



# Agenda Report

**MEETING DATE:** Monday, January 11, 2021

**TO:** Planning Commission

**FROM:** Suzi Merriam, Community Development Director  
Justin Meek, AICP, Principal Planner

## Community Development

**SUBJECT:** Planning Commission recommendation to City Council for adoption of a Design Review Permit with Density Bonus and Environmental Review (PP2019-432/APP#18) to allow construction of 50 apartments on a .745 +/- acre parcel at 558 Main Street (APN: 018-241-20)

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### STATEMENT OF ISSUE:

The project involves the construction of 50 residential apartments within a 4-story building on a .745 +/- acre parcel. The first floor of the building will contain a retail space facing Main Street and covered parking to the rear. Overall development proposes 15 studio, 29 one-bedroom, and 6 two-bedroom apartments. The second floor proposes an outdoor open area, multi-purpose lounge room, fire pits and BBQs. Site improvements include a new trash enclosure, infrastructure, fencing, vehicle parking and circulation.

**GENERAL PLAN:** CC (Central Commercial)

**ZONING:** CCA (Central Commercial Core Area)

**SURROUNDING GENERAL PLAN/ZONING:** CC (Central Commercial)/CCA (Central Commercial Core Area)

**EXISTING USE:** The parcel was historically used for a bank building with a parking lot and alleyway to Brennan behind. The bank building was demolished in 2019. It is now vacant with temporary fencing.

**PROPOSED USE:** 4-story mixed-use residential/commercial building with 50 apartments above first floor and one commercial unit on Main.

**SURROUNDING USES:** Multi-family residential and commercial

**FLOOD ZONE:** NA

**CEQA REVIEW:** The project is eligible for a Class 32 in-fill exemption per CEQA as it is located on a parcel of less than 5 acres, meets all requirements of the General Plan and Zoning Code, can be serviced by existing utilities, has no value as habitat for threatened or endangered species, and will not result in significant effects relating to traffic, noise, air quality or water quality.

**PROPERTY OWNER:** William J. Hansen and Neva J. Hansen, co-trustees of The Hansen Family Trust dated March 27, 2001.

**DEVELOPER:** Pacific Coast Development, 800 East Lake Avenue, Watsonville, CA 95076.

### **RECOMMENDED ACTION:**

Staff recommends that the Planning Commission (a) adopt a Resolution recommending that the City Council adopt a Resolution recommending that the City Council approve a Density Bonus, Design Review and Environmental Review (PP2019-432/APP# 18) to allow the construction of 50 apartments on a .745 ± acre parcel at 558 Main Street (APN: 018-241-20).

The recommendations are based on the Commission making the attached findings and subjecting the Project to the attached conditions of approval.

### **BACKGROUND**

#### Density Bonus

State law allows a housing development with a certain percentage of affordable units to be eligible for a density bonus. Pursuant to California Government Code Section 65915, a city must adopt an ordinance that specifies how compliance with [GOV Section 65915](#) will be implemented. Failure to adopt an ordinance does not relieve a city from complying with this section.

The City adopted [WMC Chapter 14-47<sup>1</sup>](#) in 2006 to implement [GOV Section 65915](#). Chapter 14-47 allows density bonuses or other incentives or concessions, if the applicant agrees to construct a residential development which contains certain housing for very low, lower, and moderate income households. The possible development incentives or concessions are set forth in Section 14-47.120.

The Applicant does not request a density bonus for additional units, but does request a concession to the commercial off-street parking requirement to make the project feasible.

#### Design Review

All new construction, exterior remodeling, additions, or changes in use requiring additional parking, which involve structures used for multi-family residential, commercial, industrial or public purpose are subject to Design Review. [WMC § 14-12.400](#). No building permit shall be issued for a development subject to Design Review until a Design Review Permit has been approved in accordance with WMC Chapter 14-12 and subjected to conditions of approval.

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<sup>1</sup> The Density Bonus Ordinance of the City of Watsonville,



When considering applications for Design Review, the Planning Commission shall evaluate the impact of the Design Review on and its compatibility with surrounding properties and neighborhoods to ensure the appropriateness of the development and must make the findings set forth in [WMC Section 14-12.403](#) in order to approve the project. The findings for a Design Review Permit are substantially similar to those required for Special Use Permits, except for the five additional findings to minimize adverse effects including visual impacts of the proposed development on adjacent properties in subdivision (e) of Section 14-12.403.

#### Affordable Housing Ordinance (Chapter 14-46)

WMC Chapter 14-46 requires that at least 20% of the units in a residential rental housing project containing 50 or more units be dedicated as affordable housing units. For this project, that means 10 units.

The Ordinance requires that the units be set aside at the following income levels:

- 5% Median
- 5% Low
- 5% Very Low
- 5% for Section 8

### **STANDARD OF REVIEW & APPEAL PROCESS**

The decision before the Commission tonight is an adjudicative decision. Whether a particular decision is adjudicative or legislative determines the requirements to support the decision. Legislative decisions involve the adoption of broad policies applicable to many situations (for example, general plan and zoning amendments). Legislative decisions generally require few, if any, findings.

Adjudicative (or “quasi-judicial”) decisions, on the other hand, are not policy decisions. Adjudicative/quasi-judicial decisions apply already adopted policies or standards to individual cases, such as a variance or conditional use permit application. Adjudicative/quasi-judicial decisions are based on evidence and must always be supported by findings.<sup>2</sup>

The decision before the Planning Commission consists of a recommendation to the City Council on a Density Bonus, and Design Review with Environmental Review, which are adjudicative/quasi-judicial decisions and require the Commission be able to make the required findings, either for denial, or as recommended, for approval and that the findings be supported by substantial evidence. *Toigo v Town of Ross* (1998) 70 Cal App 4th 309.

A lawsuit is required to challenge a Council’s decision. A reviewing court will consider whether an adjudicative/quasi-judicial decision by the Council was supported by adequate findings. Courts scrutinize adjudicative/quasi-judicial decisions closely. An action may be overturned if the City (1) exceeded its authority, (2) failed to provide a fair hearing, or (3) made a decision not supported by substantial evidence (also called “a prejudicial abuse of discretion”).

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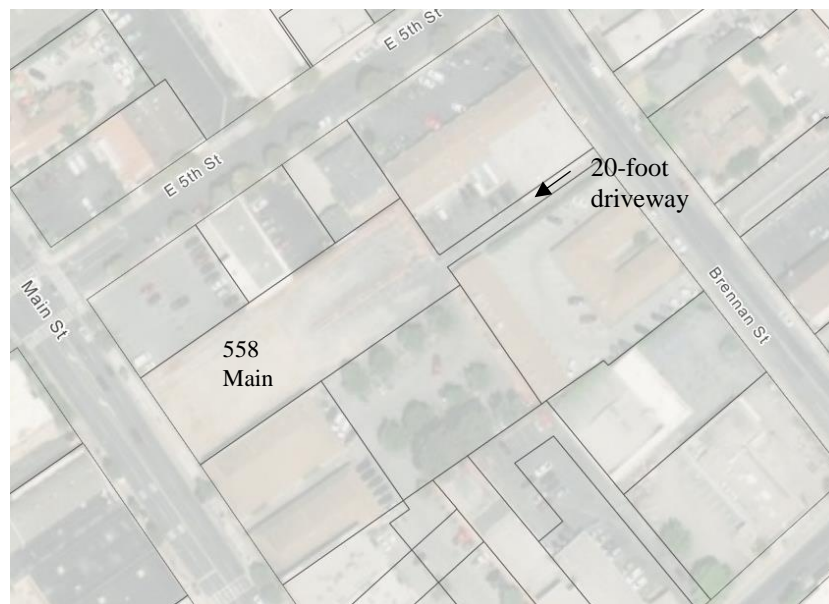
<sup>2</sup> Quasi-judicial decisions require the decision-making body to take evidence and use its judgment to make factual as well as legal determinations about whether a particular property or project meets the standards established by the land use ordinance.

Another important difference between legislative and adjudicative/quasi-judicial decisions on appeal is the substantial evidence standard: in weighing evidence of what happened at the Council meeting, courts go beyond whether a decision was “reasonable” (the legislative standard). Courts reviewing adjudicative/quasi-judicial decisions look to make sure the decision is supported by substantial evidence. Denied applicants argue that there is no substantial evidence to support the decision. Cities usually assert there is substantial evidence to support the decision and rely on (1) the written words in the staff findings, (2) the statements and letters presented at the hearing, and (3) the words of the Planning Commission or Council

## DISCUSSION

### Existing Site

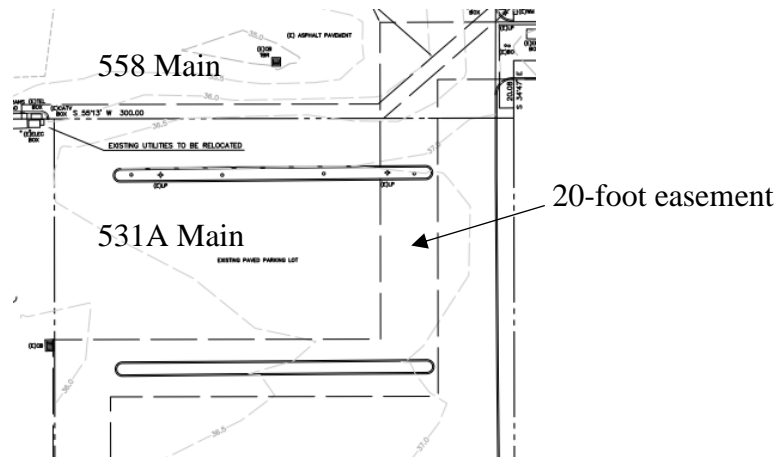
The .745± acre vacant site is located at 558 Main Street, as shown in Figure 1 below:



**FIGURE 1** Aerial view of the project site and surrounding area

Source: COW ArcGIS 2020

The parcel has 98-feet of in fee frontage on Main Street, and 12.5 feet of in fee frontage on Brennan Street. There is also a 6.5 foot -wide vehicle and pedestrian ingress and egress easement parallel to the 12.5 wide portion of the parcel accessing Brennan. The relatively flat parcel also maintains an easement across parcels 018-241-39, -34,-35, and -45 that provides access to East Lake Avenue. The existing easement is shown in Figure 2 below.



**FIGURE 2** Existing 20-foot easement

Source: Portion of Project Plans Sheet C1

The parcel was developed with a 5,000 square foot bank with drive-through, however over the last several years, the building has been used as a photography studio with storage, and most recently as a pharmacy. The building was demolished in 2019. There is an existing pole sign at the driveway entrance on Brennan Street that will be renovated and reused as part of the project.

### Proposed Project

The proposed project would consist of the construction of a 4-story podium building of 65,677 gross square feet. The building would extend from property line to property line (98-feet) on Main Street, and extend back towards Brennan Street approximately 204 feet. Additional gated parking would be behind the building, with a trash enclosure and dog park. The main vehicular access to the building would be through the 20-foot driveway on Brennan Street, with alternative access through an easement across adjacent parcels giving access to East Lake Avenue. There would be no vehicle access from Main Street. The project proposes to provide a pedestrian entry for residential tenants on the north side of the building on Main Street.

The first floor restaurant space would be 1,950 square feet with the remainder of the first floor reserved for residential vehicle and bike parking as well as building infrastructure.

The second floor would include 16 units, a courtyard, and a lounge area. The courtyard would contain several large seating areas, with fire pits, BBQs, and a water feature. The lounge area proposes a flexible space that could accommodate parties, movie nights, and other group gatherings. Of the 16 units on the second floor, 5 would be studios, 9 would be 1-bedroom, and 2 would be 2 bedrooms.

The third and fourth floors would have 5 studios, 10 1-bedroom units, and two 2-bedroom units on each floor.

## CONSISTENCY WITH ADOPTED GENERAL PLAN AND REGULATIONS

### General Plan

The parcel is designated Central Commercial on the 2005 General Plan (General Plan) Land Use Diagram. The purpose of the Central Commercial designation is to allow retail sales; personal, professional, financial and medical services; lodging; entertainment; and restaurants serving the needs of the community. Intensities in this area may not exceed a Floor Area Ratio of 2.75 inside the Central Downtown Parking District and a FAR of 0.45 outside of the Parking District. This project is located outside of the Parking District. The project would not result in a residential density that exceeds a Floor Area Ratio of 2.75. The General Plan also envisions the construction of multi-family residential units above first floor retail uses in the Downtown.

### Consistency with General Plan

The proposed project is consistent with the following General Plan goals, policies and implementation measures concerning housing, land use compatibility, design, site improvement, and wildlife habitat protection.

#### GENERAL PLAN ELEMENT 6. HOUSING

- **Housing Element Goal 3.0: Housing Production** – Provide housing opportunity for Watsonville's share of the regional housing need for all income groups.
- **Housing Element Policy 3.1** – Encourage the production of housing that meets the needs of all economic segments, including lower, moderate, and above moderate-income households, to achieve a balanced community.
- **Housing Element Policy 3.2** – Provide high quality rental and ownership housing opportunities for current and future residents that are affordable to a diverse range of income levels.
- **Housing Element Policy 3.4** – Continue to implement the Affordable Housing Ordinance, Density Bonus Ordinance, and other programs as a means of integrating affordable units within new residential development.
- **Housing Element Policy 4.2** – Implement and enforce residential design guidelines to ensure that the community's expectations are met with respect to the quality and style of housing projects.
- **Housing Element Program 18: Design Review Process** – The City will continue to use the Livable Community Residential Design Guidelines<sup>3</sup> (Livable Community Guidelines) in concert with the City's General Plan, Zoning and Subdivision Ordinance and other area plans. The City will continue to ensure that projects comply with the City's design review process and the Livable Community Guidelines.

#### GENERAL PLAN ELEMENT 4. LAND USE

- **Goal 4.7 Land Use Suitability** – Ensure that the orderly development of land for the needs of the existing and projected population within in the City limit and Sphere of Influence is based on the land's overall suitability, including: the accessibility of existing

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<sup>3</sup> Adopted by Resolution 134- 01 in 2001. See <https://www.cityofwatsonville.org/DocumentCenter/View/2549/Livable-Communities-Residential-Design-Guidelines>. Accessed 12/20/2020

and proposed public facilities, services, and utilities, physical and financial constraints; and/or growth inducing impacts.

- **Policy 4.G Land Use Suitability** – The City shall encourage the development of urban uses on those lands best suited for urban uses and discourage it on lands unsuited for urban uses.
- **Implementation Measure 4.C.8: Housing Support-** A variety of moderate- and high-density housing shall be developed to support the downtown commercial area and provide housing for the employment base of the Westside Industrial Area.
- **Implementation Measure 4.A.2: Land Use Compatibility** – The City shall monitor housing production to ensure compatibility with surrounding land uses.
- **Goal 5.1 Visual Resources** – Preserve and enhance the built and natural visual resources within Watsonville.
- **Goal 5.2 Community Appearance** – Blend new development and recognized values of community appearance and scenic qualities, and ensure that new development enhances, rather than detracts from its surroundings.
- **Goal 5.6 Urban Design** – Achieve high standards of street, site and building design that are both efficient, and aesthetically pleasing.
- **Policy 5.A Project Design Review** – The preservation of visual resources shall be accomplished through the design review process.
- **Policy 5.B Design Consistency** – The City shall review new development proposals to encourage high standards of urban design and to ensure that elements of architectural design and site orientation do not degrade or conflict with the appearance of existing structures.
- **Implementation Measure 5.A.4: Development Standards** – In addition to the Livable Community Guidelines, the City shall use the adopted standards for multiple family residential developments to ensure that medium- and high-density development is designed so as to enhance rather than detract from the urban environment.
- **Implementation Measure 5.B.3: Enhancement** – The City shall utilize the development standards, zoning ordinance regulations for each district, and the Livable Community Guidelines to ensure that new development is an asset to the existing neighborhood and community with regard to parking, landscaping, open space, and project design.
- **Goal 9.5 Water Quality** – Ensure that surface and groundwater resources are protected.
- **Policy 9.D Water Quality** – The City shall provide for the protection of water quality to meet all beneficial uses, including domestic, agricultural, industrial, recreational, and ecological uses.

The project would provide high-density housing above a modern restaurant space within the historic Downtown core. The development of 50 apartments, 10 of which would be affordable to a variety of income levels, will both provide much needed housing for residents while also

contributing to achieving the RHNA<sup>4</sup> figures in the City's 2015-2023 Housing Element for these income categories for the 10 affordable units.

The parcel abuts existing utilities that can be extended to serve the project. The project is not anticipated to induce population growth other than the residents who would inhabit the apartments.

## **ZONING**

The Zoning Ordinance implements the General Plan, regulates the future growth of the City, and promotes orderly community development.<sup>5</sup> It includes text descriptions for and conditions for the zoning districts and the Zoning Map, which sets forth the designations, locations and boundaries of zoning districts.

The parcel is within the Central Commercial Core Area (CCA) Zoning District. The purpose of the CCA Zoning District is to establish an area for the development of a concentrated, pedestrian-oriented downtown center with intensive commercial, financial, administrative, professional, entertainment, cultural, and residential uses within the heart of the City<sup>6</sup>.

The project is consistent with the allowable uses for and general purpose of the CCA Zoning District, in that restaurants are a principally permitted use on the first floor, and condominiums and apartments are a principally permitted use on upper floors in the Downtown<sup>7</sup>. If the restaurant proposes the sale of alcohol, a separate Alcohol Conditional Use Permit is required.

## **PARKING ORDINANCE**

Subdivision (i) of WMC Chapter 14-17.801(i) (The City's Parking Ordinance) requires 1 parking space for every 100 square feet of floor area for eating and drinking places. WMC Chapter 14-17.108(b) allows required parking to be calculated at 85% of the gross floor space of the commercial area, which would reduce the parking requirement to 16 spaces ( $20 \times .15 = 3.6$ ,  $20 - 3.6 = 16.4$ ).

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<sup>4</sup> The Regional Housing Needs Allocation (or "RHNA") is based on State of California projections of population growth and housing unit demand and assigns a share of the region's future housing need to each jurisdiction within the Association of Monterey Bay Area Governments (AMBAG). These housing need numbers serve as the basis for the update of the Housing Element in each California city and county.

<sup>5</sup> The General Plan and Zoning are not the same. A general plan is a set of long-term goals and policies that a community uses to guide development decisions. Although the plan establishes standards for the location and density of land uses, it does not directly regulate land use. Zoning, on the other hand, is regulatory. Under the zoning ordinance, development must comply with specific, enforceable standards such as minimum lot size, maximum building height, minimum building setback, and a list of allowable uses.

<sup>6</sup> WMC 14-16.1000 Purpose.

<https://www.codepublishing.com/CA/Watsonville/#!/Watsonville14/Watsonville1416.html#14-16.1000>

<sup>7</sup> 14-16.1001 Principal permitted uses.

<https://www.codepublishing.com/CA/Watsonville/#!/Watsonville14/Watsonville1416.html#14-16.1001>



## DENSITY BONUS ORDINANCE

WMC Municipal Code Section 14-47 (Density Bonus) allows for increased density and specified concessions from adopted regulations for those projects that provide affordable units. Because this project is required to provide at least 20% of the units for affordable housing, the project is eligible for a Density Bonus and up to 2 concessions. However, the applicant is not requesting an increase in density for the project above the density allowed in the CCA Zoning district. The applicant is requesting to eliminate the off-street parking requirement for the commercial portion of the project.

WMC Chapter 14-47.130 requires Density Bonus applications to include a Density Bonus Housing Plan, which describes any Density Bonus, incentive, concession, waiver, modification, or revised parking standard requested. For mixed-use developments, the application must also include evidence that the required Density Bonus Findings can be made.

Pursuant to subdivision (b) of § 14-47.140, before approving an application for a Density Bonus, the Planning Commission and Council shall make the following findings:

- (1) *The application is eligible for a Density Bonus and any concessions, or incentives requested if conforms to all standards included in this Chapter and includes a financing mechanism for all implementation and monitoring costs.*

This project will provide 20% of the 50 units for affordable housing for a minimum 55-year period. The project will be monitored annually by the Community Development Department's Housing Division for compliance with a Density Bonus Affordable Housing Agreement. Based on the applicant's proposal, the project is eligible for up to 2 concessions per state Density Bonus law. GOV § 65915.

The applicant has provided a letter describing the need for a concession eliminating the commercial off-street parking requirement, as the project cannot accommodate additional parking. The applicant has indicated that off-street commercial parking would require the development of a subterranean parking garage, with costs ranging between \$65,000-90,000 per parking space. The project is located within the historic Downtown Core, where both publicly-owned parking lots and on-street parking are available.

Subdivision (a)(3) of § 14-47.130 excepts mixed-use developments and buildings from the requirement to provide financial analysis to determine financial feasibility of the requested concession(s).

- (2) *Any requested incentive or concession will result in identifiable, financially sufficient, and actual cost reductions based upon appropriate financial analysis and documentation as described in Section 14-47.130 of this Chapter.*

As described above, mixed-use developments are excepted from providing financial analysis of requested concessions.

- (3) *If the Density Bonus is based all or in part on donation of land, the approval body has made the seven findings in subdivision (c) of § 14-47.070.*

The Density Bonus and concession do not include the donation of land.

- (4) *If the Density Bonus, incentive, or concession is based all or in part on the inclusion of a Day Care Center, the approval body has made the findings required by subdivision (b) of § 14-47.080.*

This project does not include a daycare center.

- (5) *A Density Bonus Housing Agreement in recordable form has been signed by the owner of the Residential Development with terms and conditions reasonably to satisfy the requirements of this Chapter and the Density Bonus Program Guidelines.*

As one of the Conditions of Approval for the project, a Density Bonus Affordable Housing Agreement will be required to be signed and approved by City Council before a building permit may be issued.

#### Conformity with District Regulations and Development Standards

This project is consistent with all development regulations for the CCA Zoning District, Livable Community Guidelines, and the Downtown Land Use and Architectural Guidelines<sup>8</sup> (Downtown Architectural Guidelines), with the requested concession to eliminate the provision of off-street parking for the restaurant as requested through the Density Bonus Ordinance.

#### CCA Zoning District

*Maximum Building Height.* The maximum height limit in the CCA district is 75 feet. The proposed 4-story building would be 58'-8". The proposed project meets the height limit of the CCA District.

*Floor Area Ratio.* Development in the CCA District allows a maximum FAR of 2.75. This means that the total building area cannot exceed 2.75 times the area of the parcel. The total project area is 32,248 square feet. Therefore, the total building square footage cannot exceed 88,682 square feet. The proposed building would be approximately 65,677 square feet, or a total FAR of 2.04. The project meets the maximum FAR for the CCA District.

*Parking.* The minimum parking requirement for residential projects with apartments is one carport and one open parking space per dwelling unit, pursuant to Section II.A.2 of the Residential Development Standards and [WMC Section 14-17.201\(a\)\(3\)](#). In addition, the minimum guest parking requirement for apartments with 50 units is one space per four bedrooms. The proposed project is not required to be consistent with these parking requirements, because state Density Bonus law has established lower standards for affordable housing projects eligible for a density bonus. Subdivision (f) of [WMC Section 14-47.110](#) sets forth these lower parking requirements consistent with State law, as follows:

- Zero to one bedroom: one on-site parking space;
- Two to three bedrooms: two on-site parking spaces; and

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<sup>8</sup> See resolution 243-98 adopted September 8, 1998 accessed at <https://www.cityofwatsonville.org/DocumentCenter/View/2552/Downtown-Land-Use-and-Architectural-Guidelines>, on December 20, 2020

- Four and more bedrooms: two and one-half parking spaces.

Table 1 breaks down the minimum parking requirement for the residential portion of the project. As shown in Table 1, a minimum of 56 parking spaces would be required.

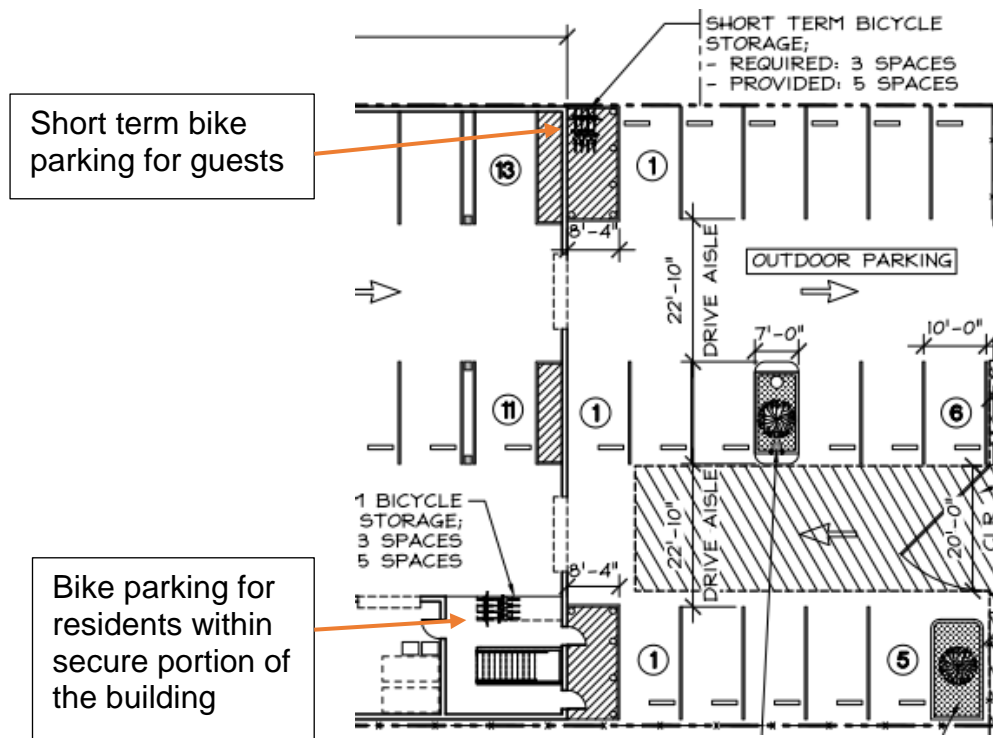
**Table 1** Breakdown of Proposed Units

Unit Type	#	Spaces per Unit	Total Spaces
Studio	15	1	15
1-bedroom	29	1	29
2-bedroom	6	2	12
Total			56

The project would provide a total of 56 parking spaces on site, which includes 3 van accessible handicap parking spaces, and therefore meets the minimum parking requirement.

