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November 13, 2025

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Director
Community & Economic Development
City of San Rafael

Subject: **900 A Street Project**
1030 3rd St. (APN 011-263-21)
California Environmental Quality Act (CEQA)
Categorical Exemption Review Memorandum

Dear Micah:

As requested, we have conducted environmental review in compliance with CEQA Guidelines Section 15061 (Review for Exemption) for the 900 A Street Project in San Rafael. Based on the findings of this review, we conclude that the project qualifies for exemption from CEQA pursuant to CEQA Guidelines Section 15332 (Class 32 In-fill Development Projects). The following provides a description of the project, analyzes the project's applicability to the use of the categorical exemption, and discusses whether any of the exceptions to the use of the categorical exemption apply. The analysis contained in this memo relies on information provided by the applicant, including technical studies, and other publicly available documents and resources.

PROJECT DESCRIPTION

Overview

The project site is located at 1030 3rd Street (APN: 011-263-21) at the northeast corner of 3rd Street and A Street in San Rafael, California and comprises a total area of 28,667 square feet (0.66 acres). The project site is currently developed with a 4,400 square-foot vacant commercial building, surface parking lot, and ornamental landscaping. These existing site improvements will be demolished to accommodate construction of a new, eight-story mixed-use building containing a gross floor area of 190,147 square feet, inclusive of 138,402 square feet of residential space, 4,000 square feet of commercial space, and 47,745 square feet allocated for vehicular parking, trash and recycling areas, and mechanical, electrical, and plumbing (MEP) areas. The basement level includes parking, mechanical, and storage areas; the 1st floor includes parking, mechanical, storage, and trash areas as well as the commercial space, lobby, leasing and management offices, and mail room; and the 2nd through 8th floors include residential units and tenant amenities.

General Plan and Zoning

The project site has a General Plan land use designation of Downtown Mixed Use which corresponds to properties in Downtown San Rafael. The lack of an established residential density limit is intended to provide greater flexibility in housing types, encourages smaller units, and maximizes housing opportunities. As shown on Figure 4.5 of the Downtown Precise Plan the site is within the T5 Neighborhood (T5N) 50/70 zoning district, which is characterized as a residential area with shopfronts

within Downtown San Rafael. The T5N 50/70 zoning district is further characterized as having block-form buildings that reflect a high intensity of activity and greater mix of uses.

Residential Uses

The project proposes a total of 131 residential units, including 110 base density units and 21 density bonus units. Of the 131 units, 11 will be available to low-income households (10% of the 110 base density units), and is therefore afforded a 20% density bonus (22 units) under State Density Bonus Law (California Government Code Sections 65915 – 65918). Based on the percentage and level of affordability of the below market rate (BMR) units, the project is eligible for one concession and unlimited waivers or reductions in development standards provided under State Density Bonus Law.[1]

Residential units are dispersed on the 2nd through 8th floors, with 18 units on the 2nd floor, 19 units each on the 3rd through 7th floors, and 18 units on the 8th floor. Common tenant amenities include a 1st floor lobby and offices, a 2nd floor amenity room and podium courtyard, an 8th floor amenity room, and a roof deck with lounge furnishings and recreational amenities. Private tenant amenities include balconies. Requested concessions and waivers or reductions in development standards are utilized to accommodate the proposed density bonus project, and do not inhibit the project's eligibility for a Class 32 categorical exemption.

Parking, Access, and Circulation

107 vehicular parking spaces are available for residents, guests, and patrons of the commercial space and are included in an enclosed parking garage on the 1st floor (43 spaces) and basement level (64 spaces). Vehicular access to the parking garage is provided on A Street via a 24-foot-wide driveway. A total of 93 bicycle parking spaces are provided between vehicle parking spaces and the wall of the building on the 1st floor (32 spaces) and basement level (61 spaces). Additionally, 8 bicycle racks accommodating 2 bicycles each (16 total spaces) are located within the public right-of-way along A Street and 3rd Street. Pedestrian access to the residential and commercial areas is provided along A Street and 3rd Street.

Table 1: Vehicle and Bicycle Parking Summary

Level	Vehicle Parking Spaces	Bicycle Parking Spaces
Basement	64	61
1	43	32
Other	0	16
Total	**107**	**109**

Utilities and Landscaping

The proposed building will connect to the existing sanitary sewer, storm drain, water, and electrical utilities located within A Street and 3rd Street. The project proposes 2,963 square feet of landscape areas, including 926 square feet at the street level, 2,017 square feet at the 2nd level podium courtyard,

[1] Government Code Section 65915(d), 65915(e).

and 20 square feet at the rooftop. Stormwater management is provided within the landscape area on the 2nd level and includes an 894 square foot biofiltration planter. The project requires removal of 18 trees which will be replaced with 24 new trees (6 along A Street, 6 along 3rd Street, and 12 at podium level).

CEQA EXEMPTION APPLICABILITY

The following provides a discussion of the Class 32 In-Fill exemption's applicability to the Project.

15332 (In-Fill Development Projects)

The Class 32 categorical exemption consists of infill-development projects that are consistent with the following:

A) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.

General Plan

The project site is designated Downtown Mixed Use in the General Plan. This category corresponds to properties in Downtown San Rafael. It includes the highest development intensities in the city, and contains a mix of housing, office, retail, service, and public land uses. Development in this area is guided by the Downtown San Rafael Precise Plan, which includes further detail on building form, development intensity, height, and allowable uses. There is no residential density limit in the Downtown Mixed Use area. This allows for greater flexibility in terms of housing types, encourages smaller units, and maximizes housing opportunities. Height limits define the maximum building envelope on each site with this designation. Consistent with the General Plan and Downtown Precise Plan and EIR, the total number of net new residential units added within the Downtown Precise Plan boundary between 2020 and 2040 shall not exceed 2,200.

The project focuses high-density housing, including 11 units for low-income households, within the transit-served Downtown core (General Plan Policies LU-1.3, H-3.5, M-3.1, LU-1.8, NH-1.3), thereby fulfilling goals to reduce vehicle miles traveled (VMT) and greenhouse gas emissions. The project will revitalize an underutilized commercial site, supporting a thriving mixed-use neighborhood (General Plan Policies NH-1.1, LU-2.2), maintains pedestrian orientation through the integration of parking into an enclosed garage, dedicated bicycle facilities, and by maintaining acceptable traffic flow (General Plan Policies NH-1.10, NH-1.11, M-7.3, M-7.8, M-2.5, M-2.6, CDP-4.9, CDP-4.11). The project provides on-site recreation amenities (General Plan Policies CDP-4.6, PROS-1.11, PROS-1.13), is designed to be context-sensitive and respectful of views (General Plan Policies NH-1.7, CDP-2.2, CDP-1.5), and incorporates Low Impact Development and water conservation through use of very low to moderate water use species and compliance with stormwater management requirements (General Plan Policies CDP-3.5, C-3.3, C-3.8, C-3.9). Finally, as proposed and conditioned, the project meets health, safety, and infrastructure standards for seismic safety, noise control, and connection to existing utilities (General Plan Policies C-2.4, N-1.1, N-1.2, N-1.11, CSI-4.2, CSI-4.8, CSI-4.9). As such, the project is consistent with all applicable General Plan policies.

Downtown Precise Plan

The project site is zoned T5N 50/70 by the San Rafael Downtown Form-Based Code (DTFBC). Development in this area is guided by regulations contained in the DTBFC, which establishes regulations related to building form, development intensity, height, and allowable uses. As the project requests a density bonus under State Law, the project includes a "base project" that complies with applicable standards of the DTFBC and a "proposed project" that includes requests for a concession and waivers.

Base Project: The base project (identified on Sheet A0.2 of the project plans) includes 110 residential units, of which 10% (11 units) are affordable to low-income households. As shown on Sheet A0.2 of the plans, the base project complies with the maximum height, setbacks, vehicle and bicycle parking, and minimum civic area requirements and therefore meets all applicable regulations of the DTBFC.

Proposed Project: As described previously, the base project will provide 10% of the base density units affordable for low-income households and is eligible for a 20% density bonus (22 units). The resulting 131 residential units[2] on approximately 0.66 acres represents a residential density of 198 dwelling units/acre.[3] As further described below, to accommodate the additional density permitted under State Density Bonus Law, the applicant seeks one concession related to affordable housing regulations and multiple waivers from development standards.

> **Concession:** The applicant is utilizing the one available concession to modify a requirement for the affordable housing units, notably to deviate from compatibility requirements with regard to private balconies. Specifically, the Project does not provide compatibility of amenities provided as only 30% of market rate units do not have private open space amenities (balconies) whereas 100% of below market rate units do not have private open space amenities (balconies).
>
> **Waivers:** The applicant is utilizing waivers for the following development standards:
>
> - 50 foot building height limit in T5N 50/70
> - 45 foot top plate height limit in T5N 50/70
> - 10 foot front stepback above 45 foot height in T5N 50/70
> - 10 foot street stepback above 45 foot height in T5N 50/70
> - 10 foot rear stepback above 45 foot height in T5N 50/70
> - 200 square foot minimum civic space requirement
> - Bike parking amount and design requirements

The project is consistent with the Downtown Mixed Use General Plan designation as it maximizes housing opportunities on the site and, with the use of provisions contained in State Density Bonus Law, is consistent with the T5N 50/70 DTFBC zoning standards as it provides housing within short walking distance of neighborhood shopping, services, and transit.

[2] 110 units x 20% = 22 density bonus units (project is utilizing 21). 110 base density units + 21 density bonus units = 131 units.
[3] 131 units / 0.66 acres = 198.4 dwelling units/acre/

Conclusion: Based on the project's consistency with the applicable general plan designation and policies, zoning designation, and zoning regulations, including through use of one concession and multiple waivers under State Density Bonus Law, the project complies with criteria 15332(a) and qualifies for use of the Class 32 categorical exemption.

B) The proposed development occurs within city limits on a project site of no more than 5 acres substantially surrounded by urban uses.

According to the project data on Sheet A0.1 of the project plans, the project site is approximately 28,667 square feet (0.66 acres), which adheres to the Class 32 exemption criteria requiring the project site to occupy no more than five acres. Additionally, as shown in Figure 1 below, the project site is substantially surrounded by urban uses including medical offices to the south, commercial uses to the west and north, and a surface parking lot to the east. The project therefore complies with criteria 15332(b) and qualifies for use of the Class 32 categorical exemption.

Figure 1: Project Vicinity[4]

[4] Marin Map Viewer, https://www.marinmap.org/Html5Viewer/Index.html?viewer=smmdataviewer, accessed October 2025.

C) The project site has no value as habitat for endangered, rare or threatened species.

As shown in Figure 6-1 of the San Rafael 2040 General Plan, the project site and surrounding area has a vegetative cover of "Urban/other"[5] which is consistent with the developed nature of the site, including the existing hardscape and vacant commercial building. As shown in Figure 6-3 of the General Plan, the site is not designated as critical habitat for endangered, rare, or threatened, species.[6] While the radii of California Natural Diversity Database (CNDDB) plant and animal occurrences overlap the Downtown Precise Plan Area to the east (Figures 4.4-2 and 4.4-3 of the General Plan EIR), the project site is outside the boundaries of this overlap.[7] General Plan Policy C-1.12 calls for site-specific biological resources surveys for sites with habitat that are sensitive, rare, declining, unique, or represent a valuable biological resource. Highly urbanized sites do not represent such habitat. The existing vacant building and trees on the site have the potential to provide habitat for roosting bats and nesting birds[8]; however, as shown in Figure 1, the site's features and surrounding areas do not represent value as habitat considering that they lack the ecological complexity, natural features, and documented, recurring use by rare, threatened, or endangered species necessary to be considered critical, sensitive, or valuable habitat.

Furthermore, General Plan Program C-1.12A requires that sites with suitable anthropogenic habitat be surveyed for the presence of special status species following accepted protocol prior to development-related habitat removal. Additionally, General Plan Program C-1.13E requires pre-construction surveys if construction will occur during the bird nesting season. As such, consistent with these General Plan Programs and state requirements, the project is conditioned to conduct pre-construction surveys if demolition and/or tree removal will occur during the roosting and nesting seasons. Given the highly disturbed nature of the site and surrounding area, there is an overall lack of value as habitat for endangered, rare, or threatened species and as such, the project complies with criteria 15332(c) and qualifies for use of the Class 32 categorical exemption.

D) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

This memorandum relies on the impact criteria contained in Appendix G of the 2025 CEQA Guidelines to evaluate whether the project would result in significant effects relating to traffic, noise, air quality, or water quality. As noted above, the following analysis relies on technical information provided by the applicant and publicly available documents and resources.

Traffic

Criterion A: would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

[5] San Rafael General Plan, Table 6-1, Page 6-5.
[6] San Rafael General Plan, Figure 6-3, Page 6-15.
[7] San Rafael General Plan EIR, Figure 4.4-2, Page 4.4-11; Figure 4.4-3, Page 4.4-18.
[8] San Rafael General Plan EIR, Table 4.4-3, Pages 4.4-19 through 4.4-24.

A Local Traffic Analysis was prepared for the project by Advanced Mobility Group on July 2025 (Attachment 1). As detailed in the Analysis, the project is expected to generate approximately 515 daily trips, including 43 trips during the a.m. peak hour and 41 trips during the p.m. peak hour.[9] As shown in Table 8 (Existing Plus Project Conditions LOS and Delay) of the traffic analysis, and summarized in Table 2 below, the addition of project generated trips will result in minimal operational changes to the five study intersections and all intersection will continue to operate at LOS C or better. This is consistent with General Plan Policy LU-1.2(a) and General Plan Policy M-2.5(a), which establish an acceptable LOS of D. The project also complies with regulations related to vehicle, bicycle, and pedestrian access, parking, and circulation. As such, the project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Table 2: Existing Plus Project Peak Hour LOS Summary[10]

Study Intersection	Existing				Existing Plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
4th Street / A Street	A	9.8	A	9.4	B	10.0	A	9.5
4th Street / Court Street	A	6.2	A	6.8	A	6.3	A	7.0
3rd Street / A Street	C	34.6	C	28.5	C	34.6	C	28.5
3rd Street / B Street	A	5.8	A	5.3	A	5.9	A	5.3
4th Street / B Street	B	10.8	B	12.1	B	10.9	B	12.1

Criterion B: would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?

The Local Transportation Analysis determined that the project meets the criteria to be screened out from the need for a quantitative vehicle miles travelled (VMT) analysis consistent with the City of San Rafael Transportation Analysis Guidelines.[11] The determination was based on the project being located within ½ mile of a major transit stop and in a low VMT-generating area. Based on the project's location and characteristics, new residents of the project would not generate substantial VMT and the project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).

Criterion C: would the project substantially increase hazards due to a geometric design feature or incompatible uses?

Vehicular access to the site will be provided via a driveway on A Street which leads to the covered, on-site parking areas. Pedestrian access will be provided through building entrances located on A Street and 3rd Street. As detailed in the Local Transportation Analysis, sight distance at the driveway on A Street is adequate to observe oncoming vehicles, bicycles, and pedestrians and exit safely.[12] Additionally, the existing storage capacity of A Street is adequate to serve project generated traffic

[9] Local Traffic Analysis, Advanced Mobility Group, July 2025, Page 14, Table 3.
[10] Local Traffic Analysis, Advanced Mobility Group, July 2025, Page 18, Table 8.
[11] City of San Rafael Transportation Analysis Guidelines, February 2022, Figure 1: Determining Level of Transportation Analysis and Initial VMT Screening Process.
[12] Local Traffic Analysis, Advanced Mobility Group, July 2025, Page 20.

and will not result in vehicle queuing within the public right-of-way.[13] The project includes a recessed driveway and warning light system to further enhance pedestrian safety and as conditioned, is required to maintain clear sight lines within the vision triangle. As such, the project would not substantially increase hazards due to a geometric design feature or incompatible uses.

Criterion D: would the project result in inadequate emergency access? Beyond frontage improvements, including new and modified driveways and improved pedestrian facilities?

The project will not modify existing public rights-of-way such that travel lanes used by emergency vehicles would be altered and as conditioned, will comply with fire code requirements. While the project will generate new vehicle trips, intersections will continue to operate efficiently, and emergency vehicles will not be impeded from accessing the site or surrounding area in the event of an emergency. As such, the project would not result in inadequate emergency access.

Noise

Criterion A: would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

As detailed in the Noise and Vibration Assessment prepared by Illingworth & Rodkin, Inc. on April 4, 2025 (Attachment 2), existing sources of noise at the project site include vehicular traffic along 3rd Street, A Street, and 4th Street, distant noise from Highway 101, and operation of nearby businesses.[14] Permanent sources of noise resulting from project operation include sounds associated with occupation of new residential units, operation of the ground floor commercial use, use of Heating Ventilation and Air Conditioning (HVAC) units and other mechanical equipment, and additional traffic on nearby roadways. Temporary sources of noise include construction activities. A substantial noise impact would occur if the project resulted in:

- A permanent increase in ambient noise levels by more than 3 dBA Ldn in a residential area, or more than 5 dBA Ldn in a non-residential area.
- Temporary noise levels that exceed 60 dBA Leq and increase the ambient noise environment by at least 5 dBA Leq at adjacent land uses in the project vicinity for longer than one year.
- Construction activities exceeding 90 dBA outside of the property plane of the project.

Permanent Operation Noise Levels: At operation the project will contribute noise to the ambient noise environment through the introduction of new residents and patrons of the ground floor commercial business, operation of mechanical equipment, and from additional traffic on area roadways. Noise associated with occupation of new residential and commercial uses would be noticeable but would not result in an increase by more than 3 dBA, which is below the threshold noted above.[15] Furthermore, consistent with Public Resources Code Section 21085, the effects of noise

[13] Local Traffic Analysis, Advanced Mobility Group, July 2025, Page 23.
[14] Noise and Vibration Assessment prepared by Illingworth & Rodkin, April 4, 2025, Page 12.
[15] Noise and Vibration Assessment prepared by Illingworth & Rodkin, April 4, 2025, Page 19.

generated by project occupants and their guests on human beings are not considered an environmental impact. The expected maximum noise level resulting from operation of mechanical equipment as measured at the edge of the roof would be a noise equivalent of 60 to 70 dBA.[16] Based on the anticipated maximum noise level of mechanical equipment, distance of the project to the nearest sensitive receptors (Vivalon Senior Living Facility), and 10 dba attenuation provided by the building and building parapet, noise levels resulting from operation of mechanical equipment would fall below ambient noise levels and would not exceed the thresholds noted above. Lastly, as detailed in the noise assessment, the addition of project generated traffic would result in a noise level increase of less than 1 dBA and would not exceed the thresholds noted above.[17] As such, the project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of established standards.

Temporary Construction Noise Levels: Construction of the project is anticipated to include a range of equipment typically used for construction of residential projects. Equipment used during construction is expected to generate average noise levels of 75 dBA at the closest sensitive receptors (Vivalon Senior Living Facility). While construction is expected to take more than one year, demolition, site preparation, grading and excavation, trenching and foundation, and construction of the building exterior is expected to take less than one year (January 2026 to December 2026).[18] Upon construction of intervening structures (e.g. building exterior), noise attenuation would be provided such that nearby sensitive receptors would not be exposed to construction-related noise levels exceeding 60 dBA Leq and would therefore not exceed established thresholds. Additionally, as a standard condition of approval, the project is required to incorporate best management practices throughout construction of the project. As such, the project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of established standards.

<u>Criterion B: would the project generate excessive groundborne vibration or groundborne noise levels? Construction activities have the potential to cause groundborne vibration through the use of construction equipment, such as vibratory rollers, that can cause annoyance to nearby occupants or structural damage to adjacent buildings?</u>

The project would result in significant vibration impacts if it exceeded the Federal Transportation Agency's (FTAs) thresholds, which are based on various structural categories.[19] Vibration-generating construction activities include demolition, site preparation, foundation, paving, and new building framing and finishing. Construction techniques that generate the highest vibration levels such as impact or vibratory pile driving are not anticipated to be required for the proposed project.[20] As shown in Table 8 of the Noise and Vibration Assessment, project construction is expected to generate vibration levels up to 0.02 at 130 feet which is the nearest sensitive receptor. The nearby Vivalon Senior Living Facility is a modern building (FTA category II) and would not be exposed to vibration

[16] Ibid.

[17] Ibid.

[18] Air Quality Assessment, Illingworth & Rodkin, July 9, 2025, Attachment 1: CalEEMod Modeling Inputs and Outputs, Air Quality/Noise Construction Information Data Request.

[19] Noise and Vibration Assessment prepared by Illingworth & Rodkin, April 4, 2025, Table 7, Page 21.

[20] Ibid.

levels exceeding 0.3 peak particle velocity inches per second (PPV in/sec).[21] As such, the project would not generate excessive groundborne vibration or groundborne noise levels in excess of established standards.

Criterion C: for a project located within the vicinity of a private airstrip or 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?

The nearest airport to the project site (San Rafael Airport) is located over 5 miles northeast. As such, the project would not expose people residing in the project area to excessive noise levels due to location within the vicinity of a private airstrip or within two miles of a public or public use airport.

Air Quality

Criterion A: would the project conflict with or obstruct implementation of the applicable air quality plan?

In 2017, the Bay Area Air Quality Management District (now the Bay Area Air District) adopted the 2017 Bay Area Clean Air Plan and in 2022, updated their CEQA Guidelines to assist local agencies in evaluating air quality impacts of projects. As detailed in Section 5.1.2 of the 2022 Air District's CEQA Guidelines, a project would not conflict with an air quality plan if it (1) supports the primary goals of the plan, (2) includes all applicable control measures, and (3) does not disrupt or hinder implementation of any control measures.[22] The project is consistent with the 2017 Bay Area Clean Air Plan as it supports the primary goal, which is to protect public health and the climate by reducing greenhouse gas emissions. The project supports this goal by locating new residential uses within walking and biking distance of transit, goods, and services, thereby reducing reliance on single-occupancy vehicles which reduces greenhouse gas emissions associated with driving. Additionally, the project will be all electric and will therefore not contribute to greenhouse gas emissions associated with use of natural gas appliances and fixtures. As a standard condition of approval, and as required by General Plan Program C-2.4A, the project will be conditioned to incorporate standard air quality control measures during construction. Lastly, the project does not hinder or disrupt any of the stationary source, transportation, building, energy, agriculture, natural and working lands, waste, water, or super-GHG pollutants control measures contained in the 2017 Bay Area Clean Air Plan. As such, the project would not conflict with or obstruct implementation of the applicable air quality plan.

Criterion B: would the project 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?

A project-specific Air Quality Assessment was prepared by Illingworth and Rodkin on July 9, 2025 (Attachment 3).

[21] Noise and Vibration Assessment prepared by Illingworth & Rodkin, April 4, 2025, Page 22.
[22] Bay Area Air Quality Management District 2022 CEQA Guidelines, Section 5.1.2 (Impact Analysis), Page 5-2.

Construction: As discussed in the Assessment, the project's air quality impacts would be associated with demolition of the existing building and construction of the new building. Air pollutant emissions resulting from the construction of the project were quantified using the California Emissions Estimator Model (CalEEMod) and are shown in Table 3. As demonstrated below, construction-related emissions will be below the Air District's thresholds of significance. Additionally, consistent with the Air District's recommendations and San Rafael General Plan 2040 policies, best management practices will be incorporated throughout project construction to control for fugitive dust.

Table 3: Construction Emissions[23]

Year	ROG	NOx	PM10 Exhaust	PM2.5 Exhaust
Construction Emissions Per Year (Tons)				
2026	0.21	0.33	0.01	0.01
2027	0.83	0.03	0.001	0.001
Average Daily Construction Emissions Per Year (pounds/day)				
2026 (261 workdays)	1.59	2.56	0.07	0.06
2027 (109 workdays)	15.28	0.56	0.01	0.01
BAAQMD/BAAD Threshold (pounds/day)	54 lbs/day	54 lbs/day	82 lbs/day	54 lbs/day
Exceeds Threshold?	**No**	**No**	**No**	**No**

Operation: Consistent with Section 4.1.2 of the Bay Area Air Quality Management District's 2022 CEQA Guidelines, the project meets the screening criteria related to operational emissions and a detailed assessment and quantification of operation-related emissions is not needed. The residential component of the project is within the Apartments land use subcategory, which has an operational screening level of 638 dwelling units. The commercial component of the project is within the Retail land use category and was conservatively assumed to fall within the Convenience Market land use subcategory, which has the lowest operational screening level of all retail subcategories at 11,000 square feet. As a project proposing 131 dwelling units and 4,000 square feet of commercial space, the project is below the operational screening level sizes noted above. Additionally, the project does not include stationary engines at operation (e.g. backup generators), and operational activities will not overlap with construction activities. As such, the project meets the screening criteria contained in the Bay Area Air District's 2022 CEQA Guidelines and operational emissions would not exceed the Air District's thresholds of significance.

Conclusion: Based on the analysis provided above, construction and operation of the project would not 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.

Criterion C: would the project expose sensitive receptors to substantial pollutant concentrations?

[23] Air Quality Assessment, Illingworth & Rodkin, July 9, 2025, Table 3, Page 7.

Consistent with General Plan Policy C-2.2 (Land Use Compatibility and Building Standards), Program C-2.2A (Protection of Sensitive Receptors), and recommendations of the Bay Area Air District, and based on the proximity of the project to existing sensitive receptors, the project will be conditioned to either prepare a construction health risk assessment, or incorporate enhanced best management practices during construction, including verified diesel emission control strategies and implementation of a construction minimization plan, which are capable of reducing potential cancer and non-cancer risks to a level below ten in one million or a hazard index of 1.0. As proposed and through compliance with applicable General Plan Policies and Programs as implemented through standard project conditions of approval, including implementation of basic and enhanced best management practices, the project will not expose sensitive receptors to substantial pollutant concentrations, thereby avoiding any impacts.

Criterion D: would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

There are no components of the project that would generate other emissions, such as those leading to odors that would adversely affect a substantial number of people.

Water Quality

Criterion A: would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

A Stormwater Control Plan was prepared for the project by Luk and Associates on June 24, 2025 (Attachment 4). The Plan outlines methods for managing stormwater runoff consistent with the Bay Area Stormwater Management Agencies Association's requirements. As recommended, runoff from the roof of the building will be conveyed through downspouts to the bioretention planters within the podium courtyard where it will be treated and conveyed to the city's storm drain system in 3rd Street. Untreated water from the podium deck and other roof surfaces will be conveyed to a Media Filter at the ground level, and once treated, will also be conveyed to the city's storm drain system.[24] In addition, as standard conditions of approval, the project will be required to submit an erosion and sediment control plan, stormwater control plan, and stormwater facilities operations and maintenance plan that complies with City of San Rafael and Marin County Stormwater Pollution Prevention Program regulations. As proposed and conditioned, the project will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Criterion B: would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The site is currently fully developed and contains approximately 4,463 square feet of pervious areas and 24,103 square feet of impervious area. As proposed, the project will include 995 square feet of

[24] Stormwater Control Plan, Luk and Associates, June 24, 2025 Page 3.

pervious area (78% decrease) and 27,571 square feet of impervious area (14% increase).[25] Although the project will decrease pervious areas and increase impervious areas, groundwater use within the Marin Municipal Water District service areas is limited due to a lack of substantial underlying groundwater aquifers and poor groundwater quality.[26] Additionally, the San Rafael Valley Groundwater Basin is within a very low priority basin and there are no current plans or requirements to prepare a sustainable groundwater management plan. Furthermore, as detailed in Marin Municipal Water Districts 2020 Urban Water management Plan, the District does not pump groundwater and does not plan to use groundwater as a supply source in the future.[27] As such, the project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Criterion C: would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would (i) result in a substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (iii) 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; or (iv) impede or redirect flood flows?

As stated above, the project will result in an overall decrease in pervious areas and an increase in impervious areas when compared to existing conditions. Stormwater will be treated onsite prior to discharge to the city's storm drain system. As standard conditions of approval, the project will be required to implement an erosion and sediment control plan subject to review and approval by the city and will comply with the Marin County Stormwater Pollution Prevention Program to prevent the pollution of local waterways by managing stormwater runoff and protecting water quality. As proposed and consistent with standard conditions related to stormwater management and erosion control, the project will not result in significant effects associated with altering the existing drainage pattern of the site or area through the addition of impervious surfaces such that it would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 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; or impede or redirect flood flows.

Criterion D: If within a flood hazard, tsunami, or seiche zone, would the project risk release of pollutants due to project inundation?

The project site is not within a flood hazard, tsunami, or seiche zone and will therefore not result in significant effects to water quality as a result of releasing pollutants due to project inundation.

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[25] Stormwater Control Plan, Luk and Associates, June 24, 2025, Stormwater Treatment Plan Page 12.
[26] California State Water Resources Control Board, San Rafael Valley Groundwater Subbasin (2-29), June 14, 2024, accessed October 2025, waterboards.ca.gov/sanfranciscobay/water_issues/programs/groundwater/BasinLinks/2024links/San_Rafael.pdf.
[27] Marin Municipal Water District, Updated 2020 Urban Water Management Plan, January 2024, Page 54.

Criterion E: would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As stated above, the project is conditioned to comply with local regulations regarding erosion and sediment control and regional regulations related to preventing pollution of local waterways by managing stormwater runoff protecting water quality. Additionally, as noted above, the San Rafael Valley Groundwater Basin is a very low priority basin and there are no current plans or requirements to prepare a sustainable groundwater management plan. Therefore, the project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Conclusion

In conclusion, the project will not result in any significant effects relating to traffic, noise, air quality, or water quality and as such, complies with criteria 15332(d) and qualifies for use of the Class 32 categorical exemption.

E) The site can be adequately served by all required utilities and public services

The project is within the development potential anticipated by the San Rafael 2040 General Plan and Downtown Precise Plan and as such can be served by all available local and regional services, including but not limited to police services, fire services, and schools. Additionally, the project will connect to the existing utilities located along A Street and 3rd Street, including existing sanitary sewer, storm drain, water, and electrical utilities and has received will-serve letters from Marin Municipal Water District and San Rafael Sanitation District. As such, the project complies with criteria 15332(e) and qualifies for use of the Class 32 categorical exemption.

EXCEPTIONS TO EXEMPTIONS

If a project qualifies for use of a categorical exemption, then the lead agency must determine whether the project is subject to any of the exceptions to the use of a categorical exemption, pursuant to CEQA Guidelines Section 15300.2. A project will not qualify for use of a categorical exemption if any of the following circumstances exist:

A) Location. Certain classes of projects (Classes 3, 4, 5, 6, and 11) are qualified by consideration of where the project is to be located and whether it may impact an environmental resource of hazardous or critical concern.

CEQA Guidelines Section 15300.2(a) does not apply to the Class 32 (In-Fill Development Projects) exemption, therefore, this exception is not applicable to the project.

B) Cumulative Impact. All exemptions are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

The project is located on a site planned for high-density residential development. Other foreseeable projects in the vicinity include those listed on the City of San Rafael Major Planning Projects webpage[28] which are similar in nature to the proposed project, are anticipated as part of the 2040 General Plan, and would be subject to separate environmental review and evaluation. As proposed and conditioned, the project will incorporate standard best management practices to control air quality emissions and noise during construction.

At operation, the project will be all electric, will be located within ½ mile of a major transit stop, and will comply with Cal Green Tier 2 electric vehicle parking requirements. As proposed and conditioned, the project complies with the Bay Area Air District's screening criteria for greenhouse gas emissions. Furthermore, as described above, the project is consistent with the primary goals of the 2017 Bay Area Clean Air Plan, which are to protect public health and the climate by reducing greenhouse gas emissions. Furthermore, the proposed density of the site is not unusual as it is consistent the city's adopted Housing Element, which identifies a site-specific theoretical development capacity of 165 units.[29] The project proposes 131 units and is therefore within the capacity anticipated by the adopted Housing Element. As such, the project will not result in cumulative impacts during construction or operation, and the project is not excluded from the use of the Class 32 categorical exemption as a result of Section 15300.2(b).

C) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

The project site is within an urban environment and is currently developed with a commercial building, paved parking and circulation areas, and ornamental landscaping. The site is designated and zoned for high-density residential use and the project is consistent with development envisioned by the General Plan. There are no wetlands, riparian habitats, creeks, environmentally sensitive areas, or other features that would constitute an unusual circumstance on the project site. As such, the project is not excluded from the use of the Class 32 categorical exemption as a result of Section 15300.2(c).

D) Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources within a highway officially designated as a state scenic highway.

The proposed project is not located on, near, or within visible range of a state scenic highway nor a highway eligible for scenic designation.[30] As such, the project is not excluded from the use of the Class 32 categorical exemption as a result of Section 15300.2(d).

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[28] City of San Rafael, Community & Economic Development, Planning Division, Major Planning Project, https://www.cityofsanrafael.org/major-planning-projects-2025/, accessed October 2025.
[29] San Rafael Housing Element 2023-2031, Appendix B: Housing Sites Inventory, Spreadsheet "F" Downtown Mixed Use Sites.
[30] California Department of Transportation, California Statewide Scenic Highway System Map, https://experience.arcgis.com/experience/47e2009986264718a5a13a2c81382774, accessed October 22, 2025.

E) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

A review of the California Department of Toxic Substances Control (DTSC) EnviroStor database, which contains a listing of cleanup sites and hazardous waste sites, indicates that the project site at 1030 3rd Street has no hazardous cleanup sites or hazardous waste sites.[31] Additionally, a search on the State Water Resources Control Board GeoTracker website, which maps hazardous sites including but not limited to Leaking Underground Storage Tank (LUST) sites and Cleanup Program sites, did not show any open or closed listings.[32] Based on database records, there are no documented hazardous waste sites or cleanup sites at 1030 3rd Street and the project is not excluded from the use of the Class 32 categorical exemption as a result of Section 15300.2(e).

F) Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

Under CEQA, historical resources are broadly defined and include both historic and prehistoric resources. The existing commercial building was previously identified as an eligible historic resource in the Downtown San Rafael Precise Plan Historic Resources Inventory Summary Report. Subsequently, based on a Historic Resource Evaluation concluding that the property should not be listed as an eligible individual resource, the building was delisted through an amendment to the Downtown Precise Plan (City Council Resolution 15351). While the project site is located within a low archaeological sensitivity area, the potential for accidental discovery of buried archaeological and tribal cultural resources exists. As such, the project will be subject to standard conditions of approval related to the inadvertent discovery of archaeological and tribal cultural resources. As such, the project will not cause a substantial adverse change in the significance of a historical resource (including historic and prehistoric) and is not excluded from the use of the Class 32 categorical exemption as a result of Section 15300.2(f).

CONCLUSION

As provided above, the proposed project qualifies for exemption from further review pursuant to CEQA Guidelines Section 15332, and none of the exceptions to the use of a categorical exemption pursuant to CEQA Guidelines Section 15300.2 apply.

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[31] California Department of Toxic Substance Control, Online EnviroStor Database Map, https://www.envirostor.dtsc.ca.gov/public/map/?global_id=21750004#, accessed October 21, 2025.

[32] State Water Resources Control Board, Online GeoTracker Database Map, https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Sacramento, accessed October 21, 2025.

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ATTACHMENTS

1. Local Traffic Analysis, Advanced Mobility Group, July 2025.
2. Project Construction Air Quality Emissions Assessment, Illingworth & Rodkin, Inc., July 9, 2025.
3. Noise and Vibration Assessment, Illingworth & Rodkin, Inc., April 4, 2025.
4. Stormwater Control Plan, Luk and Associates, June 24, 2025.

REFERENCES

1. Architecture Plans, Stackhouse De La Pena Trachtenberg Architects, submitted October 8, 2025.
2. California Department of Transportation, California Statewide Scenic Highway System Map, https://experience.arcgis.com/experience/47e2009986264718a5a13a2c81382774, accessed October 22, 2025.
3. California Department of Toxic Substance Control, Online EnviroStor Database Map, https://www.envirostor.dtsc.ca.gov/public/map/?global_id=21750004#, accessed October 21, 2025.
4. California State Water Resources Control Board, San Rafael Valley Groundwater Subbasin (2-29), June 14, 2024, accessed October 2025, waterboards.ca.gov/sanfranciscobay/water_issues/programs/groundwater/BasinLinks/2024links/San_Rafael.pdf.
5. State Water Resources Control Board, Online GeoTracker Database Map, https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Sacramento, accessed October 21, 2025.
6. City of San Rafael, Community & Economic Development, Planning Division, Major Planning Project, https://www.cityofsanrafael.org/major-planning-projects-2025/, accessed October 2025.
7. City of San Rafael, Downtown San Rafael Precise Plan Historic Resources Inventory Summary Report, May 2021.
8. City of San Rafael, Resolution No. 15351, October 21, 2024.
9. City of San Rafael, San Rafael General Plan 2040, https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2021/09/FullDocument-Adopted080221.pdf, August 2, 2021.
10. City of San Rafael, Downtown San Rafael Precise Plan, https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2021/09/DSR_PrecisePlan_FinalDraft_Chap1-4-v2.pdf, August 2021.
11. Marin Municipal Water District, Updated 2020 Urban Water Management Plan, January 2024.

City of San Rafael

Local Traffic Analysis for the Proposed 900 A Street Apartments Project

Draft Project Report

July 2025

AMG ADVANCED MOBILITY GROUP

SAN RAFAEL THE CITY WITH A MISSION

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EXECUTIVE SUMMARY

The purpose of this Local Traffic Analysis (LTA) is to evaluate potential transportation impacts associated with the proposed mixed-use development project located on A Street between 4th Street and 3rd Street in San Rafael, California. The proposed project is an 8-story mixed use building that will consist of 131 dwelling units and 4,000 square feet of ground-floor retail.

Results

AMG determined that the project would have no significant impacts under existing plus project conditions. Based on the results of the analysis, the following is a summary of our findings:

Existing Traffic Condition:

- All the intersections operate at an acceptable LOS C or better.

Existing Plus Project Traffic Condition:

- The project will generate 41 total trips during both the AM and PM peak hours.
- All the intersections operate at an acceptable LOS C or better.

Project Site Access and Circulation Assessment:

- Site access to the project site is adequate.
- Sight Distance at the project driveway is adequate.
- Site Circulation within the project site is adequate. We recommend widening the driveway that goes into the parking garage to 11' and the driveway that goes out of the parking garage to 10' and relocating the trash staging location for more comfortable turning movements.
- Parking spaces provided at the project site are sufficient to meet the City of San Rafael's parking requirements.
- The existing and proposed storage capacity on A Street is adequate and will not result in a spillover of traffic queues due to the addition of the project.

INTRODUCTION

This technical memorandum presents the Local Transportation Analysis (LTA) for the proposed 900 A Street mixed-use development project. The project site is located on A Street between 4th Street and 3rd Street in the City of San Rafael as shown in **Figure 1**. The project will be a newly constructed 8-story structure that will consist of 131 dwelling units, a podium garden courtyard, and approximately 4,000 square feet of commercial area. The new project includes 106 on-site parking spaces and 86 bicycle parking spaces. **Appendix A** shows the project site plan.

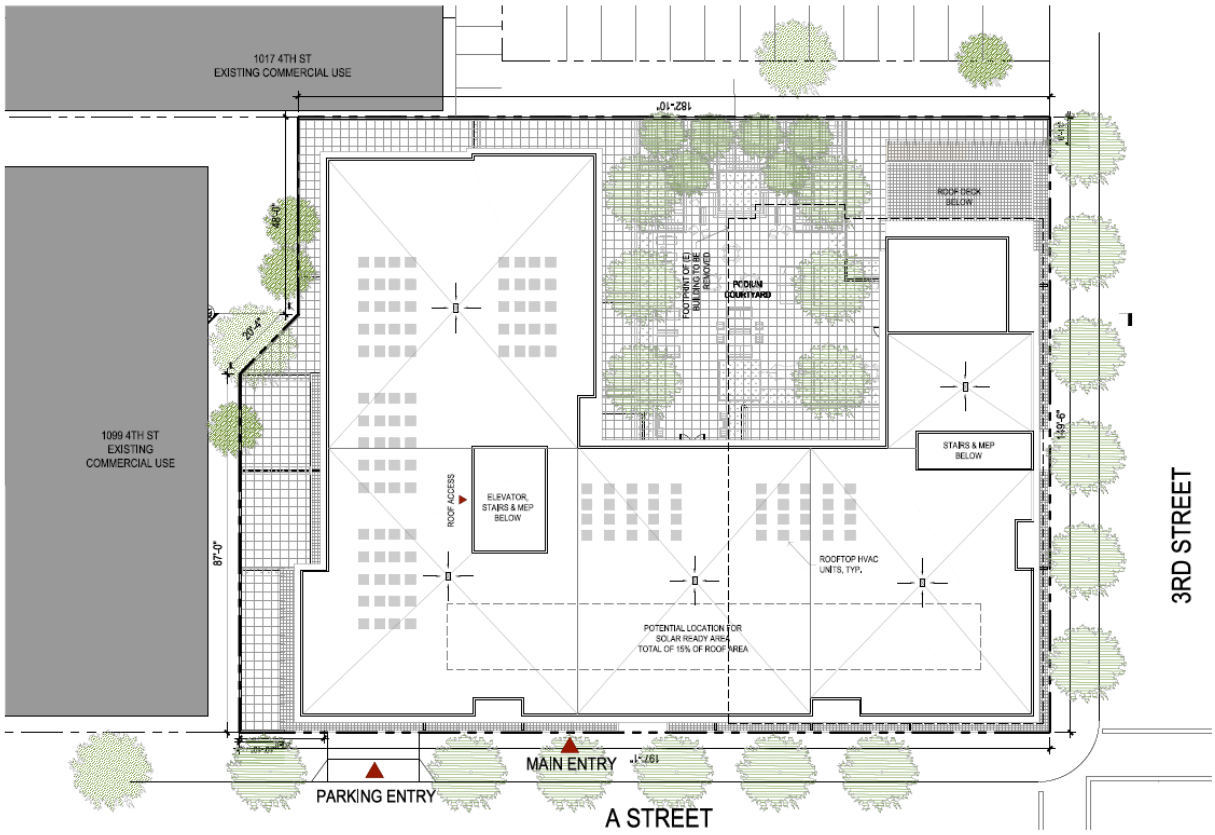


Figure 1: Project Site Plan

The purpose of a Local Transportation Analysis is to evaluate the potential traffic impacts of a proposed project and assess if any improvements would be required to mitigate these impacts based on the level of significance criteria established by the City of San Rafael. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use is expected to generate and distribute these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project. The existing street system is then evaluated using the new traffic to assess the impact of the proposed project. Additionally, parking requirements, sight evaluation, and site circulation will be qualitatively evaluated.

Project Study Area

This study evaluates five intersections along 3rd and 4th Street surrounding the project site, as shown in **Figure 2**. The intersections that were analyzed are as follows:

1. 4th Street and A Street (Signalized Intersection)
2. 4th Street and Court Street (Signalized Intersection)
3. 3rd Street and A Street (Signalized Intersection)
4. 3rd Street and B Street (Signalized Intersection)
5. 4th Street and B Street (Signalized Intersection

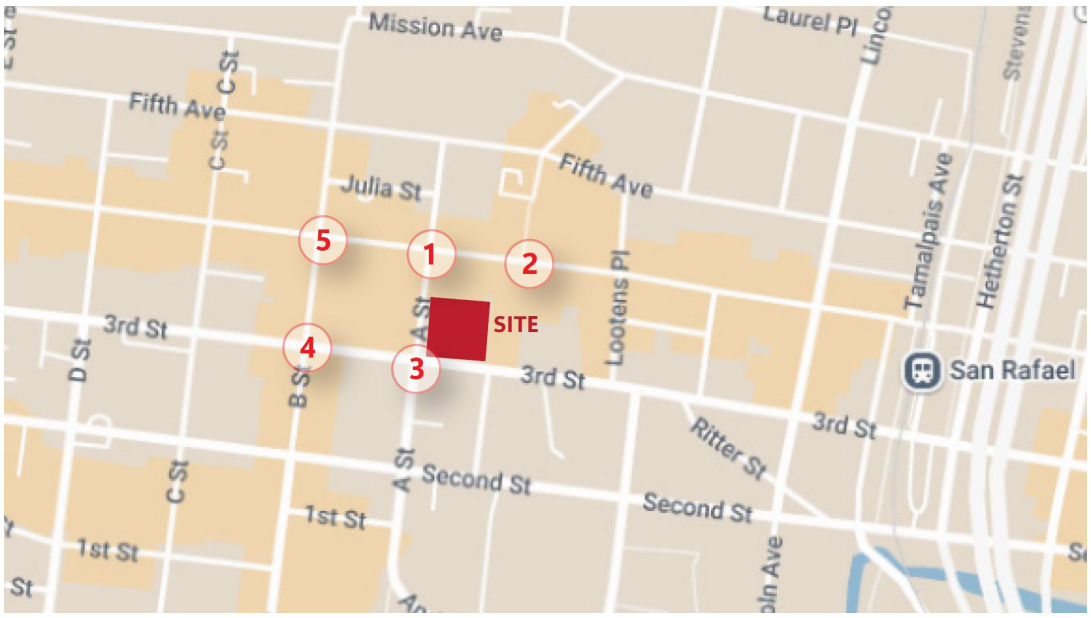


Figure 2: Project Study Area

Study Approach

The following are key steps of the study approach:

- Conduct traffic counts to establish baseline traffic conditions
- Conduct trip generation and distribution of project trips
- Determine the traffic conditions for the following scenarios:
  - Existing Traffic Condition
  - Existing Plus Project Traffic Condition
- Determine the impact of project trips based on established Significance Criteria
- Determine the impact of proposed project driveways

Project Study Scenarios

This study evaluates the weekday a.m. and p.m. peak hour traffic conditions for the following scenarios:

1. **Existing Conditions:**
   The existing conditions scenario evaluates weekday a.m. and p.m. peak hours with existing lane geometry, traffic control and traffic volumes.
2. **Existing plus Project Conditions:**
   The existing plus project conditions scenario adds proposed project trips to the existing conditions traffic models and evaluates the impact of the proposed project at the project intersection and study segments. This scenario recommends mitigation measures, based on the City of San Rafael TA guidelines, to mitigate any significant impacts that may occur due to the proposed project.

