	1	4	
4	23 Condominiums	9262 Burton Way	Beverly Hills	134	8	2	10	8	4	12	
5	7.8 KSF Post Office, 3.7 KSF Retail, & 88.5 KSF Creative Office ²	325 North Maple Drive	Beverly Hills	280	92	16	108	0	72	72	
6	35 Condominiums	450-460 North Palm Drive	Beverly Hills	205	3	12	15	12	6	18	
7	16 Condominiums	154-168 North La Peer Drive	Beverly Hills	93	5	2	7	6	2	8	
8	20 Condominiums	425 North Palm Drive	Beverly Hills	110	2	7	9	7	4	11	
9	19.8 KSF Automobile Sales	8955 Olympic Boulevard	Beverly Hills	660	26	18	44	24	30	54	
10	13.3 KSF Office, 1 KSF Fast Food w/o Drive Thru, & 4.7 KSF Variety Store	9212 Olympic Boulevard	Beverly Hills	1,068	68	47	115	45	51	96	
11	31 Condominiums	332 North Oakhurst Drive	Beverly Hills	186	3	11	14	10	5	15	
12	30 Condominiums	305-239 South Elm Drive	Beverly Hills	174	2	11	13	10	6	16	
13	1.7 KSF Office	207 South Robertson Boulevard	Beverly Hills	19	2	0	2	0	3	3	
14	31.7 KSF Office	9000 Wilshire Boulevard	Beverly Hills	105	13	2	15	3	12	15	
15	21 Apartments, 4 Townhouses, 2.9 KSF Medical Office & 1.9 KSF Retail ³	8600 Wilshire Boulevard	Beverly Hills	244	7	12	19	11	13	24	
16	37.5 KSF Medical Office, 22.1 KSF Office, 12.5 KSF Retail, & 3 KSF Quality Restaurant ⁴	8767 Wilshire Boulevard	Beverly Hills	2,543	131	33	164	78	151	229	
17	53 Condominiums, 5.6 KSF Quality Restaurant, & 8.4 Retail ⁵	9200 Wilshire Boulevard	Beverly Hills	945	9	22	31	51	31	82	
18	Jim Falk Lexus Project ⁶	9230 Wilshire Boulevard	Beverly Hills	3,000	47	30	77	23	50	73	
19	35 KSF Medical-Dental Office Building	121 San Vicente Boulevard	Beverly Hills	1,265	68	18	86	35	95	130	
City of West Hollywood**											
20	La Peer Hotel	623 La Peer Drive	West Hollywood	876	28	24	52	36	32	68	
21	Hotel, Restaurant, & Retail	645 Robertson Boulevard	West Hollywood	18,412	189	122	311	549	534	1,083	
22	Mixed-Use ⁷	9001 Santa Monica Boulevard	West Hollywood	829	8	16	24	31	16	47	
23	Mixed-Use ⁸	9040, 9060, 9080, 9098 Santa Monica Boulevard	West Hollywood	3,578	193	67	260	123	180	303	
24	Mixed-Use	8816 Beverly Boulevard	West Hollywood	959	47	18	65	31	54	85	
25	Retail/Office	920 Fairfax Avenue	West Hollywood	86	1	9	10	7	9	16	
26	14 Condominiums	1216 Flores Street	West Hollywood	81	1	5	6	5	2	7	
27	Office/Media Support	1041 Formosa Avenue	West Hollywood	4,450	438	389	827	36	32	68	
28	14 Condominiums	1264 Harper Avenue	West Hollywood	81	1	5	6	5	2	7	
29	16 Condominiums	1345 Havenhurst Drive	West Hollywood	94	1	6	7	5	3	8	
30	16 Condominiums	1342 Hayworth Avenue	West Hollywood	94	1	6	7	5	3	8	
31	10 Condominiums	1125 Kings Road	West Hollywood	59	1	4	5	3	2	5	
32	25 Apartments	1232 Kings Road	West Hollywood	168	3	10	13	10	5	15	
33	Apartments/Office	1145 La Brea Avenue	West Hollywood	222	6	14	20	14	10	24	
34	8 Condominiums	1201 La Brea Avenue	West Hollywood	412	2	2	4	21	4	25	
35	8 Condominiums	1223 Larrabee Street	West Hollywood	47	1	3	4	3	1	4	
36	3.929 KSF Retail	8451 Melrose Avenue	West Hollywood	174	13	14	27	5	6	11	
37	6.5 KSF Retail	8551 Melrose Avenue	West Hollywood	288	5	4	9	8	10	18	
38	9.545 KSF Retail/Commercial	8583 Melrose Avenue	West Hollywood	561	16	12	28	22	22	44	
39	4 Apartments, 14.571 KSF Retail	8650 Melrose Avenue	West Hollywood	693	12	11	23	20	23	43	
40	21.565 KSF Commercial	8711 Melrose Avenue	West Hollywood	567	10	7	17	8	9	17	
41	8.997 KSF Restaurant	8715 Melrose Avenue	West Hollywood	809	-	-	0	45	22	67	
42	8 Condominiums	7914 Norton Avenue	West Hollywood	47	1	3	4	3	1	4	
43	9 Apartments	507 Orlando Avenue	West Hollywood	60	1	4	5	4	2	6	
44	Faith Plating Mixed-Use	7144 Santa Monica Boulevard	West Hollywood	18,412	189	122	311	549	534	1,083	
45	Movietown Mixed-Use	7302 Santa Monica Boulevard	West Hollywood	1,630	24	72	96	88	52	140	
46	81 room Hotel, 79 Apartments	7811 Santa Monica Boulevard	West Hollywood	1,617	41	122	163	155	94	249	
47	4.365 KSF Retail, 13.682 KSF Restaurant, 70.036 KSF Office	7965-7985 Santa Monica Boulevard	West Hollywood	3,389	185	92	277	146	205	351	
48	Kings Road Mixed-Use	8350 Santa Monica Boulevard	West Hollywood	432	7	11	18	15	14	29	
49	Retail/Restaurant	8550 Santa Monica Boulevard	West Hollywood	497	8	12	20	18	16	34	
50	Mixed-Use	8555 Santa Monica Boulevard	West Hollywood	2,914	56	79	135	131	102	233	
51	Retail/Restaurant	8305 Sunset Boulevard	West Hollywood	1,137	0	0	0	64	31	95	
52	Sunset Time	8418 Sunset Boulevard	West Hollywood	2,226	67	55	122	114	76	190	
53	Sunset Millennium	8490/8500 Sunset Boulevard	West Hollywood	5,496	160	173	333	214	198	412	
54	Mixed-Use	8497 Sunset Boulevard	West Hollywood	898	8	8	16	39	16	55	
55	165 room Hotel, 4 Apartments, 29.71 KSF Restaurant	8950 Sunset Boulevard	West Hollywood	4,208	184	146	330	183	138	321	
56	Hotel	9040 Sunset Boulevard	West Hollywood	2,986	71	55	126	126	108	234	
57	8 Condominiums	1253 Sweetzer Avenue	West Hollywood	47	1	3	4	3	1	4	
58	7.27 KSF Retail	605 West Knoll Drive	West Hollywood	322	24	26	50	9	11	20	
City of Los Angeles***											
59	140 Condominiums ⁹	300 South Wetherly Drive	Los Angeles	270	3	17	20	16	6	22	
60	Cedars-Sinai Medical Center Project - West Tower (New medical building with 100 hospital beds) ⁹	8723 West Alden Drive	Los Angeles	1,181	79	34	113	47	83	130	
61	Wilshire & Crescent Heights Mixed-Use	6245 West Wilshire Boulevard	Los Angeles	1,214	29	74	103	32	2	34	
62	S. La Cienega Blvd Eldercare Facility ¹⁰	1022 South La Cienega Boulevard	Los Angeles	242	14	(6)	8	6	16	22	
63	Mixed-Use	6535 Wilshire Boulevard	Los Angeles	786	61	17	78	20	63	83	
64	300 Condominiums	6298 West 3rd Street	Los Angeles	(655)	(8)	56	48	(24)	(53)	(77)	
65	Beverly & Fairfax Mixed-Use ¹¹	7901 West Beverly Boulevard	Los Angeles	493	7	29	36	30	16	46	
66	375 Luxe	375 North La Cienega Boulevard	Los Angeles	168	8	47	55	34	11	45	
67	Temple Beth Am Private School - Pressman Academy	1055 South La Cienega Boulevard	Los Angeles	423	75	58	133	46	54	100	
68	Mixed-Use	316 North La Cienega Boulevard	Los Angeles	602	41	53	94	31	22	53	
69	Caruso Affiliated	333 South La Cienega Blvd	Los Angeles	2,020	35	71	106	114	77	191	
70	Jewish Family Service	320 North Fairfax Avenue	Los Angeles	276	28	9	37	4	21	25	
TOTAL RELATED PROJECT TRIPS				99,785	2,944	2,469	5,413	3,622	3,529	7,151	