The applicant is requesting a concession through the Density Bonus Ordinance to eliminate the requirement for off-street parking for the proposed restaurant, as discussed in the Density Bonus section of this report.

*Bicycle Parking.* WMC Chapter 14-17.113 requires bicycle parking be provided in residential and commercial projects at 5% of the total vehicle parking spaces required. The project requires 56 parking spaces, and therefore 3 bicycle parking spaces are required. The applicant proposes to provide 5 bicycle parking spaces within the parking garage, and an additional 5 spaces for guests, as shown in Figure 3 below.



**FIGURE 3 Bike Parking Location**

Source: Portion of Project Plans Sheet A 0.1

### Conformity with Livable Community Residential Design Guidelines

The City of Watsonville's Livable Community Residential Design Guidelines (2001) is intended to communicate the community's expectation for quality neighborhoods and housing. The Guidelines are used in concert with the City's General Plan, Zoning and Subdivision Ordinance and provides direction for shaping new residential development and infill housing in existing neighborhoods and in the downtown. The Design Guidelines add a qualitative direction for new projects in support of General Plan policies, and provide guidance for increasing density with greater attention paid to amenities and creating interconnected and livable neighborhoods. The Design Guidelines also supplement the Zoning Ordinance, which establishes basic quantitative direction for residential development standards (e.g., setbacks, lot coverage, parking), by providing neighborhood and architectural design principles and objectives. For instance, the Design Guidelines provide ways to reduce the visual impact of parking. In addition, the Design Guidelines augment City engineering design standards with additional criteria for streetscapes and a greater variety of street sizes, including narrow alley streets.



**FIGURE 4a** Proposed Main Street facade

Source: Belli Architects, Exterior Elevations, sheet A4.1 (11.12.2020)



**FIGURE 4b** Proposed Rear Elevation

Source: Belli Architects, Exterior Elevations, sheet A4.2 (11.12.2020)

The 4-story building proposes to have a grey-brick veneer on the first floor, with stucco on upper floors with interest provided through the use of three neutral colors Grays Harbor on the body, Dhurrie Beige as an accent color, and Tiki Hut for trim details, regularly spaces windows, roof parapets and portions of the façade protruding out from the main wall plane. On the first floor facing Main Street, there would be four large window bays, with decorative parapet above in a contrasting Grays Harbor blue color.

The side elevations would be a light beige stucco known as Dhurrie Beige with a 5' wide contrasting Grays Harbor blue painted band along the top of the building. Because the building is proposed to be on both the northern and southern property lines, no additional fenestration or windows can be installed, as future development may abut these walls.

The project is designed in accordance with the Livable Community Design Guidelines. The project provides buildings that are well-composed, balanced, and appropriately articulated on all sides and have facades with materials and architectural details that are aesthetically pleasing and harmonious. The massing of wall and roof planes are broken up by the use of trim, offsets in surfaces, and varying roof heights. Parking is unobtrusively placed in the rear of the building. The project includes a +/- 4,000 sf communal courtyard on the second floor as well as a 560 +/- sf multi-use lounge room. As such, the project design adheres to many of the principles and objectives in the Livable Community Design Guidelines, including the following provisions:

- Section 2.51 Orientation
  - Mixed-use residential projects should align along the sidewalk edge.
  - Mixed-use residential projects should be oriented to take advantage of foot traffic and visibility from the street.
  - Entry drives to multifamily housing should be designed to create a positive identity for the project. Landscape and site design should frame and distinguish entry drives.
- Section 2.53 Massing
  - A mixed-use building's form and design should have a deliberate street/street corner orientation.
  - Upper levels should have expressing design features that give the building a rhythm and residential scale.
- Section 2.54 Parking
  - Place parking to the side, rear or within a mixed-use project as to not interrupt the pedestrian orientation.
  - Surface parking areas should be visually screened from the sidewalk with landscaping.
- Section 2.55 Streetscape
  - Street trees are required for sidewalk areas. Trees should be spaces 25'-30' on center and be coordinated with the bay spacing and storefront design of the project.
  - Access drives to parking should be located to minimize their impact on pedestrians.
- Section 3.22 Common Areas
  - Common spaces and amenities should enhance the sense of community in multifamily projects.
- Section 3.23 Architectural Design
  - Multi-family projects should utilize a unifying theme and possess a common vocabulary of forms and architectural elements.
  - Visual interest should be created by articulation of facades, forms and use of color.
- Section 3.24 Materials and Colors



- Architecture should use a palette of materials, which convey an image of quality and durability.
- All facades should employ the same vocabulary of materials.
- Painted surfaces should use colors that reinforce architectural concepts and are compatible with natural materials, such as brick or stone.
- Section 3.25 Lighting
  - Lighting in projects should be designed for specific tasks (i.e., illuminating common areas, parking, paths, entryways, etc.).
  - Fixtures should incorporate cutoffs to screen the view of light sources from residents.
  - Lighting along public streets and spaces should reflect district or neighborhood standards.
- Section 3.26 Landscape
  - All site areas not covered by structures, walkways, driveways or parking spaces should be landscaped.
  - Landscape materials should be live plants; gravel, rock, bark and other materials are not a substitute for plant cover.
  - Landscape shall be permanent with automated irrigation; water-intensive plants, such as lawns and flowering exotics, should be used sparingly as accents.

#### Conformity with the Downtown Land Use and Architectural Guidelines

The parcel is in the historic downtown core, and is subject to the Downtown Land Use and Architectural Design Guidelines (Guidelines). The Guidelines were adopted by Resolution #243-98 (CM) on September 8, 1998. The project is located in the “Main Street Marketplace,” which is the center of the downtown, where most of the historic and larger buildings are located. Ground floors are primarily retail with upper floors dedicated to office and residential use. Significant buildings of the Main Street Marketplace radiate from the Plaza. Front and side yard setbacks are rare, providing the most urban setting in the downtown. The project meets the following guidelines for the Main Street Marketplace:

*Building Siting.* The building will create a continuous façade, as it will be constructed with no front and side yard setbacks, as directed in the Downtown Architectural Guidelines.

*Building Massing.* The building has differentiated horizontal massing on the front and rear facades, with clearly expressed building entries and regularly spaced structural bays on the upper floors.

*Building Height.* The roofline will be 49- feet in height, while the parapets along the front and rear of the building will vary between 56- and 58-feet in height. The maximum principally permitted height in the CCA District is 75 feet.

*Building Façade.* The ground floor façade has a pedestrian scale that will be friendly to foot traffic.

*Fenestration.* The building utilizes large bays of windows on the first floor to provide visibility into and out of the restaurant space, while the upper floors have rows of 8 regularly spaced windows at each floor that provide a pleasing pattern. The two storefront entrances are inset a few feet behind the display windows to provide façade articulation at the pedestrian scale.

*Storefront.* The windows and doors on the first floor comprise approximately 65% of the width of the building. The door providing access to the upper floor apartments is differentiated from the restaurant entry doors as it is a smaller scale and located under a sign indicating that it leads to the Residence apartments. The restaurant doors have 4-foot windows on each side providing clear visibility into the space.

*Upper Stories.* The upper stories should be differentiated from the ground floor in design and articulation. The project proposes a 3 ½ foot wide horizontal stucco band to delineate the ground floor and the upper residential floors. While the ground floor has a brick veneer, upper floors will be finished in three separate stucco colors to provide clear delineation.

*Cornice and Roof.* The Main Street façade proposes a varied roofline that extends approximately 9-feet above the roof. The Main Street façade includes two parapet elements extending to 58'-8" with two shorter parapets at 56'-3". A similar treatment is applied to the rear of the building. The lower parapets are inset from the façade to provide interest. The extended parapets will shield any equipment and/or services (including solar panels) that may be placed on the roof.

*Materials.* The project proposes the use of a muted brown brick veneer on the first floor, with a tri-color palette on the upper floors to include grey blue, beige, and light brown. Windows and doors would have black metal frames. The Downtown Architectural Guidelines call for the use of brick masonry as an acceptable first floor façade material.

*Details and Ornament.* The Downtown Architectural Guidelines require the use of sufficient detailing to create an interplay of light and shadows and provide visual interest to the Main Street façade. The Main Street and rear façades of the building are fairly similar, with juxtaposing insets further articulated by contrasting paint colors on the upper floors. The first-floor storefront contains contrasting cornices above the storefront entrances and windows to provide additional detailing.

*Canopies.* Canopies are encouraged above the storefront and below transom windows on the Main Street façade. In order to identify the entrance to the apartment building on the Main Street façade, a horizontal canopy is proposed with signage on the front that will identify "The Residence." The entrance to the apartments below the canopy will be inset from the main wall to provide shelter from the elements.

*Lighting.* The Downtown Architectural Guidelines call for sufficient lighting on the ground floor to promote the perception of public safety. The Downtown Architectural Guidelines further call for

the use of a variety of lighting levels, with increased lighting levels at entries and courtyards, to highlight signs, and to bring out the architectural details of buildings.

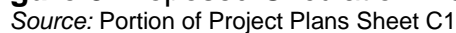
Nighttime illumination has the potential to change ambient lighting conditions and create a visual nuisance or hazard. The impact of nighttime lighting depends upon the type of use affected, the proximity to the affected use, the intensity of specific lighting, and the background or ambient level of the combined nighttime lighting. Nighttime ambient light levels may vary considerably depending upon the age, condition, and abundance of point-of-light sources present in a particular view. The use of exterior lighting for security and aesthetic illumination of architectural features may contribute substantially to ambient nighttime lighting conditions.

Spillover of light onto adjacent properties ("light trespass") has the potential to interfere with certain activities including vision, sleep, privacy and general enjoyment of the natural nighttime condition. Light sensitive uses include residential, some commercial and institutional uses and natural areas. Changes in nighttime lighting may significantly impact sensitive land uses if a proposed project increases ambient lighting conditions beyond its property line and project lighting routinely spills over into adjacent light-sensitive land use areas.

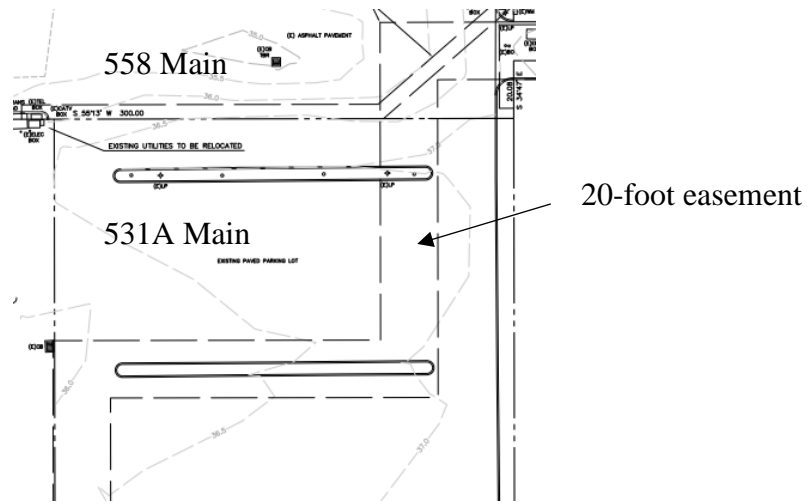
The project is being conditioned to provide a comprehensive lighting plan with photometric analysis with a Building Permit application to be reviewed by Planning staff to determine compliance with the Downtown Architectural Guidelines and the General Plan.

*Equipment and Services.* The Downtown Architectural Guidelines require that all mechanical equipment be screened from public view, including views from nearby buildings. Mechanical equipment located on the roof of the building would be screened by the parapet that extends approximately 6-8 feet above the roofline. The trash enclosure would be located within the first floor of the building and refuse brought out to containers at the rear of the property, next to the dog park, the night before trash pickup.

Parking is provided to the rear of the property, and access to parking is from Brennan Street, not Main Street. The Downtown Architectural Guidelines require that remote access to the rear parking lot be made from side streets rather than Main Street. The project proposes to use a 20-foot driveway from Brennan Street for primary access, with secondary access through a 20-foot vehicle and pedestrian easement that extends from this parcel across accessor's parcels 018-241-39, -34, -35, and -45 to East Lake Avenue. The entire proposed circulation plan is shown in Figure 5 below.



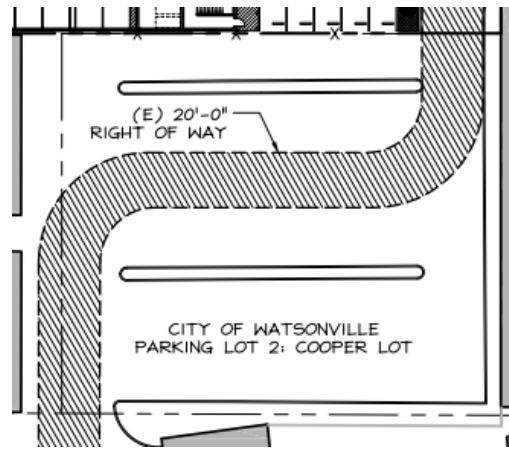
The driveway on Brennan Street is comprised a 13'-5" wide strip of land owned in fee and a parallel 6'-5" wide vehicle and pedestrian easement over parcel 018-241-23. Together they provide access to Brennan Street. In order to provide an unobstructed 20' clear physical access for emergency vehicles, modifications to the existing curb and landscaping along the driveway may be necessary. The project will be conditioned to require that the driveway be modified to provide a minimum of 20' of physical ground width and extending 13'-6" in height.



**Figure 6** Existing 20-foot easement

Source: Portion of Project Plans Sheet C1

The project also proposes to relocate a portion of the existing easement to East Lake Avenue so that it does not cross over parking lot improvements, which are shown on the above Figure. The proposed relocation is shown in the Figure below.



**Figure 7** Proposed 20-foot easement, relocated

Source: Project Plans Page A0.0

Relocation of the easement will rectify the inconsistency in that parking lot improvements have been constructed over the easement and will also allow for the creation of an improved parking configuration on the subject property. The project is being conditioned to require submittal of a

recorded easement showing the revised right-of-way location across the adjacent parcel in order to accommodate the current parking plan.

*Landscaping/Buffer Areas.* The conceptual Landscape Plan (Attachment 2, sheets L-1 and L-2) depicts landscaping in the rear parking area on the subject parcel and in the second story courtyard to comprise approximately 500 square feet, or 1.6% of the parcel. Parking lot landscaping will include three planter areas to accommodate Fortnight Lily, Heavenly Bamboo and 4 Crepe Myrtle trees.

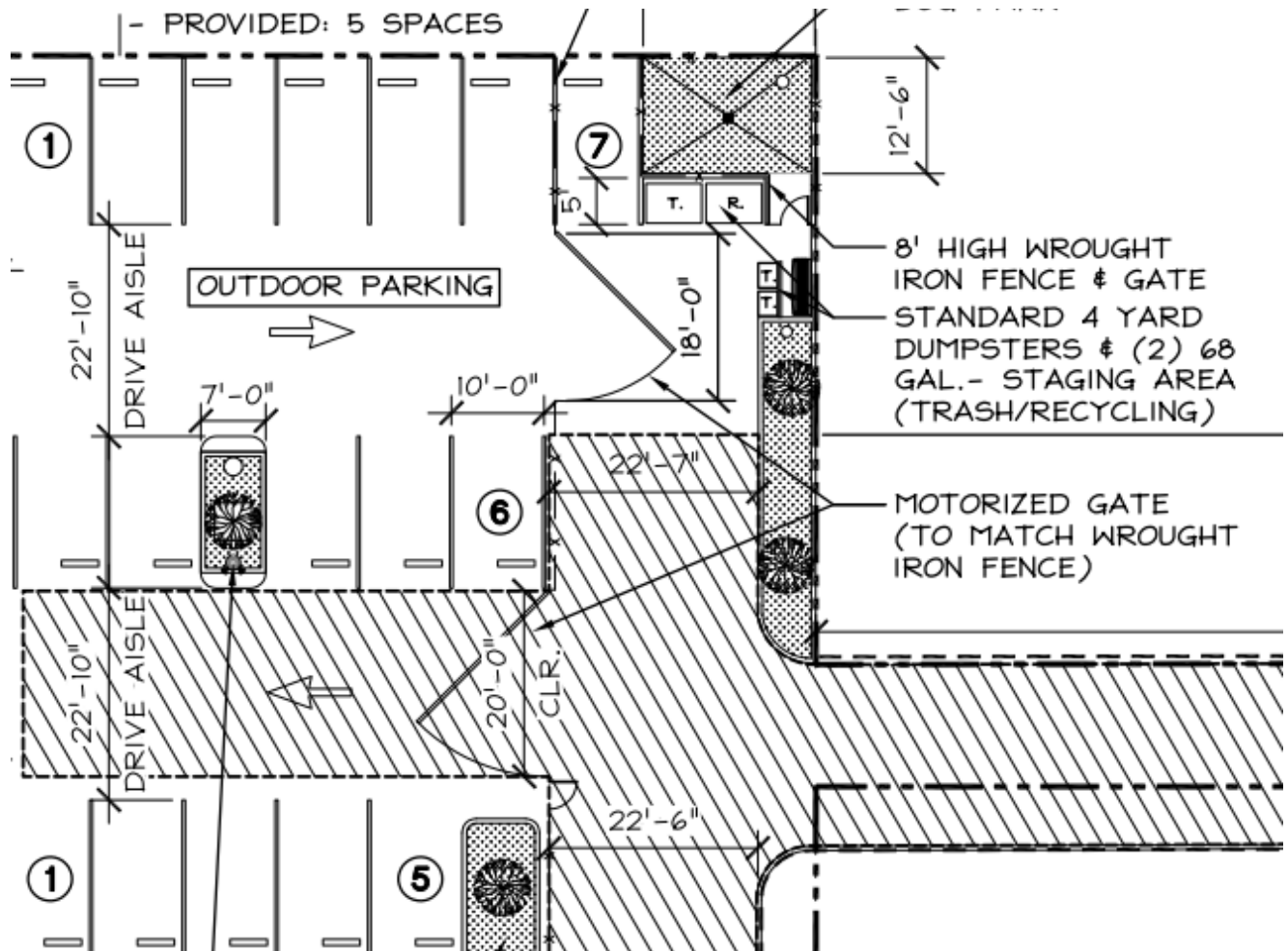
In the second story courtyard, approximately 20 planters are proposed to be installed, in which succulents, and small streets will be planted, to include Japanese Maple, Fruitless Olive, Lantana, and Heavenly Bamboo.

Per the Livable Community Residential Design Guidelines, infill projects downtown shall install street trees spaced 25-30' along the street frontage. The project is being conditioned to require the installation of 3 24" box (minimum) specimen trees. Recommended varieties for the downtown include

A condition of approval requires the landscaping and irrigation design comply with the California Model Water Efficient Landscape Ordinance, in accordance with WMC Section 6-3.801.

*Fencing.* Sheet A7.1 of the Architectural Plans (Attachment 2) shows the location, height, materials and design for proposed fencing. An 8-foot high wrought-iron fence would secure and separate the parking area at the rear from other parcels. The fencing plan and improvement plans indicate that the Residence parking area would be secured with electric security gates for vehicular ingress and egress as shown in Figure 8 below.





**Figure 8** Location of controlled access gates to the Residence  
Source: Project Plans page A0.1

**Trash Enclosure.** A trash enclosure is required for projects with five or more dwelling units. The project proposes an interior trash collection room within the covered ground floor parking area which would collect refuse dropped down from trash rooms in the residential floors above. The room proposes 3 trash chutes, to separate trash, recycling, and food waste. The chutes would then empty into separate containers. Building maintenance would then move the containers from the interior room to an exterior location next to the dog park for pick-up the night before service. The enclosure is proposed to be located next to a dog park, at the northeastern corner of the property. Access to the enclosure has been reviewed by the Public Works Department.

### Drainage

New development and redevelopment construction projects are subject to the City's post-construction Stormwater management requirements (PCRs).<sup>9</sup> [WMC § 6-3.535](#). The proposed

<sup>9</sup> The primary objective of the City's PCRs is to ensure the reduction of pollutant discharges to the maximum extent possible and prevent Stormwater runoff from causing or contributing to a violation of water quality standards. The PCRs categorize projects into four primary tiers based mainly on the net increase in impervious surfaces that would

project is subject to performance requirements 1, 2 and 3 based on the amount of impervious surface created. Attachment 5 provides a summary of PCR tiers 1 through 4 and their associated performance requirements for stormwater management and treatment.

The project plans include a preliminary Grading and Drainage Plan (Attachment 2, sheets C2 and C3) and Stormwater Control Plan (Attachment 5). As shown on the plans, proposed drainage facilities and post-construction features include the installation of approximately 2,421 square feet of pervious pavers in a portion of the rear parking lot area and the installation of a tree grate that would collect and treat any runoff before returning it to the storm drain system. The project, as conditioned will meet the Tier 2 performance requirement, and the design claims technical infeasibility in meeting the Tier 3 requirement as an in-fill project. The Post-Construction Stormwater Ordinance allows for such projects to satisfy stormwater requirements with a 10% adjustment, as described in Performance Requirement 3 of the Stormwater Post-Construction Requirements.

Engineering staff has reviewed the project's proposed drainage plans. A condition of approval requires the applicant to revise and resubmit the Stormwater Control Plan in accordance with detailed comments prior to issuance of a Building Permit.

#### Environmental Review

The project has been determined to be eligible for a Class 32 Categorical Exemption per CEQA. A traffic study was prepared by Kittelson & Associates in April, 2020 for the project, which found that the project would not cause a significant increase in traffic to the parcel, nor would it have significant impacts on nearby intersections. The study did include recommended conditions to improve visibility at the driveway entrance at Brennan Street. The traffic study is included as Attachment 6.

The 558 Main Street project traffic study included intersection level of service (LOS) analysis for four intersections: 3 signalized intersections (West Lake and Brennan/ Union; W 5<sup>th</sup> and Main St, Freedom Blvd and Brennan St) and 1 stop controlled "T" intersection (E 5<sup>th</sup> and Brennan St). The City standard for acceptable level of service at a signalized intersection is LOS D. The stop-controlled intersection at East 5<sup>th</sup> St and Brennan St identifies the 5<sup>th</sup> St approach to increase in delay by about 5 seconds, and increase the queue length by one vehicle, as compared to existing traffic conditions. While mathematically this does worsen the LOS of this one approach to F, this increase is considered negligible as a typical daily fluctuation of traffic volumes could produce this same difference of one extra vehicle and an additional 5 seconds. (See Traffic Impact Analysis, page 33).

The traffic study recommended the following improvements, which will be included as project Conditions of Approval:

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result from a project (i.e., the amount of new and replaced impervious surfaces). Each PCR tier is linked to increasingly stringent performance requirements for stormwater management and treatment. Each PCR tier is subject to the performance requirements of that tier, plus the performance requirements of the lower tiers, as applicable.

1. Install lane striping within the alley off of Brennan Street and signs at the driveway to increase drivers' awareness of appropriate vehicle position within the cross-section of the driveway and alley.
2. Install a convex mirror on the south side of the driveway off of Brennan Street providing visibility around the corner of the existing building for drivers exiting the parcel and drivers entering from southbound Brennan Street.

In addition to the above conditions, staff added a Condition of Approval to require the installation of a sound and light alert system for pedestrians on Brennan Street to alert pedestrians of cars approaching the intersection from the driveway. This will give additional warning and protection to pedestrians on the sidewalk when vehicles are exiting.

No additional potential significant impacts were identified for the project, and therefore staff has found that the project can be determined to be Categorically Exempt per Section 15332 of the CEQA Guidelines for In-Fill Development Projects<sup>10</sup>. This exemption applies to in-fill projects when the following conditions exist:

- 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.
- b. The proposed development occurs within City limits on a project site of no more than 5 acres substantially surrounded by urban uses.
- c. The project site has no value as habitat for endangered, rare, or threatened species.
- d. Approval of the project would not result in any significant effects relating to traffic, noise air quality, or water quality.
- e. The site can be adequately served by all required utilities and public services.