Data Collection

AMG collected the AM and PM peak hour intersection turning movement counts (TMC) on February 5, 2025, for the five study intersections. Counts were collected during the typical weekday AM peak hour, occurring between 7:00 and 9:00 AM, and PM peak hour, occurring between 4:00 and 6:00 PM. These counts are shown in **Appendix B**.

Field Review

AMG conducted a field visit to observe any potential issues with queuing or traffic operations under the existing conditions. At the time of observation, a couple of vehicles were seen to be queuing along A Street at both A Street/3rd Street and A Street/ 4th Street intersections. A few pedestrians and bicyclists were observed at study intersections.

SIGNIFICANCE CRITERIA

Significance Criteria for the City of San Rafael

The City of San Rafael has established criteria to determine the level of significance of traffic impacts based on standards set in the San Rafael General Plan 2040, the Downtown Precise Plan, and the Draft 2021 Congestion Management Program Update, by the Transportation Authority of Marin (TAM).

Based on these planning documents, a traffic impact is considered significant if the project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

The following policies/goals are applicable to the proposed project:

Policy M-2.5: Traffic Level of Service

Maintain traffic Level of Service (LOS) standards that ensure an efficient roadway network and provide a consistent basis for evaluating the transportation effects of proposed development projects on local roadways. For most intersections, the citywide LOS Standard from the San Rafael General Plan 2040 is LOS D. For the study intersections, LOS D or better is the threshold.

For this analysis, significant impacts to an intersection are:

- If baseline traffic volumes are operating at an acceptable LOS and it deteriorates to an unacceptable operation with the addition of project traffic.

However, Point C from Policy M-2.5 in the San Rafael General Plan 2040, states that intersections within the boundaries of the Downtown Precise Plan are not subject to LOS Standards, if proactive measures are taken to address and manage congestion, and functionality of these intersections are insured. All five of the study intersections are within these boundaries, but LOS Analysis will be completed to quantify congestion caused by the proposed project.

Goal M-3: Cleaner Transportation
Reduce transportation impacts on the environment by supporting higher vehicle efficiency standards and reducing Vehicle Miles Travelled (VMT) by San Rafael workers and residents.

Special exemptions for VMT Analysis are provided for mixed use and infill developments in downtown San Rafael. Since this project meets the description above, it is exempt from VMT Analysis per Program M-3.2A in the San Rafael General Plan 2040[1].

Goal M-4: High Quality, Affordable Public Transit
Offer a safe, convenient, and affordable transit system that will become a competitive alternative to driving.

For this analysis, significant transit impacts would be:

- If demand is significantly increased and existing standards are not maintained
- If access to public transit facilities is reduced

Goal M-6: Safe Walking and Cycling
Encourage walking and cycling as the travel mode of choice for short trips, prioritize pedestrian and bicycle safety, and provide greater access to pedestrian and cycling amenities.

For this analysis, significant cycling/walking impacts would be:

- If safety and quality of service of existing pedestrian/cycling facilities are reduced
- If access to pedestrian/cycling facilities are reduced

The analysis conducted in the following sections of the report show that there is no significant impact to the study intersection with the proposed project based on the City of San Rafael's thresholds of significance criteria.

EXISTING CONDITIONS

Existing Street Network

A Street is a two-lane north-south local street and is adjacent to the west of the project site. Near the project site, Class III bike facilities, sidewalks, and on-street parking are available on both sides of the street. The posted speed limit is 25 mph.

3rd Street is a three-lane one-way minor arterial roadway serving downtown San Rafael. The street runs from east to west and is adjacent to the south of the project site. It serves as a major transit route in San Rafael and Marin County. Sidewalks are available on both sides of the street and on-street parking is available on the south side of the street. The posted speed limit is 25 mph.

B Street is a two-lane north-south local street that is one block west of the project site. Sidewalks and on-street parking are available on both sides of the street. The speed limit is 25 mph.

4th Street is a two-lane east-west minor arterial roadway serving as a major transit route in San Rafael and Marin County. Class III bike facilities and sidewalks are provided on both sides of the street. The speed limit is 25 mph.

Study Intersections

1. 4th Street and A Street (Signalized Intersection)
2. 4th Street and Court Street (Signalized Intersection)
3. 3rd Street and A Street (Signalized Intersection)
4. 3rd Street and B Street (Signalized Intersection)
5. 4th Street and B Street (Signalized Intersection)

The intersection of 4th Street and A Street is a signalized intersection with four approaches. The intersection is currently operating with two-phase signal control. Left turn pockets are present on the 4th Street approaches, and left turns are permitted on all approaches.

The intersection of 4th Street and Court Street is a signalized intersection with two approaches. The intersection is currently operating with two-phase signal control, with one exclusive pedestrian phase which allows pedestrians to cross 4th Street.

The intersection of 3rd Street and A Street is a signalized intersection with three approaches. The intersection is currently operating with a two-phase signal control.

The intersection of 3rd Street and B Street is a signalized intersection with three approaches. The intersection is currently operating with a two-phase signal control.

The intersection of 4th Street and B Street is a signalized intersection with four approaches. The intersection is currently operating with a two-phase signal control.

Bike Facilities

Bicycle facilities are classified by Caltrans into four distinct types of bikeway facilities, as generally described below:

- Class I Bikeway (Bike Path). Provides a separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian crossflow minimized.

- Class II Bikeway (Bike Lane). Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Vehicle parking and vehicle/pedestrian crossflow are permitted.

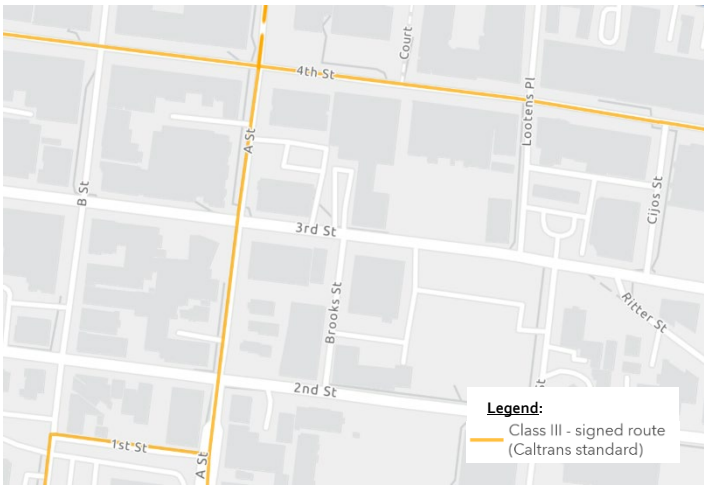


Figure 3: Existing Bicycle Facilities

- Class III Bikeway (Bike Route). Provides for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles.

- Class IV Bikeway (Separated Bikeway/Cycle Track). Provides a cycle track or protected bike lane, is for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature.

Class III facilities with sharrow markings are available on A Street and 4th Street near the proposed project as seen in **Figure 3**.

Pedestrian Facilities

Pedestrian facilities in the project area include sidewalks, crosswalks, ADA curb ramps, audible pedestrian pushbuttons, and curb extensions. Sidewalks along the study roadways vary in width from 5 to 12 feet, meeting the minimum city standards for sidewalks and wider zone areas (4th Street).

4th Street/A Street has crosswalks at every intersection leg and curb extensions at both southern corners of the intersection.

4th Street/Court Street has crosswalks at every intersection leg.

3rd Street/A Street has a ladder and triple-four crosswalks at every intersection leg, and curb extensions, audible pedestrian pushbuttons, and ADA curb ramps at every corner of the intersection.

3rd Street/B Street has a ladder and triple-four crosswalks at every intersection leg, curb extensions, audible pedestrian pushbuttons, and ADA curb ramps at every corner of the intersection.

4th Street/B Street has crosswalks at every intersection leg and curb extensions at both northern corners of the intersection.

Transit Facilities

Transit Service within the study area is provided by Marin Transit, Golden Gate Transit, and the Sonoma-Marin Area Rail Transit (SMART). The project site is in the block bounded by 3rd Street, 4th Street, A Street, and Court Street. Bus stops for Marin Transit (Lines 22,23 and 68), and Golden Gate Transit (Line 132) are within a 0.25-mile radius of the project site. The downtown San Rafael SMART transit station is approximately 0.30 miles from the proposed project and connects multiple cities in Marin County to cities in Sonoma County.

The existing transit network is shown in **Figure 4**.

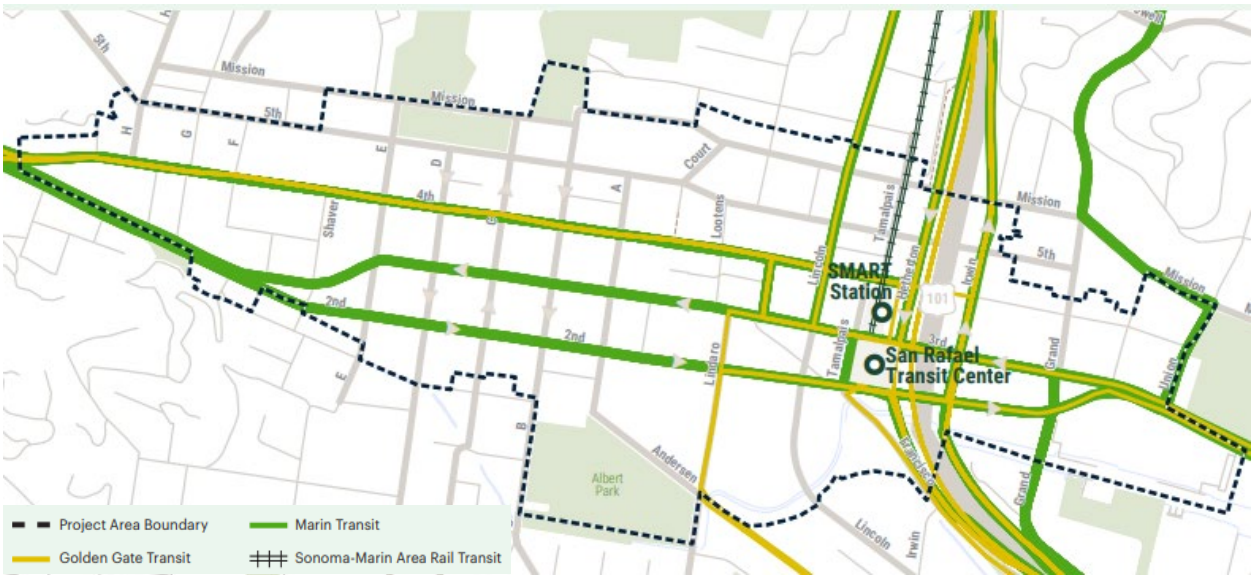


Figure 4: Existing Transit Network

Marin Transit: Route 22 provides bus service between San Rafael to the north and Marin City to the south. Half of the trips that leave San Rafael do not travel all the way to Marin City, instead stopping at College of Marin. The route provides 27 daily trips from San Rafael and 15 daily trips from Marin City on weekdays. The closest southbound stop and northbound stop to the project site is located at 4th Street and Court Street.

Marin Transit: Route 23 provides bus service between Fairfax to the west and the Canal area of San Rafael to the east. The route provides 22 daily trips from Fairfax and 24 daily trips from Canal on weekdays. The closest eastbound stop and westbound stop to the project site is located at 4th Street and Court Street.

Marin Transit: Route 68 provides bus service between Inverness to the west and San Rafael to the east. The route provides 9 daily trips from Inverness and 10 daily trips from San Rafael on weekdays. The closest eastbound stop to the project site is located at 4th Street and Court Street. The closest westbound stop to the project site is located at 4th Street and Court Street.

Golden Gate Transit: Route 132 provides bus service between San Anselmo to the north and San Francisco to the south, passing through San Rafael. The route provides 6 daily trips from San Anselmo (with an additional 2 daily trips that begin in San Rafael) and 6 daily trips from San Francisco on

weekdays. Route 132 is a commuter route, and San Francisco-bound trips occur in the morning, while San Anselmo-bound trips occur in the afternoon. The closest southbound stop and northbound stop to the project site is located at the San Rafael Transit Center.

Sonoma Marin Area Rail Transit: Main Line provides rail service between the Sonoma County Airport to the north and Larkspur to the south, passing through San Rafael. The route provides 21 daily trips from Sonoma County Airport and 21 daily trips from Larkspur on weekdays. The closest southbound stop and northbound stop to the project site is located at the San Rafael SMART Station.

Level of Service (LOS) Methodology

This study uses two different methods to determine LOS. For the signalized intersection, the percentile method was used. For the unsignalized intersection, the LOS criteria established in the Highway Capacity Manual (HCM), 6th Edition published and updated by the Transportation Research Board for unsignalized intersections.

The HCM 7th Edition methodology in Synchro 12 does not provide delay or LOS when signal timing includes non-standard ring-barrier structures (NEMA phasing). Therefore, the percentile delay method was used for analysis. The percentile delay method is based on HCM 2000 methodology that Synchro uses for optimization.

The Highway Capacity Manual (HCM) assigns intersection level of service (LOS) based on average control delay. Signalized intersection LOS is defined in terms of weighted average control delay for the entire intersection. Unsignalized intersection LOS criteria can be reduced into three intersection types: all-way stop control, two-way stop control, and roundabout control.

All-way stop control intersection LOS is expressed in terms of the weighted average control delay for the entire intersection. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as critical major-street left-turns. Roundabout control LOS is expressed using both average control delay for the intersection as well as LOS for the worst performing lane.

Table 1 provides the relationship between LOS rating and delay for signalized and unsignalized intersections based on the San Rafael General Plan 2040 thresholds.

Table 1: Level of Service Thresholds Based on Intersection Delay

Level of Service	Signalized Intersection Delay (sec)	Unsignalized Intersection Delay (sec)
A	$0 \leq D \leq 10$	$0 \leq D \leq 10$
B	$10 < D \leq 20$	$10 < D \leq 15$
C	$20 < D \leq 35$	$15 < D \leq 25$
D	$35 < D \leq 55$	$25 < D \leq 35$
E	$55 < D \leq 80$	$35 < D \leq 50$
F	$80 < D$	$50 < D$

Existing Conditions Analysis

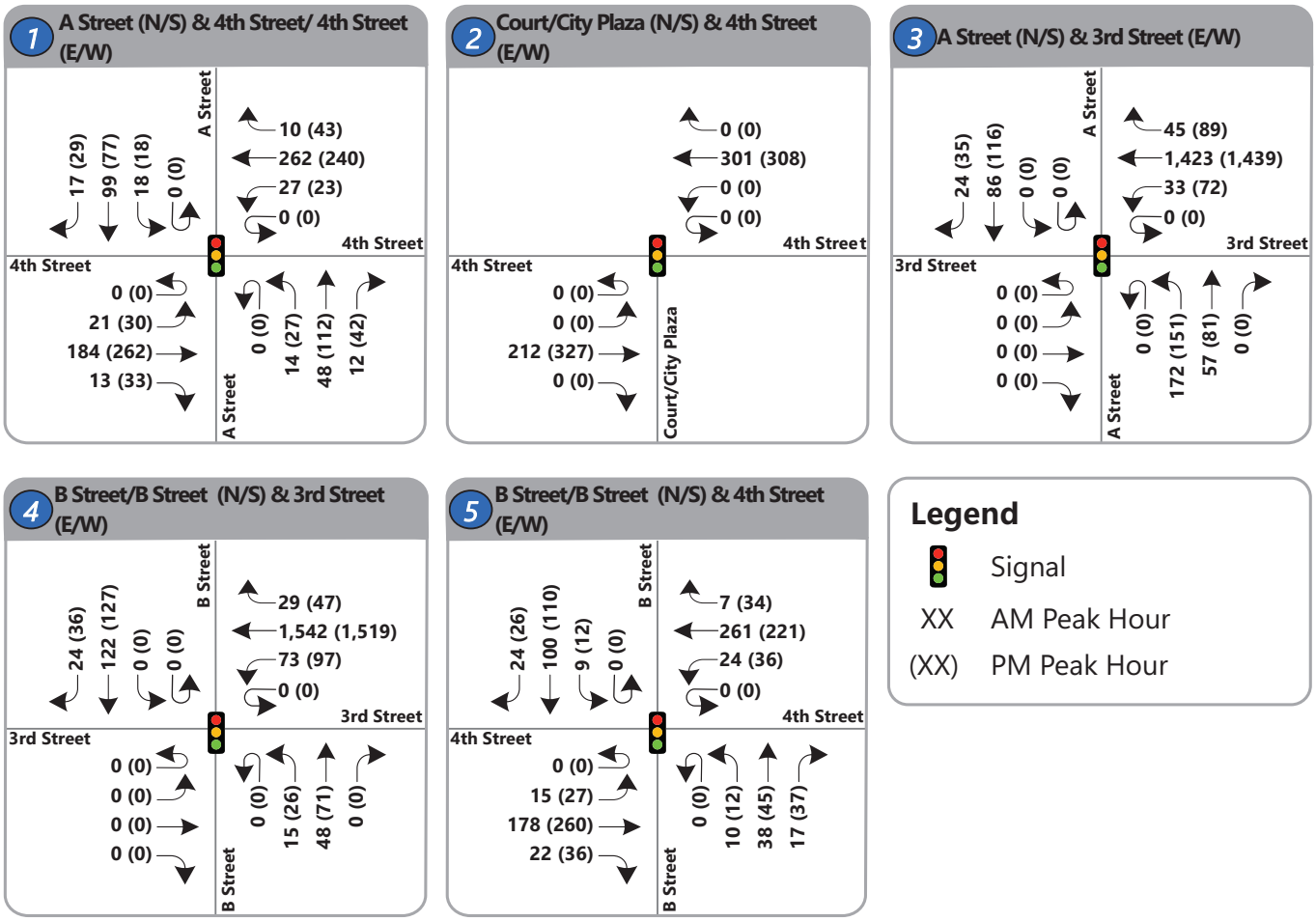
AMG developed existing conditions traffic simulation models using Synchro 12 software using existing lane configuration, traffic signal timings and traffic volumes. Existing conditions level of service (LOS) and delay were evaluated for the weekday a.m. and p.m. peak hours.

The results of the LOS and delay analysis conducted for the existing conditions scenario are summarized in **Table 2**. **Appendix C** contains the existing conditions Synchro analysis reports. **Figure 5** illustrates the existing plus project turning movement counts, lane geometry & traffic controls.

Table 2: Existing Conditions LOS and Delay

#	Intersection	Control Type	Peak Hour	Existing Conditions	
				Average Delay (sec)	LOS
1	4th Street and A Street	Signal	AM	9.8	A
			PM	9.4	A
2	4th Street and Court Street	Signal	AM	6.2	A
			PM	6.8	A
3	3rd Street and A Street	Signal	AM	34.6	C
			PM	28.5	C
4	3rd Street and B Street	Signal	AM	5.8	A
			PM	5.3	A
5	4th Street and B Street	Signal	AM	10.8	B
			PM	12.1	B

Based on the results of the existing conditions analysis, both study intersections operate at LOS C or better during both the a.m. and p.m. peak hours.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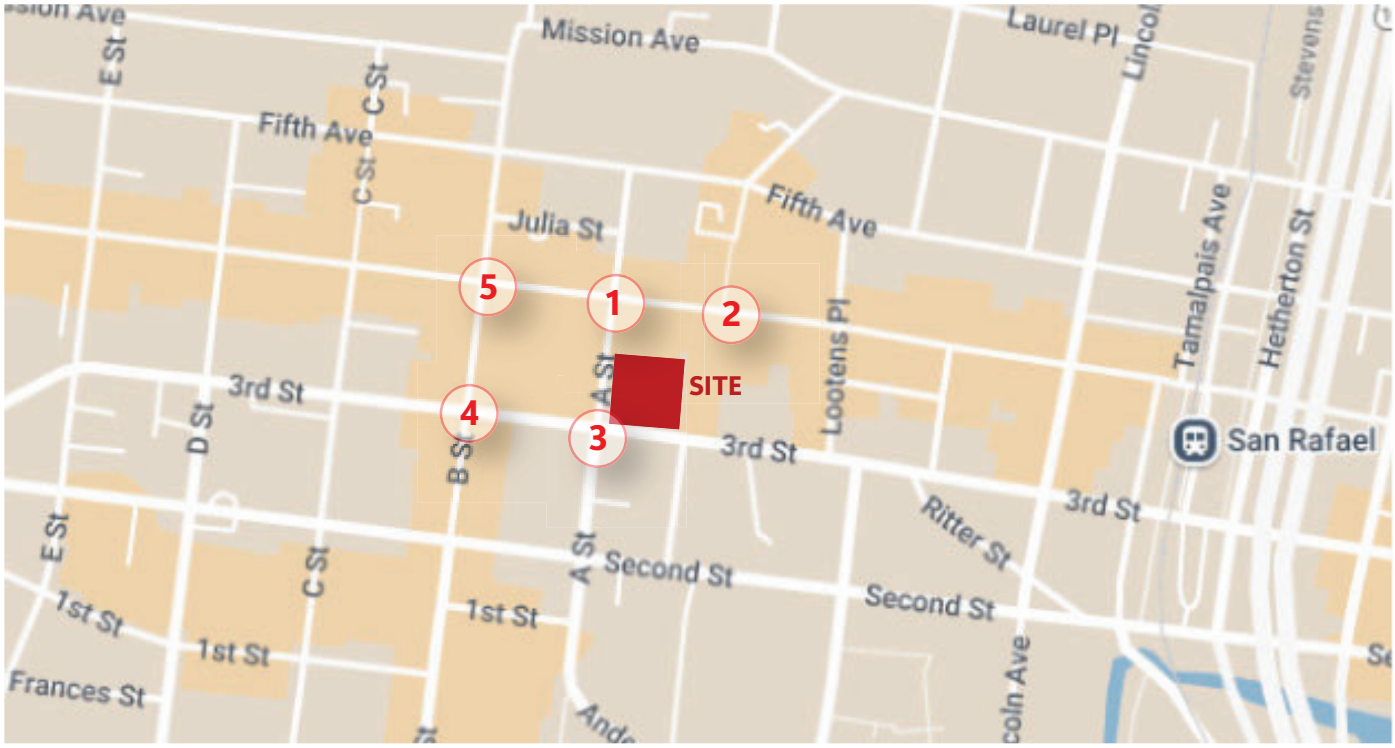
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Lootens Pl
3rd St
Second St
1st St
Ritter St
San Rafael
Frances St
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D St
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PROJECT TRIP GENERATION AND DISTRIBUTION

Trip Generation is defined as the number of "vehicle trips" produced by a particular land use or project. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the inbound and outbound trips.

The trip generation estimates for the proposed land uses (Multifamily Housing (Mid-Rise) & Variety Store) were calculated using the standard reference, Trip Generation, 11th Edition, published by the Institute of Transportation Engineers (ITE).

The estimated potential trip generation of the proposed project is shown in **Table 3**. It is estimated that the project will generate approximately 43 and 46 trips during the AM and PM peak hours respectively.

Table 3: Trip Generation

Land Use	ITE Code	Size[1,2]	Daily		Weekday A.M.				Weekday P.M.			
			Rate	Total	Rate	In	Out	Total	Rate	In	Out	Total
Apartments	ITE 221	131 DU	2.93	366	0.28	6	31	37	0.26	25	9	34
Commercial Variety Store	ITE 814	4 KSF	37.27	149	1.47	3	3	6	3.1	6	6	28
Total			-	**515**	-	**9**	**34**	**43**	-	**31**	**15**	**46**

Notes:
1. DU = Dwelling Units
2. KSF = 1000 Square Feet

The San Rafael Transportation Analysis Guidelines state that projects within the downtown area and projects of mixed-use development are allowed to trip rate reductions as internal trips. The proposed project will be a mixed-use development and is within the downtown area, so it will allow for internally captured trips. Internal trip reductions were calculated using the ITE Trip Generation Handbook, 3rd Edition. The estimated trip reduction and net project vehicle trip generation are shown in **Table 4**.

Table 4: Trip Reduction and Net Trip Generation

	AM Trips			PM Trips		
	In	Out	Total	In	Out	Total
Gross Project Trip Generation	9	34	43	31	15	46
Internal Trip Reduction	0	0	0	2	3	5
Net Project Trip Generation	**9**	**34**	**43**	**29**	**12**	**41**
Percent Reduction	**0%**	**0%**	**0%**	**8%**	**18%**	**10%**

The trip distribution was estimated based on existing traffic counts and patterns and is shown in **Figure 6**. **Figure 7** illustrates the project trips for the a.m. and p.m. peak hours through the study intersection based on existing peak hour turning movement counts.

The previous use on the site was a walk-in bank, however, the drive-in bank land use was used to calculate the daily trips, AM peak hour, and PM peak hour trips as walk-in banks are typically closed during the AM Peak hour. **Table 5** shows the number of trips that were generated by the existing bank use. Nonetheless since a drive-in bank seems to attract trips from an existing trip as an intermediate stop, a pass-by trip reduction will be applied to the AM and PM peak trips for the existing bank. The pass-by rates supplied by ITE's Trip Generation Manual for drive-in bank use were 29% during the AM peak hour and 35% during PM Peak hour. However, the San Rafael Transportation Analysis Guidelines state that a pass-by reduction of 30% can be applied, a max of 30% pass-by reduction was used for the PM peak hour. The estimated pass-by trip reduction rate and net vehicle trip generation for the existing land use are shown in **Table 6**.

Table 5: Trip Generation of Existing Use

Land Use[1]	ITE Code	Size	Daily		Weekday A.M.				Weekday P.M.			
			Rate	Total	Rate	In	Out	Total	Rate	In	Out	Total
Drive-In Bank	ITE 912	8.31 KSF	100.4	835	9.95	48	35	83	21.01	88	87	175

Notes:
1. Used ITE Land Use Drive-In Bank Land Use (ITE 912)
2. KSF = 1000 Square Feet

Table 6: Pass-By Trip Reduction and Net Trip Generation of Existing Use

	AM Trips			PM Trips		
	In	Out	Total	In	Out	Total
Gross Project Trip Generation	48	35	83	88	87	175
Pass-By Trip Reduction	14	10	24	27	26	53
Net Project Trip Generation	**34**	**25**	**59**	**61**	**61**	**122**
Percent Reduction	**29%**			**30%**		

Table 7 shows the net AM and PM peak hour trips the proposed project would generate in comparison with the existing bank. No credits from the previous use at the project site were used for further trip reduction for a conservative analysis. However, since the bank was operational within the past three years, the existing trip credit should be applied to the Transportation Mitigation Fee Calculation, as stated in the city's Transportation Analysis Guidelines.

Table 7: Net Trip Generation between Existing Bank and Proposed Project

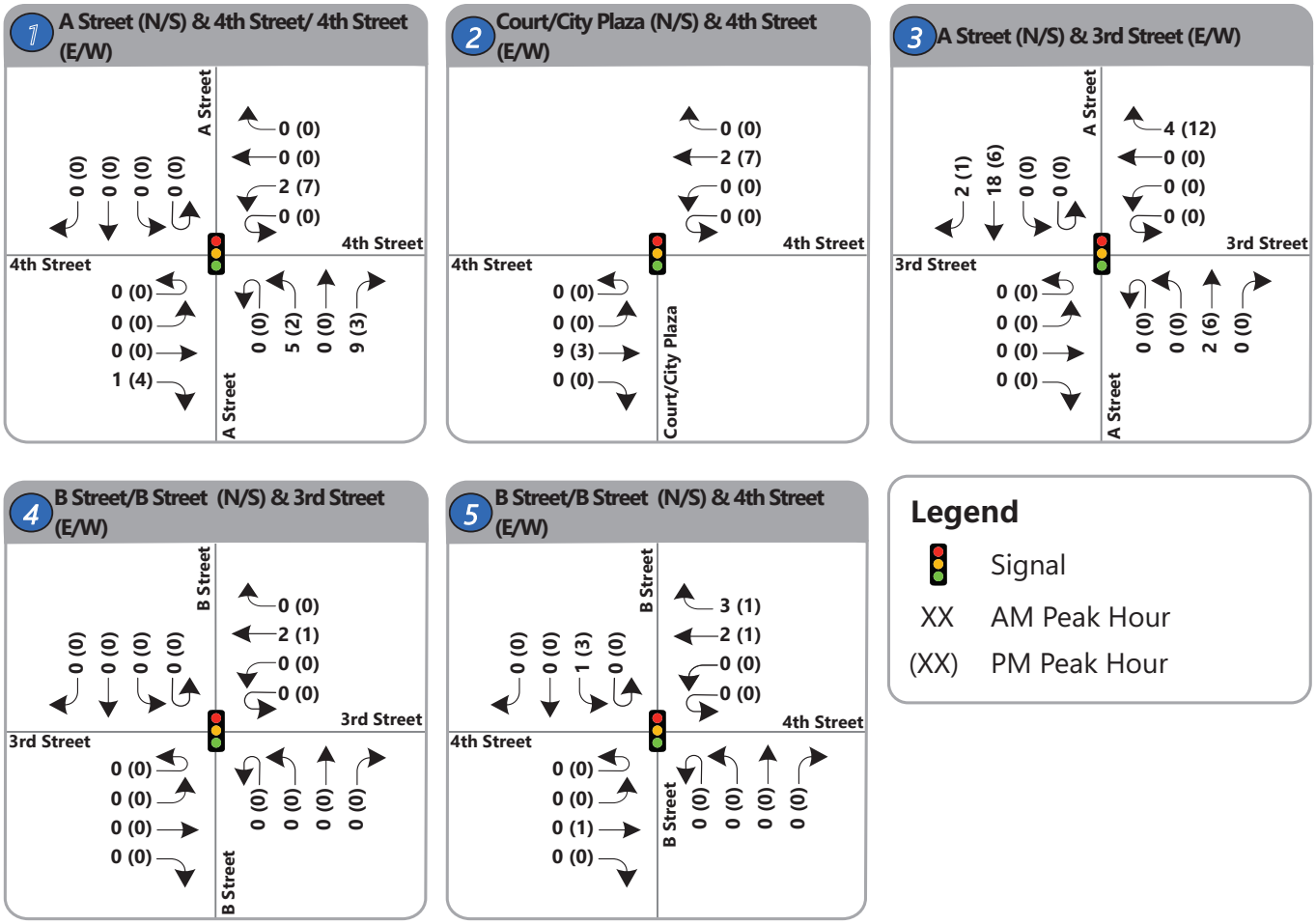
	AM Trips			PM Trips		
	In	Out	Total	In	Out	Total
Existing Use (Walk-in Bank)	34	25	59	61	61	122
Proposed Project (900 A Street Apartments)	9	34	43	29	12	41
Net Project Trip Generation	**-25**	**+9**	**-16**	**-32**	**-49**	**-81**
Net AM & PM Trips between Existing Bank and Proposed Project						**-97**

Legend

One-Way Distribution

In & Out Distribution

AMG ADVANCED MOBILITY GROUP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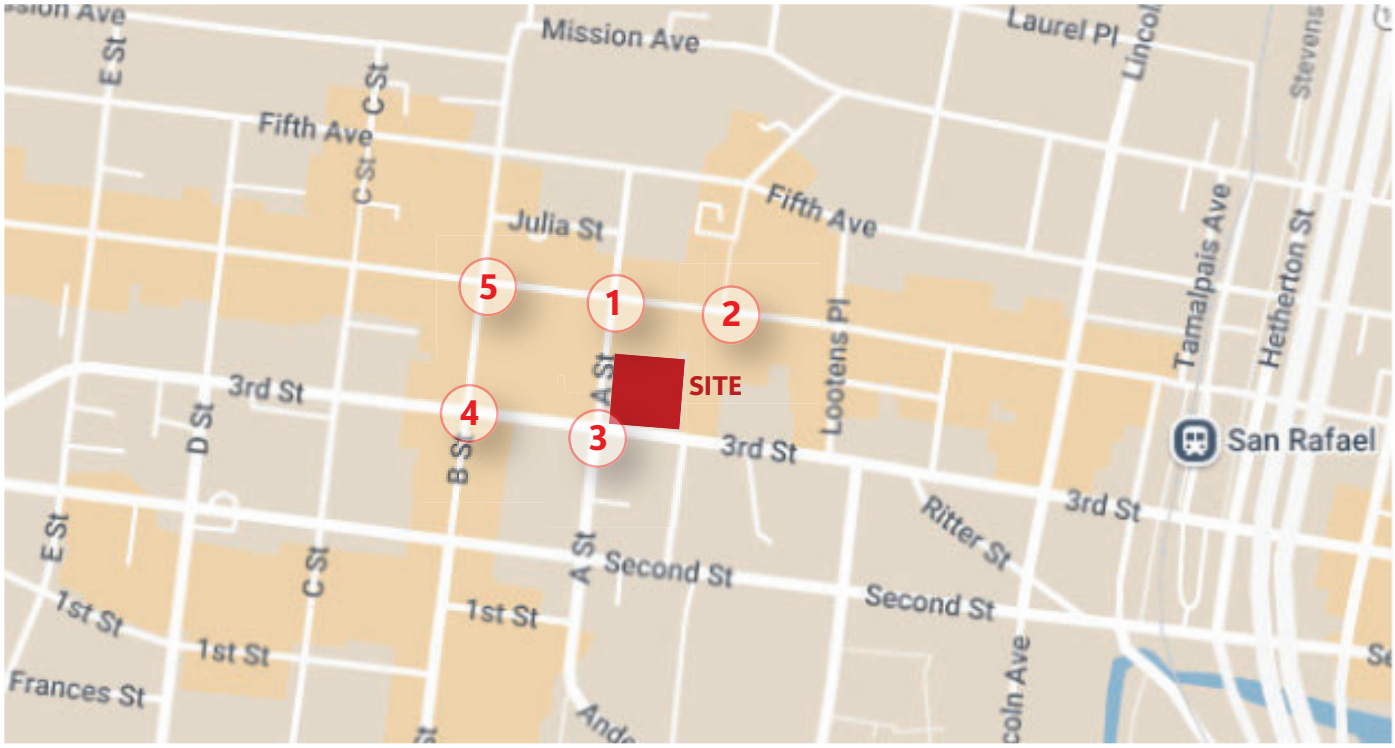
(XX) PM Peak Hour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Hetherton St
Lootens Pl
3rd St
Second St
1st St
Ritter St
San Rafael
Frances St
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EXISTING CONDITIONS PLUS PROJECT CONDITIONS ASSESSMENT

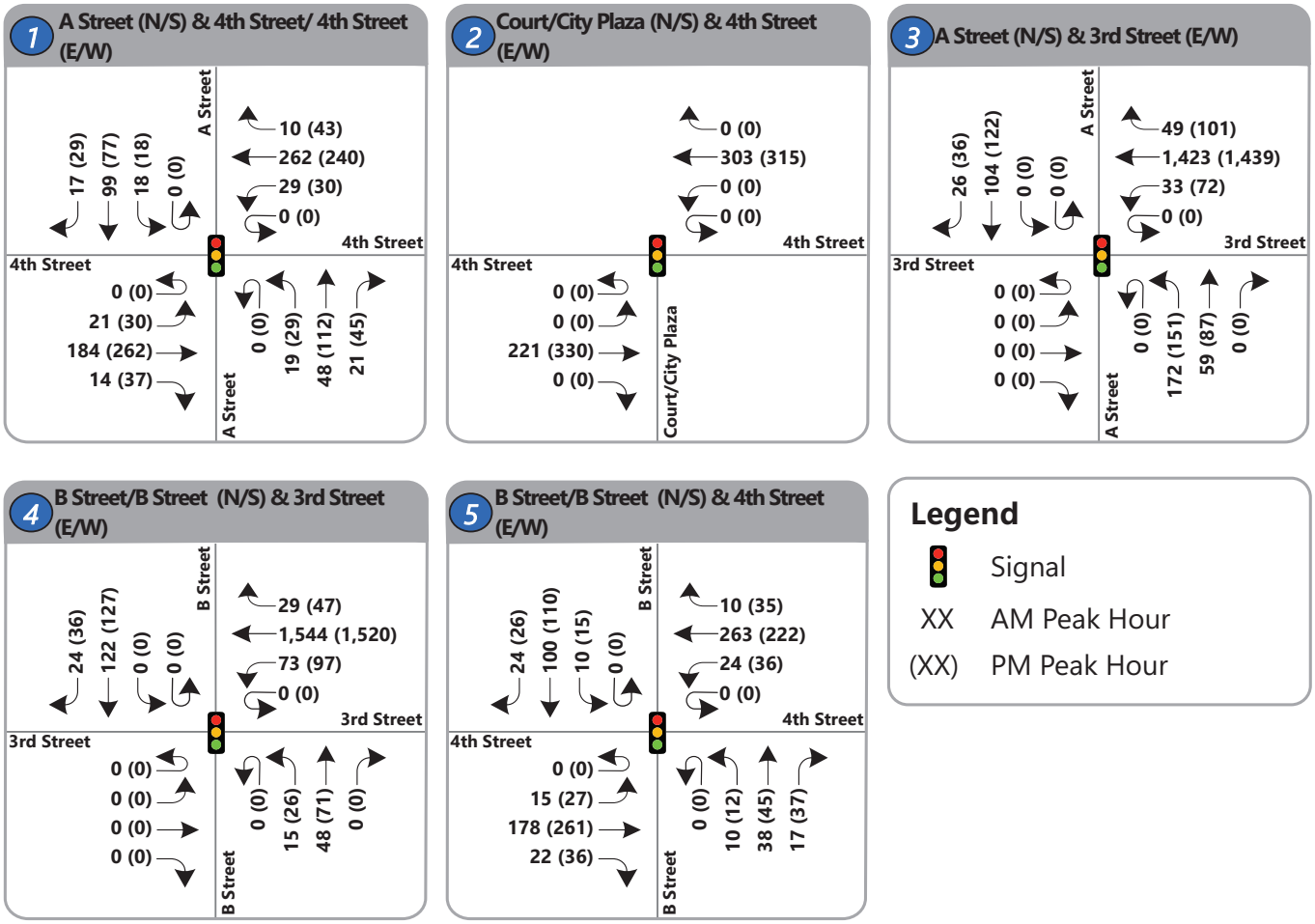
As aforementioned, existing plus project conditions scenario adds proposed project trips to the existing conditions traffic models and evaluates the impact of the proposed project at the project intersection and study segments. **Figure 8** illustrates the existing plus project turning movement counts, lane geometry & traffic controls.

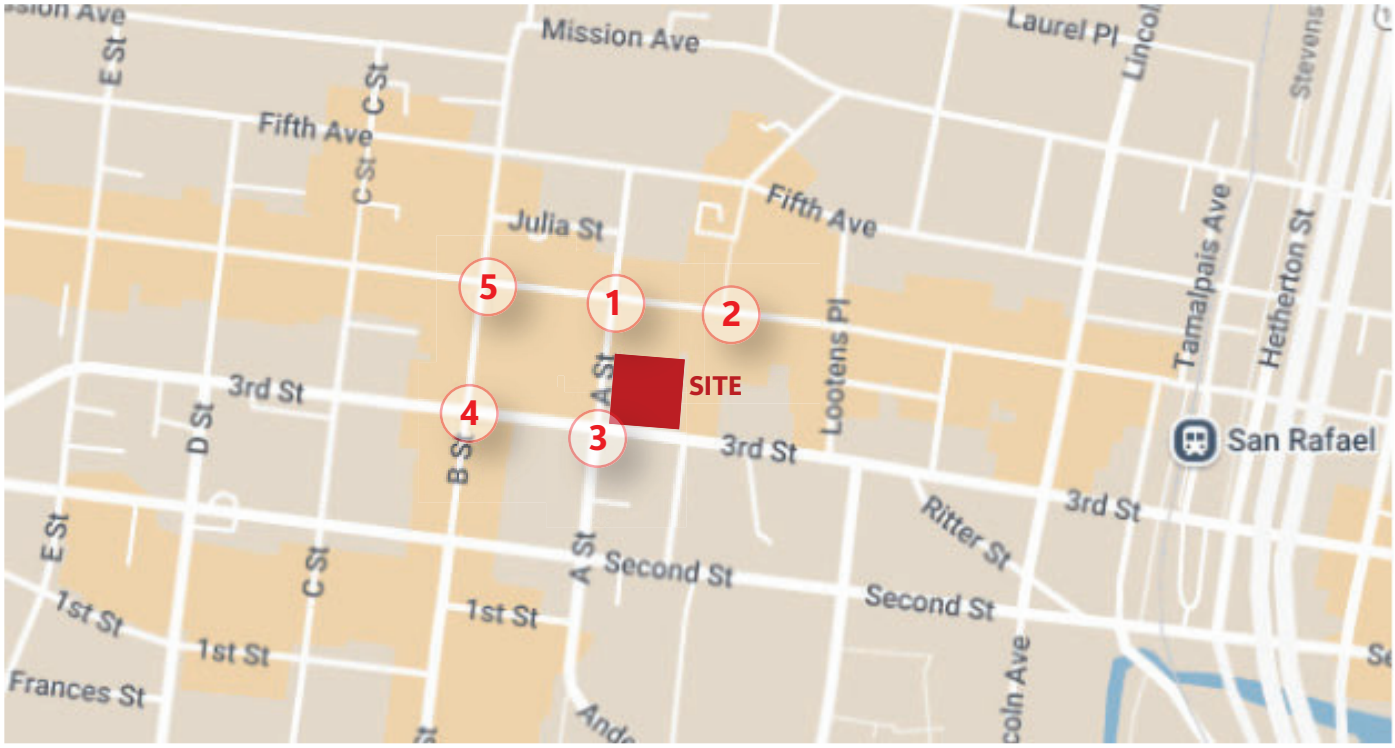
The results of the LOS and delay analysis conducted for existing plus project conditions scenario are summarized in **Table 8**. **Appendix D** contains the existing plus project conditions Synchro analysis reports.

Table 8: Existing Plus Project Conditions LOS and Delay

#	Intersection	Peak Hour	Existing Conditions		Existing Plus Proposed Conditions	
			Average Delay (sec)	LOS	Average Delay (sec)	LOS
1	4th Street and A Street	AM	9.8	A	10.0	B
		PM	9.4	A	9.5	A
2	4th Street and Court Street	AM	6.2	A	6.3	A
		PM	6.8	A	7.0	A
3	3rd Street and A Street	AM	34.6	C	34.6	C
		PM	28.5	C	28.5	C
4	3rd Street and B Street	AM	5.8	A	5.9	A
		PM	5.3	A	5.3	A
5	4th Street and B Street	AM	10.8	B	10.9	B
		PM	12.1	B	12.1	B

The results of the existing plus project conditions analysis show that there is no significant impact with the addition of the project trips, all five intersections will continue to operate at LOS C or better. Though there are slight increases in delay at the study intersections, none are significant enough to change the LOS rating.





AMG ADVANCED MOBILITY GROUP

SITE CIRCULATION & ACCESS, ROADWAY & DRIVEWAY ASSESMENT

Site Access

The project site would be located on the northeast corner at the intersection of A Street & 3rd Street. Vehicle access to the apartments will be provided by one driveway along A Street. This approach would be the only access point to on-site parking and is expected to be adequate.

Pedestrian access to the project will be provided through three entrances on A Street and one on 3rd Street. Along A Street, one entrance gives access to the parking garage that is next to the project driveway, the other two entrances provide access to the building (lobby and commercial).

Sight Distance

AMG conducted stopping sight distance analysis in the field to ensure that there is sufficient distance for a driver to effectively apply the brakes and stop the vehicle without colliding with a vehicle/obstruction on the road. At driveways, a clear line of sight should be provided between the vehicle waiting at the driveway and the approaching vehicle. The vehicle waiting to either cross, turn left, or turn right, through the driveway should have sufficient time to make that maneuver without requiring the through traffic to drastically alter their speed.

Based on AMG's field observations and The Highway Design Manual, July 1, 2020, Chapter 200 - Geometric Design & Structure Standards, Table 201.1 Sight Distance Standards, which recommends a stopping sight distance of 150 feet for a design speed of 25 mph, the sight distance along A Street adjacent to the project is adequate.

Based on City of San Rafael's Municipal Code, Article 14.16.295 - Sight Distance, the required "vision triangle" at driveways is fifteen feet from the curb return. Any improvements or vegetation within that established vision triangle shall be less than 3 feet from the street pavement. Sight Distance for the driveway on A Street should also be adequate, given that landscaping on A Street is maintained at the dimensions mentioned above.

On-Site Circulation

AMG assessed the on-site circulation at the project site based on the site plan provided by the client. The proposed project will have one driveway, that will allow entrance, parking, and exit of vehicles. On-Site circulation is expected to be adequate, given that a parking management plan be provided by the project sponsor for tandem parking.

Pedestrian, Bicycle & Transit Facilities

The proposed project will seem to attract 5 PM peak hour non-vehicular trips as shown in **Table 4**. These trips will cause no reduction in the quality of service on existing facilities and will not reduce safety or access to pedestrian, bicycle, or transit facilities. Therefore, the proposed project impacts on these facilities have no substantial effect.

Pedestrian Access:

Sidewalks are provided along A Street, 3rd Street, 4th Street, B Street in the vicinity of the project site. The width of the sidewalk ranges from 6 feet to 8 feet. Crosswalks mentioned in the Existing Conditions at the study intersections would also provide pedestrian access to the project site from other cross-streets. Based on AMG's observations, pedestrian access to the site is adequate.