Notes

* Daily, AM peak hour, and PM peak hour trip generation estimates were provided by City of Beverly Hills staff unless noted otherwise (August 2015).

** Daily, AM peak hour, and PM peak hour trip generation estimates were provided by City of West Hollywood staff unless noted otherwise (October 2015).

*** The total net new trip generation estimates for the daily, AM peak hour, and PM peak hour were provided by Los Angeles Department of Transportation staff unless noted otherwise (November 2015).

¹ All net new trip estimates were obtained from the 257 N. Canon Drive Traffic Impact Study (Overland Traffic Consultants, 2009).

² AM and PM peak hour trip estimates were obtained from the Beverly Hills Post Office Traffic Impact Analysis (Fehr & Peers, 2015).

³ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the Traffic Study for the 8600-8612 Wilshire Mixed-Use Project (Kaku Associates, 2005).

⁴ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the 8767 Wilshire Boulevard - Supplemental Updated Traffic Impact Analysis (Fehr & Peers, 2013).

⁵ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the Option 1 trip generation provided in the Traffic Study for the 9200 Wilshire Mixed-Use Project Beverly Hills (Fehr & Peers, 2005).

⁶ All peak hour trip estimates were obtained from the Traffic and Parking Study for the Beverly Hills Lexus Expansion Project (Fehr & Peers, 2010).

⁷ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the Revised Traffic Impact Analysis for the Melrose Triangle Project (LSA, 2013).

⁸ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the Revised Traffic Impact Analysis for the Proposed Residential Development Located at 300 South Wetherly Drive (City of Los Angeles, 2008).

⁹ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the Traffic Impact Study for Cedars-Sinai Medical Center Project (Linscott, Law, & Greenspan, 2008).

¹⁰ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the Traffic Impact Analysis for a Assisted Living and Skilled Nursing Facility Project (LLG, 2009).

¹¹ Daily trip estimates and AM and PM peak hour trip estimates were obtained from the Traffic Impact Analysis for the 7901 Beverly Boulevard Project (LLG, 2009).