### **STRATEGIC PLAN:**

The project follows both Goals 01 (Housing) and 04 (Economic Development) of the City's Strategic Plan. The project will create 50 new rental housing units, with 10 of the units available at affordable levels per the City's Affordable Housing Ordinance. The project would also include a restaurant space on the first floor facing Main Street, which will provide a modern space for a new restaurant opportunity in the downtown.

### **FINANCIAL IMPACT:**

The approval of the proposed project will result in an increase in the property value, thus increasing property tax revenue to the City. Additionally, the project will provide a new restaurant space which will provide sales tax revenue. There will be one-time revenue generated by permit and impact fees for the construction of the project. There will be no adverse financial impacts to the City with approval of the project.

### **ALTERNATIVE ACTION:**

The Planning Commission may recommend modifications to the project as long as all proposals comply with applicable law, or the Planning Commission may recommend denial of the project. The project would be scheduled for a future City Council hearing and will include both the Planning Commission recommendation and any recommended staff modifications.

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<sup>10</sup> [14 CCR § 15332](#)

**ATTACHMENTS:**

1. Site and Vicinity Map
2. Plan Set (November 19, 2020)
3. Density Bonus Housing Plan (November 19, 2020)
4. Post-construction Stormwater Requirements Summary
5. Preliminary Stormwater Control Plan (May 15, 2020)
6. Traffic Study by Kittelson & Associates (prepared April 2020)

**PLANNING COMMISSION ACTION RECOMMENDED:**

Staff recommends that the Planning Commission (a) adopt a Resolution recommending that the City Council adopt a Resolution recommending that the City Council approve a Density Bonus, Design Review and Environmental Review (PP2019-432/APP# 18) to allow the construction of 50 apartments on a .745 ± acre site located at 558 Main Street (APN: 018-241-20).

**Note:**

An Electronic Copy of Attachment 6 is available on the City's website:

<https://cityofwatsonville.org/DocumentCenter/Index/816>

## Site & Vicinity Map



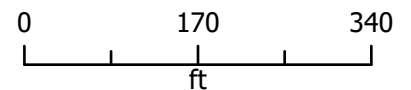
## Site Addresses



## Tax Parcels



1/7/2021 11:40 AM



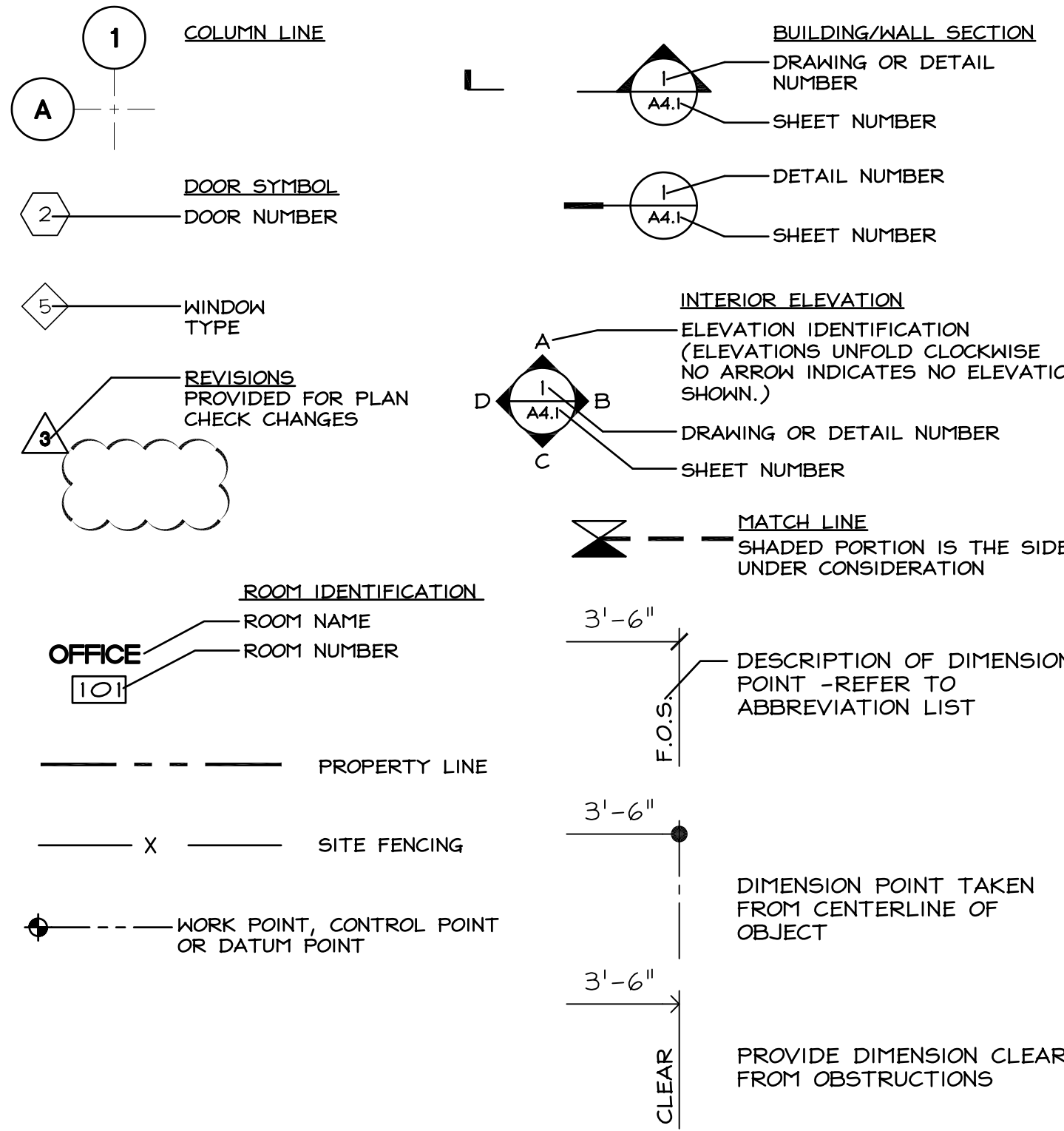
Attachment 1  
page 1 of 1





VICINITY MAP

SYMBOLS



DEFERRED SUBMITTALS

DEFERRED SUBMITTALS PER C.B.C. 107.3.4.1  
SUBMIT ALL DEFERRED SUBMITTAL DOCUMENTS TO THE ARCHITECT FOR REVIEW. MAKE SUBMITTAL TO THE BUILDING OFFICIAL ONLY AFTER THE CHANGES REQUESTED BY THE ARCHITECT HAVE BEEN COMPLETED AND THE ARCHITECT HAS INDICATED THAT THE DEFERRED SUBMITTAL GENERALLY COMPLIES WITH THE CONTRACT DOCUMENTS. ALLOW FOR ARCHITECTS REVIEW TIME IN PROJECT SCHEDULE AS WELL AS CONTRACTOR REVISION TIME AND REVIEW TIME BY BUILDING OFFICIAL. THE DEFERRED ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

PACIFIC COAST DEVELOPMENT  
THE RESIDENCE AT 558 MAIN

558 MAIN STREET, WATSONVILLE, CA, 95076

DESIGN REVIEW SUBMITTAL



ABBREVIATIONS

∠	AND ANGLE	F.O.S.	FACE OF STRUCTURE
AT	AT	FT.	FOOT OR FEET
CL	CENTERLINE	FTG.	FOOTING
∅	DIAMETER OR ROUND	GA.	GAUGE
⊥	PERPENDICULAR	GALV.	GALVANIZED
#	FOUND OR NUMBER	GL.	GLASS
(E)	EXISTING	GYP.	GYPSON
(N)	NEW	H.C.	HOLLOW CORE
ARCH.	ARCHITECTURAL	HDR.	HEADER
A.C.	ASPHALT CONCRETE	H.M.	HOLLOW METAL
BD.	BOARD	HR.	HORIZONTAL
BLK.	BLOCK	IN.	INCH
BLKG	BLOCKING	INSUL.	INSULATION
BT.	BEAM	INT.	INTERIOR
BOT.	BOTTOM	JT.	JOINT
C.J.	CONSTRUCTION JOINT	LAV.	LAVATORY
CLG.	CEILING	MAX.	MAXIMUM
CLR.	CLEAR	MECH.	MECHANICAL
C.M.U.	CONCRETE MASONRY UNIT	MFR.	MANUFACTURER
COL.	COLUMN	MIN.	MINIMUM
CONC.	CONCRETE	MISC.	MISCELLANEOUS
CONT.	CONTINUOUS	N.	NORTH
CTR.	CENTER	N.I.C.	NOT IN CONTRACT
DBL.	DOUBLE	NO. OR #	NUMBER
DEPT.	DEPARTMENT	N.T.S.	NOT TO SCALE
DIA.	DIAMETER	O.C.	ON CENTER
DM.	DIMENSION	PL.	PLATE
DN.	DOWN	P. LAM.	PLASTIC LAMINATE
DR.	DOOR	PLYWD.	PLYWOOD
DS.	DOWNSPOUT	RAD.	RADIUS
DWG.	DRAWING	R.D.	ROOF DRAIN
EA.	EACH	REQ.	REQUIRED
E.J.	EXPANSION JOINT	R.O.	ROUGH OPENING
EL.	ELEVATION	R.O.	ROUGH OPENING
ELEC.	ELECTRICAL	S.	SOUTH
ELEV.	ELEVATOR	SIM.	SIMILAR
EQ.	EQUAL	SPEC.	SPECIFICATION
EXT.	EXISTING	SQ.	SQUARE
EXT.	EXTERIOR	STD.	STANDARD
F.A.	FIRE ALARM	T.C.	TOP OF CURB
F.D.	FLOOR DRAIN	TYP.	TYPICAL
F.E.	FIRE EXTINGUISHER	U.O.N.	UNDER OR NOT
F.E.C.	FIRE EXTINGUISHER CABINET	VERT.	VERTICAL
FIN.	FINISH	W/	WITH
FL.	FLOOR	W.C.	WATER CLOSET
F.O.C.	FACE OF CONCRETE	W/O	WITHOUT
F.O.F.	FACE OF FINISH		
F.O.M.	FACE OF MASONRY		

CODES

2019 CBC - CALIFORNIA BUILDING CODE	PART 1 - CALIFORNIA ADMINISTRATIVE CODE
2019 CPC - CALIFORNIA PLUMBING CODE	PART 2 - CALIFORNIA BUILDING CODE
2019 CMC - CALIFORNIA MECHANICAL CODE	PART 2.5 - CALIFORNIA RESIDENTIAL CODE
2019 CEC - CALIFORNIA ELECTRICAL CODE	PART 3 - CALIFORNIA ELECTRICAL CODE
2019 CFC - CALIFORNIA FIRE CODE	PART 4 - CALIFORNIA MECHANICAL CODE
2019 CALIFORNIA TITLE 24 ENERGY REQ.	PART 5 - CALIFORNIA PLUMBING CODE
2019 CALIFORNIA PLUMBING CODE	PART 6 - CALIFORNIA ENERGY CODE
2019 CALIFORNIA ATTENDMENTS	PART 8 - CALIFORNIA HISTORICAL BUILDING CODE
CITY OF WATSONVILLE ORDINANCES	PART 9 - CALIFORNIA FIRE CODE
	PART 10 - CALIFORNIA EXISTING BUILDING CODE
	PART 11 - CALIFORNIA GREEN BUILDING STANDARD
	PART 12 - CALIFORNIA REFERENCED STANDARDS

PROJECT DATA

AP NUMBER: 018-241-20	CONSTRUCTION TYPE: I - A, VEA
PROJECT ADDRESS: 558 MAIN STREET WATSONVILLE, CA 95076	NUMBER OF STORIES: 4 - STORIES
OWNER: PACIFIC COAST DEVELOPMENT 800 E LAKE AVE, WATSONVILLE, CA 95076	CURRENT USE: VACANT LOT
ZONING: CCA CENTRAL COMMERCIAL, CORE AREA	PROPOSED USE: MIXED-USE DEVELOPMENT
LOT SIZE: 32,248 SQUARE FEET 0.74 ACRES (GROSS)	OCCUPANCY GROUP: B,M,R-2,S-2
LOT COVERAGE: EXISTING: 0% ALLOWED: 100% PROPOSED: 62% 19,965 SQUARE FEET (BUILDING FOOTPRINT)	SPRINKLERED: YES
BUILDING HEIGHT: ALLOWED: 75'-0" PROPOSED: 58'-8"	STANDPIPE SYSTEM: YES
FLOOR AREA RATIO: ALLOWED: 2.75 FAR PROPOSED: 2.04 FAR	BUILDING SETBACKS: ALLOWED FRONT: 0' SIDES: 0' REAR: N/A
65,677 SF GROSS FLOOR AREA 32,248 SF BUILDABLE LAND AREA 65,677 SF / 32,248 SF = 2.04 FAR	

PARKING ANALYSIS:

RESIDENTIAL PARKING ONSITE: REQUIRED ONSITE PARKING: PER WMC 14-47-110 DEVELOPMENT STANDARDS			
UNIT TYPE	PARKING SPACES PER UNIT	PROPOSED UNITS	REQUIRED PARKING SPACES
STUDIO	1	15	15
1-BEDROOM	1	29	29
2-BEDROOM	2	6	12
TOTAL PARKING SPACES REQUIRED FOR BUILDING:		56	
PROPOSED ONSITE PARKING:			
STANDARD PARKING SPACES PROVIDED		36	
COMPACT PARKING SPACES PROVIDED		17	
ACCESSIBLE PARKING SPACES REQUIRED: 3 TOTAL (ONE TO BE VAN)		3 PROVIDED	
TOTAL PARKING SPACES PROVIDED		56*	
*36 PARKING SPACES ARE COVERED INSIDE STRUCTURE			
*16 EXTERIOR UNCOVERED PARKING			
GUEST PARKING ONSITE: -PER WMC 14-47-110 (F)			

PROJECT TEAM

OWNER PACIFIC COAST DEVELOPMENT CONTACT: WILLIAM HANSEN PHONE: (831) 724-7504 EMAIL: bill@pacificcoastdevelopment.com	ARCHITECT BELL ARCHITECTURAL GROUP CONTACT: DAVID PEARTREE PHONE: (831) 424-4620 EMAIL: david@bellag.com
GEOTECHNICAL ENGINEER SALEM ENGINEERING GROUP CONTACT: SHALIM REICH PHONE: (559) 271-9700 EMAIL: info@salem.net	LANDSCAPE LEWIS LANDSCAPE CONTACT: GREG LEWIS PHONE: (831) 425-4747 EMAIL: lewislandscape@bcglobal.net
CIVIL ROPER ENGINEERING CONTACT: JEFF ROPER PHONE: (831) 724-5300 EMAIL: jeff@roperengineering.com	GENERAL CONTRACTOR BOGARD CONSTRUCTION, INC. CONTACT: CHIP BOGARD PHONE: (831) 426-8191 EMAIL: chip@bogardconstruction.com

SCOPE OF WORK

THE SCOPE OF WORK OF THIS PROJECT INCLUDES BUT IS NOT LIMITED TO:

- NEW CONSTRUCTION OF 4-STORY MIXED-USED BUILDING;
- PODIUM LEVEL PARKING GARAGE AND COMMERCIAL SPACES
- 3 STORY (50 RESIDENTIAL UNITS) ABOVE PODIUM

GENERAL NOTES

- CONTRACTOR SHALL BECOME COMPLETELY FAMILIAR WITH THE CONSTRUCTION DOCUMENTS PRIOR TO STARTING CONSTRUCTION.
- THE ARCHITECT SHALL BE NOTIFIED OF ANY OMISSIONS OR DISCREPANCIES IN THE WORKING DRAWINGS AND/OR SPECIFICATIONS BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
- ALL DIMENSIONS TAKE PRECEDENCE OVER SCALE SHOWN ON THE PLANS, SECTIONS AND DETAILS.
- SPECIFIC DETAILS AND NOTES TAKE PRECEDENCE OVER TYPICAL DETAILS.
- WHERE SPECIFIC DETAILS ARE NOT PROVIDED, CONSTRUCTION CAN FOLLOW DETAILS FOR SIMILAR CONDITIONS, UNLESS CONFLICT OCCURS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN INSTALLATION AND MAINTENANCE OF ALL BRACING AND SHORING REQUIRED DURING CONSTRUCTION UNTIL ALL CONSTRUCTION IS FINALIZED.
- THE CONTRACTOR SHALL PERIODICALLY REMOVE DEBRIS AND CLEAN THE AREA WHERE THEY ARE WORKING.
- THE CONTRACTOR SHALL TURN OVER TO THE OWNER A CLEAN AND COMPLETE JOB. ANY WORK NOT SPECIFICALLY CALLED FOR OR SPECIFIED, BUT NECESSARY TO COMPLY WITH THE INTENT OF QUALITY AND COMPLETENESS SHALL BE PERFORMED AS PART OF THIS PROJECT.

SHEET INDEX

T1.1	TITLE SHEET
CIVIL	
C1	EXISTING SITE CONDITIONS
C2	PRELIMINARY GRADING PLAN
C3	PRELIMINARY UTILITY PLAN
ARCHITECTURAL	
A0.0	OVERALL FIRE ACCESS SITE PLAN
A0.1	PROPOSED SITE PLAN - CODE COMPLIANCE PLAN
A0.2	PROPOSED FIRST FLOOR PLAN - CODE COMPLIANCE PLAN
A0.3	PROPOSED SECOND FLOOR PLAN - CODE COMPLIANCE PLAN
A0.4	PROPOSED THIRD-FOURTH FLOOR PLANS - CODE COMPLIANCE PLAN
A1.1	OVERALL SITE PLAN
A2.1	PROPOSED FIRST FLOOR PLAN
A2.2	PROPOSED SECOND FLOOR PLAN
A2.3	PROPOSED THIRD-FOURTH FLOOR PLANS
A2.4	PROPOSED ROOF PLAN
A2.5	ENLARGED UNIT FLOOR PLANS
A4.1	EXTERIOR ELEVATIONS
A4.2	EXTERIOR ELEVATIONS
A4.3	EXTERIOR PERSPECTIVES
A7.1	BUILDING CROSS-SECTIONS
LANDSCAPE	
L1	GROUND FLOOR PLANTING PLAN
L2	2ND FLOOR PLANTING PLAN
TOTAL SHEETS: 21	

CONDITIONS OF APPROVAL

- REPLACE DRIVEWAY APPROACH. THE APPLICANT SHALL REPLACE THE EXISTING DRIVEWAY ON BRENNAN STREET WITH ONE THAT CONFORMS WITH PUBLIC WORKS STANDARD NO. S-1201, INCLUDING PROVIDING AN ACCESSIBLE WALK ACROSS THE DRIVEWAY APPROACH.
- STREET FRONTAGE IMPROVEMENTS. THE APPLICANT SHALL REPLACE ANY STREET IMPROVEMENTS ALONG THE PROPERTY FRONTAGE THAT REQUIRE REPAIR TO CALTRANS STANDARDS.
- CALTRANS ENCROACHMENT PERMIT. THE APPLICANT SHALL OBTAIN AN ENCROACHMENT PERMIT FROM CALTRANS TO ALLOW STREET FRONTAGE IMPROVEMENTS.
- CITY ENCROACHMENT PERMIT. THE APPLICANT SHALL OBTAIN AN ENCROACHMENT PERMIT FROM THE CITY TO CONNECT TO ANY CITY UTILITIES AND TO RECONSTRUCT ANY DRIVEWAY APPROACHES ON CITY RIGHT-OF-WAY.
- GREASE INTERCEPTOR. THE APPLICANT SHALL INSTALL A GREASE INTERCEPTOR IDENTIFIED ON THE PROPOSED FIRST FLOOR PLAN (SHEET A2.1) FOR THE COMMERCIAL PORTION OF THE PROJECT. THE GREASE INTERCEPTOR SHALL REQUIRE REVIEW AND APPROVAL BY SOURCE CONTROL PRIOR TO ISSUANCE OF A BUILDING PERMIT.
- BACKFLOW DEVICE. THE APPLICANT SHALL INSTALL A BACKFLOW DEVICE FOR ALL UTILITIES, IN ACCORDANCE WITH PUBLIC WORKS STANDARD NOS. W-10 AND W-11.
- SEWER INSPECTION. THE APPLICANT SHALL HAVE PERFORMED A VIDEO INSPECTION OF THE EXISTING SEWER LATERAL AND 10-INCH SEWER MAIN IN ORDER TO VERIFY EXISTING CONDITIONS AND SUBMIT CAPACITY CALCULATIONS TO VERIFY THAT THE EXISTING UTILITIES HAVE THE ABILITY TO CARRY THE PROPOSED FLOWS FOR THE NEW DEVELOPMENT.
- TRASH ROOM SIZE. THE PROPOSED TRASH ROOM SHALL BE LARGE ENOUGH TO ACCOMMODATE A THREE-CONTAINER SYSTEM (I.E., REFUSE, RECYCLING, AND FOOD WASTE) AND PROVIDE ACCESS TO THE CITY'S COLLECTION SERVICE.
- ADDRESS ASSIGNMENT. PRIOR TO BUILDING PERMIT ISSUANCE, COMPLETE AND SUBMIT AN APPLICATION FOR ADDRESS ASSIGNMENT.
- CONDITIONAL FENCE PERMIT. PURSUANT TO SECTION 14-32.020 OF THE WATSONVILLE MUNICIPAL CODE (WMC), THE PRINCIPALLY PERMITTED FENCE HEIGHT IS UP TO SIX FEET. FENCES MAY BE
- CONSTRUCTED TO HEIGHTS IN EXCESS OF THIS HEIGHT LIMIT ONLY WITH ISSUANCE OF A CONDITIONAL FENCE PERMIT.
- THE DEVELOPER IS TO VIDEO INSPECT THE EXISTING SEWER LATERAL AND 10" SEWER MAIN IN ORDER TO VERIFY EXISTING CONDITIONS. SUBMIT CAPACITY CALCULATIONS TO VERIFY THAT THE EXISTING UTILITIES HAVE THE ABILITY TO CARRY THE NEW PROPOSED FLOWS FOR THE NEW DEVELOPMENT.
- THE PROPOSED TRASH ROOM SHALL BE LARGE ENOUGH TO HOUSE A THREE-CONTAINER SYSTEM (REFUSE, RECYCLING, AND FOOD WASTE) AND PROVIDE ACCESS TO THE CITY COLLECTION SERVICE.
- ALL UTILITIES WILL BE REQUIRED TO BE BACK-FLOW PROTECTED PER COW STANDARD W-10 OR W-11 DEPENDING ON THE SIZE OF NEW WATER METER.
- APPLICANT SHALL APPLY FOR A CALTRANS ENCROACHMENT PERMIT IN ORDER TO REMOVE AND REPLACE ALL EXISTING MAIN ST FRONTAGE IMPROVEMENTS WITH NEW CURB, GUTTER, AND SIDEWALK.
- APPLICANT SHALL APPLY FOR AN ENCROACHMENT PERMIT TO CONNECT TO ANY CITY UTILITIES AND TO RECONSTRUCT ANY DRIVEWAY APPROACHES ON CITY RIGHT OF WAY.
- DRIVEWAY APPROACH AT THE BACK OF PROPERTY / PARKING LOT ENTRANCE ON BRENNAN ST SHALL BE REMOVED AND CONSTRUCTED PER COW STANDARD S-101.
- APPLY FOR AN ADDRESS ASSIGNMENT PRIOR TO BUILDING PERMIT ISSUANCE.