Bicycle Access

There are Class III Bike facilities on A Street and 4th Street near the project site. These facilities include sharrow markings on the pavement and wayfinding signs to alert drivers that the roadway is shared with cyclists. Based on these observations, bicycle access to the project site is adequate.

Transit Facilities

There are two transit stops in the vicinity of the project site and two others that are close by at the intersection of 4th Street and C Street. The two bus stops in the vicinity of the project site are located at the 4th Street/ Court Street intersection, one along the north side of 4th Street (westbound) and along the south side of 4th street (eastbound). Pedestrians and cyclists can access the southern stop by walking along the west sidewalk on A Street and turning left at 4th Street and continuing walking on the south sidewalk until they reach the stop. Pedestrians and cyclists can access the northern stop by using the crosswalk located at the east leg of the 4th Street/Court Street intersection. Hence, transit access to the project site is adequate.

Roadway Assessment

A Street is a 40-foot-wide local roadway that currently has on-street parking on both sides. On-Street parking occupies 8 feet while the travel lane is approximately 12 feet on each side. The proposed project will not remove on-street parking or make any other changes to A Street. Based on observations and existing conditions, the roadway width along A Street is adequate to accommodate the proposed project.

The current sidewalk width on the east side of A Street is 10 feet. The proposed project sidewalk will be widened to 12 feet to accommodate for the project driveways. This will provide a wider path for pedestrians, hence, the proposed sidewalk along A Street is adequate.

Parking

The proposed project provides 106 parking spaces including five (5) total handicap parking spaces within the parking garage of the project site. There will be 86 bike parking spaces provided on bike racks located within the parking garage.

Table 9 and summarize the parking requirements and **Table 10** summarizes the bike parking requirements for the proposed project based on City of San Rafael's Downtown Precise Plan (DSRPP) for buildings in the T5N 50/70 Zone. Per Section 2.3.050.H of the DSRPP, off-street parking for buildings in the Downtown Parking district is waived up to 1.0 Floor Area Ratio (FAR) of the total square footage. This project has a total of 4.83 FAR and with the waiver of 1.0 FAR, the FAR used for the project is 3.83 FAR.

Table 9: Parking Requirements for buildings within T5N 50/70 Zone

Unit Type	Size	Size with Waiver	Parking Demand	Minimum Parking Spaces Required
1 Bedroom Unit	77 units	61 units	0.75 per unit	46
2 Bedroom Unit	54 units	43 units	1.0 per unit	43
Commercial[1]	0.14 FAR	-	Waived	-
Total Parking Spaces required				89
Note: 1: Commercial Use is waived up to 1.0 FAR				

Table 10: Bike Parking Requirements for buildings within T5N 50/70 Zone

Unit Type	Size	Size with Waiver	Parking Demand	Minimum Parking Spaces Required
1 Bedroom Unit	77 units	61 units	1.0 per unit	61
2 Bedroom Unit	54 units	43 units	2.0 per unit	86
Total Bicycle Parking Spaces required				143

Based on the parking analysis conducted, the proposed project provides the minimum number of parking spaces per the City of San Rafael's parking requirements. However, the project applicant has requested a waiver of the City of San Rafael's bicycle parking requirements. Based on state density bonus waiver, the bicycle parking requirement becomes zero. Therefore, the proposed project provides an adequate number of bicycle parking spaces.

The proposed project will not remove any existing on-street parking spaces adjacent to the project along A Street. There will be no net loss or net gain of on-street parking due to the proposed project.

Driveway Assessment

The proposed project will have one driveway, which will allow entrance, parking, and exit of vehicles. No vehicles larger than a single unit car will be allowed in the parking garage. AMG prepared turning radii diagrams to show that the driveway width is adequate to accommodate entrance/exit into/out of the parking garage. However, to produce more comfortable movements, we recommend widening the driveway that goes into the parking garage to 11' and the driveway that goes out of the parking garage to 10' and relocating the trash staging location. **Appendix E** shows the turning radii diagrams.

To provide safety at the project driveway a flashing light will be installed at each driveway to alert pedestrians of any vehicles exiting the driveway, providing additional safety. A Gate System will be recessed from the edge of the driveway, to enhance pedestrian safety on the sidewalk. **Figure 9** shows a similar flashing light system and gate system installed in another San Rafael project.

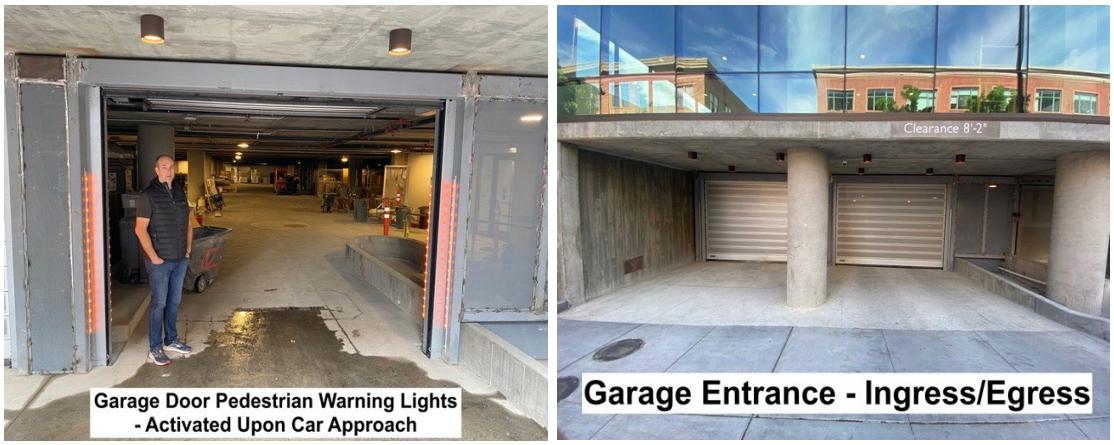


Figure 9: Example of proposed Flashing Light and Gate Systems at Project Driveway

Intersection & Driveway Queueing

AMG evaluated 95th percentile queues at the study intersections adjacent to the project site to assess if the existing storage capacity is adequate with the proposed project demands. The 95th percentile queue was calculated using HCM 2000 methodology. The 95th percentile queue lengths were analyzed along certain approaches to ensure that those approach queues do not extend past the project driveway under existing plus project conditions along A Street. **Table 11** summarizes the existing and existing plus project conditions queue lengths at the approaches. **Appendix F** contains the Synchro 95th percentile queue length reports.

Table 11: 95th Percentile Queue Length (ft) Analysis

Intersection	Movements	Existing Storage Length (ft)	Proposed Project Storage Length (ft)	Existing Conditions		Existing Plus Proposed Project Conditions	
				AM	PM	AM	PM
A St & 4th St	NBLTR	295*	140**	50	112	56	115
A St & 3rd St	SBLTR	295*	155**	91	121	107	127

Note:
SBLTR=Southbound shared thru, right-turn, and left-turn lane; NBLTR=Northbound shared thru, right-turn, and left-turn lane
*Assumed based on existing Google Earth imagery.
**Storage is measured from the intersection to the project driveway

Based on the 95th percentile queue length analysis, the existing and proposed project storage capacity for the eastbound approach, northbound left-turn and southbound right-turn movements are adequate to accommodate the proposed project trips.

AMG also evaluated queuing at the project driveways, given that there will be a gate system to get into the parking garage. The garage access gate takes approximately 5-10 seconds to open and serve a car. Using Poisson's Distribution Model, and the trip generation for the project, the arrival rate at the driveway is expected to be 0.20 veh/min and the service rate is 6 veh/min (assuming 10 seconds to serve). Based on the expected arrival and service rates, the average number of vehicles in the queue is calculated to be 0.001 vehicles, meaning that the queue length at the driveways is never expected to be more than one car. The project driveways have enough storage to accommodate a car without conflicting with pedestrian activities on the sidewalk.

VMT ANALYSIS

In 2013, Governor Jerry Brown signed SB 743, which streamlined reviews for transit-oriented infill projects and directed the State Office of Planning and Research (OPR) to establish new practices and metrics to evaluate transportation impacts under the California Environmental Quality Act (CEQA). Specifically, SB 743 requires that Level of Service (LOS) metrics be replaced by VMT metrics for purposes of CEQA analysis. While SB 743 did not eliminate the ability of local agencies to continue using LOS as a planning metric in General Plans, it reflected a shift in perspective to more sustainable transportation planning that relies on metrics like VMT, which avoid discouraging infill development, and can help make non-automotive transportation faster, safer, and more reliable. The new guidelines require the use of vehicle miles travelled (VMT) as the metric for evaluating the significant traffic impacts to promote greenhouse gas emissions reductions, multimodal transportation networks and diverse land uses.

Senate Bill (SB) 743 (Steinberg 2013) adds Public Resources Code Section 21099 to CEQA and changes the way that transportation impacts are analyzed to better align local environmental review with statewide objectives to reduce greenhouse gas (GHG) emissions, encourage infill mixed-use development in designated priority development areas, reduce regional sprawl development, and reduce vehicle miles traveled (VMT) in California.

The City of San Rafael has adopted VMT methodology for application within the city. The methodology has five screening criteria to determine if a project can be exempted from the VMT analysis.

1. **Transit Priority Area (TPA)**: Projects located within ½ mile walkshed around major transit stops in San Rafael. *The proposed project **is** within ½ mile walkshed of a major transit stop () and is within the Downtown San Rafael TPA.*
2. **Affordable Housing:** 100% restricted affordable residential projects in infill locations. *The project is located within an infill location.*
3. **Small Projects:** Small projects can be presumed to cause a less-than-significant VMT impact. Small projects are defined as generating 110 or fewer average daily vehicle trips. *The proposed project generates more than 110 daily vehicle trips.*

4. **Local Serving Public Facilities.** Projects that consist of Local Serving Public Facilities that encompass government, civic, cultural, health, and infrastructure uses and activity which contribute to and support community needs. *The proposed project is not a local serving public facility.*
5. **Neighborhood-Serving Retail Project.** Neighborhood-serving retail projects that are less than 50,000 square feet, which serve the immediate neighborhoods. *The proposed project's retail has not been defined as a neighborhood-serving retail project.*
6. **Residential and Office Projects Located in Low VMT Areas.** Residential and employment-generating projects located within a low VMT-generating area can be presumed to have a less-than-significant impact, absent substantial evidence to the contrary. *The proposed project is a residential generating project. Based on the information provided by the TAM model, the project is in a 2040 low VMT area per residents.*

Section 15064.3 of the CEQA Guidelines provides guidance on evaluating a project's transportation impacts. According to Section 15064.3, vehicle miles traveled (VMT) is generally the most appropriate measure of transportation impacts, except for projects consisting of the addition of travel lanes to roadways. VMT refers to the amount and distance of automobile travel attributable to a project, regardless of the type of vehicle or number of occupants in a vehicle. Section 15064.3(b) establishes metrics and thresholds by which VMT can be evaluated for land use projects and transportation projects.

The proposed project is a mixed-use development in a downtown location that will increase non-vehicular trips and is expected to lower emissions and VMT within the project area. Based on evaluation performed for the San Rafael General Plan 2040, housing projects in Downtown San Rafael will be screened out of a detailed VMT analysis. The project passes three of the criteria shown above, hence, this proposed project will not contain a detailed VMT analysis.

CONCLUSIONS

AMG determined that the project would have no significant impacts under existing plus project conditions. Based on the results of the analysis, the following is a summary of our findings:

- All the intersections operate at an acceptable LOS C or better.
- The project will generate 41 total trips during both the AM and PM peak hours.
- All the intersections operate at an acceptable LOS C or better.
- Pedestrian, bicycle, and transit facilities are adequate to serve the project site.
- Site access to the project site is adequate.
- Sight Distance at the project driveway is adequate.
- Site Circulation within the project site is adequate. We recommend widening the driveway that goes into the parking garage to 11' and the driveway that goes out of the parking garage to 10' and relocating the trash staging location for more comfortable turning movements.
- Parking spaces provided at the project site are sufficient to meet the City of San Rafael's parking requirements.
- The existing and proposed storage capacity on A Street is adequate and will not result in a spillover of traffic queues due to the addition of the project.

APPENDIX A | Project Site Plan

STACKHOUSE
DE LA PEÑA
TRACHTENBERG
ARCHITECTS

2421 Fourth Street
Berkeley, California 94710
510.649.1414
www.SDTArch.com

900 A STREET

900 A Street
San Rafael, CA

08.12.2024 SB330

02.06.2025 PLANNING APPLICATION

JOB: 2220

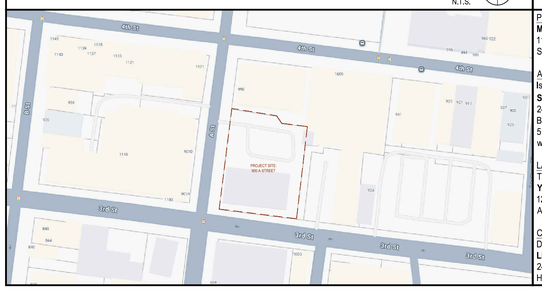
SHEET:

COVERSHEET

A0.0

VICINITY MAP

N.T.S.



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CIVIL ENGINEER:
Denis Maslennikov
LEA & BRAZE ENGINEERING
2495 Industrial Parkway West
Hayward, CA 94545

PROJECT DESCRIPTION

PROJECT ADDRESS: 900 A STREET, SAN RAFAEL, CA 94901
APN: 011-263-21

SCOPE OF WORK:
NEW CONSTRUCTION OF AN 8-STORY MIXED USE DEVELOPMENT WITH 131 DWELLING UNITS OVER GROUND-LEVEL LOBBIES, COMMERCIAL SPACE AND PARKING, WITH SB-330 AND STATE OF CALIFORNIA DENSITY BONUS.

CONSTRUCTION TYPE: 5 STORIES TYPE III-A OVER 3 STORIES TYPE I-A CONCRETE PODIUM

DRAWING LIST

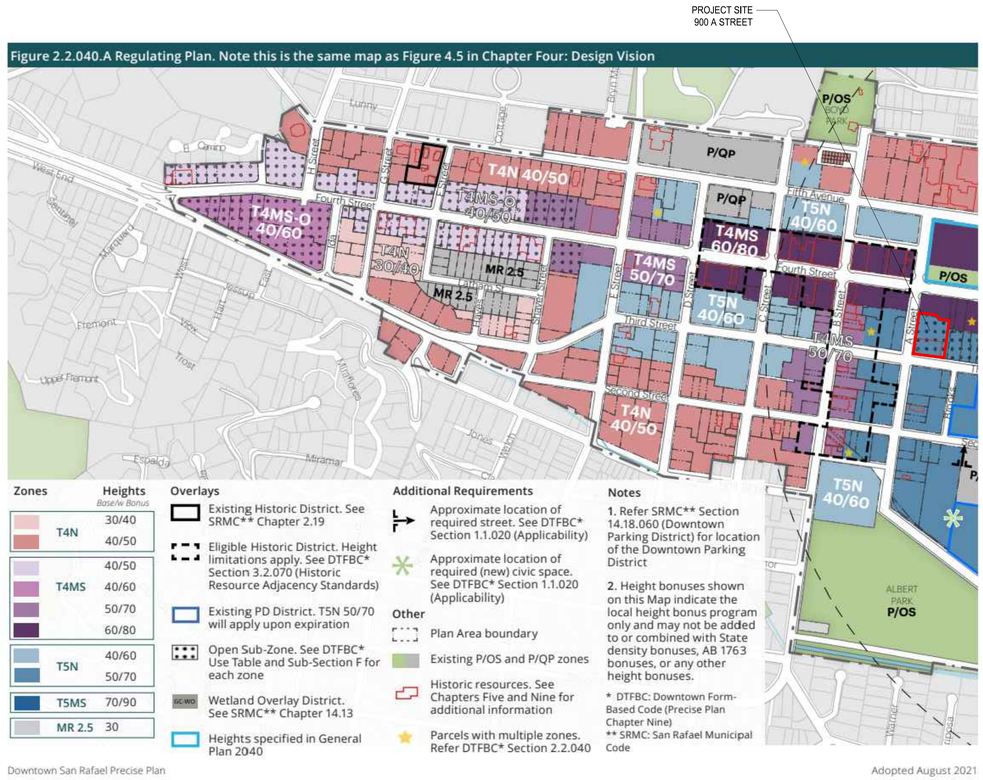

Figure 2.2.040.A Regulating Plan. Note this is the same map as Figure 4.5 in Chapter Four: Design Vision

2 - ZONING MAP

-

PROPOSED PROEJCT - ZONING INFORMATION	
ZONING	T5N 50/70
LOT AREA (SF)	28,667
DENSITY BONUS TABLE:	
BASE DENSITY	110
LI PERCENTAGE OF BASE DENSITY	10%
LI UNITS (ROUNDS UP)	11
DENSITY BONUS	20.0%
BONUS UNITS (ROUNDS UP)	22
MAXIMUM PROJECT WITH BONUS UNITS	132
PROPOSED PROJECT UNITS	131
DENSITY BONUS CONCESSIONS EARNED	1
DENSITY BONUS CONCESSIONS / INCENTIVES:	
1. TBD	

ZONING COMPLIANCE - T5N 50/70

	BASE ZONING	PROPOSED	COMPLIANCE
OVERALL BUILDING HEIGHT	50'	88'-6"	COMPLIES W/ WAIVER
HIGHEST TOP PLATE	45'	83'-8"	COMPLIES W/ WAIVER
SETBACK - FRONT	0' MIN.; 15' MAX	0'	COMPLIES
SETBACK - SIDE STREET	0' MIN.; 15' MAX	0'	COMPLIES
SETBACK - SIDE	0' MIN.	0'	COMPLIES
SETBACK - REAR	0' MIN.	0'	COMPLIES
STEPBACKS - FRONT	10' MIN AT 45'*	4'-0"	COMPLIES W/ WAIVER
STEPBACKS - SIDE STREET	10' MIN AT 45'*	4'-0"	COMPLIES W/ WAIVER
STEPBACKS - REAR	10' MIN AT 45'*	9'-1"	COMPLIES W/ WAIVER
GROUND LEVEL CEILING	10' MIN.	13'	COMPLIES

*NOT REQUIRED FOR MANSARD ROOFS

FLOOR AREA TABLE

	RESIDENTIAL	RETAIL	GARAGE / MEP	TOTAL
LEVEL 8	17,374			17,374
LEVEL 7	18,443			18,443
LEVEL 6	18,443			18,443
LEVEL 5	18,443			18,443
LEVEL 4	20,372			20,372
LEVEL 3	20,213			20,213
LEVEL 2	20,213			20,213
LEVEL 1	4,223	4,000	19757	27,980
BASEMENT	678		27,988	28,666
TOTAL	138,402	4,000	47,745	190,147
Excluding Bonus*	115,335	-	NA	115,335

* Residential Area excludes 20% bonus

UNIT COUNT TABLE

	1-BR	2-BR	TOTAL		
LEVEL 8	12	6	18		
LEVEL 7	11	8	19		
LEVEL 6	11	8	19		
LEVEL 5	11	8	19		
LEVEL 4	11	8	19		
LEVEL 3	11	8	19		
LEVEL 2	10	8	18		
LEVEL 1					
BASEMENT				AVG UNIT SIZE	
TOTAL	77	54	131	1,057	
	59%	41%			
LI UNITS	6	5	11		
	55%	45%			

PARKING PER DOWNTOWN SAN RAFAEL PRECISE PLAN

	UNITS/FAR	RATIO	PER UNIT/FAR	TOTAL	
REQ'D FOR 1BR	77	0.75	1	58	
REQ'D FOR 2BR	54	1.0	1	54	
COMMERCIAL	0.14 FAR	WAIVED	UP TO 1.0 FAR	0	
REQUIRED PARKING				112	
	STANDARD	**COMPACT**	**STACKER**	**TOTAL**	
LEVEL 1	43			43	
BASEMENT	63			63	
PROVIDED PARKING	**106**	**0**	**0**	**106**	W/ WAIVER

BIKE PARKING (Per DSRPP)

	UNITS	RATIO	PER UNIT	TOTAL
1-BR UNITS	77	1	1	77
2-BR UNITS	54	2	1	108
TOTAL REQUIRED				185
PROVIDED				86 W/ WAIVER

CIVIC AREA

	REQUIRED	PROVIDED
CIVIC AREA	200 SF	0 W/ WAIVER

1 - PROJECT DATA

-

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ZONING INFO & PROJECT DATA

A0.1

AVERAGE UNIT SIZE TABLE		
	BASE PROJECT	PROPOSED PROJECT
RESIDENTIAL FLOOR AREA	116,270	138,402
TOTAL UNITS	110	131
AVERAGE UNIT SIZE	1,057	1,057

5 - AVERAGE UNIT SIZE CALCS

-

ZONING TABLE			
ZONE	**T5N 50/70**	**BASE PROJECT**	**COMPLIANCE**
MAXIMUM BUILDING HEIGHT	50'	45'	COMPLIES
GROUND LEVEL CEILING HEIGHT	10' MIN.	10'	COMPLIES
SETBACK - FRONT	0' MIN., 15' MAX.	0'	COMPLIES
SETBACK - STREET SIDE	0' MIN., 15' MAX.	0'	COMPLIES
SETBACK - INTERIOR SIDE	0'	0'	COMPLIES
SETBACK - REAR	0'	5'	COMPLIES

BASE PROJECT UNITS

	1-BR	2-BR	TOTAL	
LEVEL 5	14	10	24	
LEVEL 4	14	10	24	
LEVEL 3	14	10	24	
LEVEL 2	14	10	24	
LEVEL 1	8	6	14	
GROUND/UNDERGROUND PARKING				
TOTAL	64	46	110	

VEHICULAR PARKING (Per DSRPP)

	UNITS/SF	RATIO	PER UNIT/SF	TOTAL
1-BR UNITS	64	0.75	1	48
2-BR UNITS	46	1	1	46
COMMERCIAL	3,200	2.75	1,000	9
TOTAL REQUIRED				103
		PARKLIFT	ADA	TOTAL
TOTAL PROVIDED		105	2	107

BIKE PARKING (Per DSRPP)

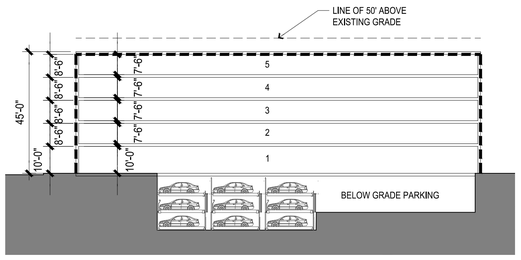
	UNITS	RATIO	/ UNIT	TOTAL
1-BR UNITS	64	1	1	64
2-BR UNITS	46	2	1	92
TOTAL REQUIRED				156
PROVIDED				156

CIVIC AREA

			REQUIRED	PROVIDED
CIVIC AREA			200	200

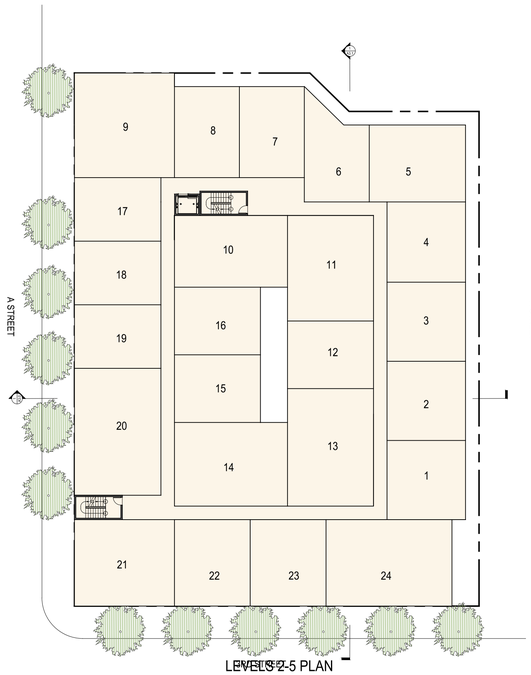
4 - BASE PROJECT DATA

-

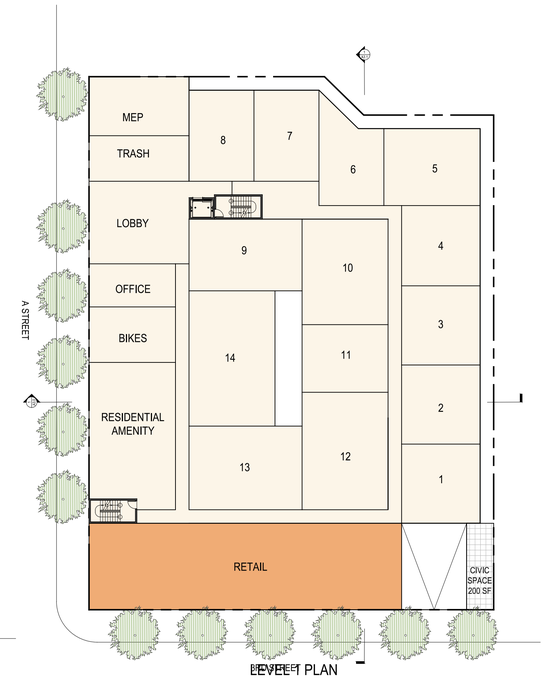


2 - BASE PROJECT SECTION

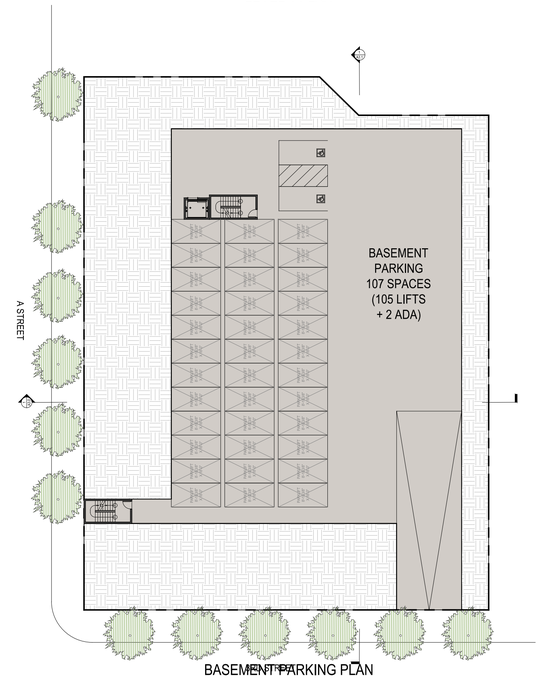
-



LEVELS 2-5 PLAN



LEVEL 1 PLAN



BASEMENT PARKING PLAN

1 - BASE PROJECT PLANS

-

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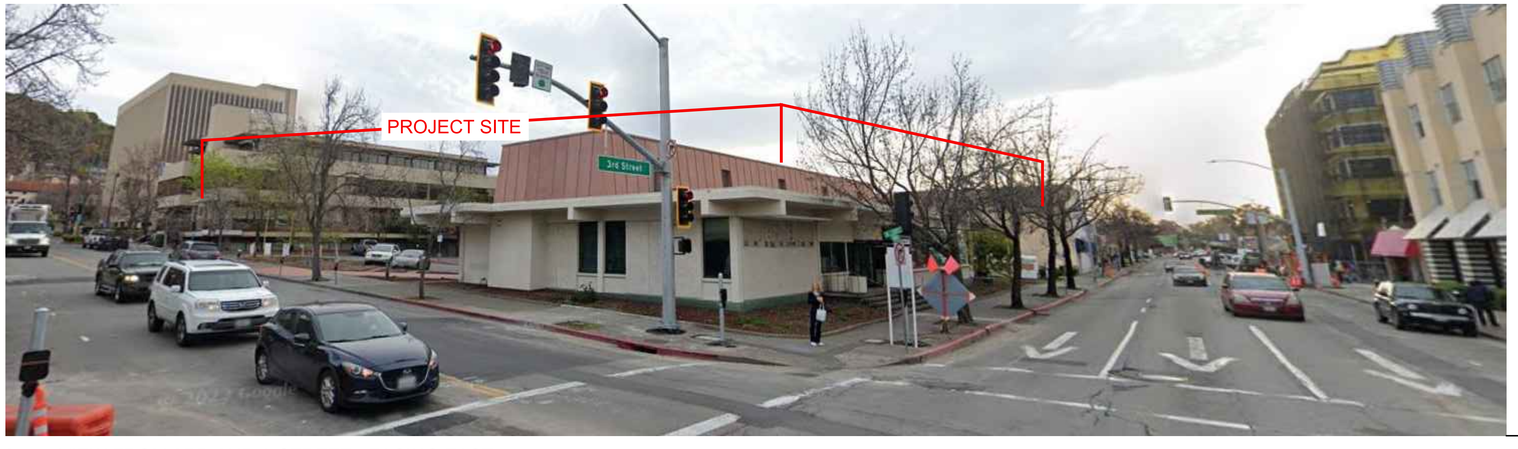
BASE PROJECT PLANS AND DATA

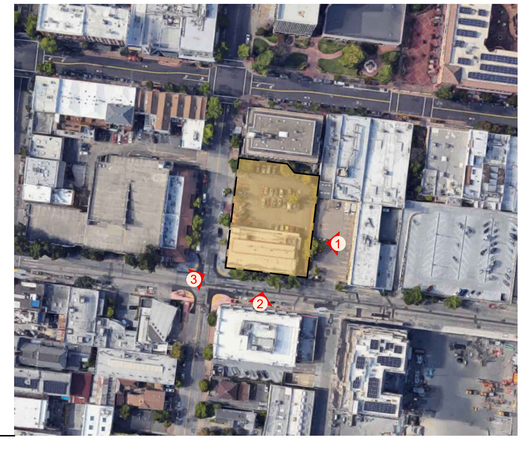
A0.2

1. VIEW FROM ADJACENT LOT - FACING WEST

2. VIEW FROM 3RD STREET - FACING NORTH



3. VIEW FROM 3RD AND A STREET - FACING EAST



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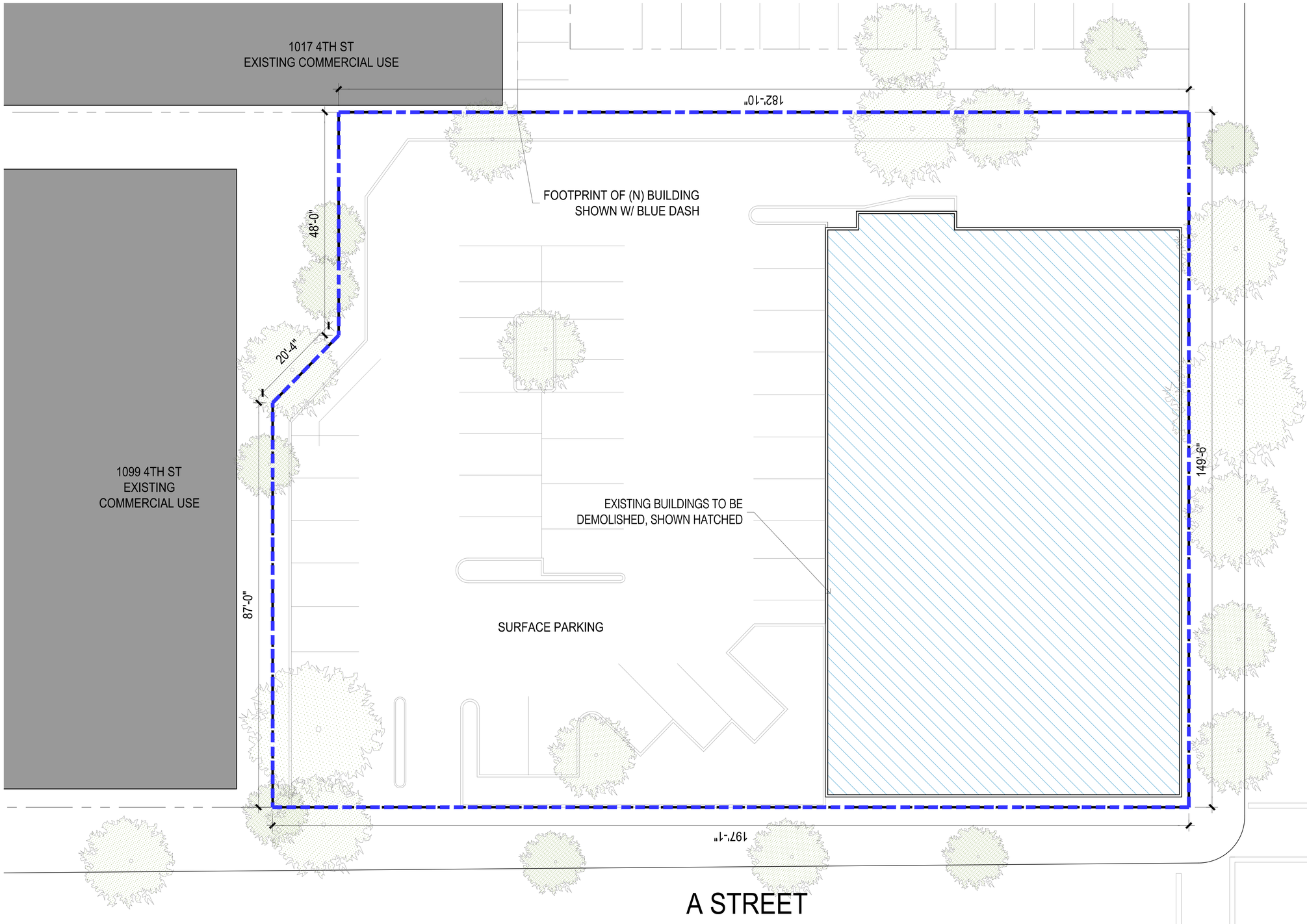
EXISTING
CONTEXT
PHOTOS

A0.3



1 EXISTING SITE PLAN
1" = 10' @ 24x36 1" = 20' @ 11x17

0 5 10 20

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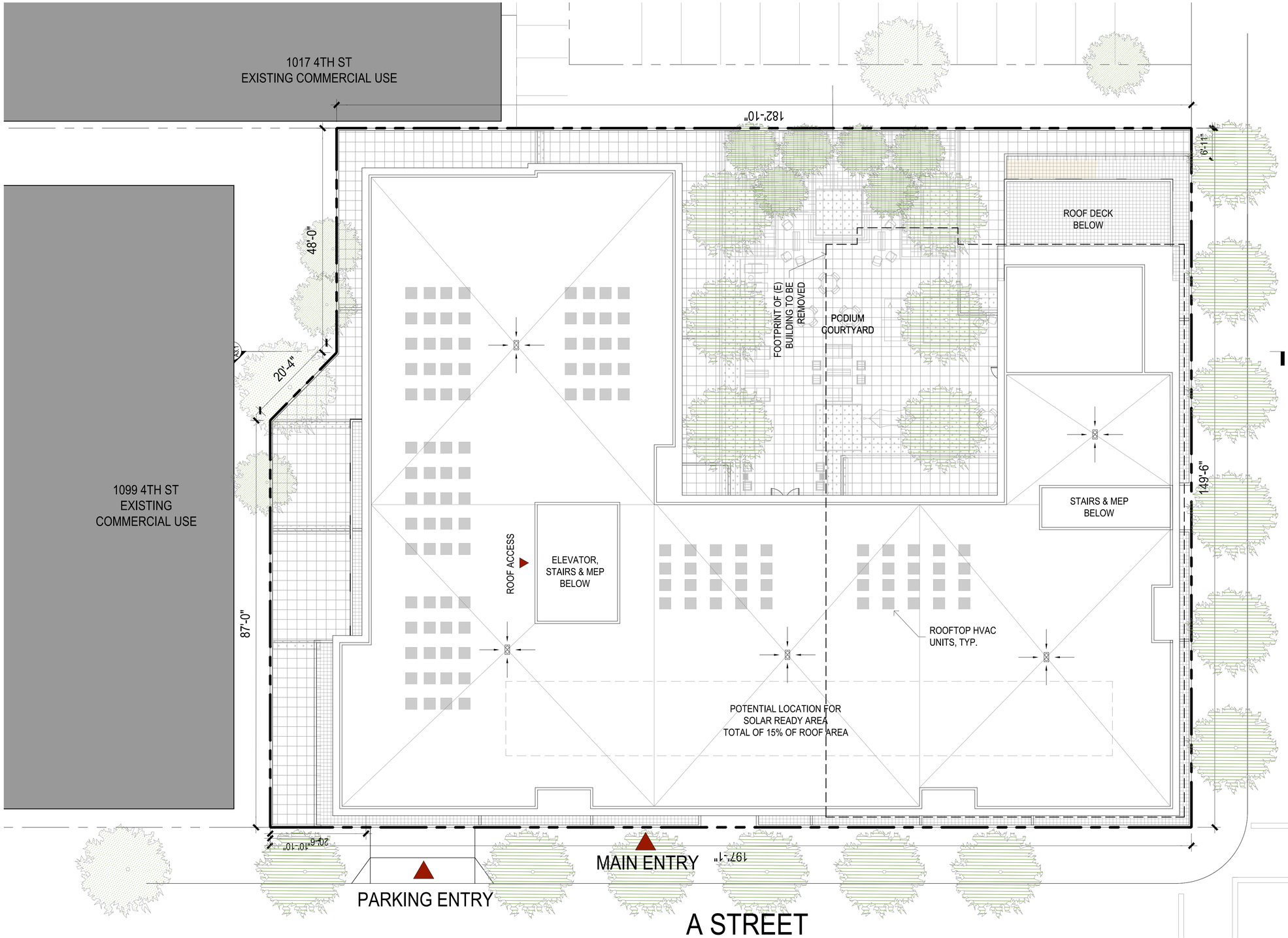
EXISTING
SITE PLAN

A1.1



1 - PROPOSED SITE PLAN

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0 5 10 20

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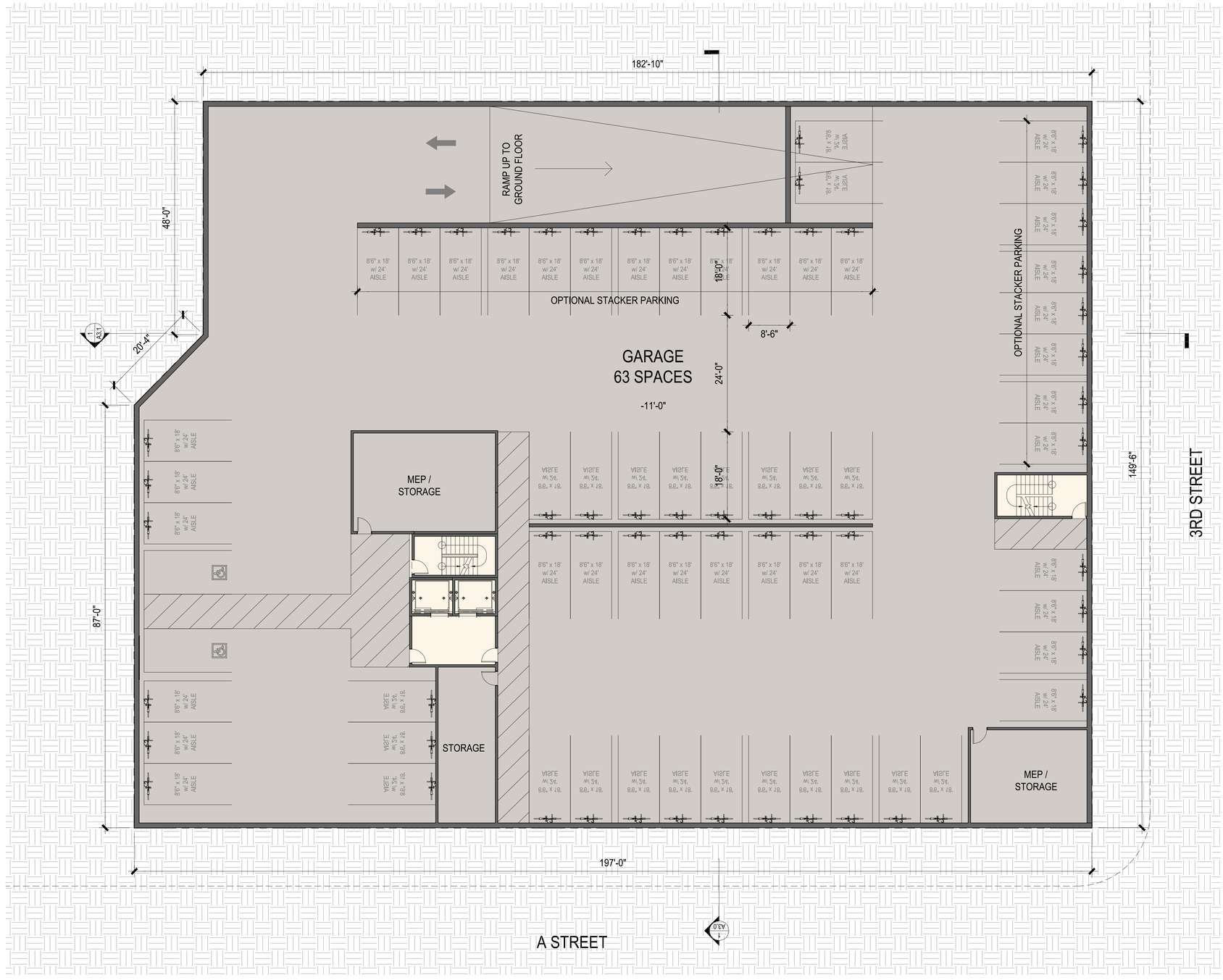
PROPOSED
SITE PLAN

A1.2



1 - BASEMENT FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

N

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SHEET:

BASEMENT
FLOOR
PLAN

A2.0

1 / - GROUND LEVEL FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

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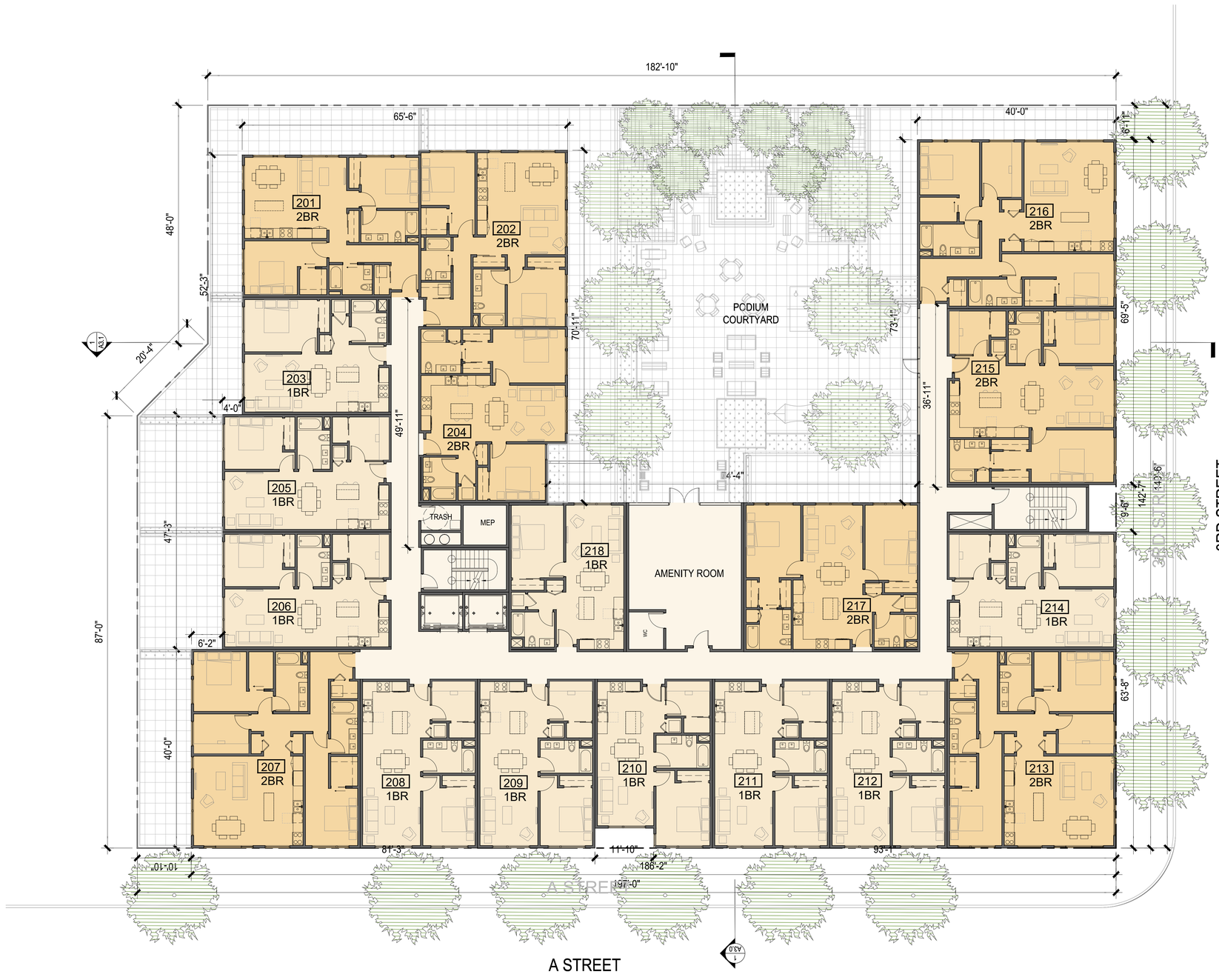
SHEET:

GROUND LEVEL FLOOR PLAN

A2.1



1 / - LEVEL 2 FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

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SHEET:

LEVEL 2
FLOOR PLAN

A2.2

1 - LEVEL 3 FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

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SHEET:

LEVEL 3
FLOOR PLAN

A2.3

1 / - LEVEL 4 FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

N

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SHEET:

LEVEL 4
FLOOR PLAN

A2.4

1 - LEVEL 5 FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

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SHEET:

LEVEL 5
FLOOR PLAN

A2.5

1 - LEVEL 6 FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

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SHEET:

LEVEL 6
FLOOR PLAN

A2.6

1 - LEVEL 7 FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

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SHEET:

LEVEL 7
FLOOR PLAN

A2.7

1 / - LEVEL 8 FLOOR PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

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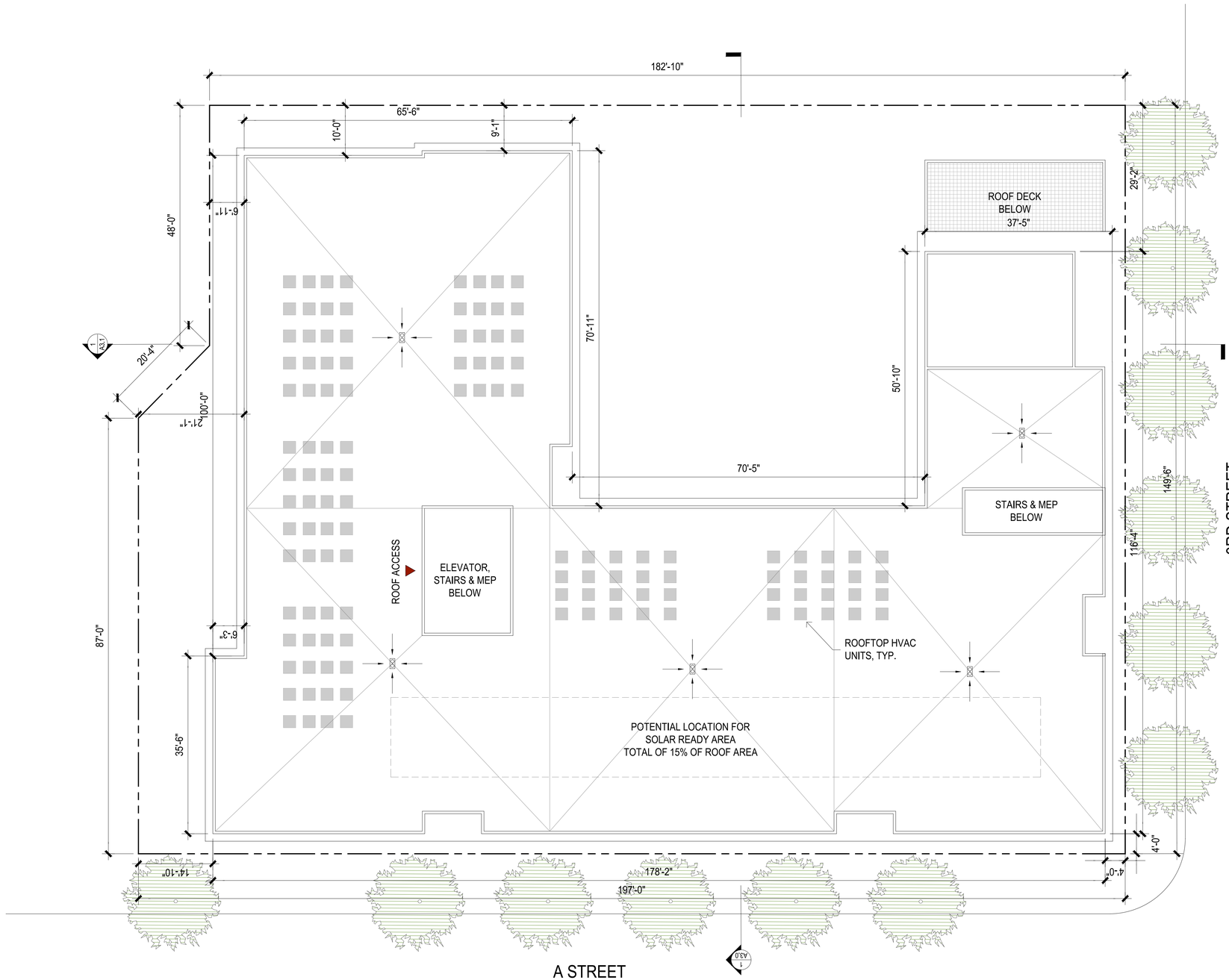
SHEET:

LEVEL 8
FLOOR PLAN

A2.8



1 - ROOF PLAN

3/32" = 1'-0" @ 24x36 3/64" = 1'-0" @ 11x17

0 4 8 16 32

N

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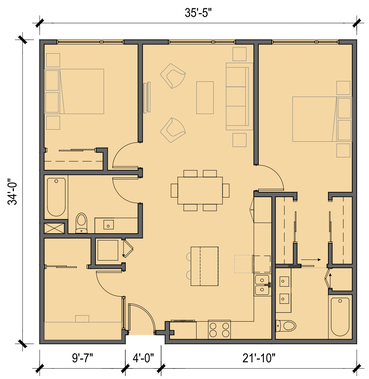
SHEET:

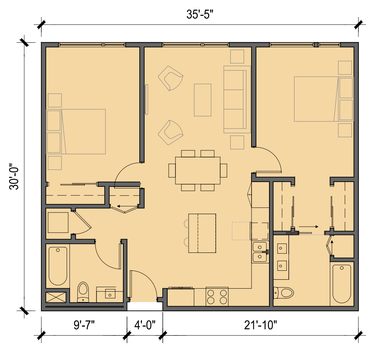
ROOF
PLAN

A2.9

B1 - 2-BEDROOM + OFFICE
1,355 SF

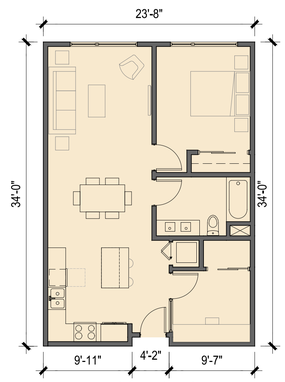


B2 - 2-BEDROOM
1,200 SF

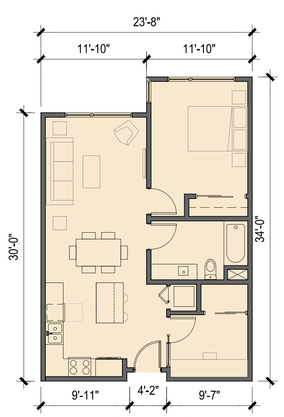


B3 - 2-BEDROOM
1,059 SF

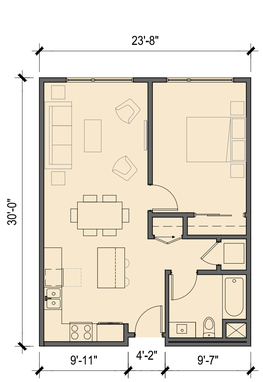
B4 - 2-BEDROOM
1,074 SF



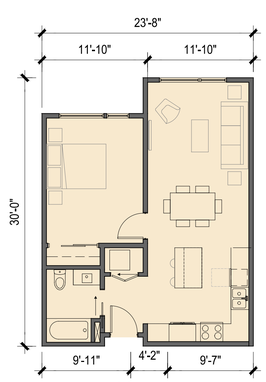
A1 - 1-BEDROOM + OFFICE
799 SF



A2 - 1-BEDROOM + OFFICE
752 SF



A3 - 1-BEDROOM
705 SF



A4 - 1-BEDROOM
660 SF

1
-

UNIT PLANS

1/8" = 1'-0" @ 24x36 1/16" = 1'-0" @ 11x17

0 2 4 8 16

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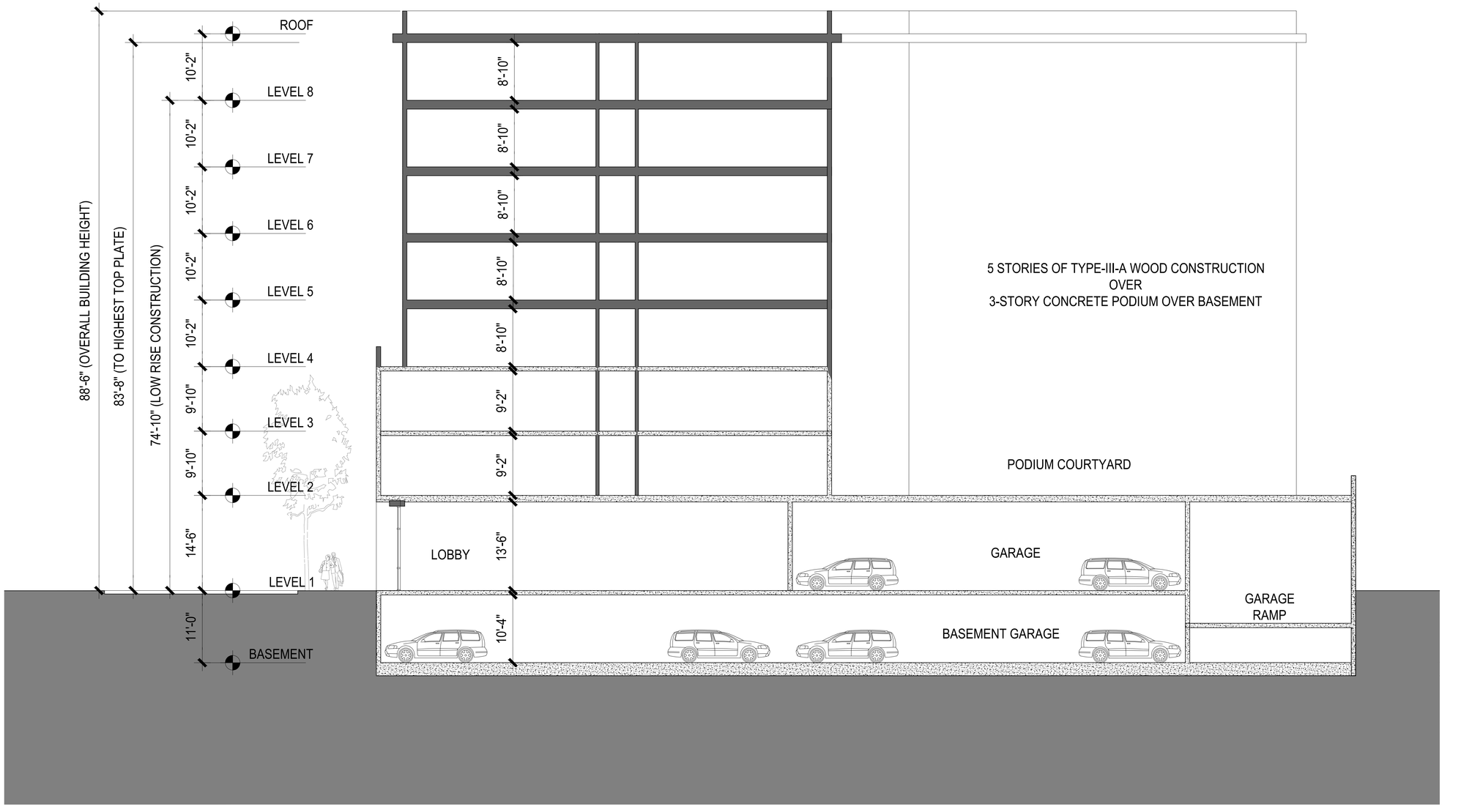
UNIT
PLANS

A2.10



1 - BUILDING SECTION - LOOKING NORTH

1/8" = 1'-0" @ 24x36 1/16" = 1'-0" @ 11x17

0 2 4 8 16

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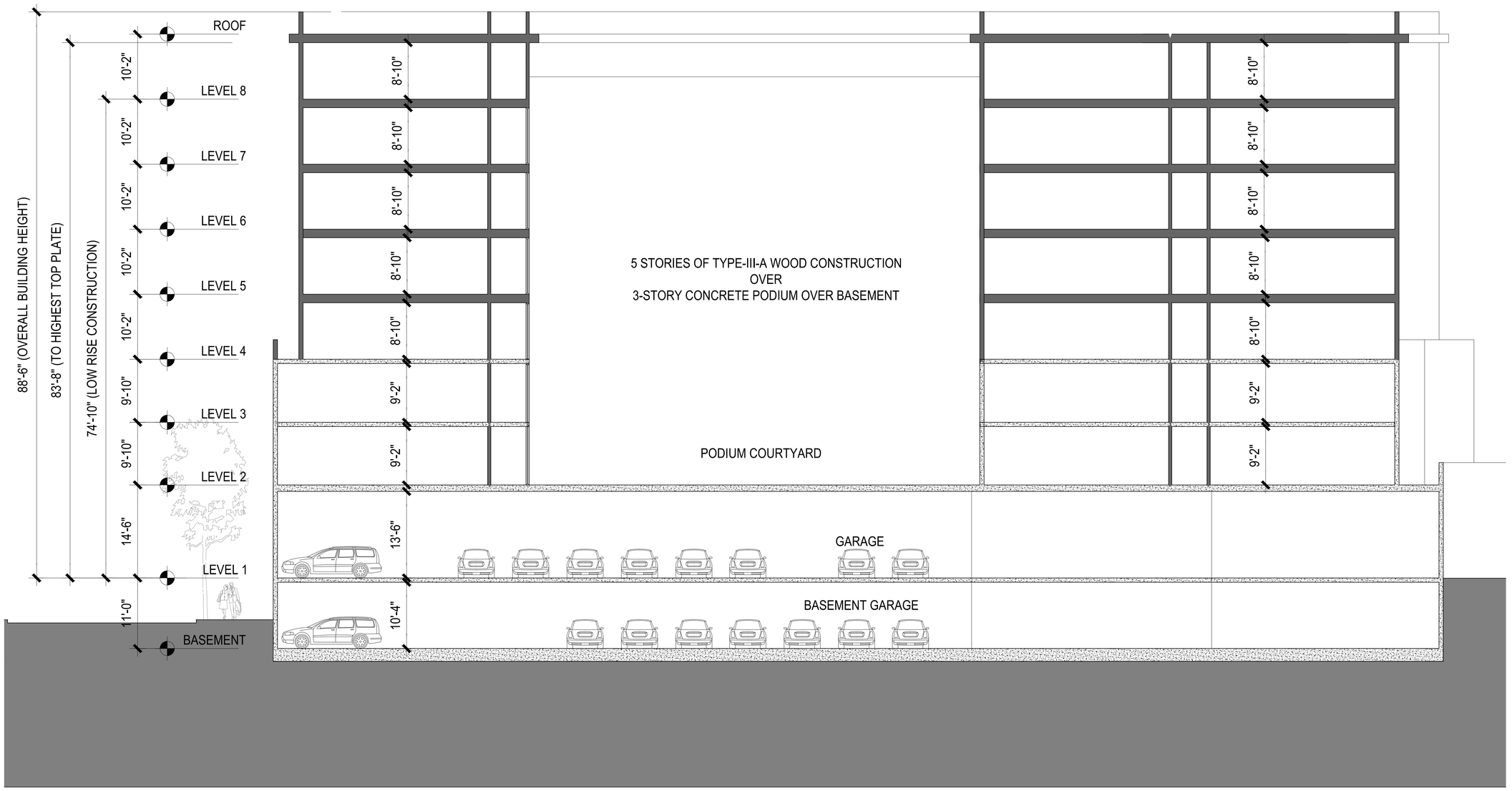
BUILDING
SECTION

A3.0



1 / - BUILDING SECTION - LOOKING WEST

1/8" = 1'-0" @ 24x36 1/16" = 1'-0" @ 11x17

0 2 4 8 16

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BUILDING SECTION

A3.1

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1
-

WEST ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

JOB: 2220

SHEET:

WEST
ELEVATION

A3.2

1
-

SOUTH ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

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SHEET:

SOUTH
ELEVATION

A3.3

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-

EAST ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

JOB: 2220

SHEET:

EAST
ELEVATION

A3.4

STACKHOUSE
DE LA PEÑA
TRACHTENBERG
ARCHITECTS

2421 Fourth Street
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510.649.1414
www.SDTArch.com

900 A STREET

900 A Street
San Rafael, CA

1
-

NORTH ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

08.12.2024 SB330

02.06.2025 PLANNING APPLICATION

JOB: 2220

SHEET:

NORTH
ELEVATION

A3.5

1
-

VIEW ALONG 3RD STREET - LOOKING EAST

-

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900 A STREET

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02.06.2025 PLANNING APPLICATION

JOB: 2220

SHEET:

RENDERED
VIEWS

A3.6

1
-

VIEW AT 4TH AND A STREET - LOOKING SOUTH

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02.06.2025 PLANNING APPLICATION

JOB: 2220

SHEET:

RENDERED
VIEWS

A3.7

1
-

VIEW ALONG A STREET - LOOKING NORTH

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JOB: 2220

SHEET:

RENDERED
VIEWS

A3.8

1 - VIEW ALONG 3RD STREET - LOOKING NORTHWEST

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JOB: 2220

SHEET:

RENDERED
VIEWS

A3.9

1
-

SIDEWALK VIEW AT 3RD AND A STREET - LOOKING WEST

-

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San Rafael, CA

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02.06.2025 PLANNING APPLICATION

JOB: 2220

SHEET:

RENDERED
VIEWS

A3.10

1 - SIDEWALK VIEW AT 3RD AND A STREET - LOOKING NORTHEAST

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900 A Street
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02.06.2025 PLANNING APPLICATION

JOB: 2220

SHEET:

RENDERED
VIEWS

A3.11

1
-

WEST ELEVATION

1/16"=1'-0" @ 11X17 1/8" = 1'-0" @ 24X36

0 4 8 16

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900 A STREET

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San Rafael, CA

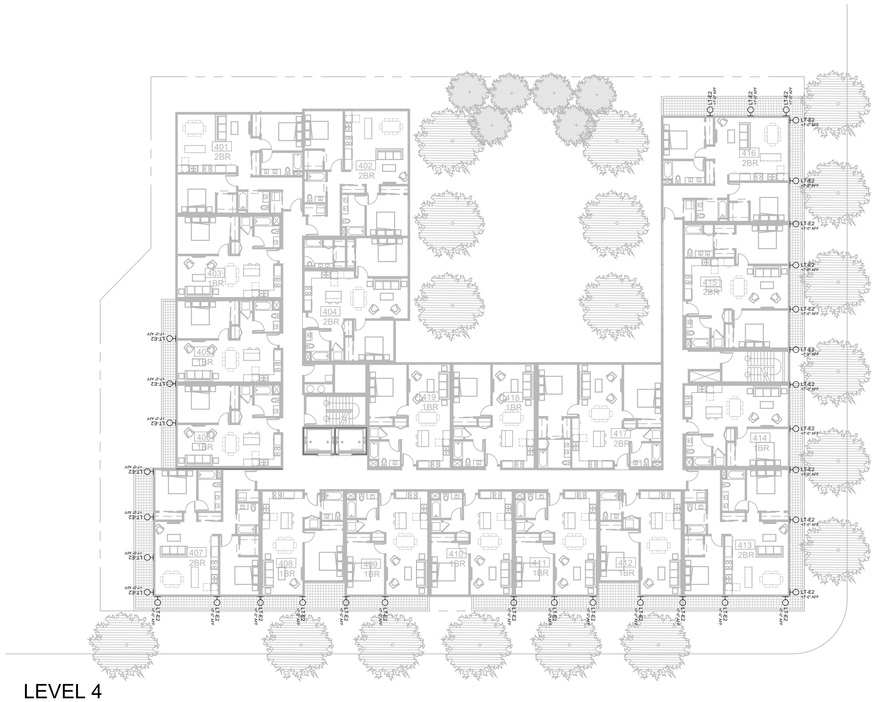
08.12.2024 SB330
02.06.2025 PLANNING APPLICATION

JOB: 2220

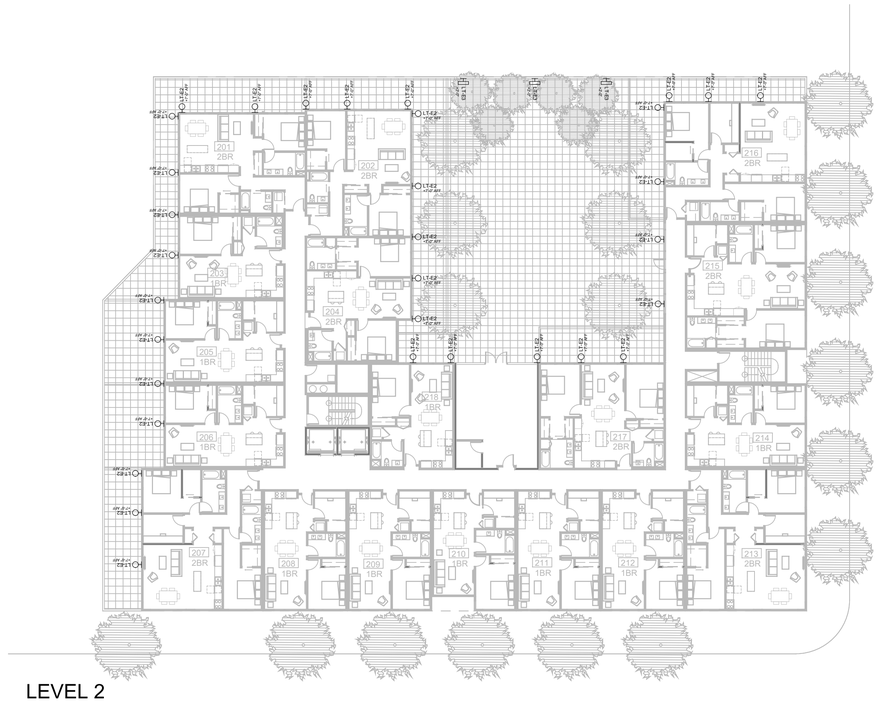
SHEET:

BUILDING
MATERIALS

MAT



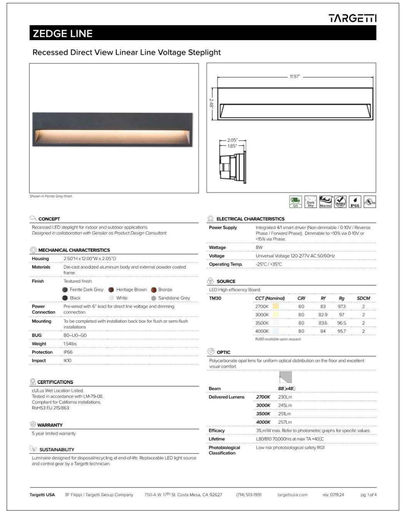
LEVEL 4



LEVEL 2

FIXTURE LT-E1

FIXTURE LT-E2



FIXTURE LT-E3

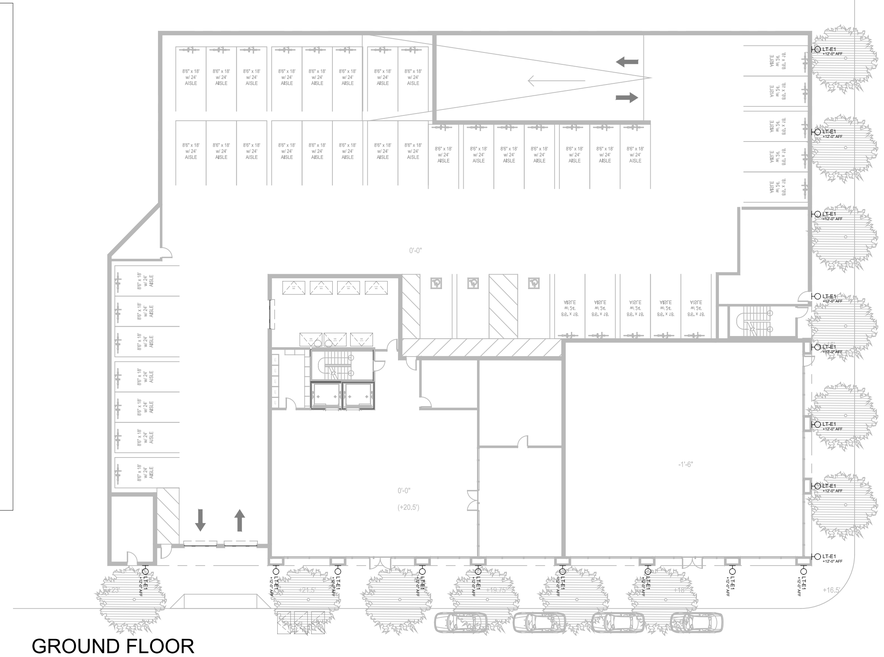
GENERAL NOTES:

1. LIGHTING FIXTURES SHALL BE APPROPRIATELY DESIGNED AND/OR SHIELDED TO CONCEAL LIGHT SOURCES FROM VIEW OFF-SITE AND AVOID SPILLOVER ONTO ADJACENT PROPERTIES.
2. THE FOOT-CANDLE INTENSITY OF LIGHTING SHOULD BE THE MINIMUM AMOUNT NECESSARY TO PROVIDE A SENSE OF SECURITY AT BUILDING ENTRYWAYS, WALKWAYS AND PARKING LOTS. IN GENERAL TERMS,ACCEPTABLE LIGHTING LEVELS WOULD PROVIDE ONE (1) FOOT-CANDLE GROUND LEVEL OVERLAP AT DOORWAYS, ONE-HALF (½)FOOT-CANDLE OVERLAP AT WALKWAYS AND PARKING LOTS, AND FALL BELOW ONE (1) FOOT-CANDLE AT THE PROPERTY LINE.

1
-

PRELIMINARY EXTERIOR LIGHTING SPECS

-



1
-

EXTERIOR LIGHTING PLANS

-

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08.12.2024 SB330

02.06.2025 PLANNING APPLICATION

JOB: 2220

SHEET:

EXTERIOR
LIGHTING
PLAN

LTG.1

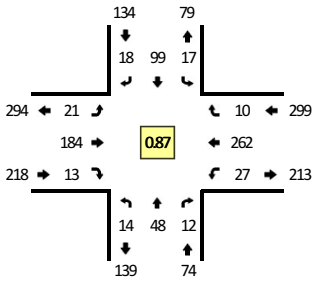
APPENDIX B | Traffic Volume Counts

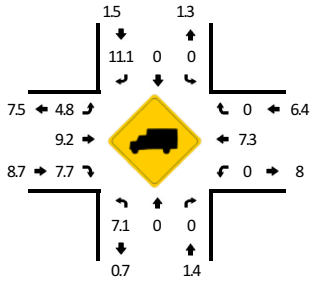
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

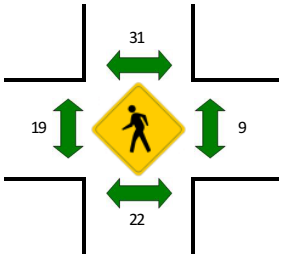
LOCATION: A St -- 4th St
CITY/STATE: San Rafael, CA

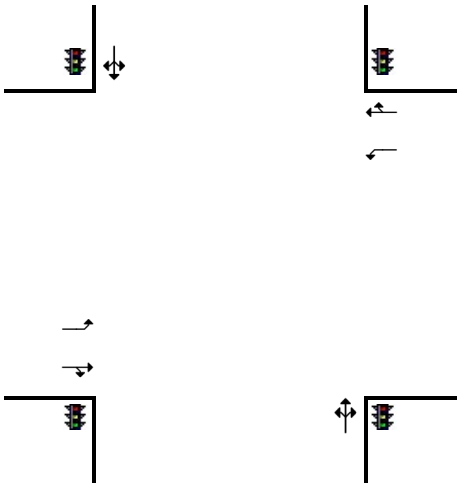
QC JOB #: 16908901
DATE: Wed, Feb 5 2025

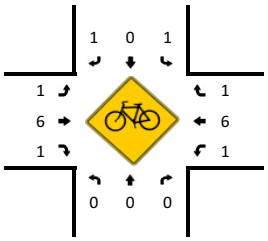
Peak-Hour: 7:50 AM -- 8:50 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

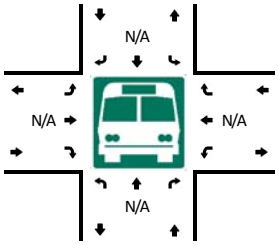


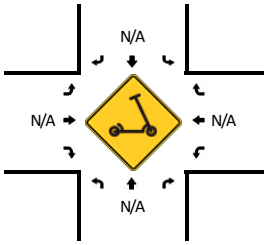












5-Min Count Period Beginning At	A St (Northbound)				A St (Southbound)				4th St (Eastbound)				4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	2	1	0	0	1	0	0	0	8	1	0	0	5	0	0	20	
7:05 AM	1	2	2	0	1	3	0	0	2	2	1	0	2	9	0	0	25	
7:10 AM	0	0	1	0	0	0	1	0	0	9	0	0	0	9	1	0	21	
7:15 AM	0	1	1	0	0	0	0	0	1	3	1	0	0	4	0	0	11	
7:20 AM	2	4	0	0	0	0	0	0	0	10	1	0	0	8	0	0	25	
7:25 AM	1	0	2	0	0	5	0	0	0	6	0	0	0	22	0	0	36	
7:30 AM	2	6	0	0	0	1	1	0	1	13	1	0	0	8	0	0	33	
7:35 AM	0	0	1	0	1	2	0	0	4	10	3	0	0	14	0	0	35	
7:40 AM	0	2	1	0	1	5	1	0	4	9	0	0	0	8	1	0	32	
7:45 AM	4	5	2	0	0	5	0	0	1	7	0	0	0	20	0	0	44	
7:50 AM	2	6	1	0	1	4	0	0	1	21	1	0	3	19	0	0	59	
7:55 AM	0	3	1	0	6	11	0	0	5	18	0	0	3	29	1	0	77	418
8:00 AM	1	5	1	0	2	14	2	0	0	17	1	0	0	28	1	0	72	470
8:05 AM	2	4	0	0	1	11	3	0	2	11	0	0	3	22	1	0	60	505
8:10 AM	2	2	2	0	1	10	1	0	1	12	2	0	3	19	0	0	55	539
8:15 AM	0	5	3	0	2	12	2	0	2	21	3	0	1	14	1	0	66	594
8:20 AM	2	5	2	0	0	5	2	0	1	13	0	0	3	17	0	0	50	619
8:25 AM	0	3	2	0	0	5	1	0	1	12	1	0	1	19	1	0	46	629
8:30 AM	1	3	0	0	1	6	2	0	3	14	2	0	4	33	1	0	70	666
8:35 AM	0	5	0	0	3	7	3	0	1	14	2	0	3	21	3	0	62	693
8:40 AM	3	5	0	0	0	6	0	0	3	20	0	0	1	21	0	0	59	720
8:45 AM	1	2	0	0	0	8	2	0	1	11	1	0	2	20	1	0	49	725
8:50 AM	2	5	0	0	1	4	0	0	0	14	4	0	1	19	0	0	50	716
8:55 AM	0	6	1	0	0	4	0	0	1	12	1	0	1	21	0	0	47	686

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	48	8	0	36	144	20	0	28	184	4	0	24	316	12	0	836
Heavy Trucks	4	0	0		0	0	4		0	8	0		0	32	0		48
Buses																	
Pedestrians		16				28				8				20			72
Bicycles	0	0	0		0	0	0		4	0	0		0	4	0		8
Scooters																	

Comments:

Report generated on 2/11/2025 3:30 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

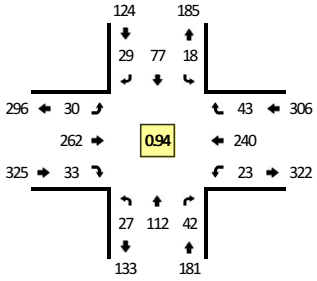
Type of peak hour being reported: Intersection Peak

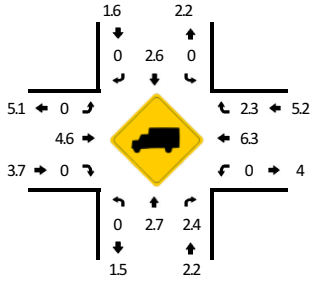
Method for determining peak hour: Total Entering Volume

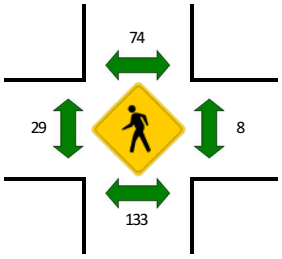
LOCATION: A St -- 4th St
CITY/STATE: San Rafael, CA

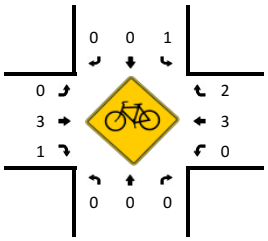
QC JOB #: 16908902
DATE: Wed, Feb 5 2025

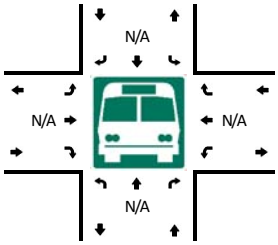
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

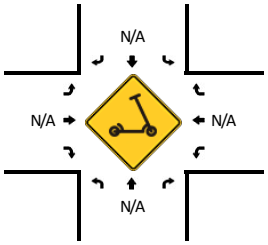












5-Min Count Period Beginning At	A St (Northbound)				A St (Southbound)				4th St (Eastbound)				4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	7	4	0	2	3	2	0	5	25	4	0	3	18	1	0	76	
4:05 PM	1	5	4	0	0	6	3	0	3	19	3	0	3	17	1	0	65	
4:10 PM	3	11	4	0	0	6	2	0	4	22	3	0	0	24	1	0	80	
4:15 PM	1	16	3	0	7	10	2	0	0	17	5	0	3	23	2	0	89	
4:20 PM	1	9	2	0	1	8	2	0	1	26	2	0	2	18	7	0	79	
4:25 PM	4	9	1	0	1	3	5	0	4	21	1	0	3	16	6	0	74	
4:30 PM	1	5	2	0	0	6	2	0	2	29	3	0	3	18	1	0	72	
4:35 PM	1	3	0	0	4	4	3	0	4	18	3	0	0	20	5	0	65	
4:40 PM	4	12	6	0	0	8	2	0	1	22	1	0	2	7	4	0	69	
4:45 PM	4	8	2	0	1	7	1	0	4	20	5	0	1	20	3	0	76	
4:50 PM	2	9	6	0	0	10	3	0	3	26	2	0	4	25	5	0	95	
4:55 PM	2	9	6	0	1	0	1	0	2	18	2	0	1	24	3	0	69	909
5:00 PM	3	10	3	0	1	5	2	0	3	25	1	0	2	21	2	0	78	911
5:05 PM	1	11	7	0	2	10	4	0	2	18	5	0	2	24	4	0	90	936
5:10 PM	0	10	4	0	1	10	1	0	3	26	3	0	0	11	1	0	70	926
5:15 PM	4	13	6	0	1	3	1	0	2	18	7	0	2	21	1	0	79	916
5:20 PM	2	9	2	0	1	7	2	0	1	27	3	0	3	21	7	0	85	922
5:25 PM	0	8	1	0	0	1	5	0	2	22	3	0	0	26	3	0	71	919
5:30 PM	4	3	0	0	0	5	0	0	3	20	3	0	1	14	2	0	55	902
5:35 PM	2	5	4	0	2	10	1	0	4	22	1	0	3	24	1	0	79	916
5:40 PM	4	9	6	0	3	5	3	0	1	17	1	0	1	14	3	0	67	914
5:45 PM	5	5	3	0	0	6	2	0	1	19	2	0	2	19	0	0	64	902
5:50 PM	3	9	3	0	0	4	3	0	0	28	7	0	1	22	6	0	86	893
5:55 PM	2	5	1	0	1	5	2	0	2	19	1	0	4	18	0	0	60	884

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	144	36	0	32	96	24	0	20	260	40	0	20	260	40	0	992
Heavy Trucks	0	0	0		0	4	0		0	16	0		0	16	0		36
Buses																	
Pedestrians		164				104				48				16			332
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/11/2025 3:30 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

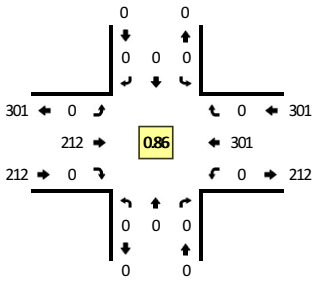
Type of peak hour being reported: Intersection Peak

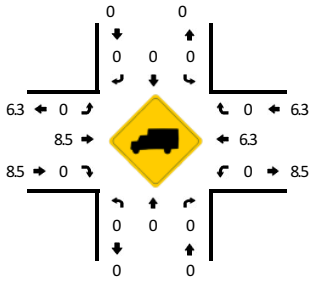
Method for determining peak hour: Total Entering Volume

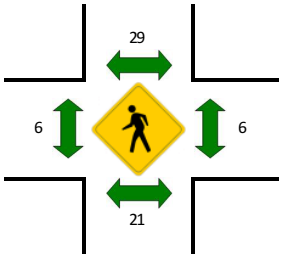
LOCATION: City Plaza -- 4th St
CITY/STATE: San Rafael, CA

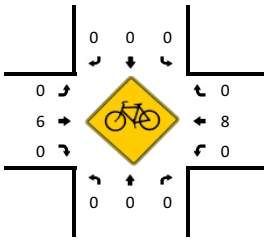
QC JOB #: 16908903
DATE: Wed, Feb 5 2025

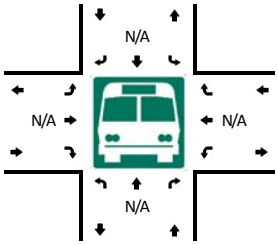
Peak-Hour: 7:50 AM -- 8:50 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

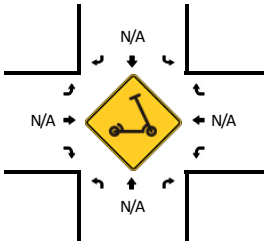












5-Min Count Period Beginning At	City Plaza (Northbound)				City Plaza (Southbound)				4th St (Eastbound)				4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	9	0	0	0	6	0	0	15	
7:05 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	10	0	0	15	
7:10 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	11	0	0	21	
7:15 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	8	
7:20 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	14	0	0	25	
7:25 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	16	0	0	24	
7:30 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	7	0	0	19	
7:35 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	13	0	0	26	
7:40 AM	0	0	0	0	0	0	0	0	0	9	0	0	0	11	0	0	20	
7:45 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	22	0	0	32	
7:50 AM	0	0	0	0	0	0	0	0	0	22	0	0	0	21	0	0	43	
7:55 AM	0	0	0	0	0	0	0	0	0	22	0	0	0	31	0	0	53	301
8:00 AM	0	0	0	0	0	0	0	0	0	24	0	0	0	30	0	0	54	340
8:05 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	25	0	0	36	361
8:10 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	23	0	0	39	379
8:15 AM	0	0	0	0	0	0	0	0	0	25	0	0	0	23	0	0	48	419
8:20 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	13	0	0	29	423
8:25 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	22	0	0	34	433
8:30 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	37	0	0	53	467
8:35 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	28	0	0	44	485
8:40 AM	0	0	0	0	0	0	0	0	0	21	0	0	0	21	0	0	42	507
8:45 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	27	0	0	38	513
8:50 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	19	0	0	31	501
8:55 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	20	0	0	36	484

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	272	0	0	0	328	0	0	600
Heavy Trucks	0	0	0		0	0	0		0	20	0		0	28	0		48
Buses																	
Pedestrians		24				28				4				4			60
Bicycles	0	0	0		0	0	0		0	4	0		0	16	0		20
Scooters																	

Comments:

Report generated on 2/11/2025 3:30 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

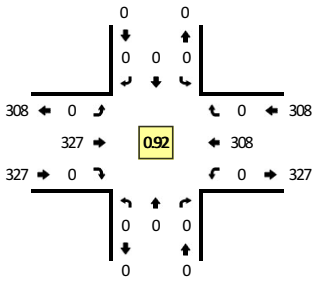
Type of peak hour being reported: Intersection Peak

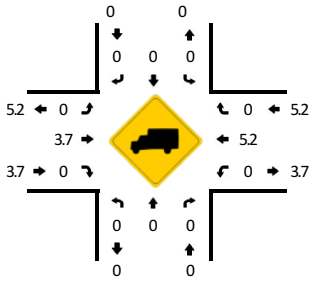
Method for determining peak hour: Total Entering Volume

LOCATION: City Plaza -- 4th St
CITY/STATE: San Rafael, CA

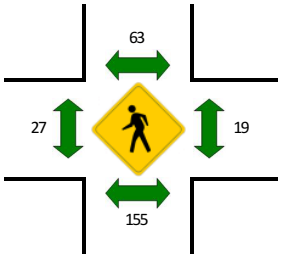
QC JOB #: 16908904
DATE: Wed, Feb 5 2025

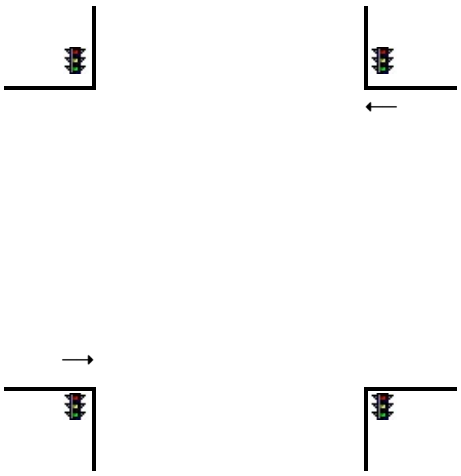
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

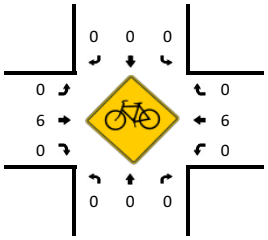


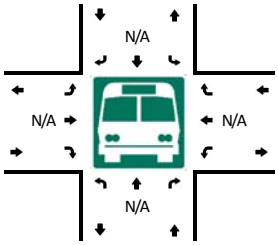


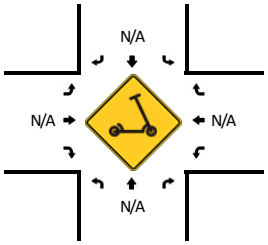
TRUE DATA TO IMPROVE MOBILITY











5-Min Count Period Beginning At	City Plaza (Northbound)				City Plaza (Southbound)				4th St (Eastbound)				4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	22	0	0	51	
4:05 PM	0	0	0	0	0	0	0	0	0	24	0	0	0	20	0	0	44	
4:10 PM	0	0	0	0	0	0	0	0	0	23	0	0	0	28	0	0	51	
4:15 PM	0	0	0	0	0	0	0	0	0	27	0	0	0	31	0	0	58	
4:20 PM	0	0	0	0	0	0	0	0	0	34	0	0	0	29	0	0	63	
4:25 PM	0	0	0	0	0	0	0	0	0	21	0	0	0	19	0	0	40	
4:30 PM	0	0	0	0	0	0	0	0	0	30	0	0	0	20	0	0	50	
4:35 PM	0	0	0	0	0	0	0	0	0	28	0	0	0	27	0	0	55	
4:40 PM	0	0	0	0	0	0	0	0	0	30	0	0	0	15	0	0	45	
4:45 PM	0	0	0	0	0	0	0	0	0	22	0	0	0	27	0	0	49	
4:50 PM	0	0	0	0	0	0	0	0	0	28	0	0	0	32	0	0	60	
4:55 PM	0	0	0	0	0	0	0	0	0	28	0	0	0	27	0	0	55	621
5:00 PM	0	0	0	0	0	0	0	0	0	27	0	0	0	25	0	0	52	622
5:05 PM	0	0	0	0	0	0	0	0	0	29	0	0	0	28	0	0	57	635
5:10 PM	0	0	0	0	0	0	0	0	0	27	0	0	0	15	0	0	42	626
5:15 PM	0	0	0	0	0	0	0	0	0	24	0	0	0	26	0	0	50	618
5:20 PM	0	0	0	0	0	0	0	0	0	35	0	0	0	35	0	0	70	625
5:25 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	19	0	0	36	621
5:30 PM	0	0	0	0	0	0	0	0	0	25	0	0	0	20	0	0	45	616
5:35 PM	0	0	0	0	0	0	0	0	0	27	0	0	0	26	0	0	53	614
5:40 PM	0	0	0	0	0	0	0	0	0	33	0	0	0	18	0	0	51	620
5:45 PM	0	0	0	0	0	0	0	0	0	21	0	0	0	24	0	0	45	616
5:50 PM	0	0	0	0	0	0	0	0	0	27	0	0	0	27	0	0	54	610
5:55 PM	0	0	0	0	0	0	0	0	0	24	0	0	0	21	0	0	45	600

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	336	0	0	0	352	0	0	688
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	16	0		28
Buses																	
Pedestrians		196				52				32				32			312
Bicycles	0	0	0		0	0	0		0	12	0		0	0	0		12
Scooters																	

Comments:

Report generated on 2/11/2025 3:30 PM

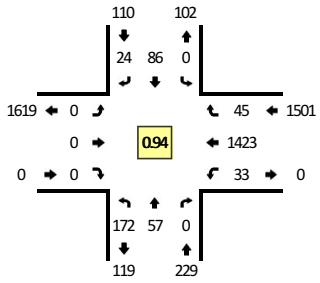
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

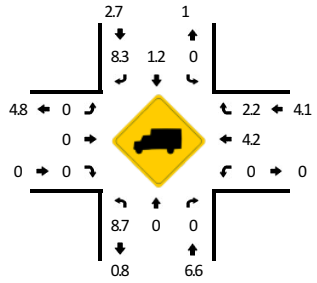
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: A St -- 3rd St
CITY/STATE: San Rafael, CA

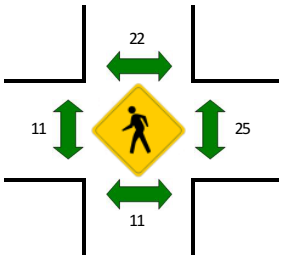
QC JOB #: 16908905
DATE: Wed, Feb 5 2025

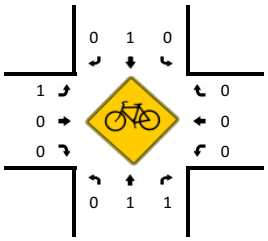
Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:25 AM -- 8:40 AM

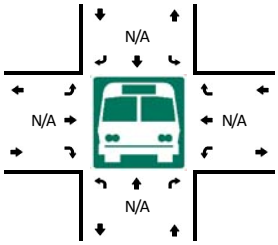


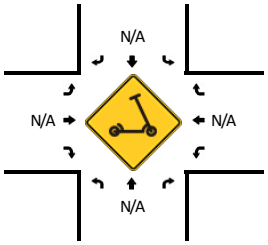


TRUE DATA TO IMPROVE MOBILITY









5-Min Count Period Beginning At	A St (Northbound)				A St (Southbound)				3rd St (Eastbound)				3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	2	0	0	0	2	2	0	0	0	0	0	1	63	2	0	74	
7:05 AM	10	2	0	0	0	4	1	0	0	0	0	0	0	74	2	0	93	
7:10 AM	4	1	0	0	0	1	0	0	0	0	0	0	0	83	0	0	89	
7:15 AM	10	2	0	0	0	1	0	0	0	0	0	0	0	36	0	0	49	
7:20 AM	10	4	0	0	0	2	0	0	0	0	0	0	0	94	2	0	112	
7:25 AM	8	1	0	0	0	3	0	0	0	0	0	0	1	87	2	0	102	
7:30 AM	9	8	0	0	0	1	1	0	0	0	0	0	3	86	2	0	110	
7:35 AM	12	2	0	0	0	2	1	0	0	0	0	0	2	87	2	0	108	
7:40 AM	13	1	0	0	0	6	0	0	0	0	0	0	2	128	1	0	151	
7:45 AM	15	10	0	0	0	1	1	0	0	0	0	0	2	94	3	0	126	
7:50 AM	21	10	0	0	0	7	1	0	0	0	0	0	0	48	1	0	88	
7:55 AM	13	2	0	0	0	14	2	0	0	0	0	0	3	141	1	0	176	1278
8:00 AM	12	9	0	0	0	14	1	0	0	0	0	0	0	136	1	0	173	1377
8:05 AM	7	0	0	0	0	9	3	0	0	0	0	0	2	107	2	0	130	1414
8:10 AM	11	4	0	0	0	10	1	0	0	0	0	0	2	122	7	0	157	1482
8:15 AM	22	6	0	0	0	4	3	0	0	0	0	0	3	148	7	0	193	1626
8:20 AM	19	6	0	0	0	4	2	0	0	0	0	0	1	50	4	0	86	1600
8:25 AM	17	5	0	0	0	4	0	0	0	0	0	0	3	121	3	0	153	1651
8:30 AM	11	4	0	0	0	9	1	0	0	0	0	0	2	136	4	0	167	1708
8:35 AM	20	4	0	0	0	8	3	0	0	0	0	0	4	130	1	0	170	1770
8:40 AM	9	6	0	0	0	2	0	0	0	0	0	0	3	121	5	0	146	1765
8:45 AM	12	4	0	0	0	2	5	0	0	0	0	0	3	111	4	0	141	1780
8:50 AM	19	7	0	0	0	6	3	0	0	0	0	0	7	100	6	0	148	1840
8:55 AM	11	4	0	0	0	5	1	0	0	0	0	0	4	91	4	0	120	1784

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	192	52	0	0	0	84	16	0	0	0	0	0	36	1548	32	0	1960
Heavy Trucks	20	0	0		0	4	0		0	0	0		0	56	0		80
Buses																	
Pedestrians		20				40				16				28			104
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 2/11/2025 3:30 PM

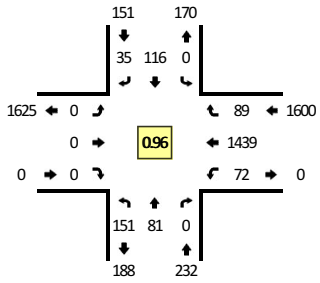
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

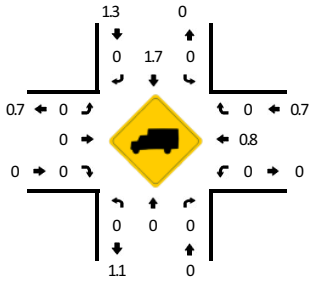
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: A St -- 3rd St
CITY/STATE: San Rafael, CA

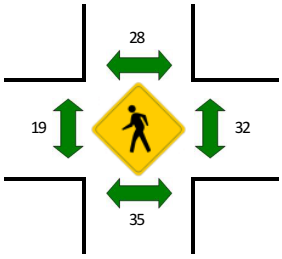
QC JOB #: 16908906
DATE: Wed, Feb 5 2025

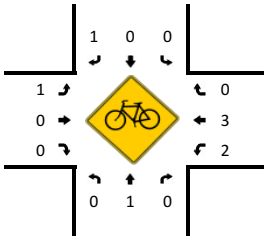
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:25 PM -- 5:40 PM

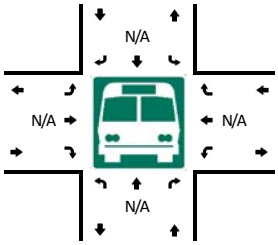


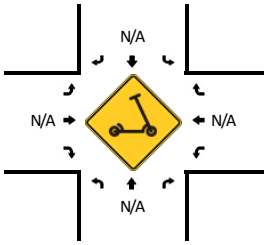


TRUE DATA TO IMPROVE MOBILITY









5-Min Count Period Beginning At	A St (Northbound)				A St (Southbound)				3rd St (Eastbound)				3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	16	6	0	0	0	4	2	0	0	0	0	0	7	120	7	0	162	
4:05 PM	15	5	0	0	0	12	2	0	0	0	0	0	14	95	5	0	148	
4:10 PM	14	11	0	0	0	5	6	0	0	0	0	0	9	80	8	0	133	
4:15 PM	10	8	0	0	0	9	6	0	0	0	0	0	9	155	7	0	204	
4:20 PM	17	5	0	0	0	15	4	0	0	0	0	0	7	130	10	0	188	
4:25 PM	15	5	0	0	0	8	4	0	0	0	0	0	8	92	8	0	140	
4:30 PM	6	1	0	0	0	7	2	0	0	0	0	0	11	117	4	0	148	
4:35 PM	7	7	0	0	0	5	2	0	0	0	0	0	3	102	4	0	130	
4:40 PM	17	10	0	0	0	10	3	0	0	0	0	0	2	90	6	0	138	
4:45 PM	15	6	0	0	0	8	1	0	0	0	0	0	8	120	10	0	168	
4:50 PM	10	8	0	0	0	9	3	0	0	0	0	0	7	121	7	0	165	
4:55 PM	18	10	0	0	0	7	2	0	0	0	0	0	9	102	8	0	156	1880
5:00 PM	8	6	0	0	0	8	2	0	0	0	0	0	10	120	8	0	162	1880
5:05 PM	14	10	0	0	0	10	3	0	0	0	0	0	7	120	10	0	174	1906
5:10 PM	15	8	0	0	0	16	5	0	0	0	0	0	3	86	5	0	138	1911
5:15 PM	13	7	0	0	0	9	4	0	0	0	0	0	7	133	7	0	180	1887
5:20 PM	12	6	0	0	0	8	2	0	0	0	0	0	5	138	7	0	178	1877
5:25 PM	14	1	0	0	0	10	2	0	0	0	0	0	6	109	12	0	154	1891
5:30 PM	14	8	0	0	0	10	2	0	0	0	0	0	6	131	6	0	177	1920
5:35 PM	7	7	0	0	0	11	2	0	0	0	0	0	3	149	7	0	186	1976
5:40 PM	11	4	0	0	0	10	5	0	0	0	0	0	3	86	3	0	122	1960
5:45 PM	15	6	0	0	0	8	3	0	0	0	0	0	6	144	9	0	191	1983
5:50 PM	10	4	0	0	0	8	2	0	0	0	0	0	5	120	10	0	159	1977
5:55 PM	6	5	0	0	0	8	1	0	0	0	0	0	4	133	4	0	161	1982

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	140	64	0	0	0	124	24	0	0	0	0	0	60	1556	100	0	2068
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	12	0		16
Buses																	
Pedestrians		28				12				32				28			100
Bicycles	0	0	0		0	0	0		0	0	0		4	0	0		4
Scooters																	

Comments:

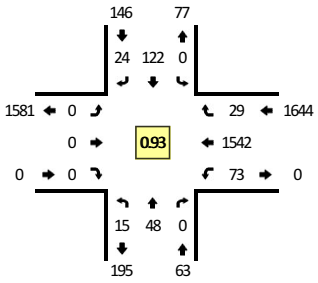
Report generated on 2/11/2025 3:30 PM

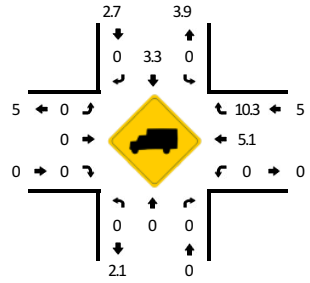
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

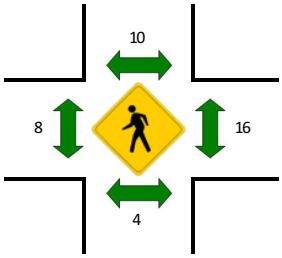
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

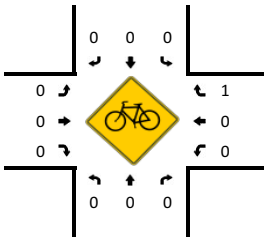
LOCATION: B St -- 3rd St | **QC JOB #:** 16908907
CITY/STATE: San Rafael, CA | **DATE:** Wed, Feb 5 2025

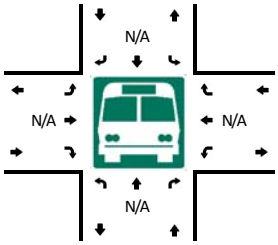
Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:30 AM -- 8:45 AM

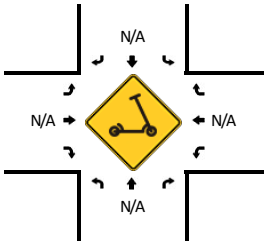












5-Min Count Period Beginning At	B St (Northbound)				B St (Southbound)				3rd St (Eastbound)				3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	0	0	0	5	1	0	0	0	0	0	4	64	0	0	75	
7:05 AM	0	1	0	0	0	2	0	0	0	0	0	0	6	73	3	0	85	
7:10 AM	0	0	0	0	0	3	1	0	0	0	0	0	6	81	2	0	93	
7:15 AM	0	0	0	0	0	2	1	0	0	0	0	0	2	45	0	0	50	
7:20 AM	1	2	0	0	0	6	0	0	0	0	0	0	3	98	2	0	112	
7:25 AM	1	0	0	0	0	8	0	0	0	0	0	0	4	89	0	0	102	
7:30 AM	1	0	0	0	0	11	1	0	0	0	0	0	5	95	1	0	114	
7:35 AM	1	2	0	0	0	8	1	0	0	0	0	0	8	90	2	0	112	
7:40 AM	0	2	0	0	0	11	1	0	0	0	0	0	14	128	1	0	157	
7:45 AM	0	2	0	0	0	8	2	0	0	0	0	0	8	108	2	0	130	
7:50 AM	0	1	0	0	0	7	2	0	0	0	0	0	2	66	0	0	78	
7:55 AM	0	4	0	0	0	10	1	0	0	0	0	0	6	152	0	0	173	1281
8:00 AM	2	2	0	0	0	11	5	0	0	0	0	0	3	154	0	0	177	1383
8:05 AM	1	3	0	0	0	13	1	0	0	0	0	0	6	105	3	0	132	1430
8:10 AM	1	3	0	0	0	8	1	0	0	0	0	0	7	125	2	0	147	1484
8:15 AM	0	5	0	0	0	6	3	0	0	0	0	0	10	174	3	0	201	1635
8:20 AM	2	6	0	0	0	11	2	0	0	0	0	0	4	69	0	0	94	1617
8:25 AM	1	4	0	0	0	10	0	0	0	0	0	0	5	116	3	0	139	1654
8:30 AM	0	6	0	0	0	6	2	0	0	0	0	0	5	153	2	0	174	1714
8:35 AM	2	2	0	0	0	12	5	0	0	0	0	0	9	143	5	0	178	1780
8:40 AM	5	4	0	0	0	9	1	0	0	0	0	0	8	120	1	0	148	1771
8:45 AM	1	3	0	0	0	11	2	0	0	0	0	0	3	128	4	0	152	1793
8:50 AM	0	6	0	0	0	15	1	0	0	0	0	0	7	103	6	0	138	1853
8:55 AM	1	4	0	0	0	6	0	0	0	0	0	0	9	89	3	0	112	1792

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	48	0	0	0	108	32	0	0	0	0	0	88	1664	32	0	2000
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	88	4		92
Buses																	
Pedestrians		4				12				4				24			44
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

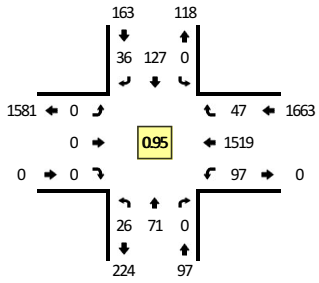
Report generated on 2/11/2025 3:30 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

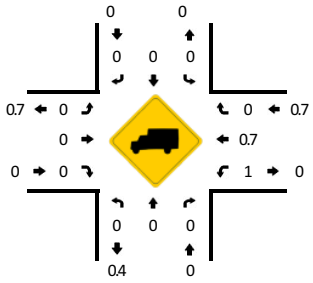
LOCATION: B St -- 3rd St
CITY/STATE: San Rafael, CA

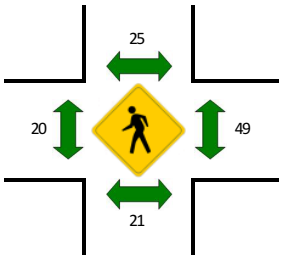
QC JOB #: 16908908
DATE: Wed, Feb 5 2025

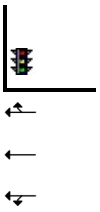
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:45 PM -- 6:00 PM

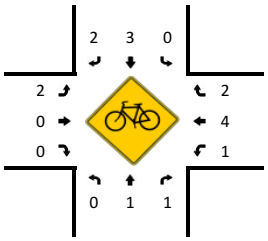


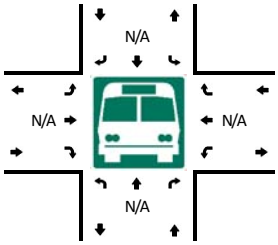
TRUE DATA TO IMPROVE MOBILITY

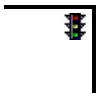


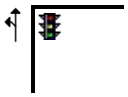


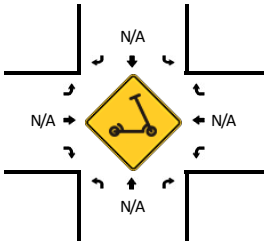












5-Min Count Period Beginning At	B St (Northbound)				B St (Southbound)				3rd St (Eastbound)				3rd St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	6	0	0	0	16	2	0	0	0	0	0	10	135	5	0	174	
4:05 PM	0	2	0	0	0	10	3	0	0	0	0	0	9	106	1	0	131	
4:10 PM	3	4	0	0	0	16	4	0	0	0	0	0	11	90	2	0	130	
4:15 PM	2	5	0	0	0	10	3	0	0	0	0	0	13	155	6	0	194	
4:20 PM	3	3	0	0	0	12	3	0	0	0	0	0	7	158	0	0	186	
4:25 PM	0	2	0	0	0	18	2	0	0	0	0	0	7	108	2	0	139	
4:30 PM	1	2	0	0	0	12	5	0	0	0	0	0	17	108	2	0	147	
4:35 PM	3	3	0	0	0	10	1	0	0	0	0	0	8	110	1	0	136	
4:40 PM	3	10	0	0	0	7	4	0	0	0	0	0	4	106	4	0	138	
4:45 PM	2	9	0	0	0	12	2	0	0	0	0	0	10	131	1	0	167	
4:50 PM	2	1	0	0	0	9	4	0	0	0	0	0	11	119	3	0	149	
4:55 PM	3	4	0	0	0	10	5	0	0	0	0	0	17	113	2	0	154	1845
5:00 PM	3	3	0	0	0	12	3	0	0	0	0	0	9	120	3	0	153	1824
5:05 PM	2	3	0	0	0	16	0	0	0	0	0	0	9	135	4	0	169	1862
5:10 PM	3	11	0	0	0	18	3	0	0	0	0	0	9	85	2	0	131	1863
5:15 PM	2	8	0	0	0	8	3	0	0	0	0	0	8	142	3	0	174	1843
5:20 PM	1	6	0	0	0	9	3	0	0	0	0	0	13	140	3	0	175	1832
5:25 PM	1	5	0	0	0	17	4	0	0	0	0	0	3	116	5	0	151	1844
5:30 PM	1	4	0	0	0	2	4	0	0	0	0	0	10	131	5	0	157	1854
5:35 PM	1	5	0	0	0	9	7	0	0	0	0	0	12	142	7	0	183	1901
5:40 PM	3	7	0	0	0	11	1	0	0	0	0	0	4	94	5	0	125	1888
5:45 PM	2	3	0	0	0	7	3	0	0	0	0	0	8	152	3	0	178	1899
5:50 PM	4	5	0	0	0	8	1	0	0	0	0	0	5	127	3	0	153	1903
5:55 PM	3	11	0	0	0	10	4	0	0	0	0	0	7	135	4	0	174	1923

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	76	0	0	0	100	32	0	0	0	0	0	80	1656	40	0	2020
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		28				48				12				52			140
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 2/11/2025 3:30 PM

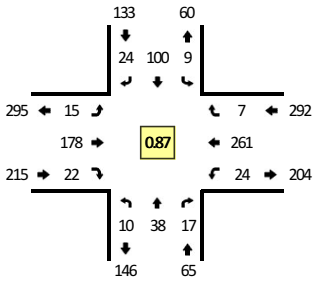
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

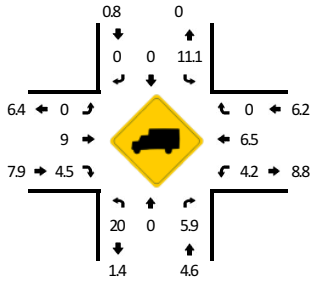
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

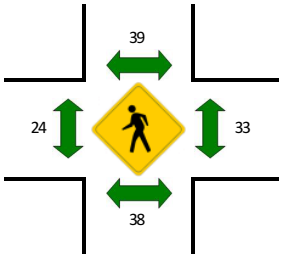
LOCATION: B St -- 4th St
CITY/STATE: San Rafael, CA

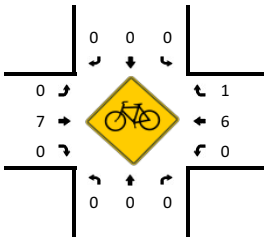
QC JOB #: 16908909
DATE: Wed, Feb 12 2025

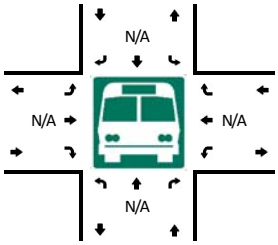
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:35 AM -- 8:50 AM

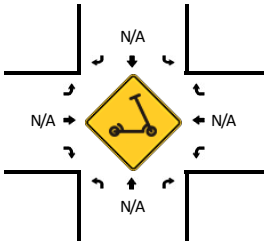












5-Min Count Period Beginning At	B St (Northbound)				B St (Southbound)				4th St (Eastbound)				4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	0	0	0	3	2	0	0	4	0	0	0	7	2	0	19	
7:05 AM	1	1	0	0	2	3	0	0	0	6	1	0	0	5	1	0	20	
7:10 AM	0	2	2	0	0	1	0	0	1	6	0	0	1	9	0	0	22	
7:15 AM	0	1	0	0	0	4	0	0	0	8	1	0	3	5	1	0	23	
7:20 AM	1	1	3	0	1	2	4	0	0	5	1	0	1	15	0	0	34	
7:25 AM	0	1	0	0	3	2	2	0	2	6	1	0	1	23	2	0	43	
7:30 AM	1	0	0	0	2	8	0	0	0	14	3	0	1	13	0	0	42	
7:35 AM	0	1	0	0	2	5	0	0	1	14	1	0	3	17	1	0	45	
7:40 AM	0	0	1	0	0	7	1	0	0	15	1	0	1	13	0	0	39	
7:45 AM	1	1	1	0	2	5	2	0	0	11	2	0	2	11	0	0	38	
7:50 AM	1	2	0	0	2	6	5	0	0	10	0	0	4	12	0	0	42	
7:55 AM	0	2	0	0	0	7	3	0	1	15	1	0	2	24	1	0	56	423
8:00 AM	1	4	2	0	0	7	2	0	0	10	1	0	1	29	1	0	58	462
8:05 AM	2	0	0	0	0	5	0	0	1	16	2	0	1	22	0	0	49	491
8:10 AM	1	5	3	0	0	6	2	0	1	7	2	0	6	27	1	0	61	530
8:15 AM	1	5	1	0	3	9	0	0	2	14	2	0	2	18	1	0	58	565
8:20 AM	0	6	0	0	2	7	0	0	1	13	0	0	1	11	0	0	41	572
8:25 AM	0	2	2	0	0	9	4	0	1	16	1	0	2	22	2	0	61	590
8:30 AM	0	1	3	0	0	8	5	0	0	10	3	0	1	23	1	0	55	603
8:35 AM	1	2	1	0	0	10	4	0	1	17	4	0	2	34	0	0	76	634
8:40 AM	0	6	1	0	0	10	2	0	5	18	5	0	0	18	0	0	65	660
8:45 AM	3	4	2	0	1	10	2	0	0	17	2	0	0	20	0	0	61	683
8:50 AM	1	3	0	0	1	11	1	0	2	16	0	0	3	21	0	0	59	700
8:55 AM	0	0	2	0	2	8	2	0	1	24	0	0	5	16	1	0	61	705

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	48	16	0	4	120	32	0	24	208	44	0	8	288	0	0	808
Heavy Trucks	0	0	0		0	0	0		0	20	4		0	16	0		40
Buses																	
Pedestrians		68				44				32				52			196
Bicycles	0	0	0		0	0	0		0	8	0		0	4	0		12
Scooters																	

Comments:

Report generated on 2/13/2025 3:16 PM

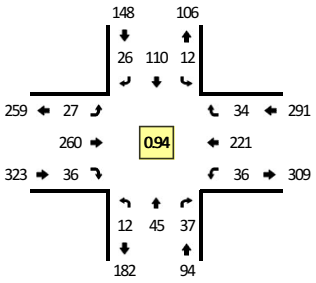
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

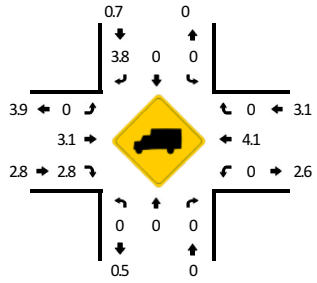
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

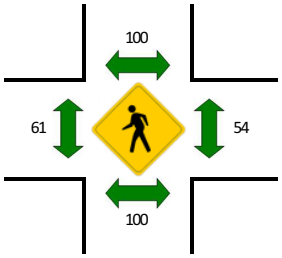
LOCATION: B St -- 4th St
CITY/STATE: San Rafael, CA

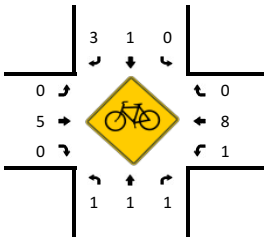
QC JOB #: 16908910
DATE: Wed, Feb 12 2025

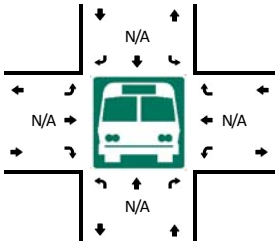
Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

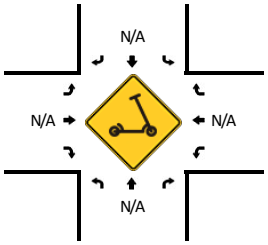












5-Min Count Period Beginning At	B St (Northbound)				B St (Southbound)				4th St (Eastbound)				4th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	2	5	0	0	10	1	0	1	27	6	0	2	22	5	0	83	
4:05 PM	2	2	6	0	1	11	0	0	4	24	3	0	3	10	2	0	68	
4:10 PM	2	2	3	0	0	10	3	0	3	19	5	0	3	23	5	0	78	
4:15 PM	4	4	2	0	1	10	2	0	2	24	3	0	1	25	3	0	81	
4:20 PM	1	7	0	0	1	13	3	0	1	19	6	0	5	17	3	0	76	
4:25 PM	2	2	3	0	2	7	2	0	0	21	1	0	2	18	2	0	62	
4:30 PM	0	3	4	0	0	9	1	0	2	22	2	0	2	18	2	0	65	
4:35 PM	0	3	1	0	1	8	1	0	0	13	4	0	2	15	1	2	51	
4:40 PM	0	3	2	0	0	9	1	0	5	24	2	0	3	18	1	0	68	
4:45 PM	4	1	3	0	0	6	1	0	2	20	3	0	5	21	1	0	67	
4:50 PM	0	2	5	0	1	3	2	0	0	16	3	0	1	18	3	0	54	
4:55 PM	1	2	2	0	3	11	3	0	1	19	6	0	4	20	3	0	75	828
5:00 PM	0	2	3	0	1	15	2	0	2	19	2	0	3	23	2	0	74	819
5:05 PM	1	3	2	0	0	6	1	0	3	25	2	0	1	13	2	0	59	810
5:10 PM	0	2	2	0	1	9	1	0	1	16	5	0	0	22	1	0	60	792
5:15 PM	1	5	8	0	2	14	3	0	1	23	4	0	3	21	2	0	87	798
5:20 PM	0	4	5	0	0	9	2	0	2	16	3	0	4	15	3	0	63	785
5:25 PM	1	5	1	0	0	7	3	0	6	29	1	0	0	22	3	0	78	801
5:30 PM	2	5	4	0	1	6	5	0	3	19	3	0	8	15	5	0	76	812
5:35 PM	2	3	2	0	1	4	1	0	3	24	3	0	2	11	4	0	60	821
5:40 PM	3	5	0	0	1	8	2	0	3	25	1	0	4	18	2	0	72	825
5:45 PM	1	4	3	0	1	11	2	0	0	23	3	0	2	19	3	0	72	830
5:50 PM	0	5	5	0	1	10	1	0	2	22	3	0	5	22	4	0	80	856
5:55 PM	0	3	2	0	1	3	1	0	4	20	2	0	2	18	4	0	60	841

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	56	56	0	8	120	32	0	36	272	32	0	28	232	32	0	912
Heavy Trucks	0	0	0		0	0	0		0	16	0		0	8	0		24
Buses																	
Pedestrians		92				120				48				60			320
Bicycles	4	0	0		0	4	0		0	4	0		0	0	0		12
Scooters																	

Comments:

Report generated on 2/13/2025 3:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

APPENDIX C | Existing Conditions Synchro Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	184	13	27	262	10	14	48	12	18	99	17
Future Volume (vph)	21	184	13	27	262	10	14	48	12	18	99	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes	1.00	1.00		0.98	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1844		1760	1766			1797			1812	
Flt Permitted	0.53	1.00		0.61	1.00			0.94			0.96	
Satd. Flow (perm)	993	1844		1133	1766			1713			1757	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	24	211	15	31	301	11	16	55	14	21	114	20
RTOR Reduction (vph)	0	3	0	0	2	0	0	9	0	0	7	0
Lane Group Flow (vph)	24	223	0	31	310	0	0	76	0	0	148	0
Confl. Peds. (#/hr)				22		31	19		9	9		19
Confl. Bikes (#/hr)						1			7			6
Heavy Vehicles (%)	2%	2%	2%	0%	7%	0%	7%	0%	0%	0%	0%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Effective Green, g (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.34			0.34	
Clearance Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			2.0			2.0	
Lane Grp Cap (vph)	534	993		610	951			580			595	
v/s Ratio Prot		0.12			c0.18							
v/s Ratio Perm	0.02			0.03				0.04			c0.08	
v/c Ratio	0.04	0.22		0.05	0.33			0.13			0.25	
Uniform Delay, d1	8.2	9.1		8.2	9.7			17.2			17.9	
Progression Factor	0.60	0.55		0.74	0.64			1.00			1.00	
Incremental Delay, d2	0.2	0.5		0.2	0.9			0.5			1.0	
Delay (s)	5.1	5.5		6.2	7.1			17.6			18.9	
Level of Service	A	A		A	A			B			B	
Approach Delay (s/veh)		5.4			7.0			17.6			18.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	212	0	0	301	0	0
Future Volume (vph)	212	0	0	301	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			1.00		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1743			1792		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1743			1792		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.92	0.92
Adj. Flow (vph)	247	0	0	350	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	247	0	0	350	0	0
Confl. Peds. (#/hr)		21	21		6	6
Heavy Vehicles (%)	9%	9%	6%	6%	0%	0%
Turn Type	NA			NA		
Protected Phases	2			2		
Permitted Phases						
Actuated Green, G (s)	45.4			45.4		
Effective Green, g (s)	45.4			45.4		
Actuated g/C Ratio	0.61			0.61		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	1055			1084		
v/s Ratio Prot	0.14			c0.20		
v/s Ratio Perm						
v/c Ratio	0.23			0.32		
Uniform Delay, d1	6.8			7.3		
Progression Factor	0.44			1.00		
Incremental Delay, d2	0.5			0.8		
Delay (s)	3.5			8.0		
Level of Service	A			A		
Approach Delay (s/veh)	3.5			8.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.6
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	33	1423	45	172	57	0	0	86	24
Future Volume (vph)	0	0	0	33	1423	45	172	57	0	0	86	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		4.5	4.6			4.6	
Lane Util. Factor					0.91		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			0.99	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					1.00		1.00	1.00			0.97	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					5046		1770	1863			1797	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					5046		1770	1863			1797	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	35	1514	48	183	61	0	0	91	26
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	0	1594	0	183	61	0	0	106	0
Confl. Peds. (#/hr)	22		11	11		22	11		25	25		11
Confl. Bikes (#/hr)			1			1			1			
Turn Type				Perm	NA		Prot	NA			NA	
Protected Phases					6		3	8			4	
Permitted Phases				6								
Actuated Green, G (s)					45.4		7.5	35.4			23.4	
Effective Green, g (s)					45.4		7.5	35.4			23.4	
Actuated g/C Ratio					0.50		0.08	0.39			0.26	
Clearance Time (s)					4.6		4.5	4.6			4.6	
Vehicle Extension (s)					3.0		5.0	2.0			2.0	
Lane Grp Cap (vph)					2545		147	732			467	
v/s Ratio Prot							c0.10	0.03			c0.06	
v/s Ratio Perm					0.32							
v/c Ratio					0.63		1.24	0.08			0.23	
Uniform Delay, d1					16.2		41.3	17.1			26.2	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					1.2		154.6	0.2			1.1	
Delay (s)					17.3		195.8	17.3			27.3	
Level of Service					B		F	B			C	
Approach Delay (s/veh)		0.0			17.3			151.2			27.3	
Approach LOS		A			B			F			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	73	1542	29	15	48	0	0	122	24
Future Volume (vph)	0	0	0	73	1542	29	15	48	0	0	122	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					0.91			1.00			1.00	
Frpb, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					1.00			1.00			0.98	
Flt Protected					1.00			0.99			1.00	
Satd. Flow (prot)					5055			1838			1814	
Flt Permitted					1.00			0.93			1.00	
Satd. Flow (perm)					5055			1720			1814	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	78	1658	31	16	52	0	0	131	26
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	0	1765	0	0	68	0	0	149	0
Confl. Peds. (#/hr)				4		10	8		16	16		8
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					2			4			4	
Permitted Phases				2			4					
Actuated Green, G (s)					55.0			25.0			25.0	
Effective Green, g (s)					55.0			25.0			25.0	
Actuated g/C Ratio					0.61			0.28			0.28	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					3089			477			503	
v/s Ratio Prot											c0.08	
v/s Ratio Perm					0.35			0.04				
v/c Ratio					0.57			0.14			0.30	
Uniform Delay, d1					10.5			24.4			25.6	
Progression Factor					0.25			1.00			1.00	
Incremental Delay, d2					0.6			0.6			1.5	
Delay (s)					3.2			25.1			27.1	
Level of Service					A			C			C	
Approach Delay (s/veh)		0.0			3.2			25.1			27.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	178	22	24	261	7	10	38	17	9	100	24
Future Volume (vph)	15	178	22	24	261	7	10	38	17	9	100	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.6	4.6			5.1			5.1	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		0.99		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		0.96	1.00			1.00			1.00	
Frt		0.99		1.00	1.00			0.96			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1813		1707	1852			1734			1784	
Flt Permitted		0.97		0.61	1.00			0.96			0.99	
Satd. Flow (perm)		1769		1099	1852			1675			1763	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	205	25	28	300	8	11	44	20	10	115	28
RTOR Reduction (vph)	0	6	0	0	1	0	0	13	0	0	11	0
Lane Group Flow (vph)	0	241	0	28	307	0	0	62	0	0	142	0
Confl. Peds. (#/hr)	39		38	38		39	24		33	33		24
Confl. Bikes (#/hr)			1						7			
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		40.4		40.4	40.4			24.9			24.9	
Effective Green, g (s)		40.4		40.4	40.4			24.9			24.9	
Actuated g/C Ratio		0.54		0.54	0.54			0.33			0.33	
Clearance Time (s)		4.6		4.6	4.6			5.1			5.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		952		591	997			556			585	
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.14		0.03				0.04			c0.08	
v/c Ratio		0.25		0.05	0.31			0.11			0.24	
Uniform Delay, d1		9.2		8.2	9.6			17.4			18.2	
Progression Factor		1.00		0.65	0.57			1.00			1.00	
Incremental Delay, d2		0.6		0.1	0.8			0.4			1.0	
Delay (s)		9.9		5.5	6.3			17.8			19.2	
Level of Service		A		A	A			B			B	
Approach Delay (s/veh)		9.9			6.2			17.8			19.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.7
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

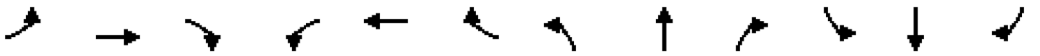
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	262	33	23	240	43	27	112	42	18	77	29
Future Volume (vph)	30	262	33	23	240	43	27	112	42	18	77	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98			0.99			0.98	
Flpb, ped/bikes	0.93	1.00		0.88	1.00			0.99			1.00	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1648	1786		1587	1718			1782			1752	
Flt Permitted	0.52	1.00		0.51	1.00			0.95			0.94	
Satd. Flow (perm)	905	1786		851	1718			1698			1668	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	34	301	38	26	276	49	31	129	48	21	89	33
RTOR Reduction (vph)	0	6	0	0	8	0	0	15	0	0	15	0
Lane Group Flow (vph)	34	333	0	26	317	0	0	193	0	0	128	0
Confl. Peds. (#/hr)	74		133	133		74	29		8	8		29
Confl. Bikes (#/hr)									7			3
Heavy Vehicles (%)	2%	2%	2%	0%	7%	0%	7%	0%	0%	0%	0%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Effective Green, g (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.34			0.34	
Clearance Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			2.0			2.0	
Lane Grp Cap (vph)	487	962		458	925			575			564	
v/s Ratio Prot		c0.19			0.18							
v/s Ratio Perm	0.04			0.03				c0.11			0.08	
v/c Ratio	0.07	0.35		0.06	0.34			0.34			0.23	
Uniform Delay, d1	8.3	9.8		8.2	9.8			18.5			17.8	
Progression Factor	0.61	0.52		0.16	0.22			1.00			1.00	
Incremental Delay, d2	0.3	0.9		0.2	1.0			1.6			0.9	
Delay (s)	5.4	6.1		1.6	3.1			20.1			18.7	
Level of Service	A	A		A	A			C			B	
Approach Delay (s/veh)		6.0			3.0			20.1			18.7	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	327	0	0	308	0	0
Future Volume (vph)	327	0	0	308	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			1.00		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1863			1863		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1863			1863		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.92	0.92
Adj. Flow (vph)	380	0	0	358	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	380	0	0	358	0	0
Confl. Peds. (#/hr)		19	27			
Turn Type	NA			NA		
Protected Phases	2			2		
Permitted Phases						
Actuated Green, G (s)	45.4			45.4		
Effective Green, g (s)	45.4			45.4		
Actuated g/C Ratio	0.61			0.61		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	1127			1127		
v/s Ratio Prot	c0.20			0.19		
v/s Ratio Perm						
v/c Ratio	0.34			0.32		
Uniform Delay, d1	7.3			7.2		
Progression Factor	0.68			1.00		
Incremental Delay, d2	0.8			0.7		
Delay (s)	5.8			8.0		
Level of Service	A			A		
Approach Delay (s/veh)	5.8			8.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.6
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	72	1439	89	151	81	0	0	116	35
Future Volume (vph)	0	0	0	72	1439	89	151	81	0	0	116	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		4.5	4.6			4.6	
Lane Util. Factor					0.91		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			0.99	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.99		1.00	1.00			0.97	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					4999		1770	1863			1789	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					4999		1770	1863			1789	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	77	1531	95	161	86	0	0	123	37
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1696	0	161	86	0	0	148	0
Confl. Peds. (#/hr)	22		11	35		28	19		32	32		19
Confl. Bikes (#/hr)			1			2						3
Turn Type				Perm	NA		Prot	NA			NA	
Protected Phases					6		3	8			4	
Permitted Phases				6								
Actuated Green, G (s)					45.4		7.5	35.4			23.4	
Effective Green, g (s)					45.4		7.5	35.4			23.4	
Actuated g/C Ratio					0.50		0.08	0.39			0.26	
Clearance Time (s)					4.6		4.5	4.6			4.6	
Vehicle Extension (s)					3.0		5.0	2.0			2.0	
Lane Grp Cap (vph)					2521		147	732			465	
v/s Ratio Prot							c0.09	0.05			c0.08	
v/s Ratio Perm					0.34							
v/c Ratio					0.67		1.10	0.12			0.32	
Uniform Delay, d1					16.7		41.3	17.4			26.9	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					1.5		102.0	0.3			1.8	
Delay (s)					18.2		143.3	17.7			28.7	
Level of Service					B		F	B			C	
Approach Delay (s/veh)		0.0			18.2			99.5			28.7	
Approach LOS		A			B			F			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	97	1519	47	26	71	0	0	127	36
Future Volume (vph)	0	0	0	97	1519	47	26	71	0	0	127	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					0.91			1.00			1.00	
Frpb, ped/bikes					1.00			1.00			0.99	
Flpb, ped/bikes					1.00			0.99			1.00	
Frt					1.00			1.00			0.97	
Flt Protected					1.00			0.99			1.00	
Satd. Flow (prot)					5026			1829			1791	
Flt Permitted					1.00			0.90			1.00	
Satd. Flow (perm)					5026			1659			1791	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	104	1633	51	28	76	0	0	137	39
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1785	0	0	104	0	0	164	0
Confl. Peds. (#/hr)				21		25	20		49	49		20
Confl. Bikes (#/hr)						3						3
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					2			4			4	
Permitted Phases				2			4					
Actuated Green, G (s)					55.0			25.0			25.0	
Effective Green, g (s)					55.0			25.0			25.0	
Actuated g/C Ratio					0.61			0.28			0.28	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					3071			460			497	
v/s Ratio Prot											c0.09	
v/s Ratio Perm					0.36			0.06				
v/c Ratio					0.58			0.23			0.33	
Uniform Delay, d1					10.6			25.0			25.8	
Progression Factor					0.13			1.00			1.00	
Incremental Delay, d2					0.6			1.1			1.8	
Delay (s)					1.9			26.2			27.6	
Level of Service					A			C			C	
Approach Delay (s/veh)		0.0			1.9			26.2			27.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	260	36	36	221	34	12	45	37	12	110	26
Future Volume (vph)	27	260	36	36	221	34	12	45	37	12	110	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.6	4.6			5.1			5.1	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		0.98		1.00	0.98			0.95			0.98	
Flpb, ped/bikes		0.99		0.93	1.00			0.99			0.99	
Frt		0.99		1.00	0.98			0.95			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1782		1638	1787			1653			1756	
Flt Permitted		0.96		0.52	1.00			0.96			0.98	
Satd. Flow (perm)		1718		893	1787			1595			1723	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	31	299	41	41	254	39	14	52	43	14	126	30
RTOR Reduction (vph)	0	6	0	0	7	0	0	29	0	0	10	0
Lane Group Flow (vph)	0	365	0	41	286	0	0	80	0	0	160	0
Confl. Peds. (#/hr)	100		100	100		100	61		54	54		61
Confl. Bikes (#/hr)			2			1			5			9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		40.4		40.4	40.4			24.9			24.9	
Effective Green, g (s)		40.4		40.4	40.4			24.9			24.9	
Actuated g/C Ratio		0.54		0.54	0.54			0.33			0.33	
Clearance Time (s)		4.6		4.6	4.6			5.1			5.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		925		481	962			529			572	
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.21		0.05				0.05			c0.09	
v/c Ratio		0.39		0.09	0.30			0.15			0.28	
Uniform Delay, d1		10.1		8.4	9.5			17.6			18.4	
Progression Factor		1.00		0.72	0.66			1.00			1.00	
Incremental Delay, d2		1.3		0.3	0.8			0.6			1.2	
Delay (s)		11.4		6.4	7.0			18.2			19.7	
Level of Service		B		A	A			B			B	
Approach Delay (s/veh)		11.4			6.9			18.2			19.7	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.7
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX D | Existing Plus Project Conditions Synchro Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	184	14	29	262	10	19	48	21	18	99	17
Future Volume (vph)	21	184	14	29	262	10	19	48	21	18	99	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes	1.00	1.00		0.98	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1843		1760	1766			1766			1812	
Flt Permitted	0.53	1.00		0.61	1.00			0.93			0.96	
Satd. Flow (perm)	993	1843		1132	1766			1659			1753	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	24	211	16	33	301	11	22	55	24	21	114	20
RTOR Reduction (vph)	0	4	0	0	2	0	0	15	0	0	7	0
Lane Group Flow (vph)	24	223	0	33	310	0	0	86	0	0	148	0
Confl. Peds. (#/hr)				22		31	19		9	9		19
Confl. Bikes (#/hr)						1			7			6
Heavy Vehicles (%)	2%	2%	2%	0%	7%	0%	7%	0%	0%	0%	0%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Effective Green, g (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.34			0.34	
Clearance Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			2.0			2.0	
Lane Grp Cap (vph)	534	992		609	951			561			593	
v/s Ratio Prot		0.12			c0.18							
v/s Ratio Perm	0.02			0.03				0.05			c0.08	
v/c Ratio	0.04	0.23		0.05	0.33			0.15			0.25	
Uniform Delay, d1	8.2	9.1		8.2	9.7			17.3			17.9	
Progression Factor	0.60	0.55		0.74	0.64			1.00			1.00	
Incremental Delay, d2	0.2	0.5		0.2	0.9			0.6			1.0	
Delay (s)	5.1	5.5		6.2	7.1			17.9			18.9	
Level of Service	A	A		A	A			B			B	
Approach Delay (s/veh)		5.5			7.0			17.9			18.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		
Traffic Volume (vph)	221	0	0	303	0	0
Future Volume (vph)	221	0	0	303	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			1.00		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1743			1792		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1743			1792		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.92	0.92
Adj. Flow (vph)	257	0	0	352	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	257	0	0	352	0	0
Confl. Peds. (#/hr)		21	21		6	6
Heavy Vehicles (%)	9%	9%	6%	6%	0%	0%
Turn Type	NA			NA		
Protected Phases	2			2		
Permitted Phases						
Actuated Green, G (s)	45.4			45.4		
Effective Green, g (s)	45.4			45.4		
Actuated g/C Ratio	0.61			0.61		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	1055			1084		
v/s Ratio Prot	0.15			c0.20		
v/s Ratio Perm						
v/c Ratio	0.24			0.32		
Uniform Delay, d1	6.9			7.3		
Progression Factor	0.50			1.00		
Incremental Delay, d2	0.5			0.8		
Delay (s)	4.0			8.1		
Level of Service	A			A		
Approach Delay (s/veh)	4.0			8.1	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.6
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	33	1423	49	172	59	0	0	104	26
Future Volume (vph)	0	0	0	33	1423	49	172	59	0	0	104	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		4.5	4.6			4.6	
Lane Util. Factor					0.91		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			0.99	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					1.00		1.00	1.00			0.97	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					5044		1770	1863			1803	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					5044		1770	1863			1803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	35	1514	52	183	63	0	0	111	28
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	0	1597	0	183	63	0	0	129	0
Confl. Peds. (#/hr)	22		11	11		22	11		25	25		11
Confl. Bikes (#/hr)			1			1			1			
Turn Type				Perm	NA		Prot	NA			NA	
Protected Phases					6		3	8			4	
Permitted Phases				6								
Actuated Green, G (s)					45.4		7.5	35.4			23.4	
Effective Green, g (s)					45.4		7.5	35.4			23.4	
Actuated g/C Ratio					0.50		0.08	0.39			0.26	
Clearance Time (s)					4.6		4.5	4.6			4.6	
Vehicle Extension (s)					3.0		5.0	2.0			2.0	
Lane Grp Cap (vph)					2544		147	732			468	
v/s Ratio Prot							c0.10	0.03			c0.07	
v/s Ratio Perm					0.32							
v/c Ratio					0.63		1.24	0.09			0.27	
Uniform Delay, d1					16.2		41.3	17.1			26.5	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					1.2		154.6	0.2			1.5	
Delay (s)					17.4		195.8	17.4			28.0	
Level of Service					B		F	B			C	
Approach Delay (s/veh)		0.0			17.4			150.1			28.0	
Approach LOS		A			B			F			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	73	1544	29	15	48	0	0	122	24
Future Volume (vph)	0	0	0	73	1544	29	15	48	0	0	122	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					0.91			1.00			1.00	
Frpb, ped/bikes					1.00			1.00			1.00	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					1.00			1.00			0.98	
Flt Protected					1.00			0.99			1.00	
Satd. Flow (prot)					5055			1838			1814	
Flt Permitted					1.00			0.93			1.00	
Satd. Flow (perm)					5055			1720			1814	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	78	1660	31	16	52	0	0	131	26
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	0	1767	0	0	68	0	0	149	0
Confl. Peds. (#/hr)				4		10	8		16	16		8
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					2			4			4	
Permitted Phases				2			4					
Actuated Green, G (s)					55.0			25.0			25.0	
Effective Green, g (s)					55.0			25.0			25.0	
Actuated g/C Ratio					0.61			0.28			0.28	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					3089			477			503	
v/s Ratio Prot											c0.08	
v/s Ratio Perm					0.35			0.04				
v/c Ratio					0.57			0.14			0.30	
Uniform Delay, d1					10.5			24.4			25.6	
Progression Factor					0.26			1.00			1.00	
Incremental Delay, d2					0.6			0.6			1.5	
Delay (s)					3.3			25.1			27.1	
Level of Service					A			C			C	
Approach Delay (s/veh)		0.0			3.3			25.1			27.1	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	178	22	24	263	10	10	38	17	10	100	24
Future Volume (vph)	15	178	22	24	263	10	10	38	17	10	100	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.6	4.6			5.1			5.1	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		0.99		1.00	1.00			0.98			0.99	
Flpb, ped/bikes		1.00		0.96	1.00			1.00			1.00	
Frt		0.99		1.00	0.99			0.96			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1813		1707	1848			1734			1783	
Flt Permitted		0.97		0.61	1.00			0.96			0.98	
Satd. Flow (perm)		1769		1099	1848			1675			1760	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	205	25	28	302	11	11	44	20	11	115	28
RTOR Reduction (vph)	0	6	0	0	2	0	0	13	0	0	11	0
Lane Group Flow (vph)	0	241	0	28	311	0	0	62	0	0	143	0
Confl. Peds. (#/hr)	39		38	38		39	24		33	33		24
Confl. Bikes (#/hr)			1						7			
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		40.4		40.4	40.4			24.9			24.9	
Effective Green, g (s)		40.4		40.4	40.4			24.9			24.9	
Actuated g/C Ratio		0.54		0.54	0.54			0.33			0.33	
Clearance Time (s)		4.6		4.6	4.6			5.1			5.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		952		591	995			556			584	
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.14		0.03				0.04			c0.08	
v/c Ratio		0.25		0.05	0.31			0.11			0.25	
Uniform Delay, d1		9.2		8.2	9.6			17.4			18.2	
Progression Factor		1.00		0.66	0.59			1.00			1.00	
Incremental Delay, d2		0.6		0.1	0.8			0.4			1.0	
Delay (s)		9.9		5.6	6.4			17.8			19.2	
Level of Service		A		A	A			B			B	
Approach Delay (s/veh)		9.9			6.3			17.8			19.2	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.7
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