REVISIONS

DATE	BY	DESCRIPTION
10/31/19	IT	1ST DESIGN REVIEW SUBMITTAL
08/25/20	IT	2ND DESIGN REVIEW SUBMITTAL
11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

BELL ARCHITECTURAL GROUP

831 . 424 . 4620

235 MONTEREY STREET, SUITE B, SALINAS, CA 93901

BELLAG.COM

TITLE SHEET

THE RESIDENCE AT 558 MAIN

PACIFIC COAST DEVELOPMENT

800 E LAKE AVE

WATSONVILLE, CA 95076

DATE

11/12/20

SCALE

A5 NOTED

DRAWN

G-J/IM

JOB

19019

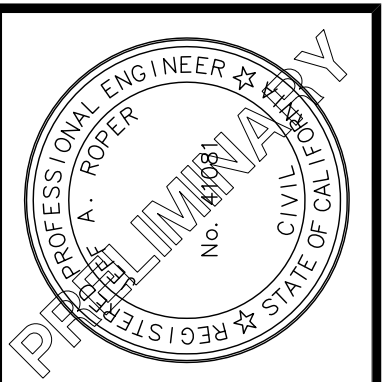
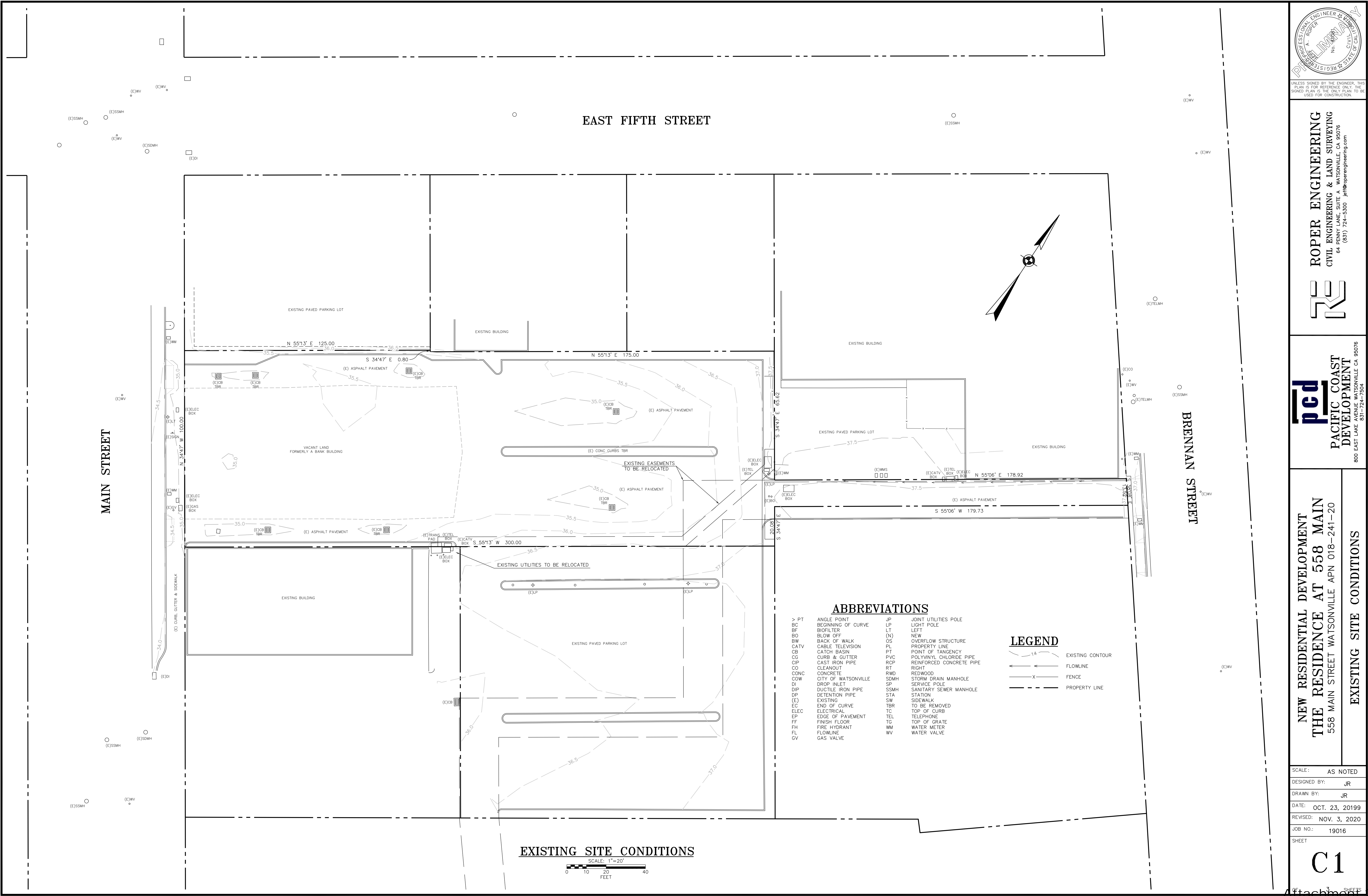
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**ROPER ENGINEERING**  
CIVIL ENGINEERING & LAND SURVEYING  
64 PENNY LANE, SUITE A, WATSONVILLE, CA 95076  
(831) 724-5300 [jeff@roperengineering.com](mailto:jeff@roperengineering.com)

**pcd**  
PACIFIC COAST  
DEVELOPMENT  
800 EAST LAKE AVENUE, WATSONVILLE, CA 95076  
(831) 724-7504

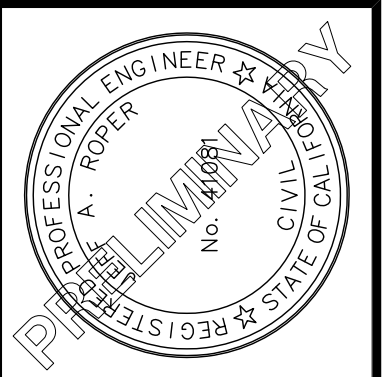
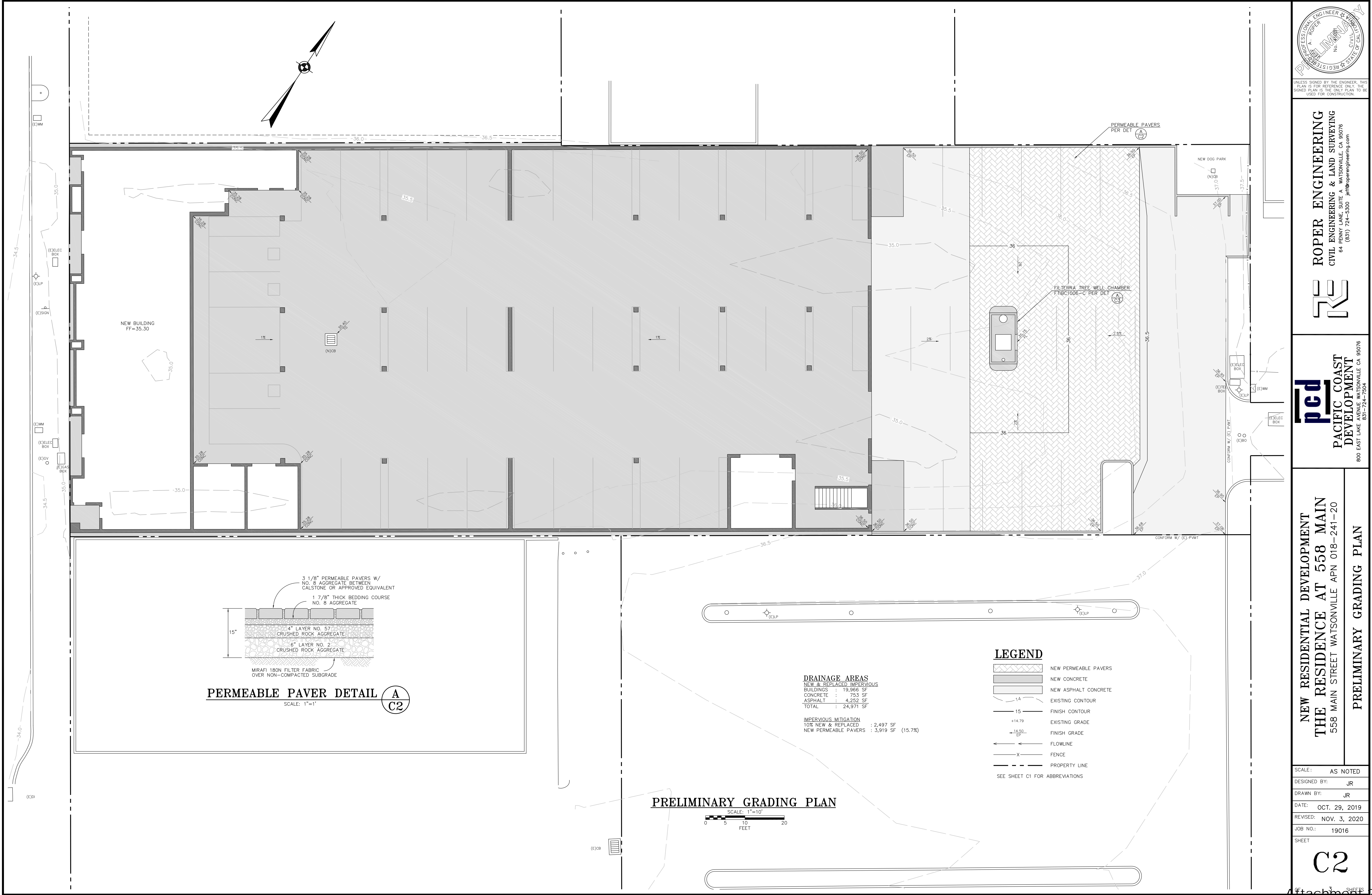
**NEW RESIDENTIAL DEVELOPMENT  
THE RESIDENCE AT 558 MAIN**  
558 MAIN STREET WATSONVILLE APN 018-241-20

**EXISTING SITE CONDITIONS**

SCALE:	AS NOTED
DESIGNED BY:	JR
DRAWN BY:	JR
DATE:	OCT. 23, 20199
REVISED:	NOV. 3, 2020
JOB NO.:	19016
SHEET	

**C1**





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64 PENNY LANE, SUITE A WATSONVILLE, CA 95076  
(831) 724-5300 jef@roperengineering.com

**pcd**  
**PACIFIC COAST**  
**DEVELOPMENT**  
800 EAST LAKE AVENUE WATSONVILLE, CA 95076  
(831) 724-7304

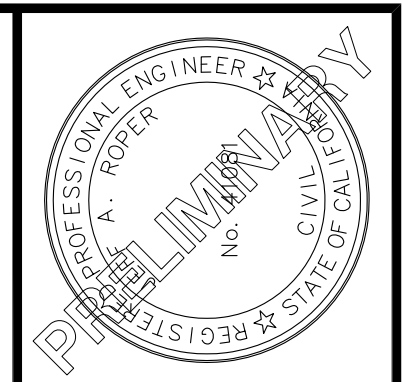
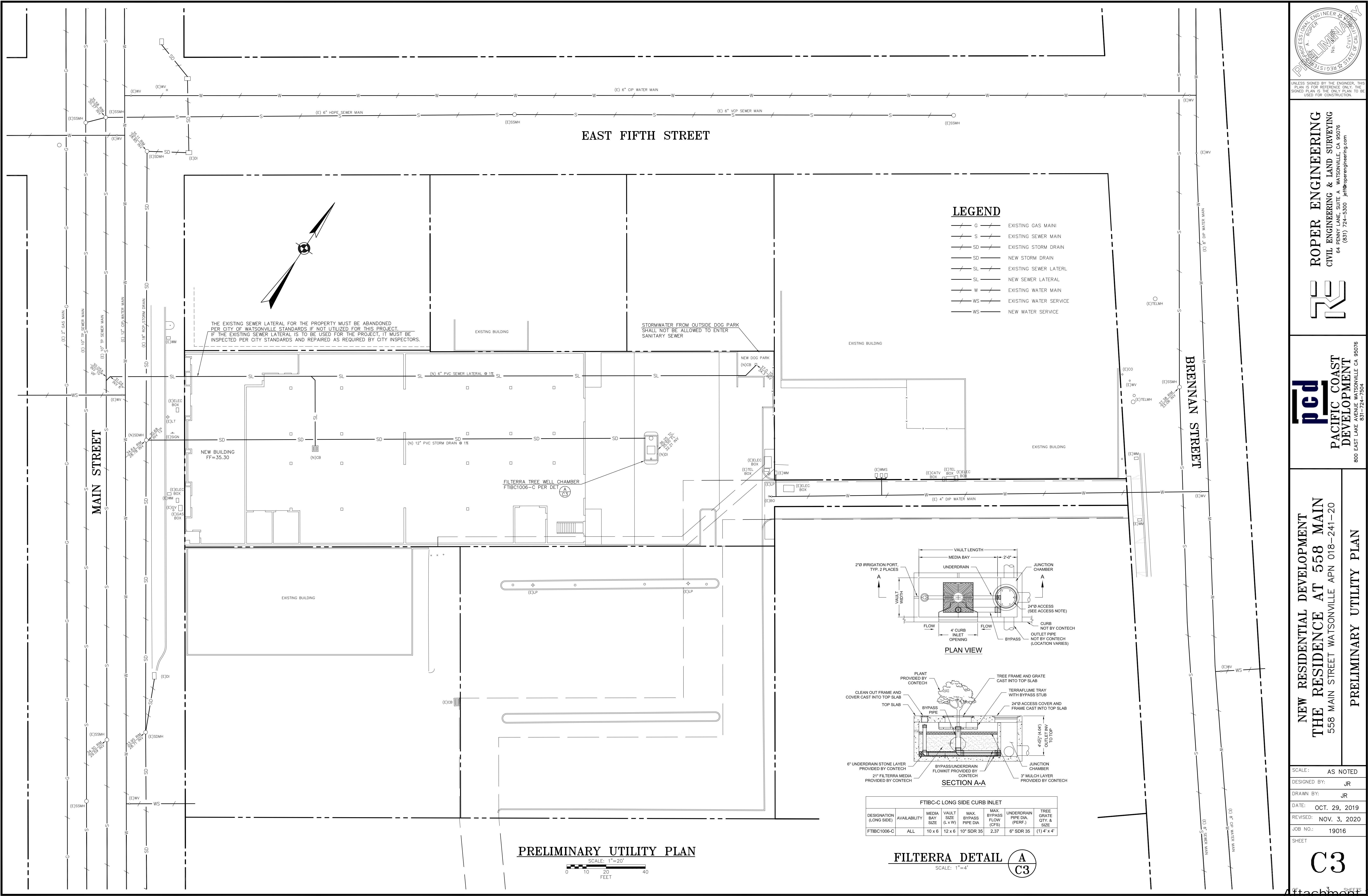
**NEW RESIDENTIAL DEVELOPMENT**  
**THE RESIDENCE AT 558 MAIN**  
558 MAIN STREET WATSONVILLE APN 018-241-20

**PRELIMINARY GRADING PLAN**

SCALE:	AS NOTED
DESIGNED BY:	JR
DRAWN BY:	JR
DATE:	OCT. 29, 2019
REVISED:	NOV. 3, 2020
JOB NO.:	19016
SHEET	

**C2**





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CIVIL ENGINEERING & LAND SURVEYING  
64 PENNY LANE, SUITE A WATSONVILLE, CA 95076  
(831) 724-5300 jef@roperengineering.com

**pcd**  
PACIFIC COAST  
DEVELOPMENT  
800 EAST LAKE AVENUE WATSONVILLE CA 95076  
831-724-7504

**NEW RESIDENTIAL DEVELOPMENT**  
**THE RESIDENCE AT 558 MAIN**  
558 MAIN STREET WATSONVILLE APN 018-241-20  
**PRELIMINARY UTILITY PLAN**

SCALE:	AS NOTED
DESIGNED BY:	JR
DRAWN BY:	JR
DATE:	OCT. 29, 2019
REVISED:	NOV. 3, 2020
JOB NO.:	19016
SHEET	
<b>C3</b>	



SITE PLAN LEGEND

- PROPERTY LINE
- FIRE TRUCK ACCESS FIRE LANE (F.L.) 20'-0" WIDE, TYP.
- (E) BUILDING (SHOWN FOR DIAGRAMMATIC REFERENCE ONLY)
- FIRE HYDRANT

FIRE DEPARTMENT GENERAL NOTES:

- MINIMUM CLEAR HEIGHT, VERTICAL CLEARANCE OVER REQUIRED VEHICULAR ACCESS ROADS AND DRIVENWAYS SHALL HAVE NO OVERHEAD OBSTRUCTIONS AND SHALL BE 13'-6" MIN. IN HEIGHT - TYP.
- FIRE TRUCK ACCESS LANE IS CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 67,000 LBS.
- FIRE TRUCK ACCESS LANE SHALL HAVE AN UNOBSTRUCTED WIDTH NO LESS THAN 20'-0".
- GATES SHALL COMPLY WITH CFC 503.546 AND CFC D103.4 KNOX-BOX, KEYPAD, OR KNOX-PADLOCKS SHALL COMPLY WITH CFC 503.546 AND CFC D103.5. KNOX-PADLOCK PROVIDED ARE TO BE WELDED IN PLACE PREFERABLY.
- CURBS/SURFACE AREAS ALONG ACCESS ROADS AND FIRE LANES SHALL BE PAINTED OSHA SAFETY RED. THE WORDS "FIRE LANE NO PARKING" SHALL BE PAINTED ON THE TOP OR FACE OF THE CURB IN WHITE LETTERING MINIMUM 4 INCHES HIGH AND SHALL BE SPACED 50 FEET ON CENTER OR PORTION THEREOF TO CONFORM TO CITY OF WATSONVILLE FIRE DEPARTMENT REQUIREMENTS.
- BUILDINGS WILL BE EQUIPPED WITH THE REQUIRED STANDPIPES PER CFC & NFPA CODE REQUIREMENTS.
- SURFACE AREAS ALONG ACCESS ROADS AND FIRE LANES SHALL BE PAINTED OSHA RED. IN WORDS "FIRE LANE NO PARKING" SHALL BE PAINTED ON THE TOP OF THE CURB IN WHITE LETTERING MINIMUM 4 INCHES HIGH AND SHALL BE SPACED ON CENTER OR PORTION THEREOF TO CONFORM TO WATSONVILLE FIRE DEPARTMENT REQUIREMENTS

1 OVERALL FIRE ACCESS SITE PLAN  
SCALE: 1" = 40'-0"



REVISIONS

DATE	BY	DESCRIPTION
10/31/19	IT	1ST DESIGN REVIEW SUBMITTAL
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11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

PROJECT

OVERALL FIRE ACCESS SITE PLAN  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT  
800 E. LAKE AVE.  
WATSONVILLE, CA 95076

DATE

11/12/20

SCALE

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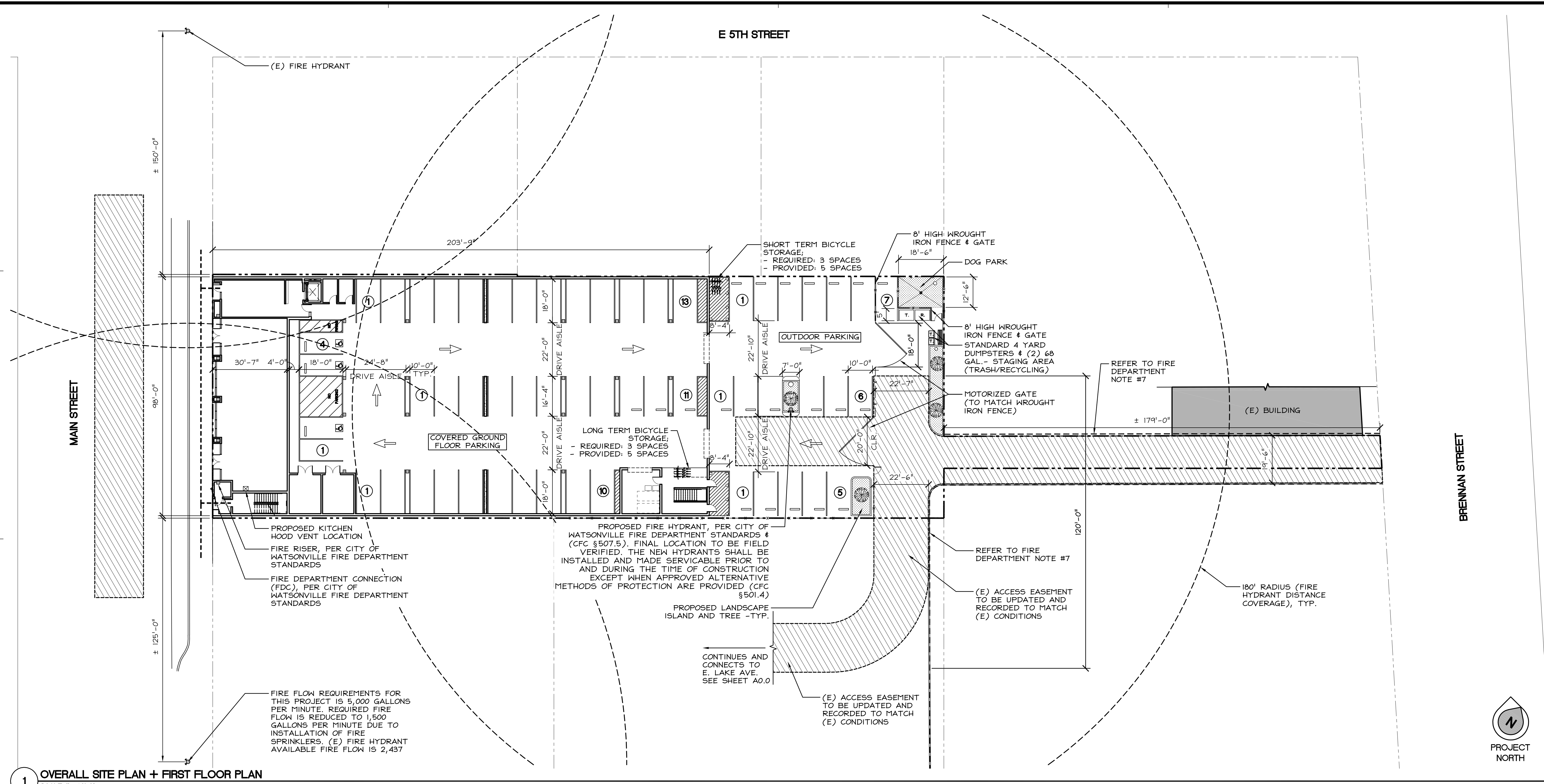
SHEETS

Belli Architectural Group

Belli Architectural Group 831 . 424 . 4620  
235 MONTEREY STREET, SUITE B, SALINAS, CA 93901  
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Attachment 2  
page 5 of 21





1 OVERALL SITE PLAN + FIRST FLOOR PLAN  
SCALE 1" = 20'-0"

### CODE ANALYSIS

FLOOR 1 (BELOW 3-HR HORIZONTAL SEPARATION PER CBC510.2)			FLOORS 2, 3, & 4 (ABOVE 3-HR HORIZONTAL SEPARATION PER CBC 510.2)			REQUIRED RATINGS		
CONSTRUCTION TYPE:	I-A		CONSTRUCTION TYPE:	V-A		COMPONENT	RATING	CODE SECTION
SPRINKLERED:	YES		SPRINKLERED:	YES		CORRIDORS	1-HR	CBC TABLE 1018.1
OCCUPANCY:	S-2, M, R-2		OCCUPANCY:	A-2, R-2		STAIR/SHAFT ENCLOSURES	2-HR	CBC 510.2.4
NON-SEPARATED PER CBC 508.3			NON-SEPARATED PER CBC 508.3			RESIDENTIAL DEMISING WALLS	30-MIN	CBC 708.3 EXCEPTION 2
ALLOWABLE STORIES:	1 (CBC SEC. 510.2.2)		ALLOWABLE STORIES:	4 S(WITHOUT AREA INCREASE)		EXTERIOR WALLS		
ACTUAL STORIES:	1		ACTUAL STORIES:	3		EXTERIOR OPENINGS		
ALLOWABLE AREA:	UNLIMITED		AREA PER FLOOR			CONSTRUCTION TYPE I-A:		
ACTUAL AREA:	19,783 SF		ALLOWABLE AREA:	36,000 SF SM(WITHOUT AREA INCREASE)		STRUCTURAL FRAME	3-HR	CBC TABLE 601
BUILDING HEIGHT (PER CBC TABLE 504.3)	UNLIMITED		ACTUAL AREA:	15,298 SF		EXT. BEARING WALLS	3-HR	
ALLOWABLE HEIGHT:	15'		TOTAL AREA ALL FOUR FLOORS	36,000 SF x 4 =144,000 SF		INT. BEARING WALLS	3-HR	
ACTUAL HEIGHT:			ACTUAL AREA:	45,894 SF		NON-BEARING WALLS	2-HR	
			BUILDING HEIGHT (PER CBC TABLE 504.3)	70' - 5(WITHOUT AREA INCREASE)		FLOOR	90-MIN	
			ALLOWABLE HEIGHT:	58'-8"		ROOF		
			ACTUAL HEIGHT:			CONSTRUCTION TYPE V-A:		
						STRUCTURAL FRAME	1-HR	
						EXT. BEARING WALLS	1-HR	
						INT. BEARING WALLS	1-HR	
						NON-BEARING WALLS	-	
						FLOOR	1-HR	
						ROOF	1-HR	

### GENERAL NOTES:

1. PATH OF TRAVEL (P.O.T.) AS INDICATED IS A BARRIER FREE ACCESS W/OUT ANY ABRUPT VERTICAL CHANGES EXCEEDING 1/2" @ 1:2 MAX. SLOPE, EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4" VERTICAL MAX. CROSS SLOPE 2% TYPICAL. THE CONTRACTOR SHALL VERIFY THAT ALL BARRIERS ON THE INDICATED PATH OF TRAVEL HAVE BEEN REMOVED PER C.B.C. 1133B.7.
2. SITE LIGHTING: A PHOTOMETRIC PLAN AND LIGHTING SPEC SHEET(S) WILL BE SUBMITTED WITH THE BUILDING PERMIT SUBMITTAL THAT SHOWS: ADEQUATE LIGHTING PROVIDED FOR ALL COMMON AREAS AND PARKING AREAS. LIGHTING WITHIN THE EXTERIOR SURFACE PARKING LOT WILL HAVE AN EVEN DISTRIBUTION WITH NO HOT OR COOL SPOTS AND EXHIBIT A LIGHT INTENSITY RANGING BETWEEN ONE AND FIVE LUMENS. LIGHTING SHALL BE DIRECTED ONTO THE SUBJECT PROPERTY ONLY, AND THE PHOTOMETRIC PLAN WILL SHOW THAT LIGHTING WOULD NOT SPILL OVER ONTO ADJACENT PROPERTIES OR CREATE A GLARE NUISANCE FOR MOTORISTS IN THE PUBLIC RIGHT-OF-WAY. NO LUMINAIRE SHALL BE HIGHER THAN 16 FEET ABOVE THE FINISHED GRADE.

### SITE PLAN LEGEND

- ➔ PATH OF TRAVEL
- PROPERTY LINES OF PROJECT WITHIN SCOPE OF WORK
- ▨ FIRE TRUCK ACCESS FIRE LANE (F.L.)

### LOT COVERAGE/LANDSCAPING

TOTAL SITE SQUARE FOOTAGE: 32,248  
AREA OF SITE COVERED BY STRUCTURE: 19,965  
LOT COVERAGE: 62%

TOTAL SQUARE FOOTAGE OF LANDSCAPE EXISTING: 0 PROPOSED: 500  
1) 500/32,248 = 1.6% OF ENTIRE SITE  
2) 500/13,969 = 3.6% OF INTERIOR PARKING AREA

INDOOR PARKING & DRIVE AISLE SQUARE FOOTAGE: 13,969  
OUTDOOR PARKING & DRIVE AISLE (ON-PROPERTY) SQUARE FOOTAGE: 10,360  
TOTAL ON-SITE PARKING AND DRIVE AISLE SQUARE FOOTAGE: 24,329

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Belli Architectural Group

235 MONTEREY STREET, SUITE B, SALINAS, CA 93901

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OVERALL SITE PLAN

THE RESIDENCE AT 558 MAIN

PACIFIC COAST DEVELOPMENT

800 E. LAKE AVE.

WATSONVILLE, CA 95076

DATE

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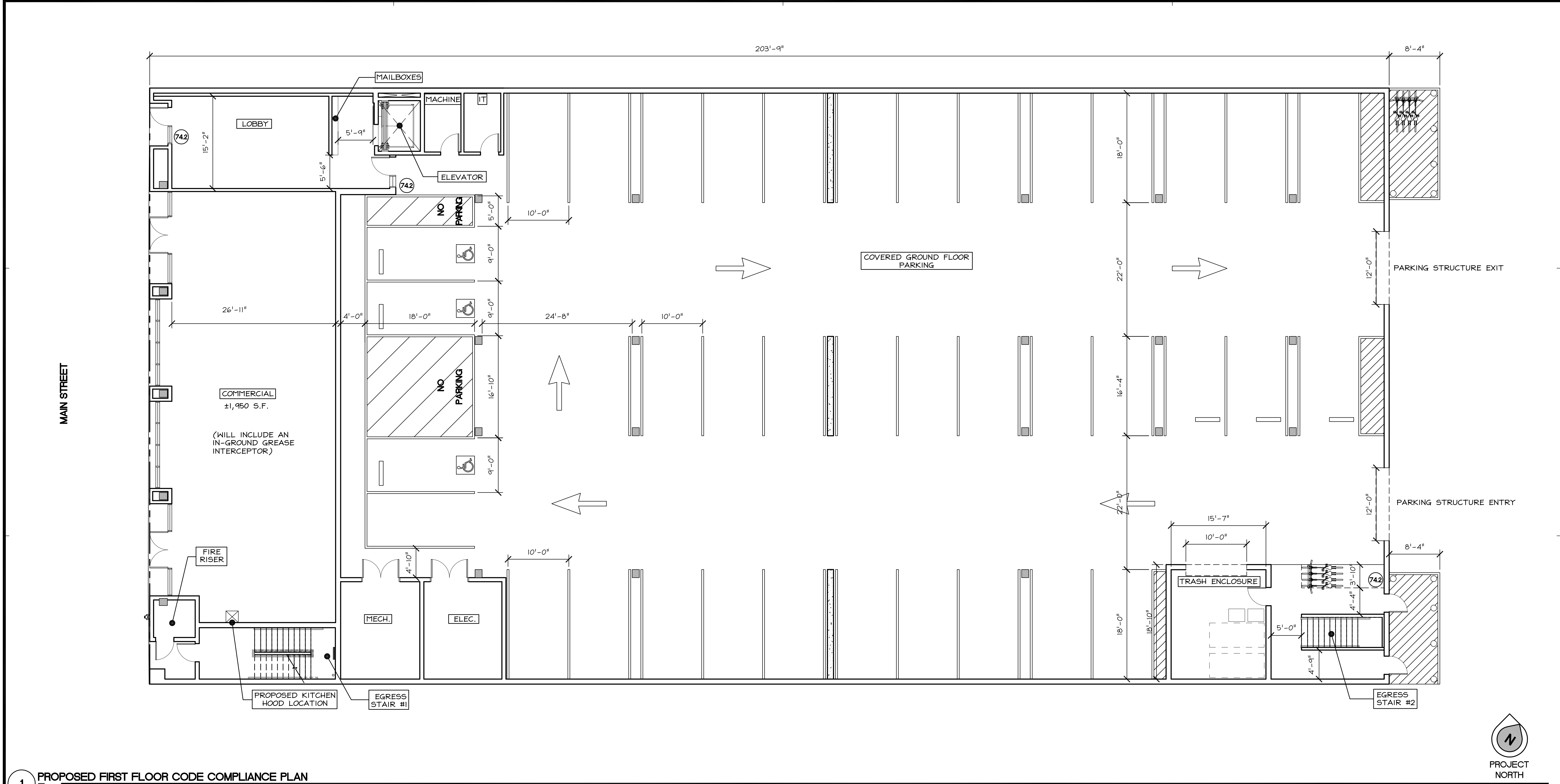
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1 PROPOSED FIRST FLOOR CODE COMPLIANCE PLAN  
SCALE 1/8" = 1'-0"

CODE COMPLIANCE GENERAL NOTES

1. PROTRUDING OBJECTS ARE PERMITTED TO EXTEND BELOW THE MINIMUM CEILING HEIGHT PROVIDED A MINIMUM HEADROOM OF 80" SHALL BE PROVIDED FOR ANY WALKING SURFACE, INCLUDING WALKS, CORRIDORS, AISLES AND PASSAGEWAYS.
2. THE MEANS OF EGRESS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-6".
3. WALKING SURFACES OF THE MEANS OF EGRESS SHALL HAVE A SLIP-RESISTANT SURFACE AND BE SECURELY ATTACHED.
4. ADJACENT STORIES, OTHER THAN FOR THE EGRESS COMPONENTS DESIGNED FOR CONVERGENCE, THE OCCUPANT LOAD FROM SEPARATE STORIES SHALL NOT BE ADDED.
5. WHERE STAIRWAYS SERVE MORE THAN ONE STORY, ONLY THE OCCUPANT LOAD OF EACH STORY CONSIDERED INDIVIDUALLY SHALL BE USED IN CALCULATING THE REQUIRED CAPACITY OF THE STAIRWAYS SERVING THAT STORY.
6. WHERE MORE THAN ONE EXIT, OR ACCESS TO MORE THAN ONE EXIT, IS REQUIRED, THE MEANS OF EGRESS SHALL BE CONFIGURED SUCH THAT THE LOSS OF ANY ONE EXIT, OR ACCESS TO ONE EXIT, SHALL NOT REDUCE THE AVAILABLE CAPACITY OR WIDTH TO LESS THAN 50 PERCENT OF THE REQUIRED CAPACITY OR WIDTH.
7. DOORS, WHEN FULLY OPENED, SHALL NOT REDUCE THE REQUIRED WIDTH BY MORE THAN 7 INCHES. DOORS IN ANY POSITION SHALL NOT REDUCE THE REQUIRED WIDTH BY MORE THAN ONE-HALF.
8. WHERE TWO EXITS, EXIT ACCESS DOORWAYS, EXIT ACCESS STAIRWAYS OR RAMPS, OR ANY COMBINATION THEREOF, ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THEY SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN THEM IF EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM.
9. THE MEANS OF EGRESS ILLUMINATION LEVEL SHALL BE NOT LESS THAN 1 FOOT-CANDLE AT THE WALKING SURFACE.
10. PIVOT OR SIDE-HINGED SWINGING DOORS SHALL SWING IN THE DIRECTION OF EGRESS TRAVEL WHERE SERVING A ROOM OR AREA CONTAINING AN OCCUPANT LOAD OF 50 OR MORE PERSONS.
11. THERE SHALL BE A FLOOR OR LANDING ON EACH SIDE OF A DOOR, SUCH FLOOR OR LANDING SHALL BE AT THE SAME ELEVATION ON EACH SIDE OF THE DOOR. LANDINGS SHALL BE LEVEL EXCEPT FOR EXTERIOR LANDINGS, WHICH ARE PERMITTED TO HAVE A SLOPE NOT TO EXCEED 0.25 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2-PERCENT SLOPE).
12. IN STAIRWAYS SERVING NOT MORE THAN FOUR STORIES, DOORS ARE PERMITTED TO BE LOCKED FROM THE SIDE OPPOSITE THE EGRESS SIDE, PROVIDED THEY ARE OPENABLE FROM THE EGRESS SIDE AND CAPABLE OF BEING UNLOCKED SIMULTANEOUSLY WITHOUT UNLATCHING UPON A SIGNAL FROM THE FIRE COMMAND CENTER, IF PRESENT, OR A SIGNAL BY EMERGENCY PERSONNEL FROM A SINGLE LOCATION INSIDE THE MAIN ENTRANCE TO THE BUILDING.
13. IN BUILDINGS WITHOUT AN OCCUPIED ROOF, ACCESS TO THE ROOF SHALL BE PERMITTED TO BE A ROOF HATCH OR TRAP DOOR NOT LESS THAN 16 SQUARE FEET IN AREA AND HAVING A MINIMUM DIMENSION OF 2 FEET.

14. EXITS AND EXIT ACCESS DOORS SHALL BE MARKED BY AN APPROVED EXIT SIGN READILY VISIBLE FROM ANY DIRECTION OF EGRESS TRAVEL. THE PATH OF EGRESS TRAVEL TO EXITS AND WITHIN EXITS SHALL BE MARKED BY READILY VISIBLE EXIT SIGNS TO CLEARLY INDICATE THE DIRECTION OF EGRESS TRAVEL IN CASES WHERE THE EXIT OR THE PATH OF EGRESS TRAVEL IS NOT IMMEDIATELY VISIBLE TO THE OCCUPANTS. INTERVENING MEANS OF EGRESS DOORS WITHIN EXITS SHALL BE MARKED BY EXIT SIGNS. EXIT SIGN PLACEMENT SHALL BE SUCH THAT NO POINT IN AN EXIT ACCESS CORRIDOR OR EXIT PASSAGEWAY IS MORE THAN 100 FEET OR THE LISTED VIEWING DISTANCE FOR THE SIGN, WHICHEVER IS LESS, FROM THE NEAREST VISIBLE EXIT SIGN.
15. EXIT ACCESS TRAVEL DISTANCE FOR AN R-2 OCCUPANCY SHALL BE 250 FEET.
16. THE EXIT DISCHARGE SHALL PROVIDE A DIRECT AND UNOBSTRUCTED ACCESS TO A PUBLIC WAY.

BUILDING FLOOR OCCUPANT LOAD

UNIT TYPE	OCCUPANT LOAD	NUMBER OF UNITS	TOTAL OCCUPANTS
LOBBY	513	1	513
RETAIL	65.00	1	65.00
MACHINE	0.20	1	0.20
IT	0.20	1	0.20
MECHANICAL	0.69	1	0.69
ELECTRICAL	0.69	1	0.69
TRASH	0.91	1	0.91
TRASH	75.61	1	75.61
TOTAL OCCUPANT LOAD			= 148.43

BUILDING STAIR SHAFT EGRESS WIDTH

	OCCUPANT LOAD	NUMBER OF EXITS	OCCUPANT LOAD PER EXIT DOOR	DOOR WIDTH REQUIRED occ. x 0.2	DOOR WIDTH PROVIDED	STAIR WIDTH REQUIRED occ. x 0.3	STAIR WIDTH PROVIDED
			STAIR #1	STAIR #2			
FLOOR 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FLOOR 2	262.86	2	131.43	131.43	26.29"	36"	39.43" MIN. 44"
FLOOR 3	54.08	2	27.04	27.04	5.42"	36"	8.13" MIN. 44"
FLOOR 4	54.08	2	27.04	27.04	5.41"	36"	8.11" MIN. 44"

OCCUPANT LOAD FACTOR

UNIT TYPE	OCCUPIED AREA	OCCUPANT LOAD FACTOR	NUMBER OF OCCUPANTS
LOBBY	513 SQFT	1/100	513
RETAIL	1950 SQFT	1/30	65.00
MACHINE	60 SQFT	1/300	0.20
IT	60 SQFT	1/300	0.20
MECHANICAL	206 SQFT	1/300	0.69
ELECTRICAL	206 SQFT	1/300	0.69
TRASH	272 SQFT	1/300	0.91
PARKING	15,122 SQFT	1/200	75.61

BUILDING CORRIDOR EGRESS WIDTH

	OCCUPANT LOAD	CORRIDOR WIDTH REQUIRED	CORRIDOR WIDTH PROVIDED
FLOOR 1	148.43	29.69"	GREATER THAN 5'-0"
FLOOR 2	262.96	52.59"	GREATER THAN 5'-0"
FLOOR 3	54.18	10.84"	GREATER THAN 5'-0"
FLOOR 4	54.18	10.84"	GREATER THAN 5'-0"

REVISIONS/DATE BY DESCRIPTION

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11/12/20	IT1	3RD DESIGN REVIEW SUBMITTAL

BELLI ARCHITECTURAL GROUP 831 . 424 . 4620  
235 MONTEREY STREET, SUITE B, SALINAS, CA 93901  
BELLIAAG.COM

PROPOSED FIRST FLOOR COMPLIANCE PLAN  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT

800 E. LAKE AVE.  
WATSONVILLE, CA 95076

architectural group

DATE 11/12/20

SCALE A5 NOTED

DRAWN G.J/IM

JOB 19019

SHEET A0.2

OF SHEETS

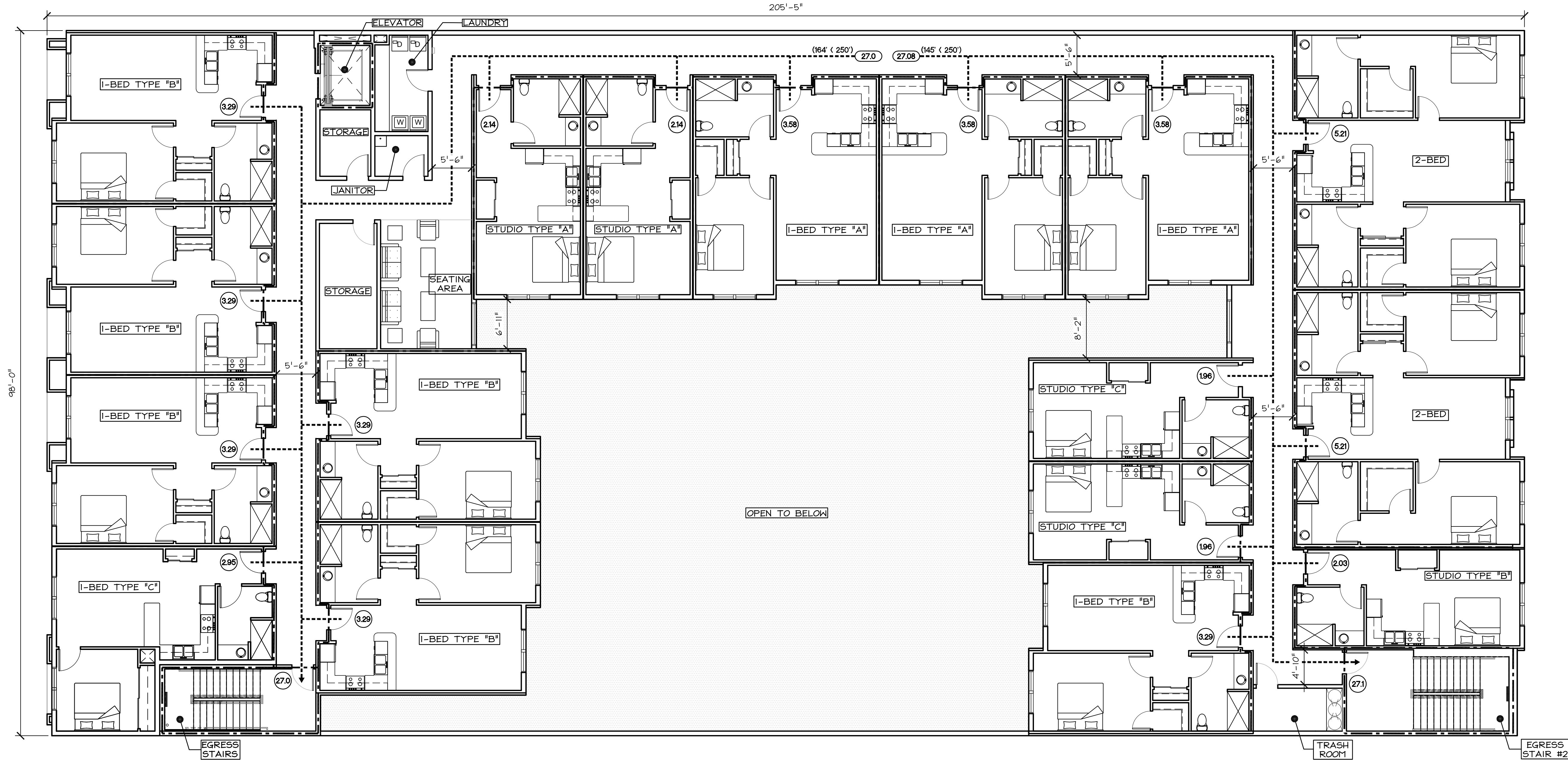
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MAN STREET



1

PROPOSED THIRD - FOURTH FLOOR CODE COMPLIANCE PLAN  
SCALE: 1/8" = 1'-0"

CODE COMPLIANCE GENERAL NOTES

1. PROTRUDING OBJECTS ARE PERMITTED TO EXTEND BELOW THE MINIMUM CEILING HEIGHT PROVIDED A MINIMUM HEADROOM OF 80" SHALL BE PROVIDED FOR ANY WALKING SURFACE, INCLUDING WALKS, CORRIDORS, AISLES AND PASSAGEWAYS.
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7. DOORS, WHEN FULLY OPENED, SHALL NOT REDUCE THE REQUIRED WIDTH BY MORE THAN 7 INCHES. DOORS IN ANY POSITION SHALL NOT REDUCE THE REQUIRED WIDTH BY MORE THAN ONE-HALF.
8. WHERE TWO EXITS, EXIT ACCESS DOORWAYS, EXIT ACCESS STAIRWAYS OR RAMPS, OR ANY COMBINATION THEREOF, ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THEY SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN THEM IF EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM.
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11. THERE SHALL BE A FLOOR OR LANDING ON EACH SIDE OF A DOOR. SUCH FLOOR OR LANDING SHALL BE AT THE SAME ELEVATION ON EACH SIDE OF THE DOOR. LANDINGS SHALL BE LEVEL EXCEPT FOR EXTERIOR LANDINGS, WHICH ARE PERMITTED TO HAVE A SLOPE NOT TO EXCEED 0.25 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2-PERCENT SLOPE).
12. IN STAIRWAYS SERVING NOT MORE THAN FOUR STORIES, DOORS ARE PERMITTED TO BE LOCKED FROM THE SIDE OPPOSITE THE EGRESS SIDE, PROVIDED THEY ARE OPENABLE FROM THE EGRESS SIDE AND CAPABLE OF BEING UNLOCKED SIMULTANEOUSLY WITHOUT UNLATCHING UPON A SIGNAL FROM THE FIRE COMMAND CENTER, IF PRESENT, OR A SIGNAL BY EMERGENCY PERSONNEL FROM A SINGLE LOCATION INSIDE THE MAIN ENTRANCE TO THE BUILDING.
13. IN BUILDINGS WITHOUT AN OCCUPIED ROOF, ACCESS TO THE ROOF SHALL BE PERMITTED TO BE A ROOF HATCH OR TRAP DOOR NOT LESS THAN 16 SQUARE FEET IN AREA AND HAVING A MINIMUM DIMENSION OF 2 FEET.

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OCCUPANT LOAD

UNIT TYPE	OCCUPIED AREA	OCCUPANT LOAD FACTOR	NUMBER OF OCCUPANTS
STUDIO A	427 SOFT	1/200	2.14
STUDIO B	405 SOFT	1/200	2.03
STUDIO C	392 SOFT	1/200	1.96
1-BED A	716 SOFT	1/200	3.58
1-BED B	658 SOFT	1/200	3.29
1-BED C	590 SOFT	1/100	2.95
2-BED	1,042 SOFT	1/200	5.21

BUILDING FLOOR OCCUPANT LOAD

UNIT TYPE	OCCUPANT LOAD	NUMBER OF UNITS	TOTAL OCCUPANTS
STUDIO A	2.14	2	4.28
STUDIO B	2.03	1	2.03
STUDIO C	1.96	2	3.92
1-BED A	3.58	3	10.74
1-BED B	3.29	6	19.74
1-BED C	2.95	1	2.95
2-BED	5.21	2	10.42
TOTAL OCCUPANT LOAD			= 54.08



PROPOSED 3-4 FLOORS COMPLIANCE PLANS

THE RESIDENCE AT 558 MAIN

PACIFIC COAST DEVELOPMENT

800 E. LAKE AVE.  
WATSONVILLE, CA 95076



BELLI ARCHITECTURAL GROUP 831.424.4620  
235 MONTEREY STREET, SUITE B, SALINAS, CA 93901  
BELLIAAG.COM

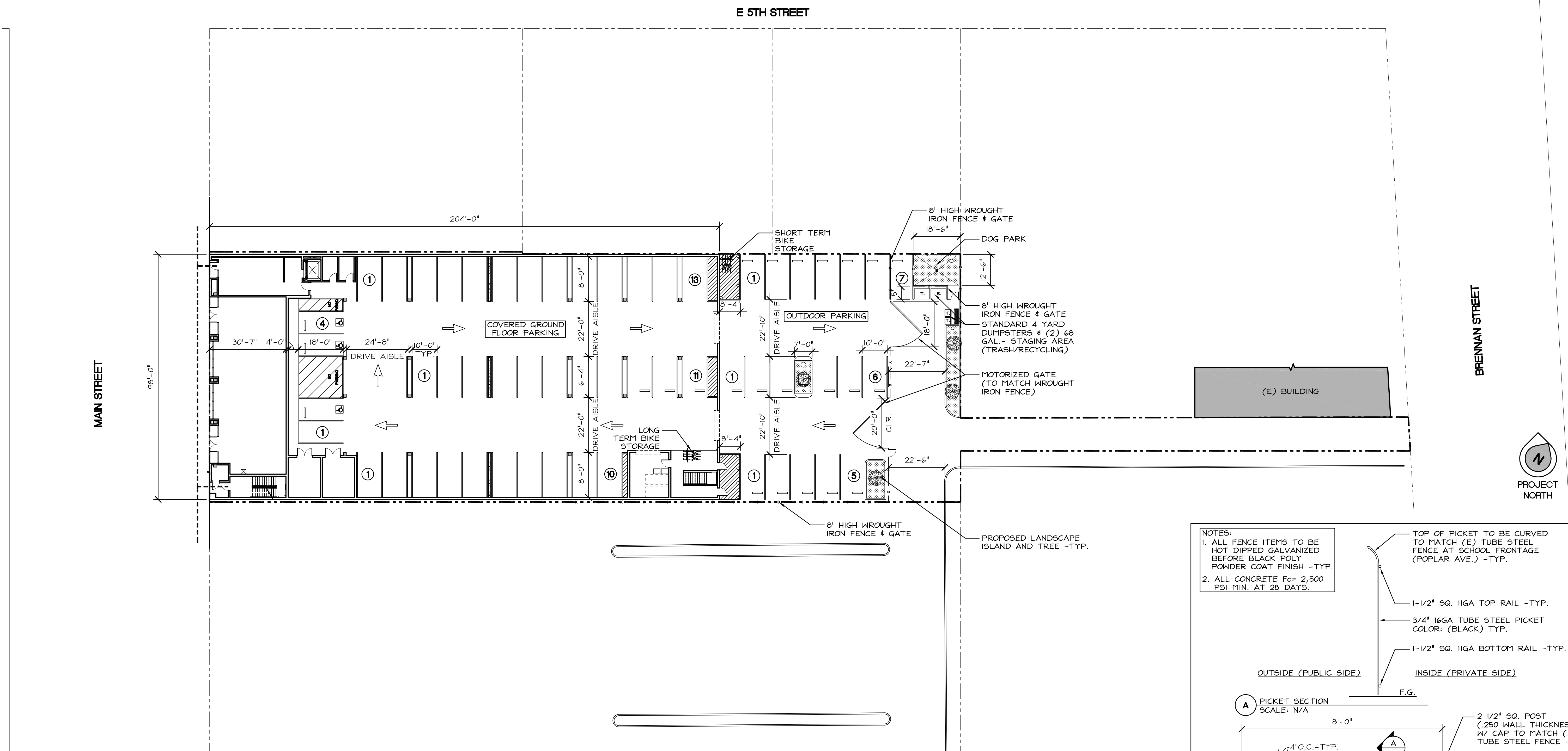
REVISIONS/DATE BY DESCRIPTION

10/31/19	IT	1ST DESIGN REVIEW SUBMITTAL
08/25/20	IT	2ND DESIGN REVIEW SUBMITTAL
1/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