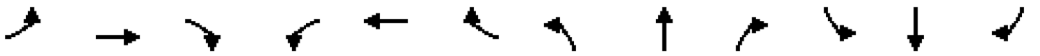
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	262	37	30	240	43	29	112	45	18	77	29
Future Volume (vph)	30	262	37	30	240	43	29	112	45	18	77	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98			0.99			0.98	
Flpb, ped/bikes	0.93	1.00		0.88	1.00			0.99			1.00	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1648	1777		1590	1718			1777			1752	
Flt Permitted	0.52	1.00		0.51	1.00			0.94			0.94	
Satd. Flow (perm)	905	1777		845	1718			1688			1667	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	34	301	43	34	276	49	33	129	52	21	89	33
RTOR Reduction (vph)	0	7	0	0	8	0	0	15	0	0	15	0
Lane Group Flow (vph)	34	337	0	34	317	0	0	199	0	0	128	0
Confl. Peds. (#/hr)	74		133	133		74	29		8	8		29
Confl. Bikes (#/hr)									7			3
Heavy Vehicles (%)	2%	2%	2%	0%	7%	0%	7%	0%	0%	0%	0%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Effective Green, g (s)	40.4	40.4		40.4	40.4			25.4			25.4	
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.34			0.34	
Clearance Time (s)	4.6	4.6		4.6	4.6			4.6			4.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			2.0			2.0	
Lane Grp Cap (vph)	487	957		455	925			571			564	
v/s Ratio Prot		c0.19			0.18							
v/s Ratio Perm	0.04			0.04				c0.12			0.08	
v/c Ratio	0.07	0.35		0.07	0.34			0.35			0.23	
Uniform Delay, d1	8.3	9.8		8.3	9.8			18.6			17.8	
Progression Factor	0.62	0.52		0.16	0.21			1.00			1.00	
Incremental Delay, d2	0.3	1.0		0.3	1.0			1.7			0.9	
Delay (s)	5.4	6.1		1.7	3.0			20.3			18.7	
Level of Service	A	A		A	A			C			B	
Approach Delay (s/veh)		6.1			2.9			20.3			18.7	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	330	0	0	315	0	0
Future Volume (vph)	330	0	0	315	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6			4.6		
Lane Util. Factor	1.00			1.00		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	1827			1810		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	1827			1810		
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.92	0.92
Adj. Flow (vph)	384	0	0	366	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	384	0	0	366	0	0
Confl. Peds. (#/hr)		155	155		27	19
Heavy Vehicles (%)	4%	4%	5%	5%	0%	0%
Turn Type	NA			NA		
Protected Phases	2			2		
Permitted Phases						
Actuated Green, G (s)	45.4			45.4		
Effective Green, g (s)	45.4			45.4		
Actuated g/C Ratio	0.61			0.61		
Clearance Time (s)	4.6			4.6		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	1105			1095		
v/s Ratio Prot	c0.21			0.20		
v/s Ratio Perm						
v/c Ratio	0.35			0.33		
Uniform Delay, d1	7.4			7.3		
Progression Factor	0.68			1.00		
Incremental Delay, d2	0.8			0.8		
Delay (s)	5.8			8.1		
Level of Service	A			A		
Approach Delay (s/veh)	5.8			8.1	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.6
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	72	1439	101	151	87	0	0	122	36
Future Volume (vph)	0	0	0	72	1439	101	151	87	0	0	122	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.6		4.5	4.6			4.6	
Lane Util. Factor					0.91		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			0.99	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.99		1.00	1.00			0.97	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					4992		1770	1863			1791	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					4992		1770	1863			1791	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	77	1531	107	161	93	0	0	130	38
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1707	0	161	93	0	0	156	0
Confl. Peds. (#/hr)	22		11	35		28	19		32	32		19
Confl. Bikes (#/hr)			1			2						3
Turn Type				Perm	NA		Prot	NA			NA	
Protected Phases					6		3	8			4	
Permitted Phases				6								
Actuated Green, G (s)					45.4		7.5	35.4			23.4	
Effective Green, g (s)					45.4		7.5	35.4			23.4	
Actuated g/C Ratio					0.50		0.08	0.39			0.26	
Clearance Time (s)					4.6		4.5	4.6			4.6	
Vehicle Extension (s)					3.0		5.0	2.0			2.0	
Lane Grp Cap (vph)					2518		147	732			465	
v/s Ratio Prot							c0.09	0.05			c0.09	
v/s Ratio Perm					0.34							
v/c Ratio					0.68		1.10	0.13			0.34	
Uniform Delay, d1					16.8		41.3	17.4			27.0	
Progression Factor					1.00		1.00	1.00			1.00	
Incremental Delay, d2					1.5		102.0	0.4			1.9	
Delay (s)					18.3		143.3	17.8			28.9	
Level of Service					B		F	B			C	
Approach Delay (s/veh)		0.0			18.3			97.3			28.9	
Approach LOS		A			B			F			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.7
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	97	1520	47	26	71	0	0	127	36
Future Volume (vph)	0	0	0	97	1520	47	26	71	0	0	127	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0			5.0			5.0	
Lane Util. Factor					0.91			1.00			1.00	
Frpb, ped/bikes					1.00			1.00			0.99	
Flpb, ped/bikes					1.00			0.99			1.00	
Frt					1.00			1.00			0.97	
Flt Protected					1.00			0.99			1.00	
Satd. Flow (prot)					5026			1829			1791	
Flt Permitted					1.00			0.90			1.00	
Satd. Flow (perm)					5026			1659			1791	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	104	1634	51	28	76	0	0	137	39
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1786	0	0	104	0	0	164	0
Confl. Peds. (#/hr)				21		25	20		49	49		20
Confl. Bikes (#/hr)						3						3
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					2			4			4	
Permitted Phases				2			4					
Actuated Green, G (s)					55.0			25.0			25.0	
Effective Green, g (s)					55.0			25.0			25.0	
Actuated g/C Ratio					0.61			0.28			0.28	
Clearance Time (s)					5.0			5.0			5.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					3071			460			497	
v/s Ratio Prot											c0.09	
v/s Ratio Perm					0.36			0.06				
v/c Ratio					0.58			0.23			0.33	
Uniform Delay, d1					10.6			25.0			25.8	
Progression Factor					0.13			1.00			1.00	
Incremental Delay, d2					0.6			1.1			1.8	
Delay (s)					1.9			26.2			27.6	
Level of Service					A			C			C	
Approach Delay (s/veh)		0.0			1.9			26.2			27.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

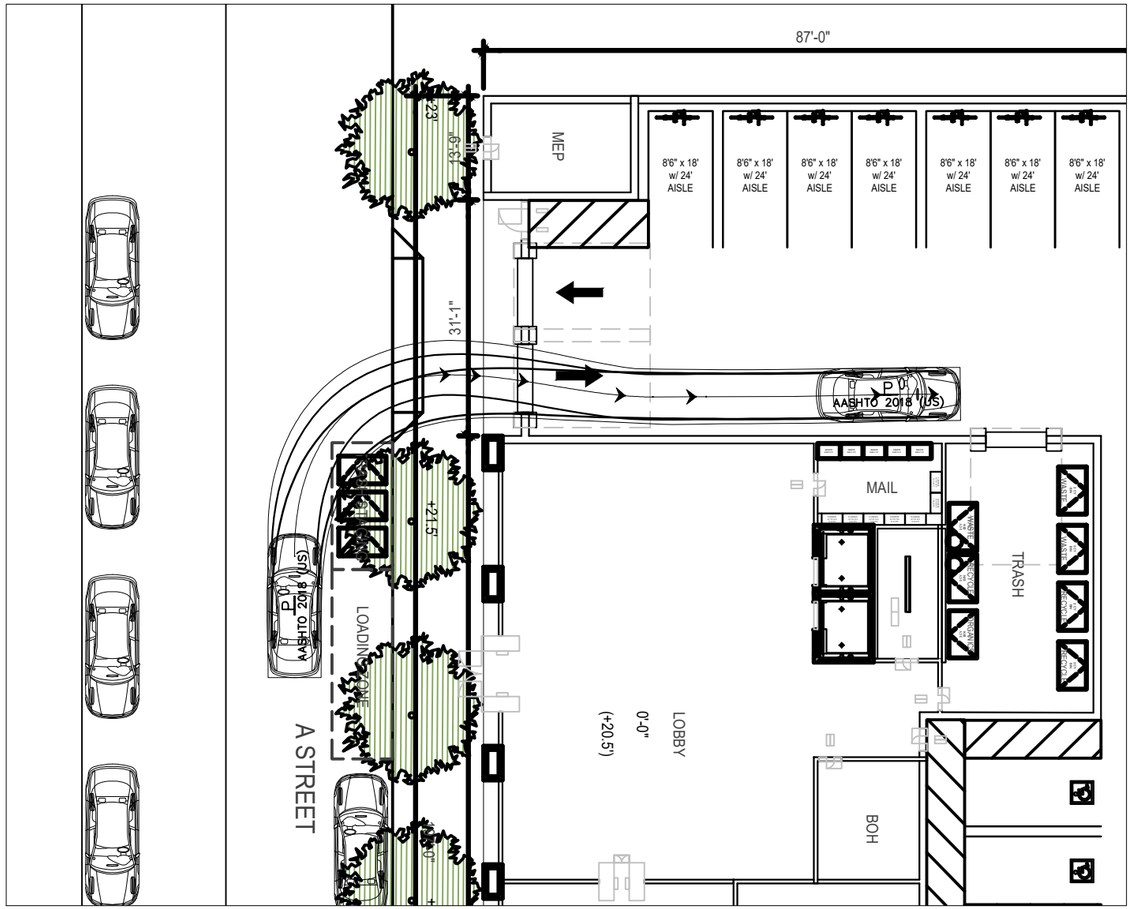
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	261	36	36	222	35	12	45	37	12	110	26
Future Volume (vph)	27	261	36	36	222	35	12	45	37	12	110	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.6	4.6			5.1			5.1	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		0.98		1.00	0.98			0.95			0.98	
Flpb, ped/bikes		0.99		0.93	1.00			0.99			0.99	
Frt		0.99		1.00	0.98			0.95			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1782		1639	1786			1653			1756	
Flt Permitted		0.96		0.52	1.00			0.96			0.98	
Satd. Flow (perm)		1718		891	1786			1595			1723	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	31	300	41	41	255	40	14	52	43	14	126	30
RTOR Reduction (vph)	0	6	0	0	7	0	0	29	0	0	10	0
Lane Group Flow (vph)	0	366	0	41	288	0	0	80	0	0	160	0
Confl. Peds. (#/hr)	100		100	100		100	61		54	54		61
Confl. Bikes (#/hr)			2			1			5			9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		40.4		40.4	40.4			24.9			24.9	
Effective Green, g (s)		40.4		40.4	40.4			24.9			24.9	
Actuated g/C Ratio		0.54		0.54	0.54			0.33			0.33	
Clearance Time (s)		4.6		4.6	4.6			5.1			5.1	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		925		479	962			529			572	
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.21		0.05				0.05			c0.09	
v/c Ratio		0.40		0.09	0.30			0.15			0.28	
Uniform Delay, d1		10.1		8.4	9.5			17.6			18.4	
Progression Factor		1.00		0.72	0.66			1.00			1.00	
Incremental Delay, d2		1.3		0.3	0.8			0.6			1.2	
Delay (s)		11.4		6.4	7.1			18.2			19.7	
Level of Service		B		A	A			B			B	
Approach Delay (s/veh)		11.4			7.0			18.2			19.7	
Approach LOS		B			A			B			B	

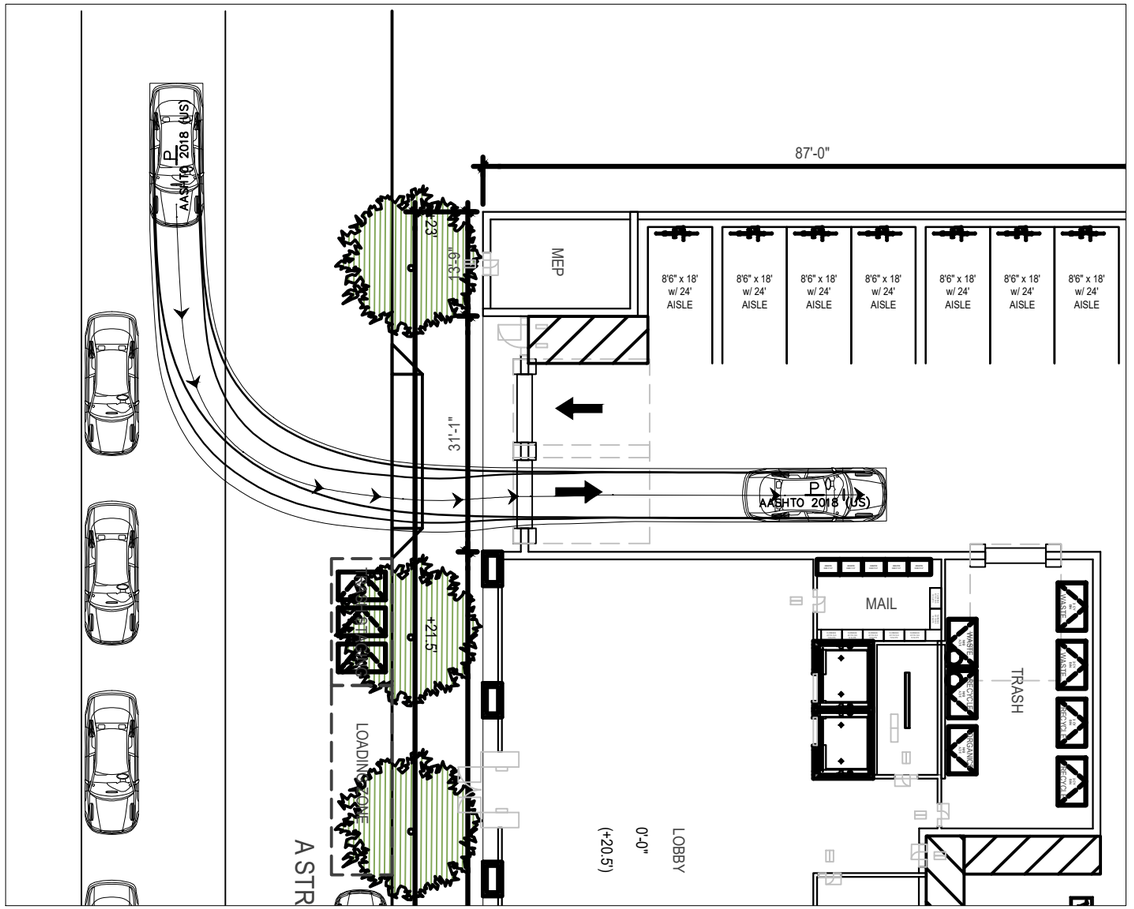
Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.7
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

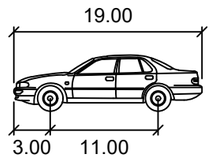
APPENDIX E | Turning Radii Diagrams

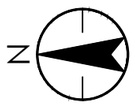


NORTHBOUND RIGHT-TURN INTO PROJECT DRIVEWAY



SOUTHBOUND LEFT-TURN INTO PROJECT DRIVEWAY





P

	feet
Width	: 7.00
Track	: 6.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.6

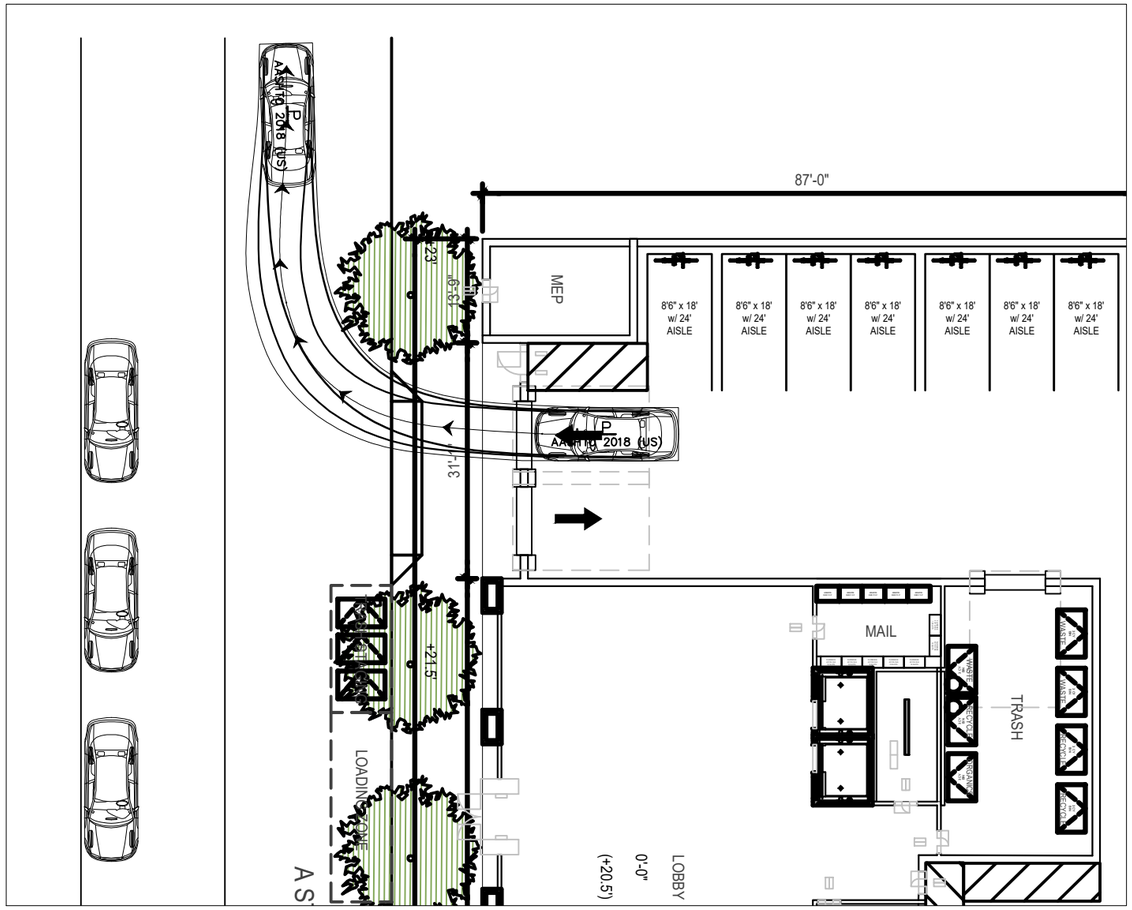
ADVANCED MOBILITY GROUP
3003 OAK ROAD, SUITE 100
WALNUT CREEK, CA 94597

DESIGNED					
DRAWN					
CHECKED					
DATE MAR 2025					
SCALE	NO.	REVISION	BY	APP.	

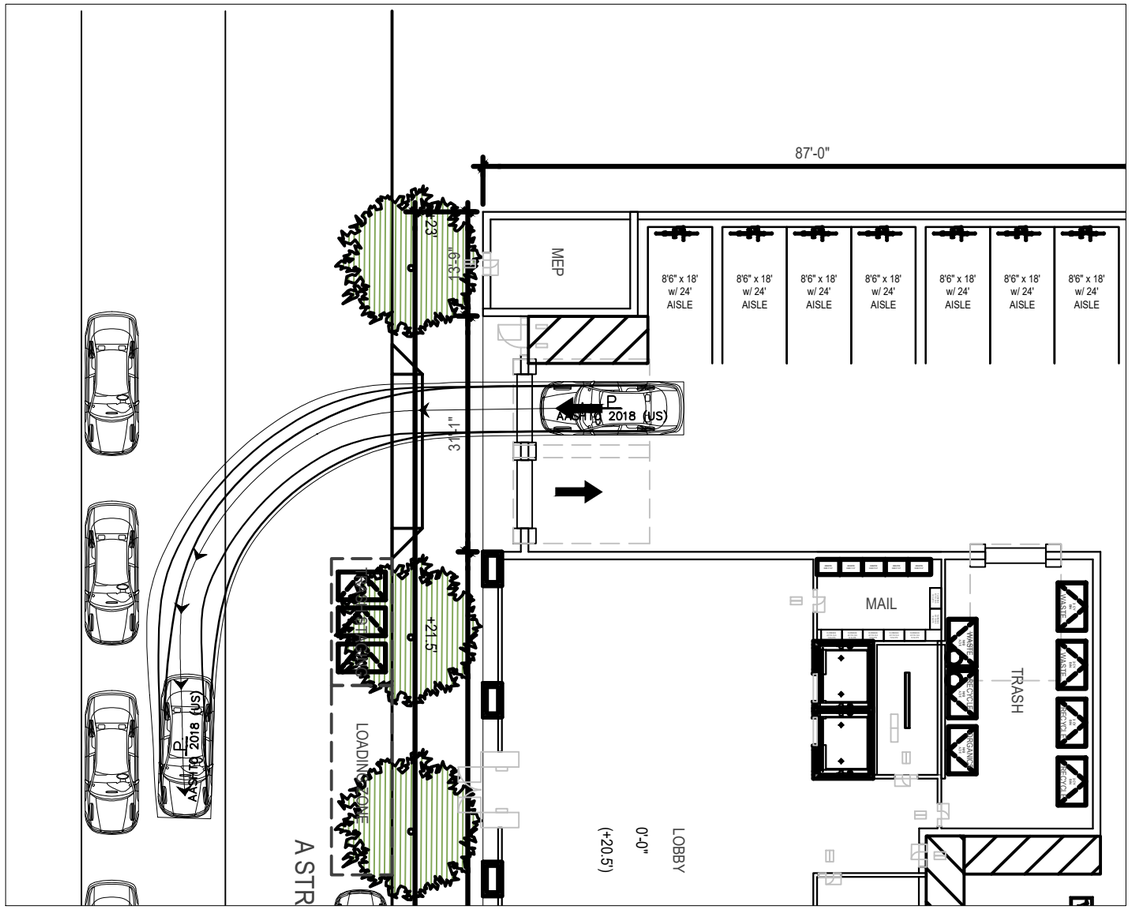
900 A STREET APARTMENTS
PASSENGER VEHICLE TURN TEMPLATES
INGRESS AT PROJECT DRIVEWAY

CITY OF SAN RAFAEL
CALIFORNIA

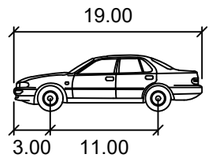
PJ NO.
SHEET 1 OF 2
DWG. TT-1



WESTBOUND RIGHT-TURN OUT OF PROJECT DRIVEWAY



WESTBOUND LEFT-TURN OUT OF PROJECT DRIVEWAY



P

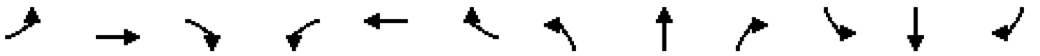
	feet
Width	: 7.00
Track	: 6.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.6

ADVANCED MOBILITY GROUP 3003 OAK ROAD, SUITE 100 WALNUT CREEK, CA 94597	DESIGNED						900 A STREET APARTMENTS PASSENGER VEHICLE TURN TEMPLATES EGRESS AT PROJECT DRIVEWAY	CITY OF SAN RAFAEL CALIFORNIA	PJ NO.
	DRAWN								SHEET 2 OF 2
	CHECKED								DWG. TT-2
	DATE MAR 2025								
	SCALE	NO.	REVISION	BY	APP.				

APPENDIX F | 95th Percentile Queue Length Synchro Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	184	14	29	262	10	19	48	21	18	99	17
Future Volume (vph)	21	184	14	29	262	10	19	48	21	18	99	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	45		0	40		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		365			349			355			325	
Travel Time (s)		10.0			9.5			9.7			8.9	
Confl. Peds. (#/hr)				22		31	19		9	9		19
Confl. Bikes (#/hr)						1			7			6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	0%	7%	0%	7%	0%	0%	0%	0%	11%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	227	0	33	312	0	0	101	0	0	155	0
v/c Ratio	0.04	0.23		0.05	0.33			0.18			0.26	
Control Delay (s/veh)	5.2	5.5		6.4	7.2			14.7			18.1	
Queue Delay	0.0	0.0		0.0	0.2			0.0			0.0	
Total Delay (s/veh)	5.2	5.5		6.4	7.4			14.7			18.1	
Queue Length 50th (ft)	3	24		4	30			25			47	
Queue Length 95th (ft)	8	38		10	47			56			87	
Internal Link Dist (ft)		285			269			275			245	
Turn Bay Length (ft)	45			40								
Base Capacity (vph)	534	995		609	953			577			601	
Starvation Cap Reductn	0	0		0	195			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.23		0.05	0.41			0.18			0.26	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	33	1423	49	172	59	0	0	104	26
Future Volume (vph)	0	0	0	33	1423	49	172	59	0	0	104	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		363			222			308			355	
Travel Time (s)		8.3			5.0			8.4			9.7	
Confl. Peds. (#/hr)	22		11	11		22	11		25	25		11
Confl. Bikes (#/hr)			1			1			1			
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1601	0	183	63	0	0	139	0
v/c Ratio					0.63		1.24	0.09			0.29	
Control Delay (s/veh)					17.5		191.9	17.7			25.9	
Queue Delay					0.1		0.0	0.0			0.0	
Total Delay (s/veh)					17.5		191.9	17.7			25.9	
Queue Length 50th (ft)					228		~131	22			57	
Queue Length 95th (ft)					277		#261	48			107	
Internal Link Dist (ft)		283			142			228			275	
Turn Bay Length (ft)												
Base Capacity (vph)					2547		147	732			479	
Starvation Cap Reductn					0		0	0			0	
Spillback Cap Reductn					98		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.65		1.24	0.09			0.29	

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	262	37	30	240	43	29	112	45	18	77	29
Future Volume (vph)	30	262	37	30	240	43	29	112	45	18	77	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	45		0	40		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		365			349			355			325	
Travel Time (s)		10.0			9.5			9.7			8.9	
Confl. Peds. (#/hr)	74		133	133		74	29		8	8		29
Confl. Bikes (#/hr)									7			3
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	0%	7%	0%	7%	0%	0%	0%	0%	11%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	344	0	34	325	0	0	214	0	0	143	0
v/c Ratio	0.07	0.36		0.07	0.35			0.37			0.25	
Control Delay (s/veh)	5.6	6.1		1.7	3.0			18.8			16.4	
Queue Delay	0.0	0.2		0.0	0.2			0.0			0.0	
Total Delay (s/veh)	5.6	6.3		1.7	3.2			18.8			16.4	
Queue Length 50th (ft)	4	37		1	0			65			40	
Queue Length 95th (ft)	m10	56		2	0			115			77	
Internal Link Dist (ft)		285			269			275			245	
Turn Bay Length (ft)	45			40								
Base Capacity (vph)	487	963		455	933			586			579	
Starvation Cap Reductn	0	177		0	171			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.07	0.44		0.07	0.43			0.37			0.25	

Intersection Summary	
Area Type:	Other

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	72	1439	101	151	87	0	0	122	36
Future Volume (vph)	0	0	0	72	1439	101	151	87	0	0	122	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		363			222			308			355	
Travel Time (s)		8.3			5.0			8.4			9.7	
Confl. Peds. (#/hr)	22		11	35		28	19		32	32		19
Confl. Bikes (#/hr)			1			2						3
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1715	0	161	93	0	0	168	0
v/c Ratio					0.68		1.10	0.13			0.35	
Control Delay (s/veh)					18.3		143.4	18.1			27.0	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay (s/veh)					18.3		143.4	18.1			27.0	
Queue Length 50th (ft)					253		~104	33			70	
Queue Length 95th (ft)					305		#227	65			127	
Internal Link Dist (ft)		283			142			228			275	
Turn Bay Length (ft)												
Base Capacity (vph)					2528		147	732			477	
Starvation Cap Reductn					0		0	0			0	
Spillback Cap Reductn					0		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.68		1.10	0.13			0.35	

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

900 A STREET MIXED-USE PROJECT CONSTRUCTION AIR QUALITY EMISSIONS ASSESSMENT

San Rafael, California

July 9, 2025

Prepared for:

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Prepared by:

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ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 East Cotati Avenue
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(707) 794-0400

I&R Project#: 25-014

Introduction

The purpose of this report is to address the potential construction air quality emissions associated with the proposed mixed-use project located at 900 A Street in San Rafael, California. Air quality impacts from this project would be associated with demolition of the existing land uses and construction of the new building. Air pollutant emissions associated with construction of the project were estimated using appropriate computer models. The analysis was conducted following guidance provided by the Bay Area Air District (Air District).[1]

Project Description

The approximately 0.69-acre project site is comprised of an existing commercial building and an associated surface parking lot. The project proposes to demolish the existing land uses to construct a new eight-story mixed-use building with 131 residential units totaling 138,433 square feet (sf) and 4,101-sf of retail space on the ground floor. There would also be a parking garage totaling 45,968-sf with 106 parking spaces. Construction is proposed from January 2026 to June 2027.

General Plan 2040 & Downtown Precise Plan Final Environmental Impact Report

On May 21, 2021, the City of San Rafael released their Final Environmental Impact Report (EIR) to provide an assessment of the potential environmental consequences of approving and implementing the proposed San Rafael General Plan 2040 and Downtown Precise Plan project. The EIR identifies mitigation measures and alternatives to the General Plan 2040 and Downtown Precise Plan that would avoid or reduce potentially significant impacts. The environmental analysis in the EIR assumes that the adoption and implementation of the proposed project would result in up to 4,250 new households, 4,460 new residential units, 8,910 new residents, and 4,155 new employees by 2040. The proposed project is located within the San Rafael Downtown Precise Plan area, and in order to tier off of the EIR, the project would have to conform to applicable mitigation measures.

Setting

The project is located in Marin County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Air Pollutants of Concern

High ozone concentrations in the air basin are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_X). These precursor pollutants react under certain meteorological conditions to form ozone. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ambient ozone concentrations. The highest ozone concentrations in the Bay Area occur in the eastern and southern inland valleys downwind of

[1] Also known as the Bay Area Air Quality Management District (BAAQMD), *CEQA Air Quality Guidelines*. April 2023.

existing air pollutant sources. High ozone concentrations aggravate respiratory and cardiovascular diseases, reduce lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant in the air basin. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide emissions and localized emissions. High particulate matter concentrations aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children. Due to the adverse health effects caused by $PM_{2.5}$ exposure even at low concentrations, the Air District has developed health risk thresholds to address exposure to increased $PM_{2.5}$ concentrations caused by projects.[2]

Toxic Air Contaminants

TACs are a broad class of compounds known to cause morbidity or mortality, often because they cause cancer. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure of TACs can result in adverse health effects, they are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about seventy percent of the cancer risk from TACs (based on the Bay Area average).[3] According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects from diesel exhaust exposure a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. Health risks from TACs are estimated using the Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines, which were published in February of 2015 and incorporated into the Air District's California Environmental Quality Act (CEQA) guidance.[4]

$PM_{2.5}$ emissions can include TACs. Due to the adverse health effects caused by $PM_{2.5}$ exposure even at low concentrations, the Air District developed assessing methods and health risk thresholds to address exposure to increased concentrations caused by project $PM_{2.5}$ emissions.[5]

[2] Bay Area Air District, 2022 CEQA Air Quality Guidelines, Appendix A, p40.
[3] CARB, *Summary: Diesel Particulate Matter Health Impacts*, Web: https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts#footnote1_7yob8j5.
[4] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
[5] Bay Area Air District, 2022 CEQA Air Quality Guidelines, Appendix A, p40.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, people over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are the multi-family residences located to the northeast, south, and southwest of the project site. There are also children located at the Saint Raphael School and Preschool to the north of the project site. This project would introduce new sensitive receptors (i.e., residents) to the area.

Bay Area Air District CEQA Air Quality Guidelines

In June 2010, the Air District adopted thresholds of significance to assist in the review of projects under CEQA. In 2023, the Air District revised the *CEQA Air Quality Guidelines* that include significance thresholds to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The current the Air District guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They include assessment methodologies for criteria air pollutants, air toxics, odors, and GHG emissions, as shown in Table 1.[6] Air quality impacts and health risks are considered potentially significant if they exceed these thresholds.

The Air District recommends all projects include a "basic" set of best management practices (BMPs) to manage fugitive dust and consider impacts from dust (i.e., fugitive PM_{10} and $PM_{2.5}$) to be less than significant if BMPs are implemented (listed below). The Air District strongly encourages enhanced BMPs for construction sites near schools, residential areas, other sensitive land uses, or if air quality impacts were found to be significant.

[6] Bay Area Air District, 2023. *2022 CEQA Guidelines*. April.

Table 1. Bay Area Air District CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds
	Average Daily Emissions (lbs./day)
ROG	54
NO_x	54
PM_{10}	82 (Exhaust)
$PM_{2.5}$	54 (Exhaust)
CO	Not Applicable
Fugitive Dust (PM_{10}/$PM_{2.5}$)	Best Management Practices (BMPs)*

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less.

* The Air District strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses.

Source: Bay Area Air District, 2022 CEQA Air Quality Guidelines

San Rafael General Plan 2040

The San Rafael General Plan 2040 includes policies to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants. The following policies are applicable to the proposed project:

C-2.1 *State and Federal Air Quality Standards.* Continue to comply and strive to exceed state and federal standards for air quality for the benefit of the Bay Area.

C-2.2 *Land Use Compatibility and Building Standards.* Consider air quality conditions and the potential for adverse health impacts when making land use and development decisions. Buffering, landscaping, setback standards, filters, insulation and sealing, home HVAC measures, and similar measures should be used to minimize future health hazards.

C-2.3 *Improving Air Quality Through Land Use and Transportation Choices.* Recognize air quality benefits of reducing dependency on gasoline-powered vehicles. Implement land sue and transportation policies, supportable by objective data, to reduce the number and length of car trips, improve alternatives to driving, reduce vehicle idling, and support the shift to electric and cleaner-fuel vehicles.

C-2.4 *Particulate Matter Pollution Reduction.* Promote the reduction of particulate matter from roads, parking lots, construction sites, agricultural lands, wildfires, and other sources.

C-2.5 *Indoor Air Pollutants.* Reduce exposure to indoor air pollutants such as mold, lead, and asbestos through the application of state building standards, code enforcement activities, education, and remediation measures.

C-2.6 *Education and Outreach.* Support public education regarding air pollution prevention and mitigation.

City of San Rafael - General Plan Update and Downtown Precise Plan EIR

The City's EIR addressed air quality impacts associated with land use development in San Rafael that is consistent with the General Plan Update and Downtown Precise Plan.[7] Air quality impacts and mitigation measures in the EIR include:

Goal C-2: Clean Air. Reduce air pollution to improve environmental quality and protect public health.

Policy C-2.1: State and Federal Air Quality Standards. Continue to comply with state and federal air quality standards.

Program C-2.1A: Cooperation with Other Agencies. Work with the Bay Area Air Quality Management District (Air District) and other agencies to ensure compliance with air quality regulations and proactively address air quality issues.

Policy C-2.4: Particulate Matter Pollution Reduction. Promote the reduction of particulate matter from roads, parking lots, construction sites, agricultural lands, wildfires, and other sources.

Program C-2.4A: Particulate Matter Exposure. Through development review, require that Best Available Control Technology (BACT) measures (such as setbacks, landscaping, paving, soil and dust management, and parking lot street sweeping) are used to protect sensitive receptors from particulate matter. This should include control of construction-related dust and truck emissions as well as long-term impacts associated with project operations. Where appropriate, health risk assessments may be required to evaluate risks and determine appropriate mitigation measures.

Mitigation Measure AIR-2.1: To reduce temporary increases in criteria air pollutant emissions (NOx) during the construction phase for discretionary development projects that are subject to CEQA which exceed the screening sizes in the Bay Area Air Quality Management District (Air District) CEQA Guidelines, the City shall adopt the following General Plan Program to support Policy C-2.4 (Particulate Matter Pollution Reduction) to be implemented as part of the project approval process:

New Program: Require projects that exceed the Air District screening sizes to evaluate project-specific construction emissions in conformance with the Air District methodology

[7] City of San Rafael. 2021. *General Plan 2040 & Downtown Precise Plan Final EIR,* See: https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2021/06/FinalEIR_Combined_WithAppendix_05-21-2021-v2.pdf

and if construction-related criteria air pollutants exceed the Air District thresholds of significance, require the project applicant to mitigate the impacts to an acceptable level.

Construction Air Quality Emissions

The California Emissions Estimator Model (CalEEMod) Version 2022 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size were input to CalEEMod. The CalEEMod model output along with construction inputs are included in *Attachment 1*.

CalEEMod Inputs

Land Use Inputs

The proposed project land uses were entered into CalEEMod as described in Table 2.

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Apartments Mid Rise	131	Dwelling Units	138,433*	0.69
Regional Shopping Center	4.101	1,000-sf	4,101	
Enclosed Parking with Elevator	106	Parking Space	45,968	
*Includes both residential and common area square footage.				

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size, and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. The construction build-out scenario, including equipment quantities, average hours per day, total number of workdays, and schedule, were based on information provided by the project applicant. The construction schedule assumed that the earliest start date would be January 2026 and would be built over a period of approximately 17 months or 370 construction workdays. The earliest full year of operation was assumed to be 2028.

Construction Truck Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the provided demolition material to be exported, the provided soil imported and/or exported to the site, and the provided amount of cement truck trips to and from the site. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. Daily haul trips for demolition and grading were estimated by CalEEMod using the provided demolition and soil volumes. The provided concrete volume was converted to daily one-way trips, assuming two trips per delivery. These values are shown in the project construction equipment worksheet included in *Attachment 1.*

Summary of Computed Construction Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions by the number of active workdays during that year. Table 3 shows the unmitigated average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 3, predicted unmitigated project construction emissions would not exceed Bay Area Air District significance thresholds during construction.

Table 3. Construction Period Emissions - Unmitigated

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2026	0.21	0.33	0.01	0.01
2027	0.83	0.03	0.001	0.001
Average Daily Construction Emissions Per Year (pounds/day)				
2026 (261 construction workdays)	1.59	2.56	0.07	0.06
2027 (109 construction workdays)	15.28	0.56	0.01	0.01
Bay Area Air District Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The Air District recommends all projects include a "basic" set of BMPs to manage fugitive dust and considers impacts from dust (i.e., fugitive PM_{10} and $PM_{2.5}$) to be less-than-significant if BMPs are implemented to reduce these emissions. The City of San Rafael General Plan Update and Downtown Precise Plan EIR Program C-2.4A would require the project to implement the Air District-recommended BMPs.

General Plan Update and Downtown Precise Plan EIR Program C-2.4A: Include Air District basic BMPs to control dust and exhaust during construction.

During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by the Air District and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level.

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.

7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Effectiveness of General Plan Update and Downtown Precise Plan EIR Program C-2.4A

The measures above are consistent with the General Plan Update and Downtwon Precise Plan EIR Program and Air District-recommended basic BMPs for reducing fugitive dust contained in the Air District CEQA Air Quality Guidelines. For this analysis, only the basic set of BMPs are required as the unmitigated fugitive dust emissions from construction are below the Air District single-source threshold.

Supporting Documentation

Attachment 1 includes the CalEEMod output for project construction criteria air pollutant emissions. Also included are any modeling assumptions.

Attachment 1: CalEEMod Modeling Inputs and Outputs

Construction Criteria Air Pollutants							
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Year	Tons					MT	
Construction Equipment							
2026	0.21	0.33	0.01	0.01	0.02	172.80	
2027	0.83	0.03	0.001	0.001	0.002	13.11	
	Total Construction Emissions						
Tons	1.04	0.37	0.01	0.01		185.91	
Pounds/Workdays	*Average Daily Emissions*					Workdays	
2026	1.59	2.56	0.07	0.06			**261**
2027	15.28	0.56	0.01	0.01			**109**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			
	Total Construction Emissions						
Pounds	2081.55	730.18	18.69	16.66		0.00	
Average	5.63	1.97	0.05	0.05		0.00	370.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

Number of Days Per Year					
2026	1/1/2026	12/31/26	365	261	
2027	1/1/27	6/1/2027	152	109	
			517	**370**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/1/2026	1/31/2026	5	22
Site Preparation	2/1/2026	2/28/2026	5	20
Grading	2/1/2026	3/31/2026	5	42
Building Construction	8/1/2026	11/30/2026	5	86
Paving	4/1/2027	5/1/2027	5	22
Architectural Coating	12/1/2026	6/1/2027	5	131
Trenching	4/1/2026	7/31/2026	5	88

Air Quality/Noise Construction Information Data Request

Project Name: 900 A Street, San Rafael

See Equipment Type TAB for type, horsepower and load factor

Complete ALL Portions in Yellow

Project Size 131 Dwelling Units; 30000 total project acres disturbed

113331 s.f. residential

4101 s.f. retail

s.f. office/commercial

25,102 s.f. other, specify: Common Area

45968 s.f. parking garage; 106 spaces

NA s.f. parking lot; NA spaces

Construction Days (i.e, M-F) Monday to Friday

Construction Hours 7 am to 7 pm

Pile Driving? Y/N? No

Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? No

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____

Fuel Type: _____

Location in project (Plans Desired if Available):

DO NOT MULTIPLY EQUIPMENT HOURS/DAY BY THE QUANTITY OF EQUIPMENT

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	**Start Date:**	**1/1/2026**	**Total phase:**	**20**			**Overall Import/Export Volumes**
		End Date:	**2/1/2026**					
1	Concrete/Industrial Saws	33	0.73	7	2	0.7	337	**Demolition Volume**
1	Excavators	36	0.38	7	15	5.3	1436	Square footage of buildings to be demolished
	Rubber-Tired Dozers	367	0.4			0	0	(*or* total tons to be hauled)
1	Tractors/Loaders/Backhoes	84	0.37	7	20	7	4351	**3400** square feet *or*
	Other Equipment?							**?** Hauling volume (tons)
								Any pavement demolished and hauled? **11 tons**
	Site Preparation	**Start Date:**	**2/1/2026**	**Total phase:**	**20**			
		End Date:	**3/1/2026**					
	Graders	148	0.41			0	0	
	Rubber Tired Dozers	367	0.4			0	0	
1	Tractors/Loaders/Backhoes	84	0.37	7	15	5.3	3263	
	Other Equipment?							
	Grading / Excavation	**Start Date:**	**2/1/2026**	**Total phase:**	**40**			
		End Date:	**4/1/2026**					**Soil Hauling Volume**
1	Excavators	36	0.38	7	15	2.6	1436	Export volume = **7,407** cubic yards
	Graders	148	0.41			0	0	Import volume = **?** cubic yards?
	Rubber Tired Dozers	367	0.4			0	0	
	Concrete/Industrial Saws	33	0.73			0	0	
1	Tractors/Loaders/Backhoes	84	0.37	7	10	1.8	2176	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**4/1/2026**	**Total phase:**	**60**			
		End Date:	**8/1/2026**					
1	Tractor/Loader/Backhoe	84	0.37	7	15	1.8	3263	
	Excavators	36	0.38			0	0	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**8/1/2026**	**Total phase:**	**80**			**Cement Trucks? 400 Total Round-Trips**
		End Date:	**12/1/2026**					
1	Cranes	367	0.29	7	80	7	59601	Electric? (Y/N) Y
1	Forklifts	82	0.2	4	13	0.7	853	Liquid Propane (LPG)? (Y/N) N Otherwise Assumed diesel
	Generator Sets	14	0.74			0	0	Or temporary line power? (Y/N) Y
	Tractors/Loaders/Backhoes	84	0.37			0	0	
1	Welders	46	0.45	4	15	0.8	1242	
	Other Equipment?							
Building - Interior/Architectural Coating		**Start Date:**	**12/1/2026**	**Total phase:**	**120**			
		End Date:	**6/1/2027**					
1	Air Compressors	37	0.48	7	60	3.5	7459	
	Aerial Lift	46	0.31			0	0	
	Other Equipment?							
	Paving	**Start Date:**	**4/1/2027**	**Total phase:**	**20**			
		Start Date:	**5/1/2027**					
1	Cement and Mortar Mixers	10	0.56	7	5	1.8	196	
	Pavers	81	0.42			0	0	**Asphalt? N, 0 cubic yards or ____ round trips?**
	Paving Equipment	89	0.36			0	0	
	Rollers	36	0.38			0	0	
	Tractors/Loaders/Backhoes	84	0.37			0	0	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.

Equipment listed in this sheet is to provide an example of inputs

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

25-014 San Rafael 900 A St BMPs Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	25-014 San Rafael Landmark/900A St BMPs
Construction Start Date	1/1/2026
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	5.60
Location	San Rafael, CA, USA
County	Marin
City	San Rafael
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	922
EDFZ	2
Electric Utility	MCE
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	131	Dwelling Unit	0.69	138,433	0.00	—	314	—

Regional Shopping Center	4.10	1000sqft	0.00	4,101	0.00	—	—	—
Enclosed Parking with Elevator	106	Space	0.00	45,968	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	15.4	5.26	0.15	1.29	1.44	0.14	0.31	0.45	3,245
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	15.3	5.43	0.15	1.29	1.44	0.14	0.31	0.45	3,174
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	4.56	1.83	0.05	0.39	0.44	0.04	0.09	0.14	1,044
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.83	0.33	0.01	0.07	0.08	0.01	0.02	0.03	173

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—

2026	0.78	5.26	0.15	1.29	1.44	0.14	0.31	0.45	3,245
2027	15.4	0.63	0.01	0.21	0.23	0.01	0.05	0.06	306
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—
2026	15.3	5.43	0.15	1.29	1.44	0.14	0.31	0.45	3,174
2027	15.3	0.54	0.01	0.19	0.20	0.01	0.04	0.05	259
Average Daily	—	—	—	—	—	—	—	—	—
2026	1.14	1.83	0.05	0.39	0.44	0.04	0.09	0.14	1,044
2027	4.56	0.17	< 0.005	0.06	0.06	< 0.005	0.01	0.02	79.2
Annual	—	—	—	—	—	—	—	—	—
2026	0.21	0.33	0.01	0.07	0.08	0.01	0.02	0.03	173
2027	0.83	0.03	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	13.1

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	7.38	1.90	0.06	3.59	3.66	0.06	0.91	0.97	4,604
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	6.27	2.07	0.05	3.59	3.65	0.05	0.91	0.96	4,366
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	6.51	1.89	0.06	3.27	3.33	0.05	0.83	0.88	4,076
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	1.19	0.34	0.01	0.60	0.61	0.01	0.15	0.16	675

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Mobile	2.76	1.43	0.02	3.59	3.62	0.02	0.91	0.93	3,876
Area	4.60	0.09	0.01	—	0.01	0.01	—	0.01	28.9
Energy	0.02	0.38	0.03	—	0.03	0.03	—	0.03	492
Water	—	—	—	—	—	—	—	—	16.3
Waste	—	—	—	—	—	—	—	—	191
Refrig.	—	—	—	—	—	—	—	—	1.01
Total	7.38	1.90	0.06	3.59	3.66	0.06	0.91	0.97	4,604
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Mobile	2.66	1.70	0.02	3.59	3.62	0.02	0.91	0.93	3,667
Area	3.60	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.02	0.38	0.03	—	0.03	0.03	—	0.03	492
Water	—	—	—	—	—	—	—	—	16.3
Waste	—	—	—	—	—	—	—	—	191
Refrig.	—	—	—	—	—	—	—	—	1.01
Total	6.27	2.07	0.05	3.59	3.65	0.05	0.91	0.96	4,366
Average Daily	—	—	—	—	—	—	—	—	—
Mobile	2.40	1.47	0.02	3.27	3.29	0.02	0.83	0.85	3,362
Area	4.09	0.04	< 0.005	—	< 0.005	< 0.005	—	< 0.005	14.3
Energy	0.02	0.38	0.03	—	0.03	0.03	—	0.03	492
Water	—	—	—	—	—	—	—	—	16.3
Waste	—	—	—	—	—	—	—	—	191
Refrig.	—	—	—	—	—	—	—	—	1.01
Total	6.51	1.89	0.06	3.27	3.33	0.05	0.83	0.88	4,076
Annual	—	—	—	—	—	—	—	—	—

Mobile	0.44	0.27	< 0.005	0.60	0.60	< 0.005	0.15	0.15	557
Area	0.75	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36
Energy	< 0.005	0.07	0.01	—	0.01	0.01	—	0.01	81.4
Water	—	—	—	—	—	—	—	—	2.69
Waste	—	—	—	—	—	—	—	—	31.5
Refrig.	—	—	—	—	—	—	—	—	0.17
Total	1.19	0.34	0.01	0.60	0.61	0.01	0.15	0.16	675

3. Construction Emissions Details

3.1. Demolition (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	1.58	0.05	—	0.05	0.05	—	0.05	371
Demolition	—	—	—	0.16	0.16	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	< 0.005	—	< 0.005	< 0.005	—	< 0.005	22.3
Demolition	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.70

Demolition	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.06	0.06	0.00	0.01	0.01	60.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.21	< 0.005	0.04	0.04	< 0.005	0.01	0.01	145
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.64
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.75
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.45

3.3. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.68	0.02	—	0.02	0.02	—	0.02	193

Dust From Material Movement	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	< 0.005	—	< 0.005	< 0.005	—	< 0.005	10.6
Dust From Material Movement	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.75
Dust From Material Movement	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.02	0.02	0.00	< 0.005	< 0.005	20.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.10
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.18

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.50	0.02	—	0.02	0.01	—	0.01	112
Dust From Material Movement	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	< 0.005	—	< 0.005	< 0.005	—	< 0.005	12.9
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.13
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.00	0.04	0.04	0.00	0.01	0.01	40.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	2.41	0.03	0.42	0.45	0.02	0.11	0.13	1,684
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	4.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.27	< 0.005	0.05	0.05	< 0.005	0.01	0.02	194
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	32.1

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	3.21	0.13	—	0.13	0.12	—	0.12	904
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	3.21	0.13	—	0.13	0.12	—	0.12	904
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.76	0.03	—	0.03	0.03	—	0.03	213
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.14	0.01	—	0.01	0.01	—	0.01	35.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.40	0.25	0.00	0.95	0.95	0.00	0.22	0.22	988
Vendor	0.02	0.84	0.01	0.16	0.17	0.01	0.04	0.05	642
Hauling	0.01	0.96	0.01	0.18	0.19	0.01	0.05	0.06	712
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.35	0.33	0.00	0.95	0.95	0.00	0.22	0.22	920
Vendor	0.02	0.88	0.01	0.16	0.17	0.01	0.04	0.05	641
Hauling	0.01	1.02	0.01	0.18	0.19	0.01	0.05	0.06	710
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.00	0.22	0.22	0.00	0.05	0.05	218
Vendor	0.01	0.20	< 0.005	0.04	0.04	< 0.005	0.01	0.01	151
Hauling	< 0.005	0.24	< 0.005	0.04	0.04	< 0.005	0.01	0.01	167
Annual	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.00	0.04	0.04	0.00	0.01	0.01	36.1
Vendor	< 0.005	0.04	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	25.0
Hauling	< 0.005	0.04	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.7

3.9. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	< 0.005	—	< 0.005	< 0.005	—	< 0.005	12.7
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.77
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.13
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.02	0.02	0.00	< 0.005	< 0.005	21.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.19

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.50	0.01	—	0.01	0.01	—	0.01	78.1
Architectural Coatings	15.2	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.74
Architectural Coatings	0.92	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.78
Architectural Coatings	0.17	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.00	0.19	0.19	0.00	0.04	0.04	184
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.86
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.48	0.01	—	0.01	0.01	—	0.01	78.1
Architectural Coatings	15.2	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.48	0.01	—	0.01	0.01	—	0.01	78.1
Architectural Coatings	15.2	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.14	< 0.005	—	< 0.005	< 0.005	—	< 0.005	23.2
Architectural Coatings	4.52	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.85
Architectural Coatings	0.83	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.07	0.05	0.00	0.19	0.19	0.00	0.04	0.04	194
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.00	0.19	0.19	0.00	0.04	0.04	181
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.06	0.06	0.00	0.01	0.01	54.0

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.94
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Trenching (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.23	0.01	—	0.01	0.01	—	0.01	65.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.62
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.02	0.02	0.00	< 0.005	< 0.005	21.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	4.85
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	2.20	1.17	0.02	2.99	3.01	0.02	0.76	0.77	3,212
Regional Shopping Center	0.56	0.26	< 0.005	0.61	0.61	< 0.005	0.15	0.16	663
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.76	1.43	0.02	3.59	3.62	0.02	0.91	0.93	3,876
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	2.11	1.38	0.02	2.99	3.01	0.02	0.76	0.77	3,039
Regional Shopping Center	0.54	0.31	< 0.005	0.61	0.61	< 0.005	0.15	0.16	628
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.66	1.70	0.02	3.59	3.62	0.02	0.91	0.93	3,667
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.36	0.23	< 0.005	0.52	0.52	< 0.005	0.13	0.13	480
Regional Shopping Center	0.08	0.04	< 0.005	0.08	0.08	< 0.005	0.02	0.02	76.7
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.44	0.27	< 0.005	0.60	0.60	< 0.005	0.15	0.15	557

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	6.89
Regional Shopping Center	—	—	—	—	—	—	—	—	0.56
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	2.80
Total	—	—	—	—	—	—	—	—	10.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	6.89
Regional Shopping Center	—	—	—	—	—	—	—	—	0.56
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	2.80
Total	—	—	—	—	—	—	—	—	10.3
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	1.14
Regional Shopping Center	—	—	—	—	—	—	—	—	0.09
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	0.46
Total	—	—	—	—	—	—	—	—	1.70

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.02	0.37	0.03	—	0.03	0.03	—	0.03	473
Regional Shopping Center	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	8.47
Enclosed Parking with Elevator	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.02	0.38	0.03	—	0.03	0.03	—	0.03	481
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.02	0.37	0.03	—	0.03	0.03	—	0.03	473

Regional Shopping Center	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	8.47
Enclosed Parking with Elevator	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.02	0.38	0.03	—	0.03	0.03	—	0.03	481
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	< 0.005	0.07	0.01	—	0.01	0.01	—	0.01	78.3
Regional Shopping Center	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.40
Enclosed Parking with Elevator	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	< 0.005	0.07	0.01	—	0.01	0.01	—	0.01	79.7

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	3.05	—	—	—	—	—	—	—	—
Architectural Coatings	0.55	—	—	—	—	—	—	—	—
Landscape Equipment	1.01	0.09	0.01	—	0.01	0.01	—	0.01	28.9
Total	4.60	0.09	0.01	—	0.01	0.01	—	0.01	28.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Consumer Products	3.05	—	—	—	—	—	—	—	—
Architectural Coatings	0.55	—	—	—	—	—	—	—	—
Total	3.60	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	0.56	—	—	—	—	—	—	—	—
Architectural Coatings	0.10	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36
Total	0.75	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	15.1
Regional Shopping Center	—	—	—	—	—	—	—	—	1.16
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	16.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	15.1
Regional Shopping Center	—	—	—	—	—	—	—	—	1.16
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	16.3
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	2.50
Regional Shopping Center	—	—	—	—	—	—	—	—	0.19
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	2.69

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	182
Regional Shopping Center	—	—	—	—	—	—	—	—	8.12
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	191
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Apartments Mid Rise	—	—	—	—	—	—	—	—	182
Regional Shopping Center	—	—	—	—	—	—	—	—	8.12
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	191
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	30.2
Regional Shopping Center	—	—	—	—	—	—	—	—	1.34
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	31.5

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	0.99
Regional Shopping Center	—	—	—	—	—	—	—	—	0.02
Total	—	—	—	—	—	—	—	—	1.01
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	0.99

Regional Shopping Center	—	—	—	—	—	—	—	—	0.02
Total	—	—	—	—	—	—	—	—	1.01
Annual	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	0.16
Regional Shopping Center	—	—	—	—	—	—	—	—	< 0.005
Total	—	—	—	—	—	—	—	—	0.17

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2026	1/31/2026	5.00	22.0	—
Site Preparation	Site Preparation	2/1/2026	2/28/2026	5.00	20.0	—
Grading	Grading	2/1/2026	3/31/2026	5.00	42.0	—
Building Construction	Building Construction	8/1/2026	11/30/2026	5.00	86.0	—
Paving	Paving	4/1/2027	5/1/2027	5.00	22.0	—

Architectural Coating	Architectural Coating	12/1/2026	6/1/2027	5.00	131	—
Trenching	Trenching	4/1/2026	7/31/2026	5.00	88.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	0.70	33.0	0.73
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Demolition	Excavators	Diesel	Average	1.00	5.30	36.0	0.38
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	5.30	84.0	0.37
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	1.80	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	2.60	36.0	0.38
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	0.70	82.0	0.20
Building Construction	Welders	Diesel	Average	1.00	0.80	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	1.80	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Average	1.00	3.50	37.0	0.48
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	1.80	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Demolition	—	—	—	—
Demolition	Worker	7.50	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	1.90	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	2.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	5.00	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	22.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	115	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	22.2	8.40	HHDT,MHDT
Building Construction	Hauling	9.30	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	2.50	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	23.0	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT

Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	2.50	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	280,327	93,442	6,152	2,051	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	3,400	—
Site Preparation	—	—	0.00	0.00	—
Grading	—	7,407	0.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Regional Shopping Center	0.00	0%
Enclosed Parking with Elevator	0.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	188	0.03	< 0.005
2027	0.00	188	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	713	643	536	247,272	4,245	3,832	3,192	1,473,097
Regional Shopping Center	155	189	86.5	54,736	634	866	396	231,180
Enclosed Parking with Elevator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
280326.825	93,442	6,152	2,051	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	418,257	4.00	0.0330	0.0040	1,471,273
Regional Shopping Center	34,236	4.00	0.0330	0.0040	26,352
Enclosed Parking with Elevator	169,688	4.00	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	3,959,082	0.00
Regional Shopping Center	303,771	0.00
Enclosed Parking with Elevator	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	96.7	—
Regional Shopping Center	4.31	—
Enclosed Parking with Elevator	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.12	annual days of extreme heat
Extreme Precipitation	15.8	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	7.96	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	7.52
AQ-PM	20.3
AQ-DPM	51.9
Drinking Water	7.43
Lead Risk Housing	42.4
Pesticides	0.00
Toxic Releases	43.6
Traffic	45.8
Effect Indicators	—
CleanUp Sites	59.9
Groundwater	77.5
Haz Waste Facilities/Generators	96.6
Impaired Water Bodies	12.5
Solid Waste	63.7

Sensitive Population	—
Asthma	17.5
Cardio-vascular	18.2
Low Birth Weights	14.2
Socioeconomic Factor Indicators	—
Education	36.2
Housing	59.3
Linguistic	35.3
Poverty	28.9
Unemployment	9.72

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	55.48569229
Employed	79.36609778
Median HI	65.46901065
Education	—
Bachelor's or higher	80.61080457
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	24.53483896
Active commuting	91.03041191
Social	—
2-parent households	19.31220326
Voting	91.08174002

Neighborhood	—
Alcohol availability	34.45399718
Park access	81.35506224
Retail density	90.06800975
Supermarket access	76.04260234
Tree canopy	95.68843834
Housing	—
Homeownership	16.91261388
Housing habitability	43.15411267
Low-inc homeowner severe housing cost burden	40.69036315
Low-inc renter severe housing cost burden	55.66534069
Uncrowded housing	66.9190299
Health Outcomes	—
Insured adults	43.11561658
Arthritis	0.0
Asthma ER Admissions	69.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	39.2
Cognitively Disabled	70.6
Physically Disabled	47.8
Heart Attack ER Admissions	80.9
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0

Obesity	0.0
Pedestrian Injuries	98.8
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	34.2
Children	95.8
Elderly	45.9
English Speaking	85.7
Foreign-born	27.1
Outdoor Workers	55.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	58.7
Traffic Density	50.8
Traffic Access	69.1
Other Indices	—
Hardship	11.6
Other Decision Support	—
2016 Voting	89.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	19.0

Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Utility Information	MCE is default clean energy provider for San Rafael. MCE 2023 power content label rate = 4 lb/MWh.
Land Use	Total lot acreage (converted provided sf to acres), number of units and parking spaces, and square footages (combined residential and common area) provided by filled out construction worksheet.
Construction: Construction Phases	Information provided by filled out construction worksheet.
Construction: Off-Road Equipment	Information provided by filled out construction worksheet.
Construction: Trips and VMT	Demolition = 11 tons of pavement demo'ed and hauled (0.1 trips/day), Building Construction = 400 concrete truck round trips (9.3 trips/day).
Construction: On-Road Fugitive Dust	Air District BMPs = 15 mph. Required by San Rafael Downtown EIR.
Operations: Hearths	No hearths.
Operations: Water and Waste Water	Wastewater treatment 100% aerobic - no septic tanks or lagoons.

SAN RAFAEL LANDMARK
Mixed Use Residential Building
APN 011-263-21

NOISE AND VIBRATION ASSESSMENT

April 4, 2025

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INTRODUCTION AND SUMMARY

This report presents the results of an environmental noise and vibration assessment completed for the proposed 8 story 131 dwelling unit mixed use residential project at 900 A Street in San Rafael, California (see Figure 1). The purpose for this noise assessment is to evaluate the compatibility of the development with respect to the environmental noise levels at the project site and evaluate noise impacts upon sensitive receptors in the area. The Setting Section of this report presents the fundamentals of environmental noise and vibration, describes regulatory criteria that are applicable in the project's assessment, and summarizes the results of a survey of the existing noise environment at the project site and vicinity.

Figure 1: Project Site, Vicinity and Measurement Locations

SETTING

FUNDAMENTALS OF ENVIRONMENTAL NOISE

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales, which are used to describe noise in a particular location. *A decibel (dB)* is a unit of measurement, which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA).* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level* (*CNEL*) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level* (*DNL* or L_{dn}) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

EFFECTS OF NOISE

Sleep and Speech Interference. The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for

multi-family dwellings are set by the State of California at 45 dBA L_{dn}. Typically, the highest steady traffic noise level during the daytime is about equal to the L_{dn} and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA L_{dn} with open windows and 65-70 dBA L_{dn} if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. To achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

Table 1: Definitions of Acoustical Terms Used in this Report

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro-Pascals (or 20 micro-Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro-Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period. The hourly Leq used for this report is denoted as dBA Leq[h].
Day-Night Level, L_{dn}	The equivalent noise level for a continuous 24-hour period with a 10-decibel penalty imposed during nighttime and morning hours (10:00 pm to 7:00 am).
Community Noise Exposure Level, CNEL	CNEL is the equivalent noise level for a continuous 24-hour period with a 5-decibel penalty imposed in the evening (7:00 pm to 10:00 pm) and a 10-decibel penalty imposed during nighttime and morning hours (10:00 pm to 7:00am)
L_1, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Table 2: Typical Noise Levels in the Environment

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA L_{dn}. At a L_{dn} of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the

population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a L_{dn} of 60-70 dBA. Between a L_{dn} of 70-80 dBA, each additional decibel increases the percentage of the population highly annoyed by about 3 percent. People appear to respond more adversely to aircraft noise. When the L_{dn} is 60 dBA, approximately 30-35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

FUNDAMENTALS OF GROUNDBORNE VIBRATION

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV), and another is the Root Mean Square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. In this section, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous vibration levels produce. The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Table 3: Reaction of People and Damage to Buildings for Continuous Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006 to 0.019	Threshold of perception, Possibility of intrusion	Vibration unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk of "architectural" damage to normal dwellings such as plastered walls or ceilings.
0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations	Vibration at this level would cause "architectural" damage and possibly minor structural damage.

Source: Transportation Related Earthborne Vibrations (Caltrans Experiences), Technical Advisory, Vibration TAV-02-01-R9601, California Department of Transportation, February 20, 2002.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generate the highest construction related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the peak particle velocity descriptor (PPV) has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

REGULATORY BACKGROUND

The State of California and the City of San Rafael have established regulatory criteria that are applicable in this assessment. The State of California Environmental Quality Act (CEQA) Guidelines, Appendix G, are used to assess the potential significance of impacts pursuant to local General Plan policies, Zoning Code standards, or the applicable standards of other agencies. A summary of the applicable regulatory criteria is provided below.

State CEQA Guidelines.

The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. Under CEQA, noise impacts would be considered significant if the project would result in:

(a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies,
(b) Generation of excessive groundborne vibration or groundborne noise levels,
(c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, if the project would expose people residing or working in the project area to excessive noise levels.

Checklist item (c) is not applicable to this project because the project is not located within an airport land use plan, is not within two miles of an airport or in the vicinity of a private air strip.

2022 California Building Code, Title 24, Part 2.

Section 1206.4 of the current (2022) California Building Code (CBC) states that interior noise levels attributable to exterior sources shall not exceed 45 dB(A) L_{dn} or CNEL (consistent with the noise element of the local general plan) in any habitable room. Though this section does to not explicitly apply this interior limit to multifamily residential buildings, per the scope discussion in Section 1206.1 and in keeping with the requirements of prior editions of the CBC this limit is applied to any habitable room for new attached (e.g. multifamily) dwellings and not detached single-family dwellings.

2022 California Building Cal Green Code, Title 24, Part 11

The Green Building Standards of the State of California Code of Regulations (Title 24, Part 11) establishes mandatory exterior sound transmission control standards for new non-residential buildings as set forth in the 2022 California Green Building Standards Code Sections 5.507.4.1 and 5.507.4.2 Exterior noise transmission as follows[1]:

5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport.

Exceptions:

1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.

2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway noise source as determined by the Noise Element of the General Plan.

5.507.4.1.1 Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq}-1-hr during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance method. For buildings located as defined in Sections A5.507.4.1 or A5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq}-1Hr) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site features**.** Exterior features such as sound walls or earth berms may be utilized as appropriate to the project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

1 Exception: Buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

City of San Rafael General Plan (adopted 8.02.2021)

The Noise Element of the City of San Rafael's General Plan provides the following Goals, Policies, and Programs which are relevant to the proposed project:

GOAL N-1: Acceptable Noise Levels

Protect the public from excessive unnecessary, and unreasonable noise.

Excessive noise is a concern for many residents of San Rafael. This concern can be addressed through the implementation of standards to protect public health and reduce noise conflicts in the community, including the Noise Ordinance.

Policy N-1.1: Land Use Compatibility Standards for Noise

Protect people from excessive noise by applying noise standards in land use decisions. The Land Use Compatibility standards in Table 9-2 are adopted by reference as part of this General Plan and shall be applied in the determination of appropriate land uses in different ambient noise environments.

Program N-1.1A: Residential Noise Standards. *Maintain a maximum noise standard of 70 dBA L_{dn} for backyards, decks, and common/usable outdoor spaces in residential and mixed-use areas. As required by Title 24 insulation requirements, interior noise levels shall not exceed 45 dBA L_{dn} in all habitable rooms in residential units*.

Policy N-1.2: Maintaining Acceptable Noise Levels

Use the following performance standards to maintain an acceptable noise environment in San Rafael:

(a) New development shall not increase noise levels by more than 3 dBA L_{dn} in a residential area, or by more than 5 dBA L_{dn} in a non-residential area.

(b) New development shall not cause noise levels to increase above the "normally acceptable" levels shown in Table 9-2.

(c) For larger projects, the noise levels in (a) and (b) should include any noise that would be generated by additional traffic associated with the new development.

(d) Projects that exceed the thresholds above may be permitted if an acoustical study determines that there are mitigating circumstances (such as higher existing noise levels) and nearby uses will not be adversely affected.

Program N-1.2A: Acoustical Study Requirements. *Require acoustical studies for new single family residential projects within the projected 60 dBA L_{dn} noise contour and for multi-family or mixed-use projects within the projected 65 dBA L_{dn} contour. The studies should include projected noise from additional traffic, noise associated with the project itself, and cumulative noise resulting from other approved projects. Mitigation measures should be identified to ensure that noise levels remain at acceptable levels.*

Program N-1.2B: Approval Conditions. *Establish conditions of approval for activities with the potential to create significant noise conflicts and enforce these conditions once projects become operational.*

Policy N-1.3: Reducing Noise Through Planning and Design

Use a range of design, construction, site planning, and operational measures to reduce potential noise impacts.

Program N-1.3A: Site Planning. *Where appropriate, require site planning methods that minimize potential noise impacts. By taking advantage of terrain and site dimensions, it may be possible to arrange buildings, parking, and other uses to reduce and possibly eliminate noise conflicts. Site planning techniques include:*

(a) Maximizing the distance between potential noise sources and the receiver.
(b) Placing non-sensitive uses such as parking lots, maintenance facilities, and utility areas between the source and receiver.
(c) Using non-sensitive uses such as garages to shield noise sensitive areas.
(d) Orienting buildings to shield outdoor spaces from noise sources.
(e) Incorporating landscaping and berms to absorb sound.

Program N-1.3B: Architectural Design. *Where appropriate, reduce the potential for noise conflicts through the location of noise-sensitive spaces. Bedrooms, for example, should be placed away from freeways. Mechanical and motorized equipment (such as air conditioning units) should be located away from noise-sensitive rooms. Interior courtyards with water features can mask ambient noise and provide more comfortable outdoor spaces.*

Program N-1.3C: Noise Barriers. *Where appropriate, use absorptive noise barriers to reduce noise levels from ground transportation and industrial noise sources. A barrier should provide at least Ldn 5 dB of noise reduction to achieve a noticeable change in noise levels.*

Program N-1.3D: Noise Reduction through Construction Materials. *Where appropriate, reduce noise in interior spaces through insulation and the choice of materials for walls, roofs, ceilings, doors, windows, and other construction materials.*

Policy **N-1.3: Reducing Noise Through Planning and Design**
Use a range of design, construction, site planning, and operational measures to reduce potential noise impacts.

Program N-1.3A: Site Planning. *Where appropriate, require site planning methods that minimize potential noise impacts. By taking advantage of terrain and site dimensions, it may be possible to arrange buildings, parking, and other uses to reduce and possibly eliminate noise conflicts. Site planning techniques include:*

(f) Maximizing the distance between potential noise sources and the receiver.
(g) Placing non-sensitive uses such as parking lots, maintenance facilities, and utility areas between the source and receiver.
(h) Using non-sensitive uses such as garages to shield noise sensitive areas.
(i) Orienting buildings to shield outdoor spaces from noise sources.
(j) Incorporating landscaping and berms to absorb sound.

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Program N-1.3D: Noise Reduction through Construction Materials. *Where appropriate, reduce noise in interior spaces through insulation and the choice of materials for walls, roofs, ceilings, doors, windows, and other construction materials.*

Table 9-2: Noise Compatibility Guidelines for San Rafael[1]

Land Uses	Interior CNEL or L_{dn} (dBA)	Exterior Noise Exposure, CNEL or L_{dn} (dBA) 55 60 65 70 75 80
Residential-Low Density Single-Family, Duplex, Mobile Homes	45*	
Residential-Multiple Family	45*	
Transient Lodging, Motels, Hotels	45*	
Schools, Libraries, Churches, Hospitals, Nursing Homes	45*	
Auditoriums, Concert Halls, Amphitheaters	--	
Sports Arena, Outdoor Spectator Sports	--	
Playgrounds, Neighborhood Parks	--	
Golf Courses, Riding Stables, Water Recreation, Cemeteries	--	
Office Buildings, Businesses, Commercial and Professional	50	
Industrial, Manufacturing, Utilities, Agricultural	--	

Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction or development generally should not be undertaken.

Policy N-1.4: Sound Walls
Discourage the use of sound walls when other effective noise reduction measures are available. Vegetation, berms, and the mitigation measures in Policy N-3 are the preferred methods of absorbing sound along roads, rail, and other transportation features. Where there are no other feasible options (for example, along many sections of US Highway 101), the City will review and comment on sound wall design. Sound walls should be aesthetically pleasing, regularly maintained, and designed to minimize the potential displacement of sound.

Policy N-1.5: Mixed Use
Mitigate the potential for noise-related conflicts in mixed use development combining residential and non-residential uses.

Program N-1.5A: Disclosure Agreements. *Where appropriate, require disclosure agreements for residents in mixed use projects advising of potential noise impacts from nearby commercial enterprises, such as restaurants and entertainment venues.*

Policy N-1.9: Maintaining Peace and Quiet
Minimize noise conflicts resulting from everyday activities such as construction, sirens, yard equipment, business operations, night-time sporting events, and domestic activities.

Program N-1.9A: Noise Ordinance. *Maintain and enforce the noise ordinance, which addresses common noise sources such as amplified music, mechanical equipment use, and construction. Updates to the ordinance should be periodically considered in response to new issues (for example, allowing portable generators during power outages).*

Program N-1.9B: Construction Noise. *Establish a list of construction best management practices (BMPs) for future projects and incorporate the list into San Rafael Municipal Code Chapter 8.13 (Noise) The City Building Division shall verify that appropriate BMPs are included on demolition, grading, and construction plans prior to the issuance of associated permits.*

Program N-1.9C: Noise Specifications. *Include noise specifications in requests for equipment information and bids for new City equipment and consider this information as part of evaluation of the bids.*

Policy N-1.11: Vibration
Ensure that the potential for vibration is addressed when transportation, construction, and non-residential projects are proposed, and that measures are taken to mitigate potential impacts.

Program N-1.11A: Vibration-Related Conditions of Approval. *Adopt Standard conditions of approval in San Rafael Municipal Code Chapter 8.13 (Noise) that apply Federal Transit Administration (FTA) criteria for acceptable levels of groundborne vibration for various building types. These conditions should:*

(a) reduce the potential for vibration-related construction impacts for development projects near sensitive uses such as housing, schools, and historically significant buildings.
(b) *reduce the potential for operational impacts on existing or potential future sensitive uses such as uses with vibration-sensitive equipment (e.g., microscopes in hospitals and research facilities) or residences.*

Vibration impacts shall be considered as part of project level environmental evaluation and approval for individual future projects. If vibration levels exceed FTA limits, conditions of approval shall identify construction and operational alternatives that mitigate impacts.

City of San Rafael Municipal Code.

The City's Municipal Code contains a Noise Ordinance that limits sound levels at adjacent properties. Section 8.13.040 states the allowable sound pressure level at various land uses during the day and night for intermittent and constant noise. The general noise limits are given in Table 8.13-1.

TABLE 8.13-1—GENERAL NOISE LIMITS

Property type or zone	Daytime limits	Nighttime limits
Residential	60 dBA Intermittent	50 dBA Intermittent
	50 dBA Constant	40 dBA Constant
Mixed-use	65 dBA Intermittent	55 dBA Intermittent
	55 dBA Constant	45 dBA Constant
Multifamily residential (interior sound source)	40 dBA Intermittent	35 dBA Intermittent
	35 dBA Constant	30 dBA Constant
Commercial	65 dBA Intermittent	65 dBA Intermittent
	55 dBA Constant	55 dBA Constant
Industrial	70 dBA Intermittent	70 dBA Intermittent
	60 dBA Constant	60 dBA Constant
Public Property	Most restrictive noise limit applicable to adjoining private property	Most restrictive noise limit applicable to adjoining private property

Section 8.13.050 of the Municipal Code establishes allowable hours of construction between 7am. and 6pm. Monday through Friday and between 9am. and 6pm. on Saturdays, unless permission is granted with a development permit or other approval from planning commission, or the activity belongs to one of the exceptions stated in Subsection B of Section 3.13.050 (Standard Exceptions to general noise limits) of the City of San Rafael's Municipal Code. No construction activities are permitted on Sundays and holidays. Additionally, noise levels at any point outside of the property plane of the project are limited to a maximum level of 90 dBA.

EXISTING NOISE ENVIRONMENT

The proposed project is located on the northeast corner of the intersection of 3rd and A Streets in San Rafael and is bordered by commercial buildings to the west and southwest and at the block interior (north and east), a medical office building to the south and a senior housing and care facility to the southwest. The existing noise environment on the project site results primarily from vehicular traffic on 3rd, A, and 4th Streets at the operation and use of the adjacent businesses, with more distant noise from Highway 101 and other area roadway traffic and other area business also contributing to background sound levels.

Noise monitoring surveys were conducted on the site and surrounding areas between 12 pm on Tuesday February 25th, 2025, and 11 am on Thursday February 27th, 2025 to quantify the existing noise environment on and around the project site. The noise monitoring survey included two long-term (LT-1 and LT-2) and three short term (ST-1 to ST-3) noise measurements as shown in Figure 1. The noise measurements were conducted with Larson Davis Laboratories (LDL) Type I Model LXT Sound Level Meters. All meters were equipped with ½-inch pre-polarized condenser microphones and windscreens and were calibrated with a Larson Davis Model CA250 precision acoustic calibrator prior to and following the measurement survey.

Long-term noise measurement, LT-1 was made in the upper branches of a tree on the south side of 4th Street at a height of 12 feet above grade and approximately 30 feet from the centerline of the roadway (see Figure 1). The measured noise levels at this location, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown on Chart 1, following.

A review of Chart 1 indicates that the noise levels at site LT-1 followed a diurnal pattern characteristic of traffic noise, with the nighttime noise levels reduced below daytime levels due to lower traffic activities. During the 47-hour noise measurement period, the average daytime noise levels ranged from 59 to 70 dBA L_{eq} and the average hourly nighttime noise levels ranged from 50 to 63 dBA L_{eq}. The overall average Day/Night noise Level (L_{dn}) for the monitoring period at position LT-1 was 66 dBA, with the full day [Wednesday(2/25)] L_{dn} level at 67 dBA.

Long-term noise measurement LT-2 was made on the upper trunk of a tree on the north side of 3rd Street at a height of 12 feet above grade and approximately 25 feet from the roadway centerline (see Figure 1). The measured noise levels at this location, including the energy equivalent noise level (L_{eq}), maximum (L_{max}), minimum (L_{min}), and the noise levels exceeded 10, 50 and 90 percent of the time (indicated as L_{10}, L_{50} and L_{90}) are shown on Chart 2, following.

A review of Chart 2 indicates that the noise levels at site LT-2 followed a diurnal pattern characteristic of traffic noise, uninterrupted but constant mechanical noise (which was the case at LT-1). During the 47-hour noise measurement period, the average daytime noise levels ranged from 69 to 72 dBA L_{eq} and the average hourly nighttime noise levels ranged from 56 to 70 dBA L_{eq}. The overall average Day/Night noise Level (L_{dn}) for the monitoring period at position LT-1 was 73 dBA, with the full day [Wednesday(2/25)] L_{dn} level also at 73 dBA.

Short-term, 10-minute, duration noise measurements were made concurrently with the long-term measurements at long term positions LT-1 and LT-2 at five locations on February 25th, 2025, between 12:10 and 1:00 pm as follows;

- The first short term measurement (ST-1 as shown in Figure 1) was made at 45 feet from the centerline of 4th to Street to represent the roadway noise exposure of the existing buildings along this roadway,
- The second short term measurement (ST-2 as shown in Figure 1) was made at 35 feet from the centerline of A Street to represent the roadway noise exposure at the future western project façade and the existing buildings along this roadway ,
- The third short term measurement (ST-3 as shown in Figure 1) was made at 35 feet from the centerline of 3rd Street to represent the roadway noise exposure at the future western project façade and the existing buildings along this roadway.

The existing L_{dn} at each of these short-term locations was estimated by correlating the short-term measurement data to the data gathered during the corresponding time period at positions LT-1 and LT-2. These measurement results and estimated L_{dn} levels are shown in Table 3.

TABLE 3 Summary of Short-Term Noise Measurement Data (dBA)

Noise Measurement Location	L_{max}	$L_{(1)}$	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	L_{eq}	L_{dn}
ST-1: 4th Street roadway frontages: [2/25/2025 12:10pm to 12:20pm]	82	75	65	63	59	53	**63**
ST-2: A Street roadway frontages: [2/25/2025 12:30pm to 12:40pm]	74	66	61	59	56	54	**67**
ST-3: 3rd Street roadway frontages: [2/25/2025 12:50pm to 1:00pm]	76	73	70	66	64	55	**71**

Chart 1: LT-1 Hourly Noise Measurement Data

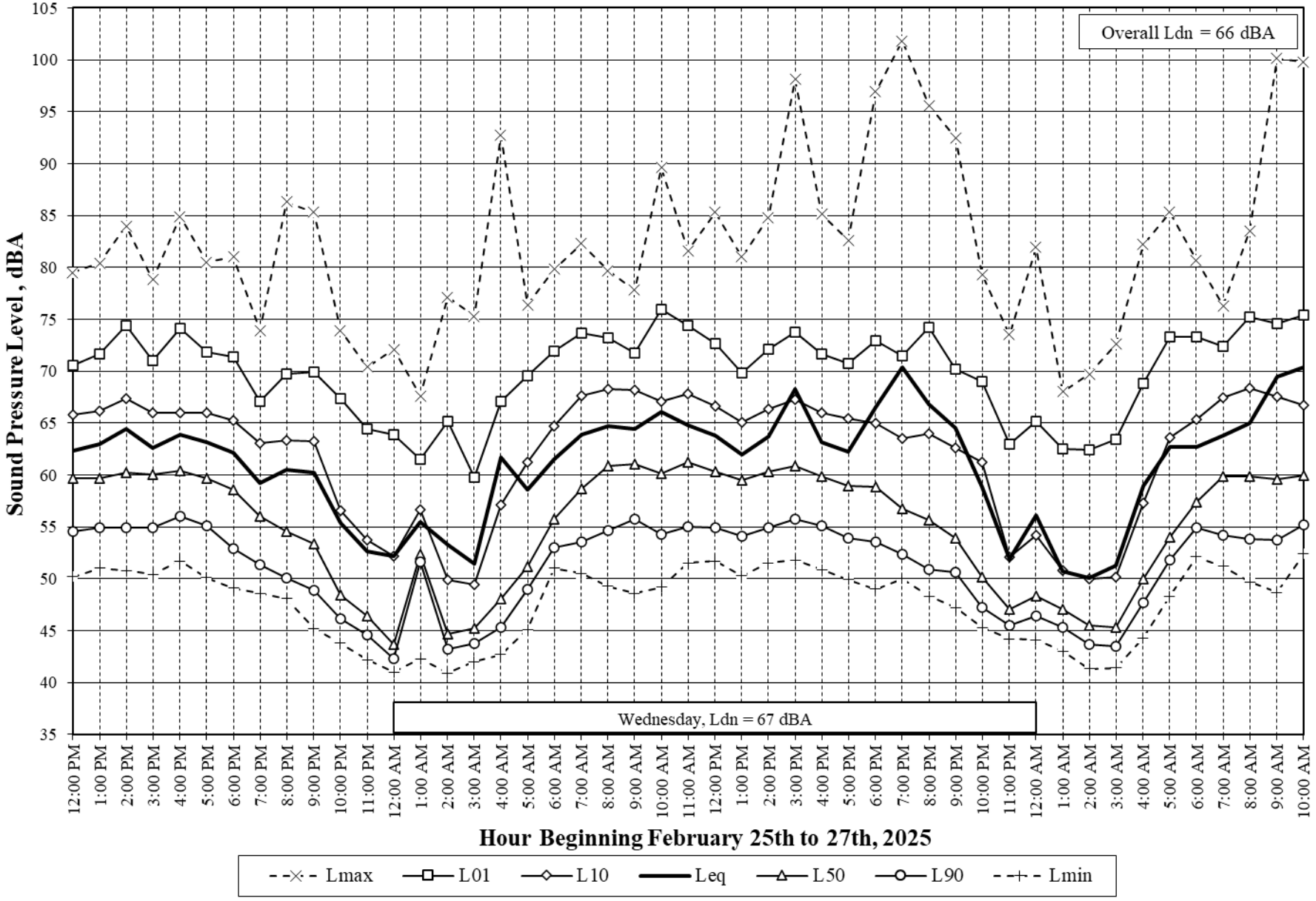
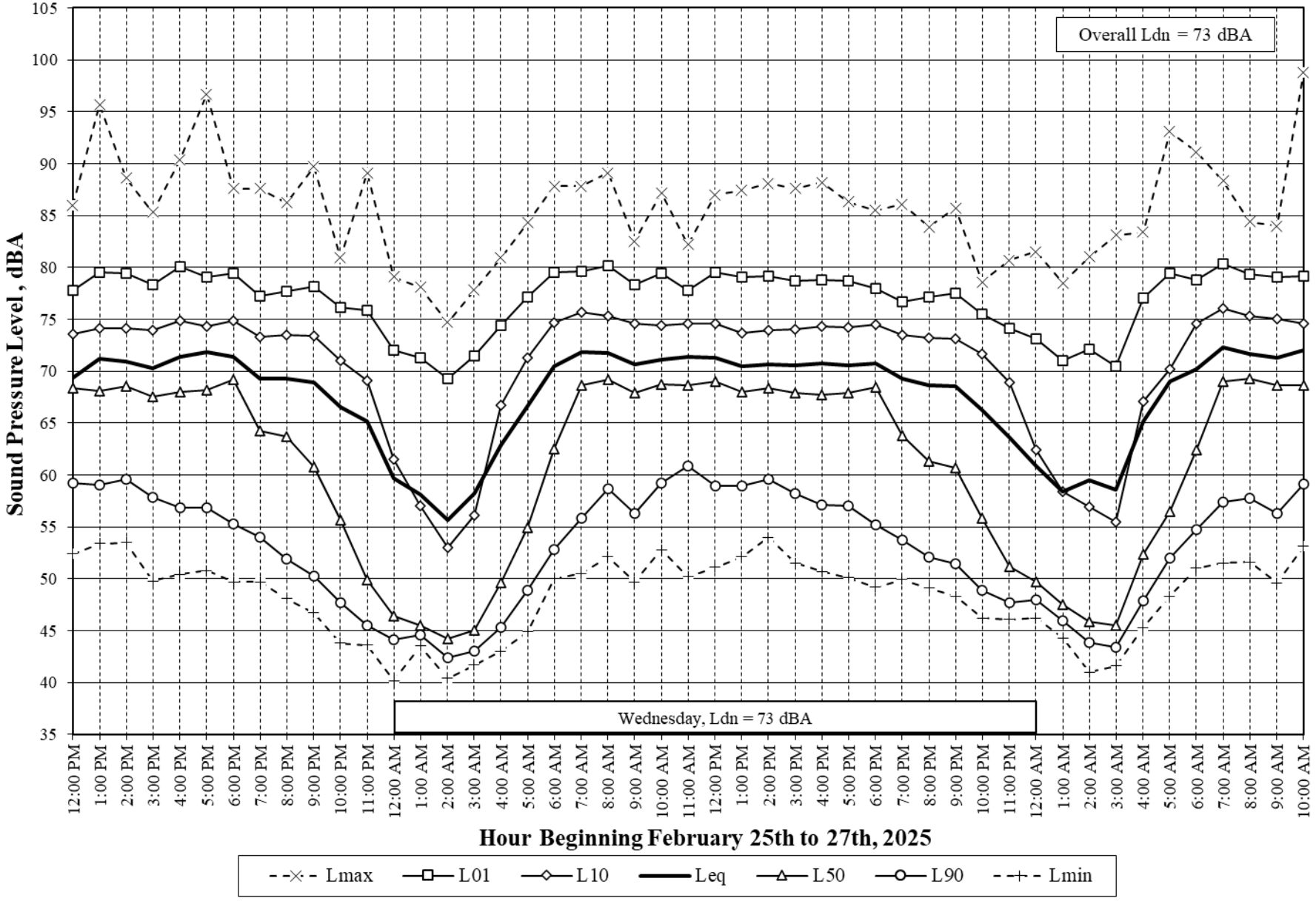


Chart 2: LT-2 Hourly Noise Measurement Data



FUTURE NOISE ENVIRONMENT

The future noise environment on the project site would continue to result primarily from traffic on the adjacent roadways and more distant noise from other area roadways and business. Though a traffic report was not available for this project based on the results of traffic studies for other similar sized mixed use residential buildings we would expect the project to generate less than 500 daily vehicle trips with about 40 to 45 a.m. and p.m. peak hour trips on the surrounding roadways. Considering the existing traffic on the surrounding roadways, this level of traffic would likely result in a noise level increase of less than 1 dBA on the roadways serving the project[2]. Also considering that there are no available predictions of future traffic volumes on area roadways to assess the future noise environment, we have assumed a conservative 1-2% annual increase in traffic volumes along these roadways as a result of general area and regional growth over the next 10 to 15 years. With this increase in traffic, the future noise environment on the site and in the project area would be expected to increase by approximately 1 decibel over existing noise levels. Considering this, we expect future noise levels at the 3rd Street and A Street project facades will, respectively, be 72 dBA L_{dn} and 68 dBA L_{dn} under future conditions.