OF SHEETS

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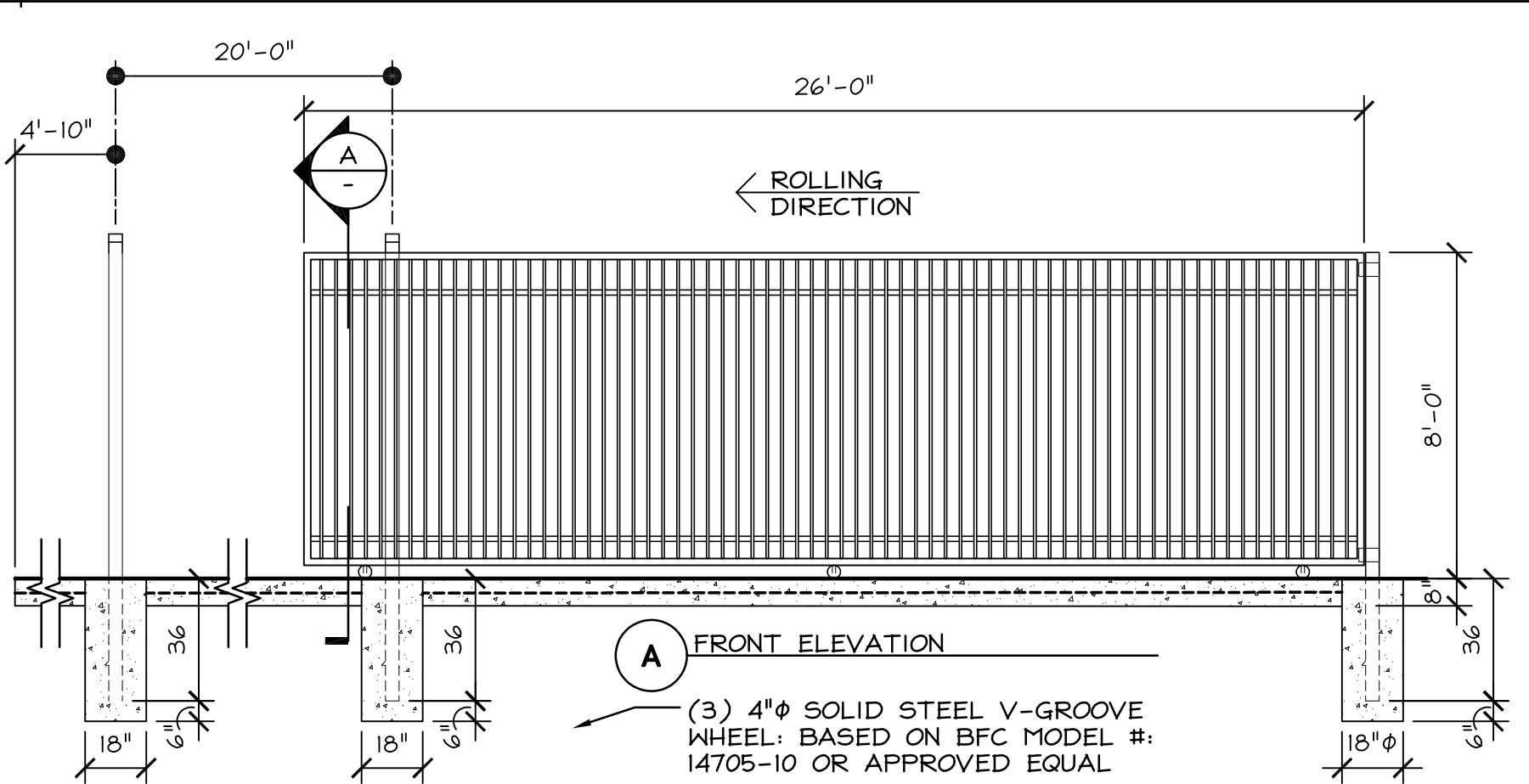
1 OVERALL SITE PLAN  
SCALE 1" = 20'-0"

GENERAL NOTES:

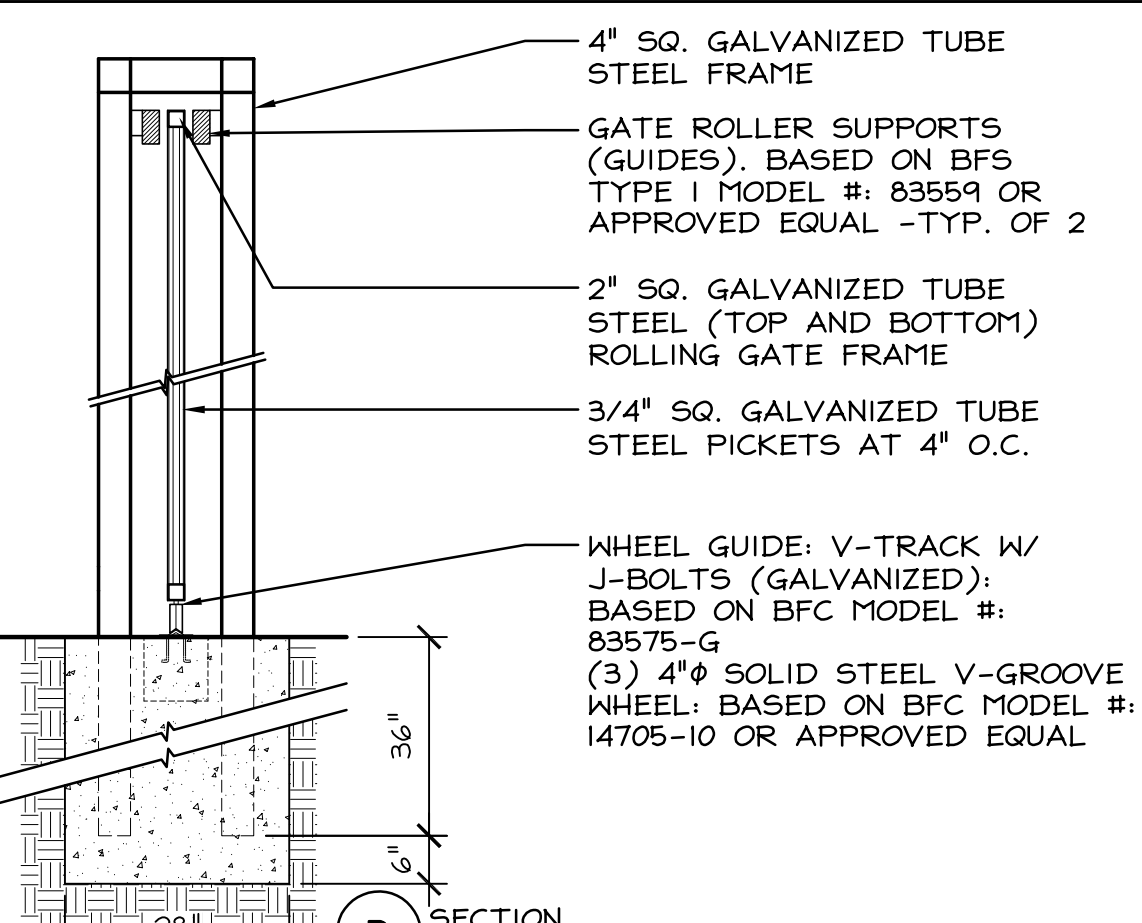
- 1. PATH OF TRAVEL (P.O.T.) AS INDICATED IS A BARRIER FREE ACCESS W/OUT ANY ABRUPT VERTICAL CHANGES EXCEEDING 1/2" @ 1:2 MAX. SLOPE, EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4" VERTICAL. MAX. CROSS SLOPE 2% TYPICAL. THE CONTRACTOR SHALL VERIFY THAT ALL BARRIERS ON THE INDICATED PATH OF TRAVEL HAVE BEEN REMOVED PER C.B.C. 11338.7.
- 2. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NONCOMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE OFFICE BEFORE PROCEEDING WITH THE WORK.

SITE PLAN LEGEND

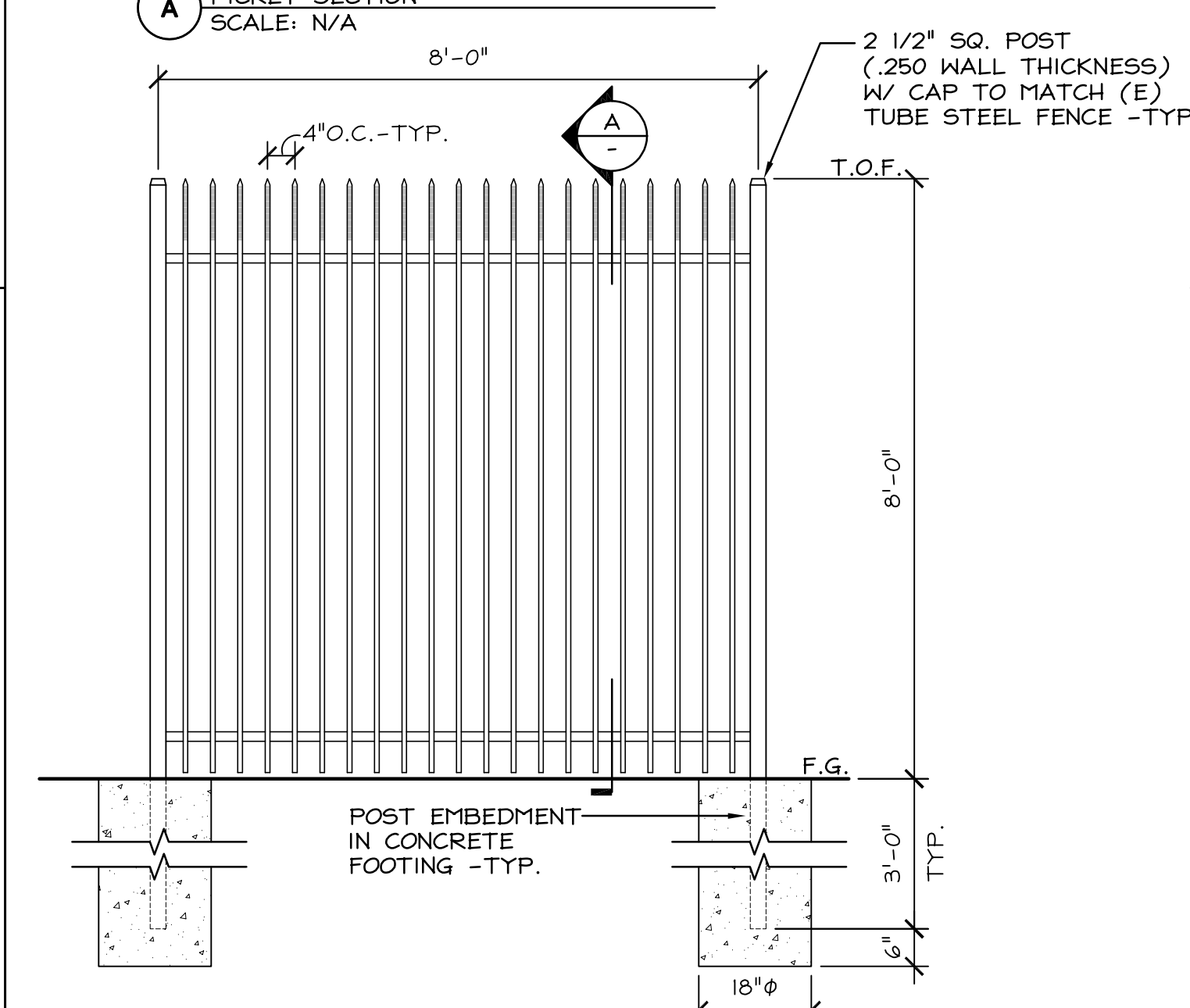
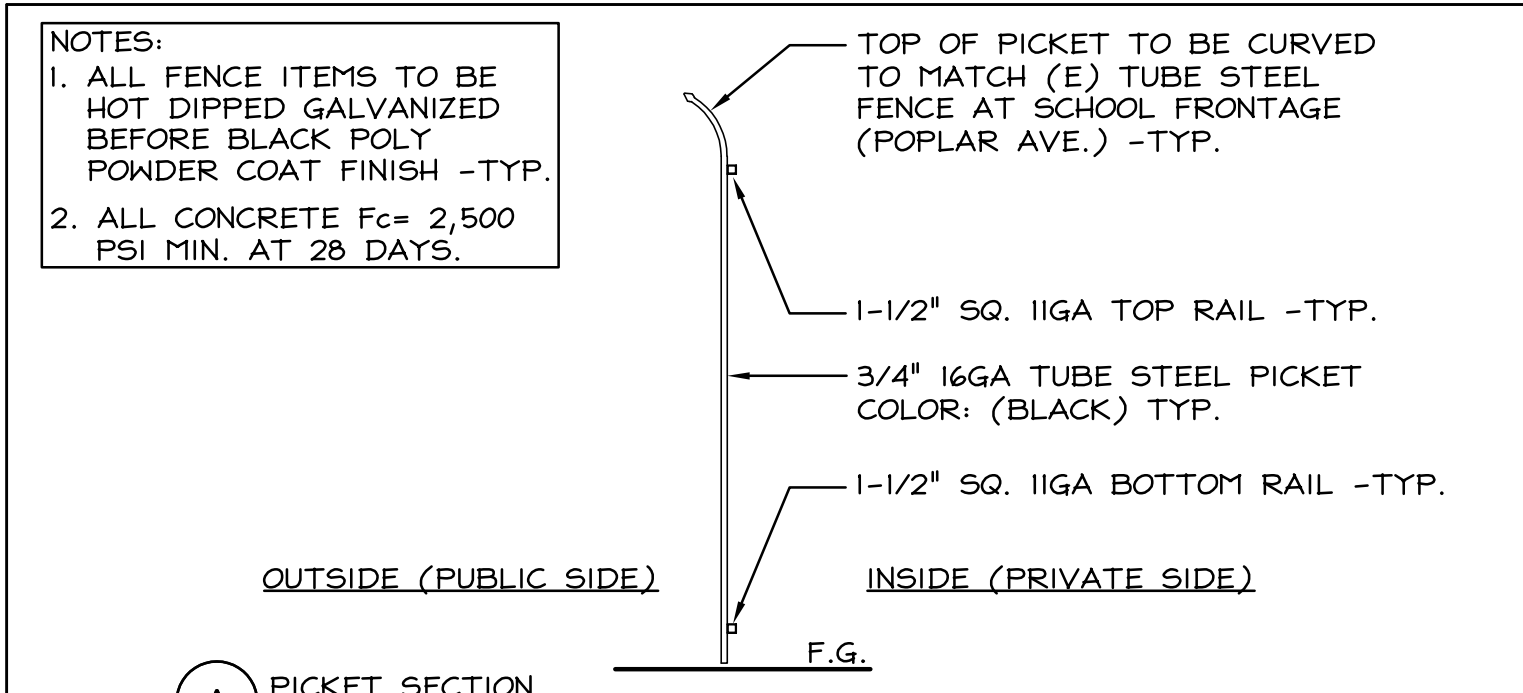
- PATH OF TRAVEL
- PROPERTY LINES OF PROJECT WITHIN SCOPE OF WORK



2 TUBE STEEL ROLLING GATE  
SCALE 1/4" = 1'-0"



- NOTES:
- 1. ALL FENCE ITEMS TO BE HOT DIPPED GALVANIZED BEFORE BLACK POLY POWDER COAT FINISH -TYP.
  - 2. ALL CONCRETE  $F_c = 2,500$  PSI MIN. AT 28 DAYS.



3 TUBE STEEL FENCE -TYP. PANEL  
SCALE 1/2" = 1'-0"

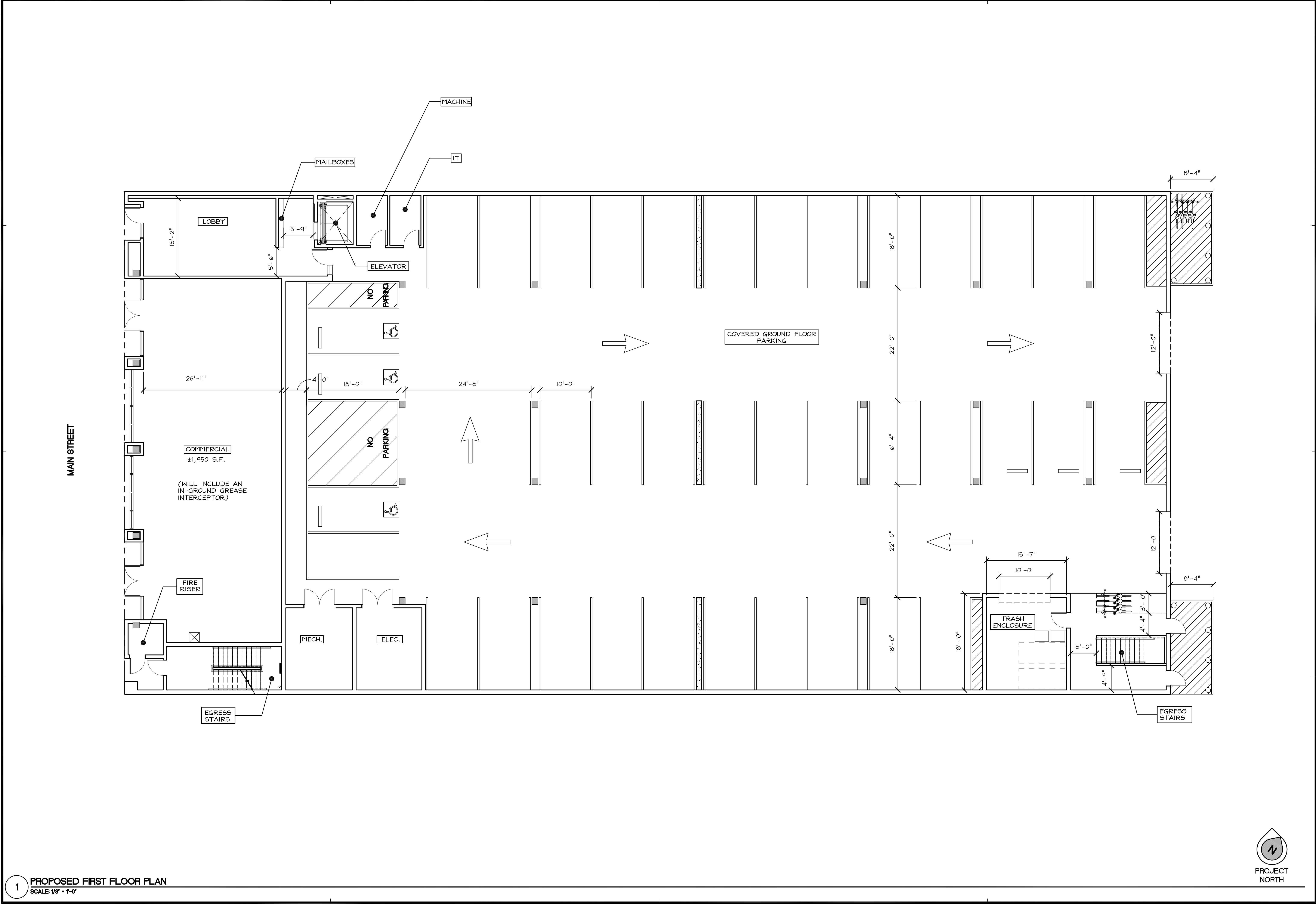
REVISIONS	DATE	BY	DESCRIPTION
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3	11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

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235 MONTEREY STREET, SUITE B, SALINAS, CA 93901  
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OVERALL SITE PLAN  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT  
800 E. LAKE AVE.  
WATSONVILLE, CA 95076

DATE	11/12/20
SCALE	A5 NOTED
DRAWN	G-J/11M
JOB	19019
SHEET	A11
OF	SHEETS



1 PROPOSED FIRST FLOOR PLAN  
SCALE: 1/8" = 1'-0"



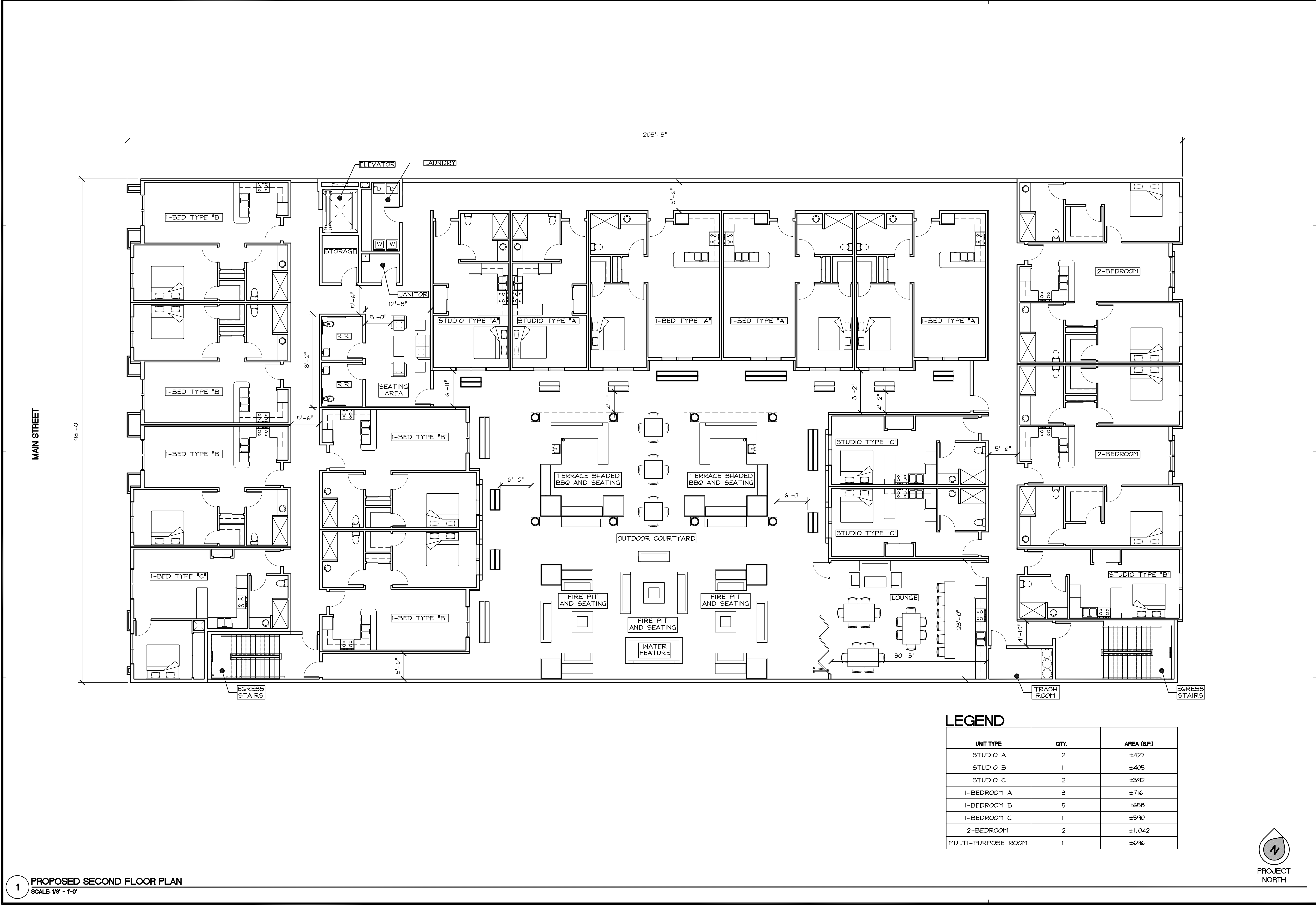
REVISIONS	DATE	BY	DESCRIPTION
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2	08/25/20	IT	2ND DESIGN REVIEW SUBMITTAL
3	11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

**PROPOSED FIRST FLOOR PLAN**  
THE RESIDENCE AT 558 MAIN  
**PACIFIC COAST DEVELOPMENT**  
800 E. LAKE AVE.  
WATSONVILLE, CA 95076

**Belli** architectural group  
Belli Architectural Group 831.424.4620  
235 MONTEREY STREET, SUITE B, SALINAS, CA 93901  
BELLIGROUP.COM

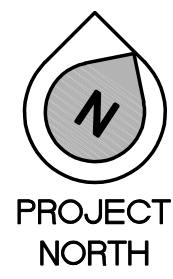
DATE: 11/12/20  
SCALE: AS NOTED  
DRAWN: G-J/11M  
JOB: 19019  
SHEET: A2.1  
OF SHEETS