SIGNIFICANCE CRITERIA

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers over a permanent or temporary basis. A significant impact would be identified for a proposed land use if it were exposed to noise levels exceeding established guidelines or standards for noise and land use compatibility. A substantial permanent noise increase would occur if the noise level increase resulting from the project is more than 3 dBA L_{dn} in a residential area, or more than 5 dBA L_{dn} in a non-residential area as established by the San Rafael General Plan. Generally, a substantial temporary noise level increase would occur if noise levels exceeded 60 dBA L_{eq} and the ambient noise environment by at least 5 dBA L_{eq} at adjacent land uses in the project vicinity for a period of one year or more. Additionally, per the per the City Municipal Code a substantial temporary noise level increase would occur where maximum noise levels from construction activities exceed 90 dBA L_{eq} outside of the property plane of the project. Vibration levels generated during demolition or construction activities would be significant if they exceed FTA limits.

NOISE IMPACTS AND MITIGATION MEASURES

Impact 1a: Exterior Residential Noise and Land Use Compatibility. Residential uses developed at portions of the project site would be exposed to normally acceptable noise levels. **This is a less-than-significant impact.**

Current project drawings indicate that residential uses on the site will be on the second through eighth floors. Project plans also show that the common outdoor use areas for the project will be on the second level at the block interior and on the eight level at the southeastern end of the building adjacent to 3rd Street and the block interior.

In these locations the common open spaces will receive acoustical shielding from intervening project structures. Based on a consideration of noise shielding and the results of our measurement survey and future noise projections, sound levels in the project common open

2 To cause a 1 dB increase in traffic noise on area roadways, the project would need to increase traffic on these roadways by more than 25%. Given the current traffic volumes on area roadways and the projected project trip generation, this does not appear possible.

space areas are expected to be well below 65 dBA L_{dn} under future conditions. Such exterior noise levels are considered "normally acceptable" for multifamily residential land uses by the City of San Rafael General Plan Noise Element.

Mitigation Measure 1a: None Required.

Impact 1b: Interior Residential Noise and Land Use Compatibility. The project facades along 3rd and A Streets would be exposed to "conditionally acceptable" noise levels such that the interior noise levels may exceed the City and State required 45 dBA L_{dn} level. **This is a less-than-significant impact with the incorporation of noise control measures in the project design.**

Interior noise levels within residential buildings of normal construction are typically 15 dBA lower than exterior noise levels with the windows partially open. With the windows closed, standard residential construction typically provides 20 to 25 decibels of exterior to interior noise reduction. Considering this, where exterior day-night average noise levels are 65 dBA L_{dn}, or less, interior noise levels can typically be maintained below the City and State interior noise standard of 45 dBA L_{dn} with the incorporation of forced air mechanical ventilation systems to provide adequate fresh air when residents wish to keep their windows closed for noise control. Where noise levels exceed 65 dBA L_{dn}, forced-air mechanical ventilation systems and sound-rated building elements are normally required.

Based on the results of the existing noise measurement survey and the expected future noise level increases along these roadways as discussed above,

- Residential units on the 3rd Street (southern) project façade will be exposed to exterior noise levels of between 71 dBA L_{dn} at the 2nd floor to 68 dBA at the 7th and 8th floors,
- Residential units on the A Street (western) project façade will be exposed to exterior noise levels of between 68 dBA L_{dn} at the 2nd floor to 64 dBA at the 8th floor,
- Residential units on the northern project façade within 80 feet of the A Street centerline will be exposed to exterior noise levels of between 65 dBA L_{dn} at the 2nd floor to 63 dBA at the 7th and 8th floors, and
- Residential units on the eastern project façade within 80 feet of the 3rd Street centerline will be exposed to exterior noise levels of between 67 dBA L_{dn} at the 2nd floor to 65 dBA at the 8th floor.

Considering this, the following noise control measures are assumed to be included in the final project design:

Exterior to Interior Noise Control Design Measures:

1. All 2nd to 8th floor apartments with facades adjacent to 3rd Street and all 2nd to 6th floor apartments with facades adjacent to A Street will be equipped with a mechanical ventilation system to allow residents to keep their windows closed for noise control. The mechanical ventilation systems in these apartments should be designed to supply adequate fresh air to the units with close windows and may include acoustically rated straight air transfer duct such as the Fresh 80, 90 or 100-dB units by Fresh Ventilation (or equal) or a standard central air conditioning and/or a central heating system with adequate fresh air supply, which is equipped with a 'summer switch' to allow the fan to circulate air without cooling or heating operation, or other systems satisfactory to the local building official.
2. The exterior wall assemblies & window/door STC ratings of all 2nd to 8th floor apartments with facades adjacent to 3rd Street and all 2nd to 6th floor apartments with facades adjacent to A Street will be designed to maintain interior noise levels at or below 45 dBA L_{dn} with closed exterior doors and windows and the exterior wall assemblies & window/doors.

3. Based on typical residential construction, it is expected that the windows and doors in 2nd to 8th floor apartments with a view of 3rd Street and 2nd to 6th floor apartments with a view of A Street will require STC ratings of between 26 and 30, however the specific determination of sound isolation ratings of the exterior wall assemblies and window/door assemblies will be determined during the project design.

Mitigation Measure 1b: No additional measures required.

Impact 1c: Interior Non-Residential Noise and Land Use Compatibility. The interiors of the commercial (non-residential) uses in along 3rd and A Streets could be exposed to an L_{dn} levels of 68 to 72 dBA. Following the State of California *Cal Green* Building Code standard, exterior sound transmission control must be incorporated in the design of these buildings using either the prescriptive (section 5.507.4.1) or performance (section 5.507.4.2) analysis methods. **This is a less-than-significant impact.**

Under the performance method wall, window and roof-ceiling assemblies facing noise sources need to be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level ($L_{eq\text{-}1Hr}$) of 50 dBA in occupied areas during any hour of operation. A review of the noise measurement of existing conditions indicates that the existing peak hour L_{eq} level on the 3rd Street project frontage is 72 dBA. Considering a possible increase of 1 dBA over existing noise conditions under future traffic conditions, the future peak hour $L_{eq\text{-}1Hr}$ level is expected to be 73 dBA. Based on this, the exterior façades of the non-residential uses along 3rd Street will need to reduce the exterior to interior noise level by 23 dBA to meet the 50 dBA $L_{eq\text{-}1Hr}$ standard. Though building elevations were not available for review, based on the current plans, and newer commercial developments in the area, storefront glazing is expected to be extensively used at the lower-level commercial/retail spaces. Though some of this glazing may be spandrel glass, under worst case condition without spandrel conditions (full glazing), storefront glazing systems with a minimum STC rating of 26 would meet the interior hourly equivalent noise level ($L_{eq\text{-}1Hr}$) limit of 50 dBA during any hour of operation of these businesses. Because an STC rating of 26 is typical of standard operable thermal insulating glazing systems, and standard fixed storefront glazing systems meet, and many exceed, this rating, this report finds that the interior hourly equivalent noise level ($L_{eq\text{-}1Hr}$) limit of 50 dBA during any hour of operation with a standard, non-STC rated, thermally insulating fixed storefront glazing system.

Mitigation 1c: None Required

Impact 2: Project Operational Noise Generation Noise due to the use and occupation of the project commercial and residential uses on adjacent noise sensitive uses is not expected to significantly increase or alter the existing noise environment at these uses. **This is a less-than-significant impact.**

The proposed project would place new residential uses within about 130 feet of the Vivalon senior living facility at the corner of 3rd and Brooks Streets and over 200 feet from residential buildings south of the site on A Street. The occupation and use of the proposed commercial and residential uses is expected to result in the typical noises associated with commercial and residential development, including commercial activities, voices of the new residents, residential maintenance activities, barking dogs and children. The Heating Ventilation and Air Conditioning (HVAC) and other mechanical equipment associated with the mixed-use residential development will also add noise to the existing environment. Based on a review of project drawings the HVAC equipment for the project will be installed on the roof of the proposed 8-

story building. Based on noise measurements made at similar projects, outdoor condensing units residences and mechanical equipment for commercial uses may produce constant sound pressure levels of 60 to 70 dBA L_{eq} at 1 meter (3.3 feet) and under worst-case conditions with all units operating the sound levels at the roof edge could reach 60 to 70 dBA L_{eq}. Considering this noise level and that a rooftop parapet wall and building structure itself would provide more than 10 decibels of noise reduction, and the distances to the adjacent residential uses, noise from HVAC equipment on the 8-story rooftop is expected to be below ambient noise levels at the adjacent residences and not exceed the Municipal Code noise limits.

Additionally, though noise resulting from occupation of the new residences may noticeably change the noise environment in the adjacent residential areas, these sources would not increase noise levels in any surrounding areas by 3 dBA or more. Therefore, project operation is not judged to result in a noise impact.

Mitigation 2: None Required.

Impact 3: **Project-Generated Traffic Noise.** The proposed project would not substantially increase noise levels on a permanent basis at noise sensitive uses in the vicinity. **This is a less-than-significant impact.**

A significant impact would be identified if traffic generated by the project would substantially increase noise levels at sensitive receivers in the vicinity. A substantial increase would occur if the project traffic on area roadways resulted in a noise level increase of 5 dBA L_{dn} or greater at the multi-family residences or by 3 dBA L_{dn} or greater at single-family homes in the project area. A review of the expected project trip generation numbers for the development indicates that project traffic would result in a less than 1 dBA increase in noise levels on 3rd, 4th and A Streets.

Mitigation 3: None Required.

Impact 4: **Construction Noise.** Noise levels generated by project construction activities would temporarily elevate ambient noise levels at sensitive land uses in the vicinity. Major noise generating construction activities would be limited to less than one construction season or less. **This is a less-than-significant impact.**

The construction of the project would generate noise and would temporarily increase noise levels at adjacent residential receivers. Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment operating on site, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Construction of the project is expected to take more than one building season and would involve site improvements, such as the establishment of utilities, excavation of foundations, building erection, paving, and landscaping along with home construction. The hauling of excavated material and construction materials would generate truck trips on local roadways.

Construction activities are typically carried out in stages. During each stage of construction, there would be a different mix of equipment operating. Construction noise levels would vary by stage and vary within stages based on the amount of equipment in operation and location where the equipment is operating. Typical noise levels during the construction of apartments at 50 feet are shown in Table 6, which gives the average noise level ranges by construction phase.

TABLE 6: Typical Ranges of L_{eq} Construction Noise Levels at 50 Feet, dBA

Construction Stage	Domestic Housing		Office Building, Apartments, Hotel, Hospital, Public Works		Public Works Roads & Highways, Sewers, and Trenches	
	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	84
Excavation	88	75	89	79	88	78
Foundations	81	81	78	78	88	88
Erection	81	65	87	75	79	78
Finishing	88	72	89	75	84	84
I - All pertinent equipment present at site, **II** - Minimum required equipment present at site.						

Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

The nearest noise sensitive (residential) uses to project construction is the Vivalon senior living facility southeast of the project site at the corner of 3rd and Brooks Streets. The closest residential façade of this facility appears to be apartments will be about 130 feet from the perimeter of construction and about 240 feet from the center of the project site. Considering that construction noise levels would attenuate at a rate of about 4.5 to 6 dBA per doubling of distance the expected average construction noise levels with distance would be expected to range from:

70 to 81 dBA with an average level of 75 dBA at 130 feet, and

64 to 75 dBA with an average level of 70 dBA at 240 feet.

Project construction is expected to take one than one building season to complete. Though this timetable is greater than one year, based on a consideration that once intervening structures are built, they would provide noise attenuation at the residences in the adjacent senior living facility, we expect that the residences adjacent to the project site would not be exposed to construction related noise levels exceeding 60 dBA L_{eq} for a period of greater than one year.

Additionally, in keeping with the intent of the General Plan to **'e**stablish a list of construction best management practices', the following commonly adopted best practice controls along with the allowable hours of construction from Section 8.13.050 of the Municipal Code are assumed to be included in the project:

- Noise-generating construction activities, including truck traffic coming to and from the construction site for any purpose, shall be limited to between the hours of 7:00 am and 6:00 pm on weekdays and 9:00 am and 6:00 pm on Saturdays. No construction shall occur on Sundays or holidays.
- All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment.
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from residences.
- Unnecessary idling of internal combustion engines shall be prohibited.
- Construction staging areas shall be established at locations that will create the greatest distance between the construction related noise sources and noise-sensitive receptors nearest the project site during all project construction.
- The required construction related noise mitigation plan shall also specify that haul truck deliveries are subject to the same hours specified for construction equipment.
- Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing.

- The construction contractor shall designate a "noise disturbance coordinator" who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and institute reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

With the implementation of these controls, and the limited duration of the noise generating construction at the adjacent noise sensitive uses, the substantial temporary increase in ambient noise levels associated with construction activities would be less-than-significant.
Mitigation Measure 4: No additional measures required.

Impact 5: **Exposure to Construction Generated Groundborne Vibration.** Residences in the vicinity of the project site are not expected to be exposed to perceptible vibration levels from construction activities. **This is a less-than-significant impact.**

Construction activities would include the demolition of existing buildings, site preparation work, foundation work, paving, and new building framing and finishing. The construction of the project may generate perceptible vibration when heavy equipment or impact tools (e.g., jackhammers, hoe rams) are used. Construction techniques that generate the highest vibration levels, such as impact or vibratory pile driving, are not expected at this project.

Program N-1.11A within Policy N-1.11 of the City's General Plan references the use of FTA vibration limits to determine the impact of construction vibration on sensitive uses such as housing, schools, and historically significant buildings The FTA guidelines for construction vibration impact criteria are shown in Table 7 for various structural categories.

Table 7: Construction Vibration Building Damage

Vibration Level		
PPV (in/sec)	**Approx. VdB[1]**	**Building Category**
0.5	102	I. Reinforced-concrete, steel or timber (no plaster)
0.3	98	II. Engineered concrete and masonry (no plaster)
0.2	94	III. Non-engineered timber and masonry buildings
0.12	90	IV. Buildings extremely susceptible to vibration damage

[1]RMS velocity in decibels (VdB) re 1 micro-inch/second

As discussed above the closest sensitive uses to project construction is the Vivalon senior living facility southeast of the project site which will be as close as 130 feet from the perimeter of construction. This building was constructed within the last 5 years and is expected to be of Type I or Type II construction as identified in Table 7 and therefore vibration levels exceeding 0.3 in/sec, PPV or more could result in vibration damage to these structures.

Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity. Building framing, exterior and interior finishing, and landscaping activities are not anticipated to be sources of substantial vibration. Construction activities are expected to take more than one year, but construction vibration would not be substantial for most of this time except during vibration generating activities (as discussed above).

Table 8 presents vibration source levels for typical construction equipment at a distance of 130 feet. Based on this, construction vibration levels would be below the Type II 0.30 in/sec PPV

damage criteria at 130 feet. Based on these findings, construction vibration levels would be well below the applicable FTA construction vibration damage criteria and the closest sensitive structures.

TABLE 8 Vibration Source Levels for Construction Equipment[3]

Equipment		PPV at 130 ft. (in/sec)
Clam shovel drop		0.02
Hydromill (slurry wall)	in soil	0.0007
	in rock	0.001
Vibratory Roller		0.02
Hoe Ram		0.008
Large bulldozer		0.008
Caisson drilling		0.008
Loaded trucks		0.006
Jackhammer		0.003
Small bulldozer		0.0003

In areas where vibration would not be expected to cause structural damage, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration. By use of administrative controls such as notifying adjacent land uses of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with least potential to affect nearby residences, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception.

Mitigation 5: None Required

[3] Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2018.

STORMWATER CONTROL PLAN

1030 3rd Street

San Rafael, California

Prepared By:

Luk and Associates
738 Alfred Nobel Drive
Hercules, CA 94547
(510)724-3388

Updated
June 24, 2025

Table of Contents

I. Project Setting

A. Project Description

The project site is located at 1030 3rd Street at the corner of 3rd Street and A St in City of San Rafael, California. The site is approximately 0.66 acres. The project site was previously developed, and the developer is proposing to demolish the previously existing building and paved area to construct 8-story mixed use building with 131 dwelling units over ground-level lobbies, commercial space and parking. The project creates/replaces a total maximum impervious surface value of 27,571 square feet.

B. Existing Site Features and Conditions

The site is rectangular in shape. Topography is in general flat and sloping from north to south. The existing project site has a building and open parking lot that occupied virtually the entire site. In addition, the surrounding streets are existing and paved but will receive new paving as part of the development. Some existing landscaping strips located around the property are currently the only undeveloped areas.

Existing site drainage is overland and drains to an existing on-site drain inlets in the parking lot and driveway aisle connecting parking lot and 3rd St. A majority of the land on this site is covered by developed impervious surfacing. The highest elevation within the site is 18.3 feet at the northwest corner and 10.5 feet at the existing drain inlet near southeast corner of the site.

C. Opportunities and Constraints for Storm water Control

Due to the nature of the development and existing clay soils, the use of post construction Best Management Practices (BMPs) is being utilized to the maximum extent possible. The site is zero lot line project and has some constraints but is maximizing opportunities to utilize podium courtyard to minimize the effect of impervious areas. The main constraint is that the site is almost completely occupied by building footprints, limiting bioretention planter space. Drainage management must be treated within the available areas on podium courtyard. One opportunity is to utilize directional sloping roofs and plumbing piping to direct roof run-off into the available treatment areas in podium courtyard. Another opportunity is that the project site is located within a priority development area (PDA), as titled “Downtown”, and qualifies for 100% LID credits under Category-B. Therefore, the project is allowed to utilize mechanical treatment for the site. The project proposes

Treatment of all runoff from the site is to be provided. 72% of total storm water runoff will be treated by bio-retention planters on podium courtyard prior to discharging to the existing storm system in 3rd street. 28% of the site area are to be treated by Media Filter. The storm water control plan is intended to provide the site with runoff treatment to the “maximum extent practicable” per the *BASMAA* requirement criteria.

The most critical constraint in this site design is the efficient use of bio-retention planters in podium courtyard as treatment areas—as the project site is zero lot line project and contains a lot of impervious surface area relative to available treatment space. The building roof run off will be conveyed through down spouts and then into the nearest treatment planter in podium courtyard on level-2 that is large enough to handle the run off volumes as determined by the sizing equations. Treated water (podium level planters) will be separated from untreated water (podium deck and other roof surfaces). Untreated surfaces will drain to Media Filter at ground level. Once all the water is treated, it will be collected and conveyed to the public domain on 3rd St.

II. Measures to Limit Imperviousness

A. Measures to Cluster Development and Protect Natural Resources

One garage driveway (A Street) will be used for site access with minimal offset distance from the street. A single pedestrian access path (3rd) is currently planned for the project site. The new development will utilize multi-levels, in order to minimize impervious surfaces and maximize usable living space.

B. Measures Used to Limit Directly Connected Impervious Area

The impervious areas (roofs, driveways, parking, sidewalks) are disconnected from the drainage system. Additionally, all the storm water from roofs and podium deck will drain into various infiltration planters located around the site prior to entering into the storm system. Small areas adjacent to the existing street (where not otherwise covered by roof top) will drain directly to the street sidewalk.

C. Measures to Make Development More Compact

The following site layout characteristics are incorporated to reduce imperviousness:

- The proposed buildings include a multi-levels, which minimizes the building footprint.

III. Selection and Preliminary Design of Stormwater Treatment BMPs

Treatment facilities are designed to accommodate runoff from the specified design storm intensity of 0.2 inches per hour (as recommended in *BASMAA* guidelines).

The Storm Water Control Plan shows the BMPs and the corresponding areas of the site that drain to each treatment planter. The site has been divided into multiple drainage areas. The sizes and locations of the each impervious area are shown in the storm water control plan. Existing site soils are clay and classified as “Class D”.

Storm water runoff from the areas is managed by routing run off to treatment planters located throughout the project site. Runoff from roofs will also drain to various treatment planters located adjacent to the building (ground floor) or planters on the podium deck, depending on the location.

Runoff from all areas will be treated per the *BASMAA* design criteria.

A. General Treatment BMP Characteristics

Runoff from roof tops will be collected through roof drains and conveyed to treatment BMPs installed on podium courtyard.

The BMPs are located to accommodate individual drainage areas, site topography, and ADA accessibility, while allowing for ease of maintenance access. Each area of the BMP has adequate hydraulic head to allow drainage into, through, and away from the BMP without the need for pumps.

B. Specific DMA Characteristics

Each area is unique due to the complexity of the site grading and site layout. The design chart on the area calculation sheet provides the specific design data for each drainage area’s impervious area, pervious area, treatment type, and required treatment size.

Drainage Management Area (DMA) 1A will drain to a treatment planter (DMA 1B) located on the podium courtyard at level 2. Run-off will then discharge to the primary plumbing system (cleaned) and ultimately connect to the underground storm pipe system (cleaned) on 3rd.

Drainage Management Area 2 will drain to Mechanical Treatment system (Media Filter) located at the ground floor. Run-off will then discharge to the primary plumbing system (cleaned) and ultimately connect to the underground storm pipe system (cleaned) on 3rd.

C. Specific BMP Characteristics

Bio-Retention Facility

The bio-retention areas have been designed and will be constructed according to the criteria included in the *BASMAA*. The bio-retention areas have the following characteristics:

- 18" depth "Engineered" soil mix with a minimum long term infiltration rate of 5"/hour.
- Surface area of soils mix meets or exceeds minimum
- Perforated Pipe (PVC SDR 35 or approved equivalent) under drain with outlet located flush or nearly flush with bottom of planter bottom. Connection with sufficient head to storm drain or discharge point.
- No filter fabric.
- Under drain has cleanout port consisting of a vertical, rigid, non-perforated PVC pipe, with a minimum of 4" diameter and water tight cap.
- Location and footprint of facility shown on the site plan and the landscaping plan.
- Bio-retention area is designed as a basin (level edges) or a series of basins and the grading plan is consistent with these elevations. If facility is designed as a swale, check dams are set so the lip of each dam is at least as high as the toe of the next upstream dam.
- Curb inlets are 12" wide and have 4-6" reveal and an apron or other provision to prevent blockage when vegetation grows in, and energy dissipation is needed.
- Overflow outlet connected to a downstream storm drain or approved discharge point.
- Emergency spillage will be safely conveyed overland.
- Plantings are suitable to climate and a well drained soil.
- Irrigation system with a connection to water supply, on a separate zone.
- Vaults, utility boxes, and light standards are located outside the minimum soil mix surface area.
- When excavating avoid smearing of soils on bottom of side slopes. Minimize compaction of native soils and "rip" soils if clayey and/or compacted. Protect the area from construction site run off.

Media Filter

A storm water media filter unit will be utilized for the project to provide mechanical treatment for the site. The following criteria are used for media filter sizing:

- C3 Drainage Management Area = 7936-sf
- C3 Design site area = 0.182 acre
- C3 Design storm intensity = 0.2 in/hr
- C3 Design storm flow = 0.037 cfs = 16.36 gpm
- Conversion Factor (1 cfs = 448.83 gpm)
- C3 media-unit treatment rate = 22.5 gpm/unit
- Required number of C3 media units = 1-unit

IV. Source Control Measures

The project will create few potential sources of stormwater pollutants. Sources to be controlled include:

- Potential dumping of wash-water or other liquids into storm drain inlets
- Need for future indoor or structural pest control coming from upstream facilities
- Fertilizers and pesticides used in landscaping area.
- Potential for Vehicle washing or Future Refuse areas
- Refuse disposal

All areas where these activities occur will drain to storm water in-ground planters. To further reduce the potential to enter runoff, permanent and operational BMP's will be implemented as described in Table 3.

Table 3: Sources and Source Control BMP

Potential Source	Permanent BMPs	Operational BMPs
On-site drain inlets.	Inlets that could be accessed from sidewalks and driveways will be marked with a "No Dumping – Drains to Creek" or similar message.	• Inlet markings will be inspected annually and replaced or renewed as needed. • Owner shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to the storm drains. • Owner will receive stormwater pollution prevention information per *BASMAA* guidelines • In-ground planter and related structures and features will be inspected and maintained as specified in the BMP Operation and Maintenance Plan.
Need for future indoor and structural pest control.	Standard building design minimizes potential needs for future pest control	Owner will conduct pest management in accordance with *BASMAA* policies.
Landscape/outdoor pesticide use.	• Any native trees, shrubs, and ground cover on the site will be preserved to the maximum extent possible. • Landscaping will be designed to minimize required irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution. • Plantings for planters will be selected to be appropriate to anticipated soil and moisture conditions.	• Owner will conduct pest management in accordance with *BASMAA* policies. • All site landscaping is to be maintained by a professional landscaping contractor. Contractor to state that landscaping is to be maintained using *BASMAA* principles, with minimal or no use of pesticides.

	• Where possible, pest-resistant plants will be selected, especially for locations adjacent to landscape. • Plants will be selected appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	
Refuse areas	• Refuse areas to be roofed. Any drains must connect to sanitary sewer. • Other refuse areas to be indoors and floors sloped to prevent drainage to exterior. Any floor drains must connect to sanitary sewer. • All dumpsters will be marked with a "Do not Dump Hazardous Materials Here" or similar.	Adequate litter receptacles will be provided throughout the commercial area. Grounds keeping crew or contractor will inspect and clean up daily. Spills will be cleaned up using dry methods.
Vehicle and equipment cleaning	Not applicable to site	Not applicable to site
Vehicle maintenance/repair	• No vehicle repair or maintenance will be done outdoors. • Interior maintenance areas will not have any floor drains. • There will be no tanks, containers, or sinks used for parts cleaning or rinsing.	Not applicable to site
Loading areas	The loading/unloading area drains to a planter rather than directly to storm drain.	Not applicable to site
Plazas, sidewalks, and parking lots.	Plaza areas drain to planters or pervious pavements and not directly to storm drains.	Not applicable to site

V. Summary of Permitting and Code Compliance Issues

There are no known conflicts between the proposed Storm Water Control Plan or *BASMAA* ordinances or policies. Any conflicts that are found will be resolved through the design review process or during subsequent permitting.

VI. BMP Operation and Maintenance

A. Means to Finance and Implement BMP Maintenance

All storm water treatment facilities in this plan will be financed and maintained by the Owner. By signing below, the applicant accepts responsibility for the operation and maintenance of the storm treatment facilities until such time as these facilities are formally transferred to a subsequent owner. Maintenance Responsibilities are detailed below in sections B, C, and D.

_____ _____

Owner's Signature Date

_____

Name

B. Summary of Maintenance Requirements

Bio-Retention Facility

Bio-retention Facilities remove pollutants primarily by filtering runoff slowly through an active layer of Engineered Soil. Routine maintenance is needed to ensure that flow is unobstructed, that erosion is prevented, and that soils are held together by plant roofs and are biologically active. Typical routine maintenance consists of the following:

- Inspect inlets, exposure of solids, or other evidence of erosion. Clear any obstructions and remove any accumulation of sediment. Examine rock of other materials used as splash pad and replenish if necessary.
- Inspect outlets for erosion or plugging.
- Observe soil at planter or filter for uniform percolation throughout. If portions of the filter do not drain within 24 hours after the end of the storm, the soil should be tilled and replanted. Remove any debris or accumulations of sediment.
- Confirm that energy dissipation provisions are in place and level and that channelization within that swale of filter is effectively prevented.
- Examine the vegetation to ensure that it is healthy and dense enough to provide filtering and to protect soil from erosion. Replenish mulch as necessary, remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas. Confirm that irrigation is adequate and not excessive. Replace dead plants and remove invasive vegetation.
- Abate any potential vectors by filling in the ground and around planters and by ensuring that there are no areas where water stands longer than 48 hours following a storm. If mosquito larvae are present and persistent, contact the County Vector Control District for information and advice
- Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.

Media Filter

Media filters are flow-through treatment systems that remove pollutants from runoff through screening and absorptive media such as sand, peat, or manufactured media. Clogging is the primary maintenance concern for media filters, although mosquito control is also an issue. Typical routine maintenance requirements are as follows:

- During the wet season, inspect periodically for standing water, sediment, trash, and debris, and to identify potential problems.
- Remove accumulated trash and debris in the sedimentation basin, from the riser pipe, and the filter bed during routine inspections.
- Inspect the media filter once during the wet season after a large rain event to determine whether the facility is draining completely within 72 hours.
- If the facility drain time exceeds 72 hours, remove the top 2 inches of media, and dispose of the material. Restore media depth to 18 inches when overall media depth drops to 12 inches.

C. Inspection/Maintenance Responsibility for Structural Source Control and Treatment Control BMPs

Maintenance mechanism for all structural source control and treatment control BMPs:

1. All inlets are to be inspected for debris twice a year, with one inspection yearly on October 1st.
2. Inspect for standing water, sediment, trash and debris monthly during the rainy season
3. Remove sediment, trash and debris from sedimentation basin, riser pipe and filter bed as needed. Sediment, trash and debris shall be disposed of properly.
4. Ensure that the media filter drains completely within 72 hours after major storm events and as needed.
5. For manufactured media filter, follow manufacturer's guidelines for maintenance and cartridge replacement as per manufacturer's specifications.
6. Trees and other large vegetation shall be prevented from growing adjacent to the media filter to prevent damage.

D. Operation and Maintenance

1. A draft Storm Water Control Operation and Maintenance Plan should be submitted with the construction plan and a final Storm Water Control Operation and Maintenance Plan will be submitted prior to issuance of a Certificate of Occupancy.
2. A Storm Water Management Facilities Operation and Maintenance Agreement and Right of Entry will be executed prior to the final approval of the Building Department.
3. Maintain the vegetation and irrigation system; inspect periodically to ensure structural integrity and confirm that bio retention area has not been clogged.

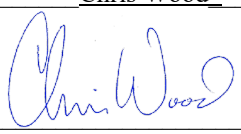
VII. C.3 Inspection Checklist

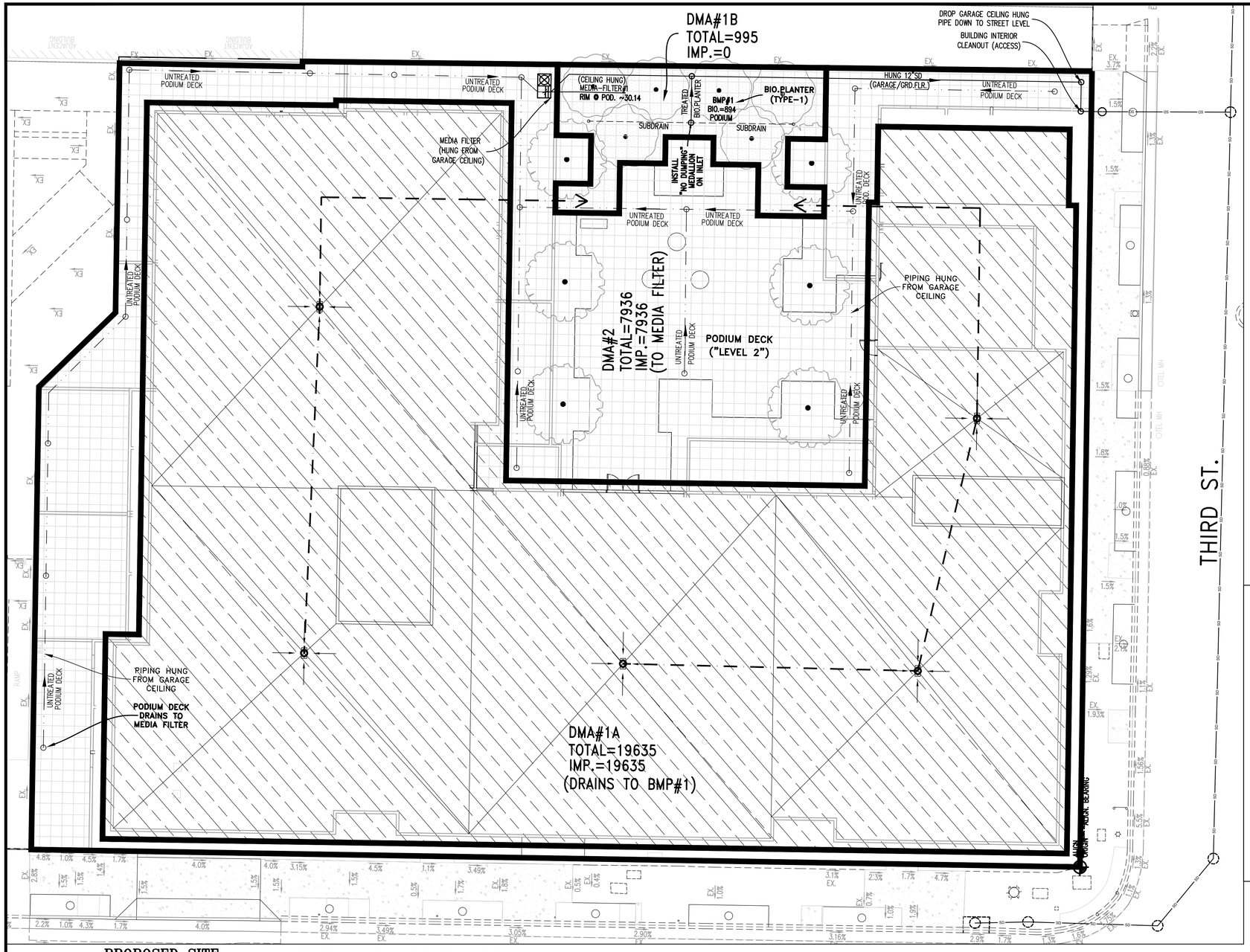
INSPECTION OBSERVATION	INSPECTION FREQUENCY	MAINTENANCE/REPAIR PROGRAM
Bio-Retention		
Inspect Inlets	Annually	■ Remove debris and sediment
Inspect Outlets	Annually	■ Remove debris and sediment
Inspect Storm Pipes	Annually	■ Remove debris and sediment. Cleanout Pipes as necessary.
Inspect Subdrains & Percolation	Annually	■ Check percolation rates. Cleanout pipes as necessary
Inspect Side Slopes	Annually	■ Add additional slope soils where erosion has occurred. Maintain design slopes.
Inspect Surface	Monthly	■ Add additional soils where settlement has occurred. Maintain design elevations. Remove debris.
Inspect Vegetation	Monthly	■ Replace dead vegetation. Verify irrigation system is functioning adequately.
Inspect Flow/Velocity Regulators	Annually	■ Remove debris. Add more rock as necessary
Media Filter		
Inspect sediment, trash, and debris accumulation	As Needed	■ Remove sediment, trash and debris from sedimentation basin, riser pipe and filter bed. Dispose of sediment, trash and debris properly
Inspect Standing Water, sediment, trash and debris	Monthly during rainy season	■ Remove clogs from sedimentation basin, riser pipe and filter bed. Filter drains per design specifications
Inspect media filter drains completely within 72 hours	After major storm events and as needed	■ Remove clogs from sedimentation basin, riser pipe and filter bed. Filter drains per design specifications
Inspect media depth to ensure proper drainage	Monthly during rainy season, or as needed after storm events	■ Restore media depth to 450 millimeters (18 inches)
Follow manufacturer's guidelines for maintenance and cartridge replacement	As per manufacturer's specifications	■ Replace cartridge as necessary

VIII. Certification

The selection, size, and preliminary design of treatment BMPs and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order 2012-006-DWQ.

Design Engineer:_____Chris Wood_____

Signature:  _____ Date:__Jun 24, 2025__



PROPOSED SITE

SCALE: 1" = 10'

LEGEND

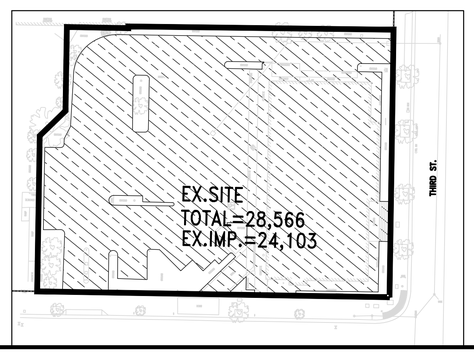
- IMPERVIOUS SURFACE (ROOF)
- IMPERVIOUS AREA (PODIUM DECK)
- BMP#1 BIO.=100 — BIORETENTION AREA
- DRAINAGE MANAGEMENT AREA LIMIT
- AREA# — DRAINAGE MANAGEMENT AREA
- TOTAL = — TOTAL DRAINAGE AREA
- IMP. = — IMPERVIOUS AREA

* TREATMENT ONLY (LESS THAN 1-ACRE OF IMPERVIOUS SURFACE)

STORM TREATMENT DESIGN*

DMA & IMP NAME	TYPE	A SIZING FACTOR	D.M. AREA (S.F.)	RUNOFF SURFACE TYPE	C-FACTOR VALUE*	MIN. SIZE (S.F.)	PLANNED SIZE (S.F.)
DMA#1A DMA#1B	BIO.RETENTION PLANTER TREATMENT	4%	19635	IMPERVIOUS	1.0	789	894
			995	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
DMA#2	MEDIA FILTER^ TREATMENT	N/A	7936	IMPERVIOUS	1.0	[16.4-GPM] 0.73-UNITS^	1-UNITS^
			0	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		

^ SEE STORMWATER TREATMENT NOTES (6) AND (7) ON THIS SHEET.



SCALE: 1" = 40'

EXISTING SITE

LEGEND

- EXISTING IMPERVIOUS SURFACE
- PROPERTY BOUNDARY LIMIT
- TOTAL = — TOTAL DRAINAGE AREA
- IEX.MP. = — EXISTING IMPERVIOUS AREA

STORM TREATMENT NOTES:

PER LOCAL COUNTY CLEAN WATER PROGRAM PUBLICATION (STORMWATER C.3 GUIDEBOOK):

1) HYDRO-MODIFICATION & STORM TREATMENT:

A) THE PROJECT SITE CREATES BETWEEN 5,000 SF AND 1-ACRE OF IMPERVIOUS SURFACE AREA FOR THE PROPOSED PRIVATE PROPERTY. THUS THE PROJECT WILL BE REQUIRED TO SUBMIT A STORMWATER CONTROL PLAN AND INCLUDE LID MEASURES CONSISTENT WITH SIZING FACTORS AND CRITERIA FOR "TREATMENT ONLY".

B) AS THE PROJECT PROPOSES LESS THAN 1-ACRE OF IMPERVIOUS SURFACES ON THE SITE, HYDROMODIFICATION (FLOW CONTROL) IS NOT A REQUIREMENT PER THE GUIDEBOOK.

2) THE PROJECT SITE IS DELINEATED INTO THE MANAGEMENT AREAS SHOWN ON THE CHART ON THIS SHEET.

3) BIORETENTION FACILITY DESIGN STANDARDS.

A = CONFIGURATION OF AREA
V1 = SURFACE RESERVOIR VOLUME
V2 = SUB-SURFACE RESERVOIR VOLUME

CRITERIA APPLY TO BIORETENTION FACILITY:
- SIZING FACTOR (SF) = 4% OF IMPERVIOUS AREA
- SURFACE RESERVOIR DEPTH = 6 INCHES TYPICAL
- SOIL MIX = 18 INCHES TYPICAL (5 IN/HR MIN.)
- UNDERDRAIN = 4 INCHES PVC PIPE MINIMUM

4) FOR SELF-RETAINING AREAS, THE RATIO OF IMPERVIOUS TO PERVIOUS AREA SHALL BE LESS THAN OR EQUAL TO 2:1 (TREATMENT ONLY) OR 1:1 (TREATMENT & FLOW CONTROL). SELF-RETAINING AREAS SHALL CAPTURE AND FLOW CONTROL A 1" PRECIPITATION DEPTH PER COUNTY DESIGN STANDARDS*.

5) FOR SELF-TREATING AREAS, THE PERCENTAGE OF IMPERVIOUS AREA MUST BE LESS THAN 5% PER COUNTY DESIGN STANDARDS**.

6) **SPECIAL PROJECT ASSESSMENT:**
1. PROJECT SITE IS **0.655-ACRES** (< 2-ACRE, > 0.5-ACRE)
2. PROJECT **IS** WITHIN A PRIORITY DEVELOPMENT AREA (PDA), AS TITLED "DOWNTOWN"
3. PROJECT HAS **100%** LOT COVERAGE (CAT.-A OR CAT.-B)
4. PROJECT PROPOSES **ZERO SURFACE PARKING.**
5. PROJECT PROPOSES **131** DWELLING UNITS
6. PROJECT DENSITY IS **200 DU/ACRE (100% CREDIT)**
   - 6.1. (> 50-DU/ACRE = 50% CREDIT)
   - 6.2. (> 75-DU/ACRE = 75% CREDIT)
   - 6.3. (> 100-DU/ACRE = 100% CREDIT)

PROJECT QUALIFIES FOR **100% LID CREDITS** UNDER **CATEGORY-B**

7) A **STORM WATER MEDIA FILTER UNIT** WILL BE UTILIZED FOR THE PROJECT TO PROVIDE MECHANICAL TREATMENT FOR THE SITE.

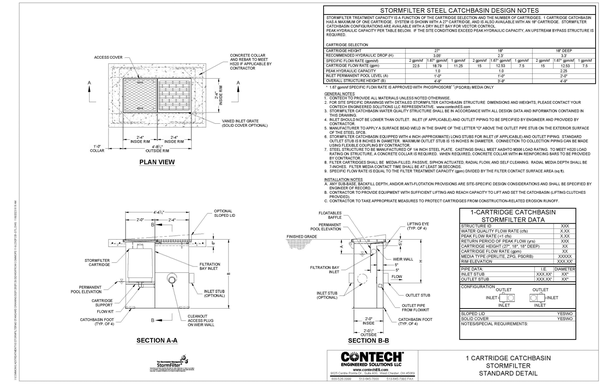
- C3 DRAINAGE MANAGEMENT AREA = 7936-SF
- C3 DRAINAGE MANAGEMENT AREA = 0.182-ACRE
- C3 DESIGN STORM INTENSITY = 0.2-INCH/HOUR
- C3 DESIGN STORM FLOW = 0.037-CFS
- C3 DESIGN STORM FLOW = 16.36-GPM [1-CFS = 448.83-GPM]
- C3 MEDIA-UNIT TREATMENT RATE = 22.5-GPM/UNIT
- REQUIRED NUMBER OF C3 MEDIA-UNITS = (1)

EXISTING SURFACE-AREA TABLE

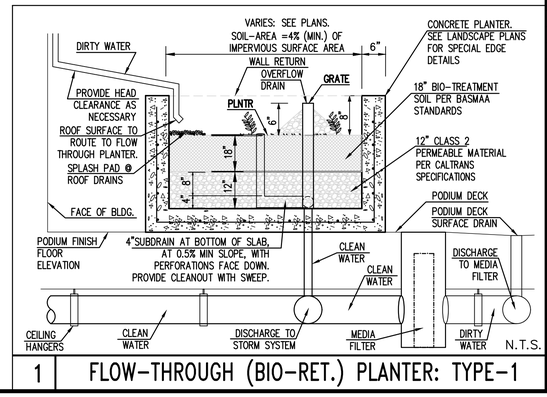
EXISTING SITE			
IMPERVIOUS [TO REMAIN] (SF)	IMPERVIOUS [TO REMOVE] (SF)	PERVIOUS AREA (SF)	TOTAL
0	24,103	4,463	28,566

PROPOSED SURFACE-AREA TABLE

PROPOSED SITE			
IMPERVIOUS [TO REMAIN] (SF)	IMPERVIOUS [TO INSTALL] (SF)	PERVIOUS AREA (SF)	TOTAL
0	27,571	995	28,566



MEDIA FILTER DEVICE



1 FLOW-THROUGH (BIO-RET.) PLANTER: TYPE-1

Luk and Associates
Civil Engineering
Land Planning
Land Surveying
738 Alfred Nobel Drive
Hercules, CA 94547
Phone (510) 724-3388
Fax (510) 724-3383

Seal:

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER JAMES WOOD
No. C72184
CIVIL
STATE OF CALIFORNIA

900 A-STREET PROJECT

1030 3RD STREET
SAN RAFAEL, CA

REVISIONS

NO.	DATE	DESCRIPTION
--	04-22-2025	PLANNING RESUBMITTAL

Title: STORMWATER TREATMENT PLAN

Date:	JUNE 2025
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	25091A10
Drawing No.:	MASTER-25091A10
Plot Date:	2025-06-24
Sheet No.:	C-6.1