1 PROPOSED SECOND FLOOR PLAN  
SCALE: 1/8" = 1'-0"

LEGEND		
UNIT TYPE	QTY.	AREA (SF.)
STUDIO A	2	±427
STUDIO B	1	±405
STUDIO C	2	±392
1-BEDROOM A	3	±716
1-BEDROOM B	5	±658
1-BEDROOM C	1	±590
2-BEDROOM	2	±1,042
MULTI-PURPOSE ROOM	1	±696



PROPOSED SECOND FLOOR PLAN  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT  
800 E. LAKE AVE.  
WATSONVILLE, CA 95076

11/12/20  
A5 NOTED  
G.J./IM  
19019  
A2.2

DATE  
SCALE  
DRAWN  
JOB  
SHEET

REVISIONS

DATE	BY	DESCRIPTION
10/31/19	IT	1ST DESIGN REVIEW SUBMITTAL
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11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

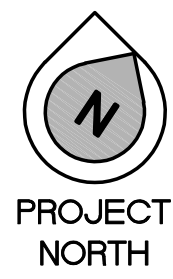
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1ST DESIGN REVIEW SUBMITTAL  
2ND DESIGN REVIEW SUBMITTAL  
3RD DESIGN REVIEW SUBMITTAL

OF SHEETS



1 PROPOSED THIRD - FOURTH FLOOR PLANS  
SCALE: 1/8" = 1'-0"



PROPOSED THIRD-FOURTH FLOOR PLANS  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT  
800 E. LAKE AVE.  
WATSONVILLE, CA 95076

**ped**

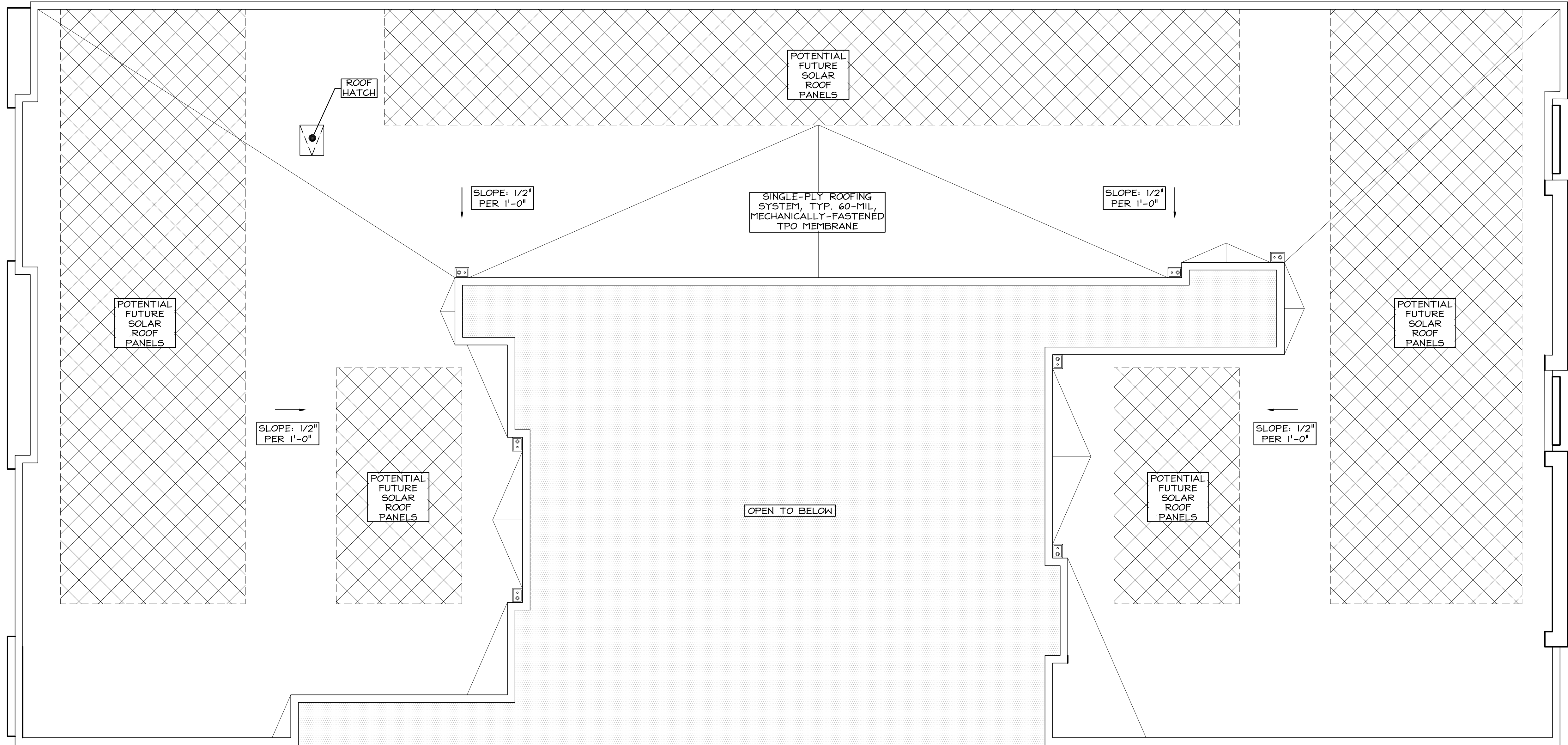
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SCALE A5 NOTED  
DRAWN G-J/11M  
JOB 19019  
SHEET A2.3  
OF SHEETS

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REVISIONS	DATE	BY	DESCRIPTION
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2	08/25/20	IT	2ND DESIGN REVIEW SUBMITTAL
3	11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL



MAIN STREET



**SOLAR PANEL REQUIREMENTS**

SOLAR AREAS SHALL HAVE NO DIMENSIONS LESS THAN 5 FEET.

SOLAR ZONES SHALL COMPLY WITH ACCESS, PATHWAY, SMOKE VENTILATION AND SPACING REQUIREMENTS

ROOF AREA      BUILDING ROOF AREA:      14,366 S.F.

SOLAR ZONE AREA:      REQUIRED:      15% MIN. OF TOTAL ROOF S.F. = 2,155 S.F.  
PROPOSED:      6,637 S.F. (46%)



11/12/20

A5 NOTED

G-J/11M

19019

A2.4

DATE

SCALE

DRAWN

JOB

SHEET

PROPOSED ROOF PLAN

THE RESIDENCE AT 558 MAIN

PACIFIC COAST DEVELOPMENT

800 E. LAKE AVE.

WATSONVILLE, CA 95076

REVISIONS

DATE	BY	DESCRIPTION
10/31/19	IT	1ST DESIGN REVIEW SUBMITTAL
08/25/20	IT	2ND DESIGN REVIEW SUBMITTAL
11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

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10/31/19

08/25/20

11/12/20

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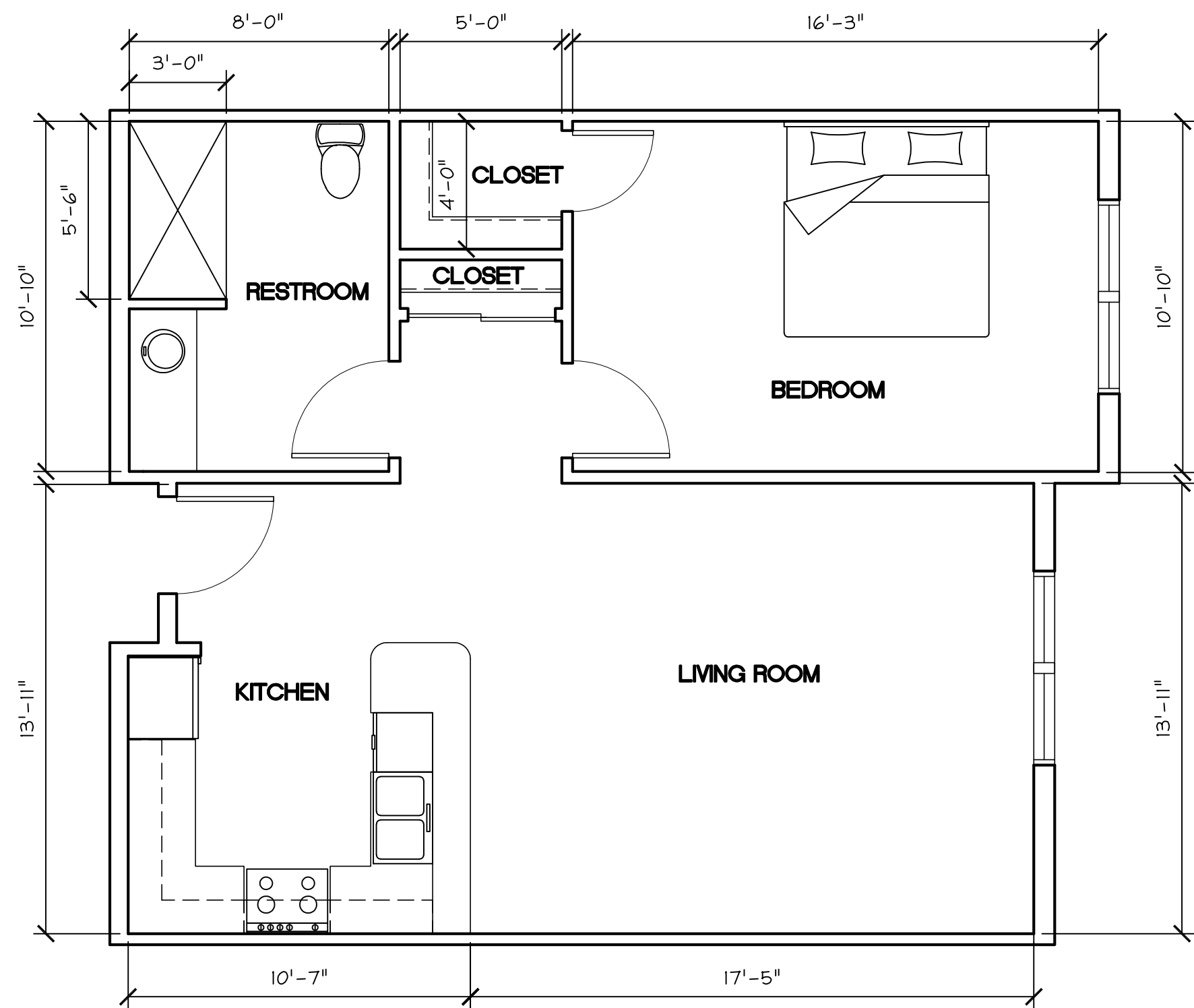
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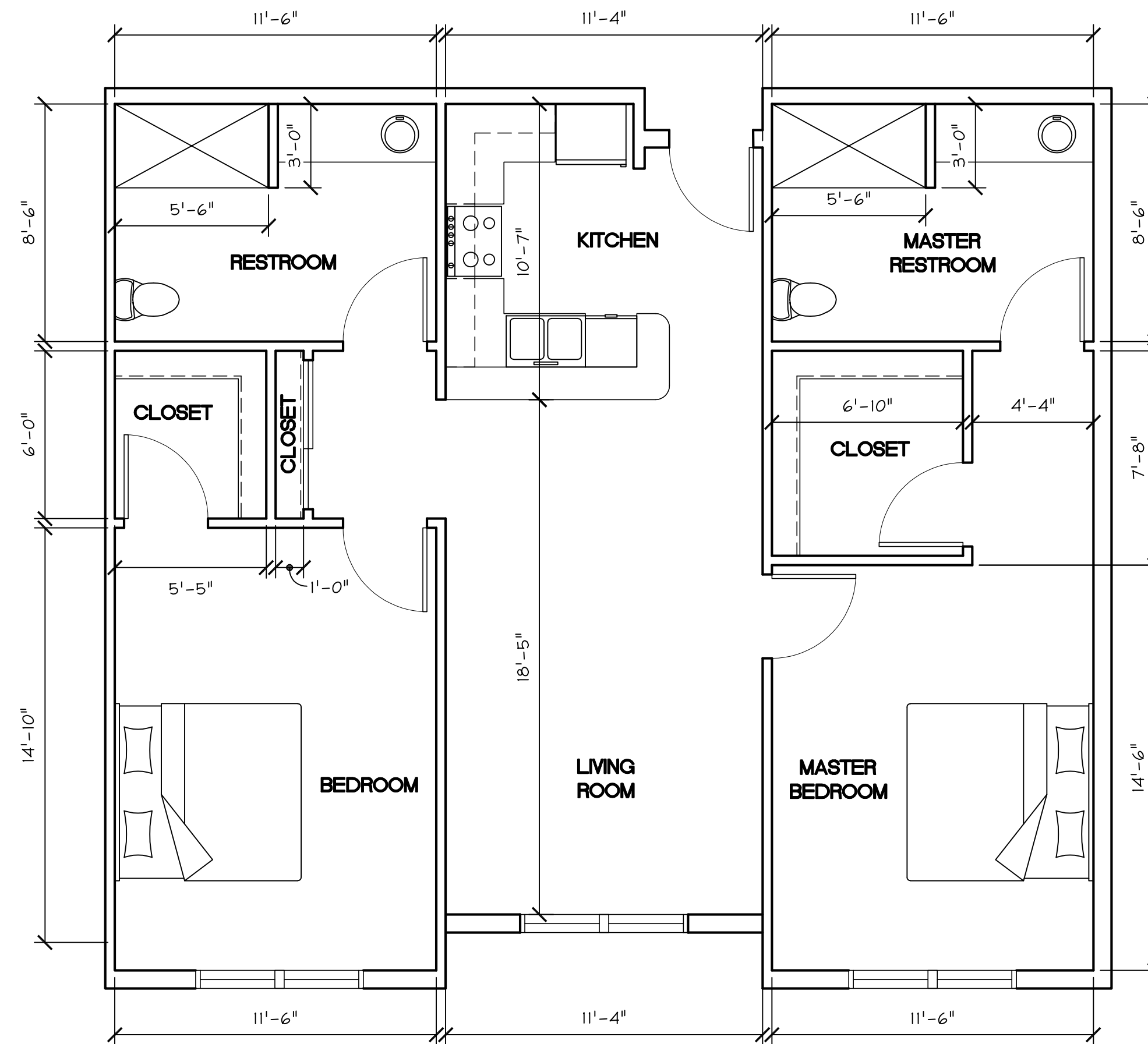
11/12/20

A2.4

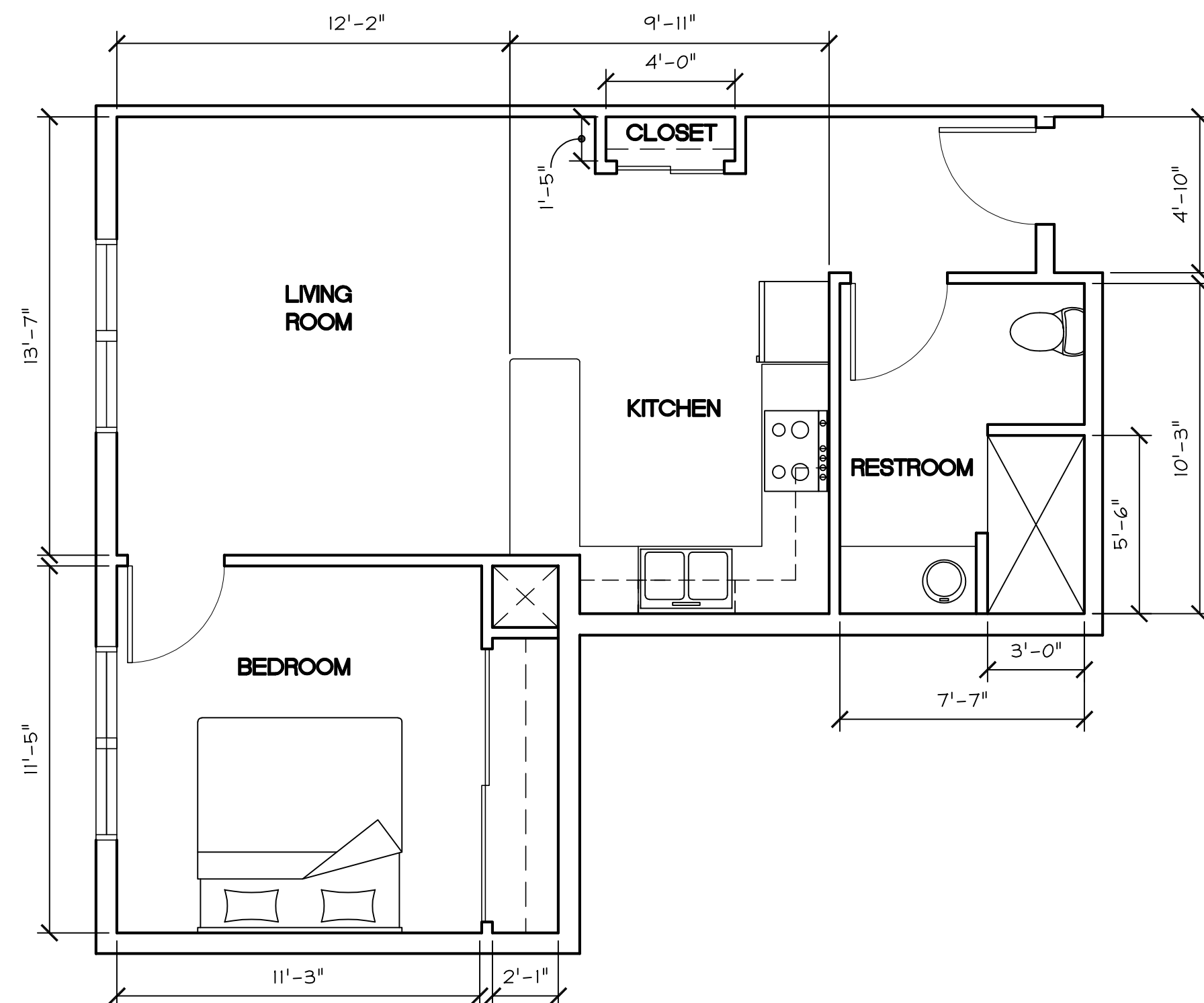
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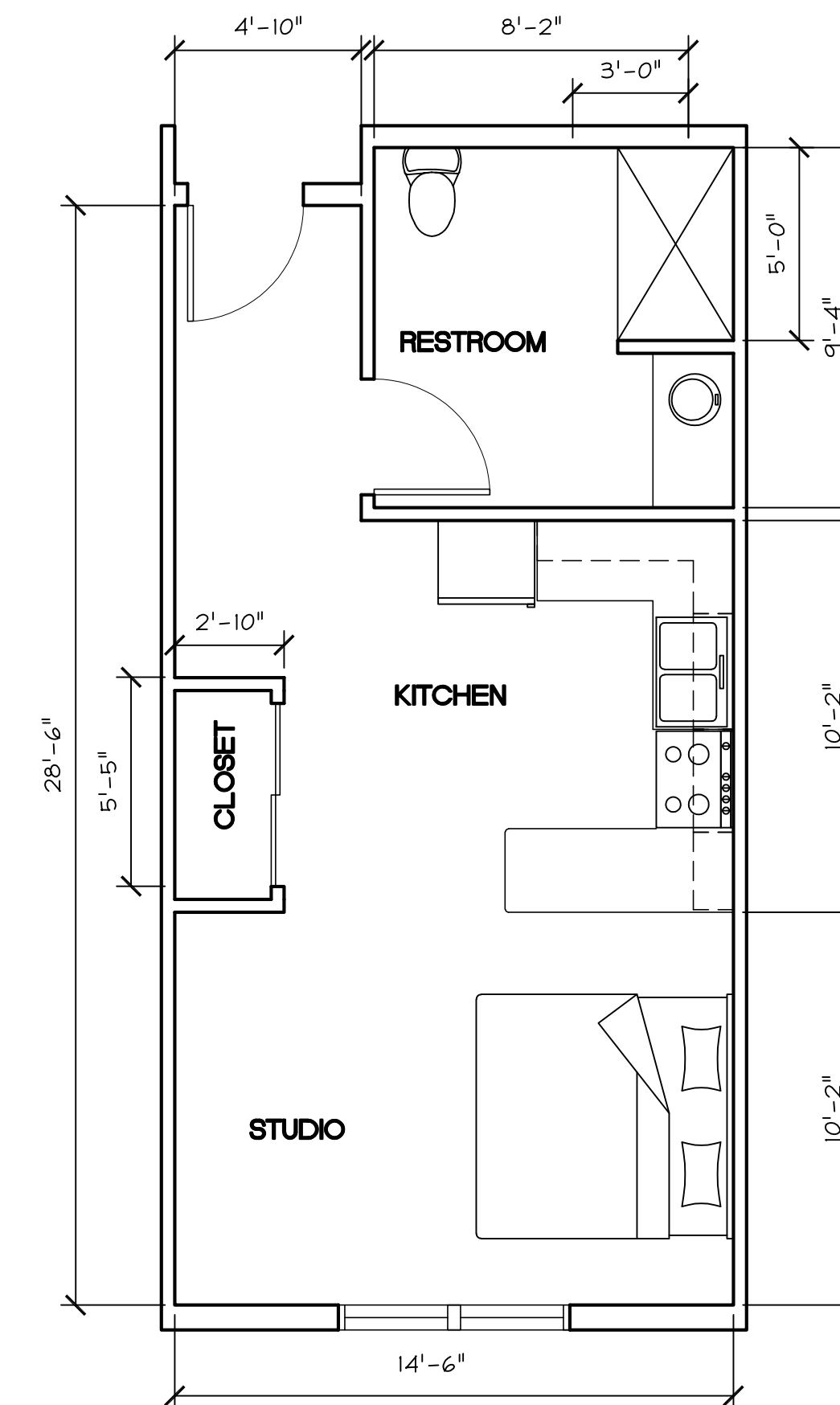
1 1 BEDROOM UNIT TYPE A (B - SIMILAR)  
SCALE: 1/4" = 1'-0"



2 2 BEDROOM UNIT  
SCALE: 1/4" = 1'-0"



3 1 BEDROOM UNIT TYPE C  
SCALE: 1/4" = 1'-0"



4 STUDIO UNIT TYPE A (B/C - SIMILAR)  
SCALE: 1/4" = 1'-0"

REVISIONS	DATE	BY	DESCRIPTION
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2	08/25/20	IT	2ND DESIGN REVIEW SUBMITTAL
3	11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

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ENLARGED UNIT PLANS  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT  
800 E. LAKE AVE.  
WATSONVILLE, CA 95076

DATE	11/12/20
SCALE	1/4" = 1'-0"
DRAWN	G-J/11M
JOB	19019
SHEET	A2.5

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1 FRONT ELEVATION (MAIN STREET)  
1/8" = 1'-0"



2 SIDE ELEVATION (OPEN TERRACE)  
1/8" = 1'-0"



REVISIONS	DATE	BY	DESCRIPTION
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3	11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

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EXTERIOR ELEVATIONS  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT  
800 E. LAKE AVE.  
WATSONVILLE, CA 95076

DATE: 11/12/20  
SCALE: 1/4" = 1'-0"  
DRAWN: G-J/11M  
JOB: 19019  
SHEET: A4.1  
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1 PRELIMINARY FRONT PERSPECTIVE  
NTS



2 PRELIMINARY REAR PERSPECTIVE  
NTS



3 PRELIMINARY OVERALL PERSPECTIVE  
NTS



4 PRELIMINARY OVERALL PERSPECTIVE  
NTS

REVISIONS	DATE	BY	DESCRIPTION
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3	11/12/20	IT	3RD DESIGN REVIEW SUBMITTAL

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EXTERIOR PERSPECTIVES  
THE RESIDENCE AT 558 MAIN  
PACIFIC COAST DEVELOPMENT  
800 E LAKE AVE  
WATSONVILLE, CA 95076

DATE 11/12/20  
SCALE 1/4" = 1'-0"  
DRAWN G-J/11M  
JOB 19019  
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**BUILDING CROSS-SECTIONS**

THE RESIDENCE AT 558 MAIN

**PACIFIC COAST DEVELOPMENT**

800 E. LAKE AVE.  
WATSONVILLE, CA 95076

DATE	11/12/20
SCALE	AS NOTED
DRAWN	GJ/IM
JOB	19019
SHEET	A7.1
	SHEETS

Landscape Notes - Ground Floor

- 1) Final construction plans to included detailed drip irrigation plan that follows WELo requirements
- 2) Exact location of plants on site to be adjusted so as to best coordinate with irrigation locations, lights, drainage features, and swales
- 3) Use 3 inch deep mulch in all shrub and ground cover planting areas. Provide owner with different mulch samples and prices including Redwood Sawdust or dark brown mahogany colored Wonder Mulch from Vision Recycling. Bid the Wonder Mulch. Pick a mulch that will not float or plug up drains or overflows when some of the area floods.
- 4) Install plants for all plant circles shown on the plan even if they aren't labeled. Call for clarification. For bidding purposes, if no one is available to answer questions, assume that any plant circle scaled less than 8' wide is 5 gal. size and any circle scaled larger is 24" box size
- 5) The plan is schematic. Don't install plants too close to edges of paving or buildings. Be sure plants are not blocking sprinkler spray excessively. Keep valves and quick couplers away from trees.
- 6) See specs. concerning soil amendamenits and fertilizer. For bidding purposes until the soil management test/report is done, bid 6 cubic yards of nitrilized redwood sawdust or 8H Super Humus Compost and 16 pounds of 12-12-12 fertilizer tilled into the top 6" to 8" of soil after ripping soil to 12" deep, except under existing trees or on steep slopes.
- 7) Don't trench too close to structures without getting an OK from the building architect or structural engineer.
- 8) Prior to signing contract for work or ordering plants check with landscape architect to make sure you have the current drawings and to make sure there aren't any plant changes
- 9) After grading operations are done and the soil that the plants will be installed in is in place a laboratory soils test and analysis of the soil must be submitted to the Landscape Architect with site specific recommendations for soils amendmenits and fertilizers. The soil test analysis and recommendations for soil amendmenits and fertilizers is to be done by the soil lab and the landscape architect will review it. See the CA state MWELo for more details concerning the soil fertility testing.
- 10) Bench in dog park to be Wabash Courtyard with back and diamond mesh - the same as the 2nd floor patio/garden area. Use aWabash Urbanscape "E" style 32 gal. trash receptical with solid dome lid Get owner approval of benches, trash receptical, concrete finish, fence, and artificial lawn prior to finalizing bids and installation.

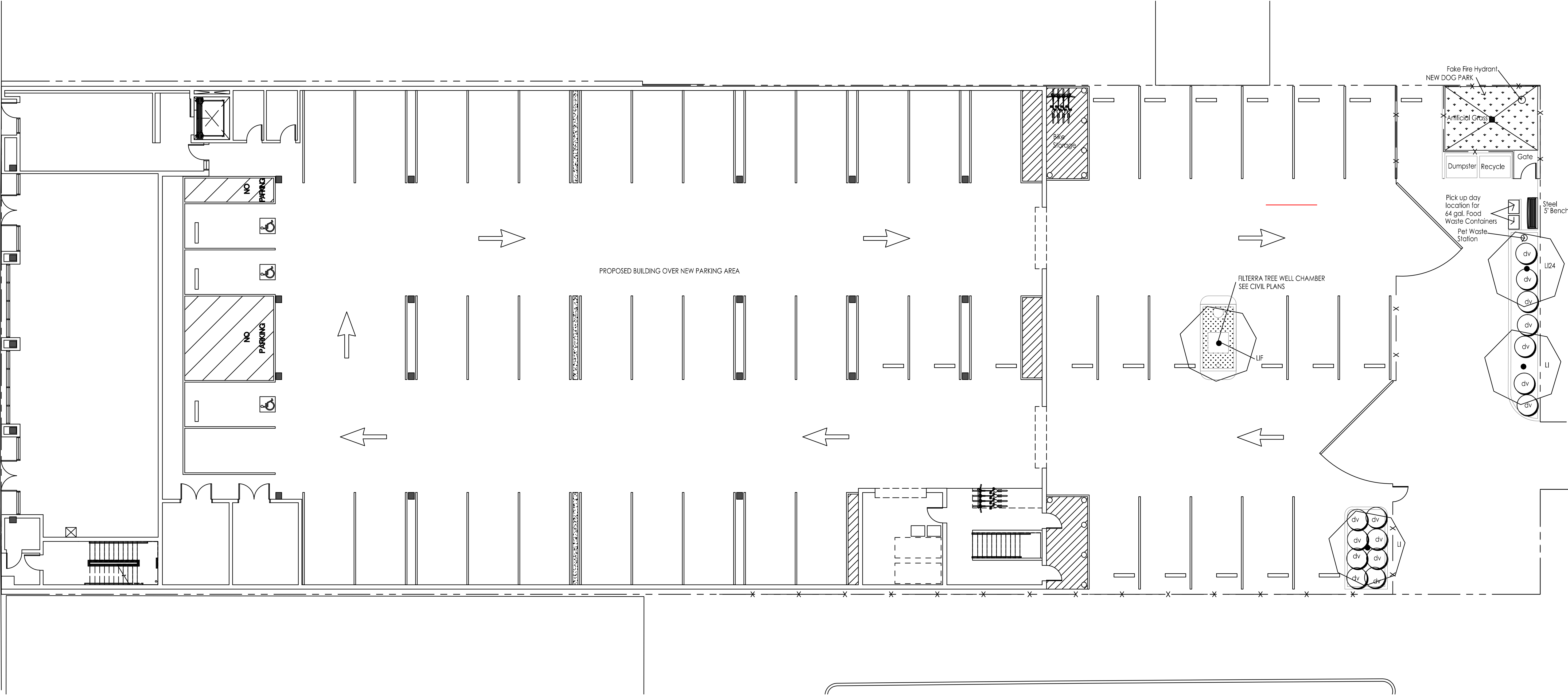
Plant Legend

KEY	QTY	SIZE	WATER USE	BOTANICAL NAME	COMMON NAME
TREES	TREES				
LI	3	15	LOW	Lagerstroemia Tuscaraora	Crape Myrtle
LI24	2	24" box	LOW	Lagerstroemia Tuscaraora	Crape Myrtle
LI	1	15	LOW	Lagerstroemia Tuscaraora	Crape Myrtle

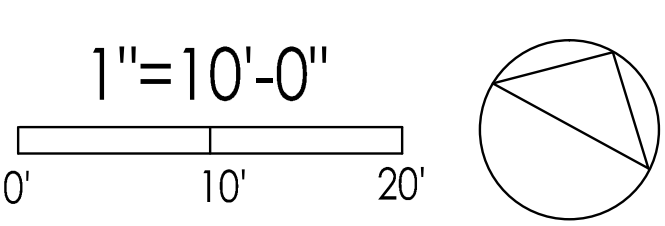
At least 25% of trees must be 24" box - min 4" spread with min. 1" caliper trunk

GROUND COVERS and SUCCULENTS					
dv	1	LOW	Diets iridioides		Fortnight Lily
NC	5	LOW	Nandina Gulf Stream		Heavenly Bamboo

At least 25% of shrubs/vines must be 5 gal. size.



Ground Floor Planting Plan



REVISIONS

DATE	BY	DESCRIPTION
6/17/19	IM	INITIAL SD MEETING
07/29/20	IM	2ND DESIGN REVIEW SUBMITAL
11/12/20	GL	3RD DESIGN REVIEW SUBMITAL

GREGORY LEWIS LANDSCAPE ARCHITECT #2176

736 Park Way Santa Cruz, CA 95065 (831) 359-0960

lewislandscape@sbcglobal.net

LEGISLATIVE SEAL

LEGISLATIVE SEAL

LEGISLATIVE SEAL

PROPOSED SECOND FLOOR PLAN

THE RESIDENCE AT 558 MAIN

PACIFIC COAST DEVELOPMENT

800 E. LAKE AVE.

WALTONVILLE, CA 95076

DATE	11/10/20
SCALE	AS NOTED
DRAWN	GL
JOB	19019
SHEET	L1

OF SHEETS



Planter Notes and Legend

A) Planters to be obtained from:  
Tournesol Siteworks  
Phone (800) 542-2282  
tournesolsiteworks.com

An alternative planter source might be the Chandler Company  
(714)979-4212 www.thechandlercompany.com

Use Wilshire Rectangles and Squares GFRC or equal  
Color and texture to be selected by the Building Architect and Owner  
Drainage system is drain holes on bottom of planters and through pervious pavers or into nearby drains  
Method of irrigation is drip  
See this plan for location, quantity and length of planters.  
Standard Planter lengths have been used and shown on the plan.  
Planter A is 120 Long x 24 Wide x 24 Tall w/lattice  
Planter B is 120 Long x 24 Wide x 24 Tall  
Planter C is 96 Long x 24 Wide x 24 Tall w/lattice  
Planter D is 96 Long x 24 Wide x 24 Tall  
Planter E is 72 Long x 24 Wide x 24 Tall w/lattice  
Planter F is 72 Long x 24 Wide x 24 Tall  
Planter G is 48 Long x 48 Wide x 36 Tall  
Planter H is 48 Long x 24 Wide x 24 Tall w/lattice  
Planter I is 48 Long x 24 Wide x 24 Tall  
Verify the dimensions of the planters and the way they will fit on the terraces prior to ordering.

B) Use drip irrigation

C) Use a planter soil mixture of 1/2 sand, 1/2 nitrilized redwood sawdust, and 1/2 peat moss. Do not use topsoil blend in the planters. Install Enkadrain or Miradrain material on bottom with filter cloth over it for positive drainage along bottom to drain holes

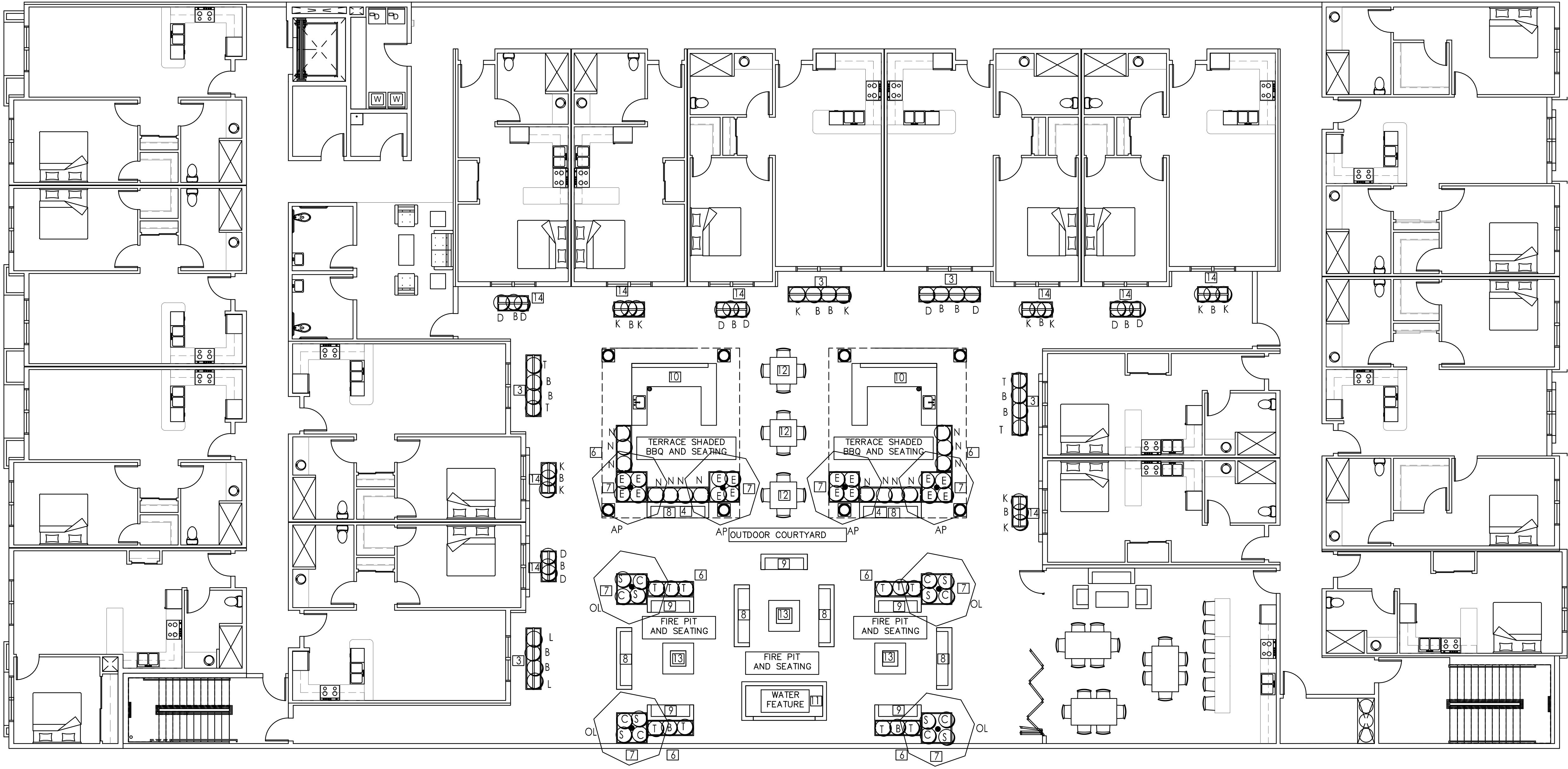
D) Benches to be Wabash Courtyard with backs and diamond mesh. Verify bench choice with owner prior to bidding and prior to ordering benches. Tables and chairs to be Wabash Sullivan style with diamond mesh. Verify with owner prior to bidding and ordering.

- 8 10 foot long bench with back
- 9 8 foot long bench with back
- 10 Grill, counters, and sink - finishes and construction to be determined by owner
- 11 Recirculating fountain to be designed and built by owner
- 12 Table with 4 chairs - see bench and table selection above - final selection by owner
- 13 Fire Pit to be selected or built by owner

Plant Legend

KEY	QTY	SIZE	WATER USE	BOTANICAL NAME	COMMON NAME
TREES	TREES				
AP	4	15	MED	Acer palmatum Sango Kaku	Japanese Maple
OL	4	24"	LOW	Olive Swan Hill	Fruitless Olive
At least 25% of trees must be 24" box - min 4' spread with min. 1" caliper trunk					
GROUND COVERS AND SUCCULENTS					
X	5	LOW		Cordyline Design a Line or Cherry Sensation or Electric Pink	
D	2	LOW		Aeonium Dinner Plate or Platter	Succulent
K	2	LOW		Kalancoe	Succulent
E	2	LOW		Echeveria Morning Glow or Afterglow	Succulent
C	1	LOW		Lantana montevidensis	Rock Purslane
M	1	LOW		Senecio mandraliscae	Succulent
S	1	LOW		Stachys byzantina	Lamb's Ears
T	1	LOW		Teucrium chamaedrys	
N	5	LOW		Nandina Gulf Stream	Heavenly Bamboo

VINES  
B 28 5 LOW Bougainvillea Purple Queen or similar - tie to lattice  
Bougainvillea roots are highly sensitive to disturbance when transplanting so be careful  
At least 25% of shrubs/vines must be 5 gal. size.



2nd Floor Planting Plan 1/8"=1'-0"

REVISIONS

DATE	BY	DESCRIPTION
6/11/19	IM	INITIAL SD MEETING
07/29/20	IM	2ND DESIGN REVIEW SUBMITTAL
11/12/20	GL	3RD DESIGN REVIEW SUBMITTAL

GREGORY LEWIS LANDSCAPE ARCHITECT #2176

736 Park Way Santa Cruz, CA 95065 (831) 359-0960

lewislandscape@sbcglobal.net

PROPOSED SECOND FLOOR PLAN

THE RESIDENCE AT 558 MAIN

PACIFIC COAST DEVELOPMENT

800 E. LAKE AVE.

WILSONVILLE, CA 95076

DATE

11/10/20

SCALE

AS NOTED

DRAWN

GL

JOB

19019

SHEET

L2

OF

SHEETS

LEGISLATIVE LANDSCAPE ARCHITECT

No. 2176

GREGORY LEWIS

11/12/20

STATE OF CALIFORNIA

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November 19, 2020

Justin Meek, AICP, Principal Planner  
Community Development Department  
City of Watsonville  
275 Main Street  
Watsonville, CA. 95076

Re: The Residence at 558 Main Mixed-Use Project (PP2019-432) Density Bonus Housing Plan

Justin:

Pacific Coast Development is well underway with the entitlement process for our newest project known as The Residence at 558 Main. PCD originally submitted the Design Review and Environmental Assessment Application on 11-5-2019 for a five story 74 unit mixed-use project. PCD received an incomplete application response on 12-20-2019 citing twenty-five areas requiring attention. During the first half of 2020 PCD and the project team continued to work with City staff to address the original 25 issues raised from the original submittal. Throughout the first six months of 2020 PCD and the project team re-designed the project to reduce the overall size and scope. The re-designed project is now a four story 50 unit mixed-use project. On 8-21-2020 PCD re-submitted and received another incomplete letter on 9-23-2020 noting four items requiring attention. Over the past forty-five days PCD and the project team have worked with City staff to address and resolve the remaining items. PCD is re-submitting the application and including a Density Bonus Housing Plan for the project pursuant to [WMC Chapter 14-47](#). PCD's application and plan is being submitted in accordance with [WMC Chapter 14-47.130](#). The Residence at 558 Main is a mixed-use project and therefore is not required to include financial analysis pursuant to [WMC 14-47.130 \(a\) \(3\)](#).

The Residence at 558 Main project will identify and detail any Density Bonus, incentive, concession, waiver, modification or revised parking standard requested pursuant to [WMC Chapter 14-47 Section 130 \(a\)](#). The aforementioned provisions of the Density Bonus provide the opportunity to increase the number of rental units and provide affordable rental homes for Section 8, very low, lower income and moderate income households.

Our original application was submitted on November 5, 2019 with several design changes to the project over the past year. The changes to the project, which requires incentives from the Density Bonus Law as well as waivers and concessions, have been developed in collaboration with our development team and City staff. The State's Density Bonus Law provides for reductions in development standards, other incentives, concessions and waivers. The revised development proposal will now include a total of 50 units including 10 units of affordable housing owned and operated by Pacific Coast Development.



The affordable units at The Residence will provide an opportunity to increase the number of affordable homes in the City of Watsonville. The following are the relevant guidelines to be included in the project's Density Bonus Housing Plan:

***A. Site plan showing total number of units, number and location of target units, and number and location of proposed density bonus units.***

The residential development proposed by Pacific Coast Development provides for 20% of the total units to be affordable units serving low, very low and extremely low income households. The proposed development is located at 558 Main Street (APN #018-241-20). The Residence at 558 Main will provide Fifty (50) housing units in a four story mixed-use building. The ten affordable housing units will be located throughout the project and will be constructed using the same building materials, appliances, finishes and quality of construction of the market rate rental units. The Residence will not be adding any density bonus units to the project based on the site constraints.

**B. A description of any requested density bonuses, incentives, concessions, waivers or modifications of development standards, modified parking standards, or commercial development bonus.**

**Requested Concessions**

Per California Density Bonus Law, PCD is requesting two concessions for the project as currently designed. As a mixed-use project inclusive of 20% affordable housing units we meet the criteria of "at least 20 percent of the total units for lower income households". The first concession is a modification of the development standards relating to yard storage and the second concession is a variance to use an off-site parking lot within 150 feet of the site for commercial parking as per [WMC Chapter 14-17 Section 106 \(b\)](#).

**Concession #1: Yard Storage for each unit concession**

Section III.C.4 of the Residential Development Standards requires Sole Residential Developments to provide a minimum of 200 cubic-feet of storage per residential unit. The Residence is a mixed-use project and therefore not considered a Sole Residential Development. The Residence is located in the Central Commercial Core Area District CCA and therefore falls under [WMC Chapter 14-16 Section 1003\(e\)](#) referring to mixed-use projects. The past five projects in the CCA have not provided and have not been required to provide yard storage. Although the requirement is disputed the most appropriate resolution is to request said concession.

The Residence Project site is unique in several ways that constrain our ability to meet this Residential Development Standard. The site is limited to 30,000 sq.ft. and cannot provide ample parking and yard storage to be able to build fifty units. The ability to build





fifty units will further allow ten affordable units to be included in the project. Requiring the yard storage for a fifty unit mixed-use infill project would render the project financially unfeasible. Based on the above the applicant is requesting the concession for the yard storage requirement.

### **Concession #2: Off-street Commercial Parking Requirement**

[WMC Chapter 14-17 Section 106 \(b\)](#) allows for off-street parking requirements to be satisfied if “The required parking for Commercial Districts is permanently provided within 150 feet of the site”. Several City Public Parking Lots are within 150 feet of the subject site. City Public Parking Lots #2, 4, 7 & 15 are all within 150 feet of the site as per the below map. The Residence is requesting a concession to allow for a variance of the commercial parking requirement as authorized under [WMC Chapter 14-17 Section 106 \(d\)](#). Section 106 (d) specifically states “Existing or proposed commercial buildings located in the Central Commercial District which do not meet the current parking requirements for new businesses may request a variance from the Redevelopment Agency or its successor agency.” Since the Redevelopment Agency no longer exists the CDD has the ability to have the successor agency waive this requirement. The Residence at 558 Main will be a 50 unit mixed-use housing project offering affordable housing for Section 8, very low, lower income and moderate income households. The Residence will provide an improved quality of life and great amenities for individuals and households.





**C. Summary table showing the maximum number of units permitted by the zoning and general plan excluding any density bonus units, affordable units qualifying for the project for a density bonus, level of affordability of all affordable units, proposed bonus percentage, number of density bonus units proposed, and total number of dwelling units proposed on the site.**

The Residence project is not applying for density bonus units and as such Section C is not applicable.

**D. Tenure (rental versus for-sale) of target units and proposals for ensuring affordability.**

The Residence project will provide rental units split 80/20 between market rate and affordable units. The 20% affordable rental housing units will serve Section 8, very low, lower income and moderate income households. The affordability restrictions for the project will be in place for at least 55 years, allowing for low-income households to access affordable housing for the foreseeable future in the Historic Downtown.

**E. A description of all dwelling units existing on the site in the five-year period preceding the date of submittal of the application and identification of any units rented in the five-year period. If dwelling units on the site are currently rented, income and household size, if known, of all residents of currently occupied units. If any dwelling units on the site were rented in the five-year period but are not currently rented, the income and household size, if known, of residents occupying dwelling units when the site contained the maximum number of dwelling units.**

The Residence is a redevelopment project formerly operating as a commercial bank. The bank building was built in 1968. The building was razed in April of 2019 in preparation of the mixed-use development project known as The Residence at 558 Main and as such Section E is not applicable.

**F. Description of any recorded covenant, ordinance, or law applicable to the site that restricted rents to levels affordable to very low or lower income households in the five-year period preceding the date of submittal of the application.**

There are currently no recorded covenants, ordinances, or laws applicable to the site that restrict or have restricted rents to levels affordable to very low or lower income households within the last five years. The subject development site was previously a commercial bank.





**G. All incentives and concessions except those listed in Section 24.16.255(2), a pro forma demonstrating that the requested incentives and concessions result in identifiable and actual cost reductions and evidence that the cost reduction allows the applicant to provide affordable rents or affordable ownership costs. If a mixed-use building or project is proposed as an incentive, the applicant shall also provide evidence that nonresidential land uses will reduce the cost of the residential project and that the nonresidential land uses are compatible with the residential project and the existing or planned surrounding development.**

The two requested concessions appear to be included in Section 24.16.255(2) as well as not being required for mixed-use projects pursuant to [WMC 14-47.130 \(a\)\(3\)](#). The Residence will not be requesting concessions requiring the financial pro-forma and as such Section G regarding financial pro-forma is not applicable.

In regards to compatibility Pacific Coast Development has been operating several properties in the Historic Downtown for over twenty-five years. One of the most recent projects is The Terrace at 445 Main project. PCD has operated The Terrace for the past 2 ½ years and The Terrace is a highly regarded neighbor by the surrounding retail businesses as well as the other residential apartment buildings and single family residences. The Terrace provides fifty-four residential housing units helping reduce the demand on our local housing market. The Terrace is a committed member of our local community supporting Police, Fire and local non-profits.

**H. Any pro forma submitted to comply with paragraph (2) (f) of this section may not include the lost opportunity cost of any affordable units (i.e., the revenue that would have been generated had the units been rented or sold at market rate) and may include as an additional cost only those additional expenses that are required solely because of the proposed construction of the affordable units.**

The Residence at 558 Main is a mixed-use project and therefore is not required to include financial analysis pursuant to [WMC 14-47.130 \(a\) \(3\)](#) and as such Section H is not applicable.

**I. For concessions or modifications of development standards: the application shall provide evidence that each development standard for which the waiver is requested will have the effect of physically precluding the construction of the housing development at the densities or with the incentives or concessions permitted by this Part 3.**

#### **Concession #1 Yard Storage**

The requested waiver to eliminate the yard storage requirement is a critical component to the development of the project. The elimination of yard storage allows for the utilization of 10,000 cubic feet to be used to facilitate parking and building mechanical systems. Requiring the yard storage would render the project financially unfeasible. The stated 10,000 cubic feet of yard storage would



require the development to use subterranean parking. Subterranean parking per parking spaces ranges between \$65,000 - \$90,000. The most recent estimate for forty-one parking spaces came in at \$3.2M equating to \$78,048 per parking space. Should the yard storage concession not be granted the project would not be able to be developed with fifty total rental units including ten affordable units to ease the demand on the local housing market. The Residential Development Standards are intended for Sole Residential projects in suburban areas not Downtown Urban infill projects. Requiring the yard storage is in direct conflict with past projects as well as the intent of Downtown Urban infill projects. The Residence is therefore requesting a concession for the yard storage requirement.

### **Concession #2 Off-street Commercial Parking Requirement**

The requested waiver to eliminate the Off-street Commercial Parking Requirement is another critical component to the development of the project. The waiver to eliminate the off-street commercial parking requirement is required to allow the project to proceed. Requiring the off-street commercial parking would render the project financially unfeasible. Requiring off-street commercial parking on-site would also require the development to use subterranean parking. Subterranean parking, as previously discussed, ranges between \$65,000 - \$90,000 per parking space. The most recent estimate for forty-one parking spaces came in at \$3.2M equating to \$78,048 per parking space. Should the off-street commercial parking requirement waiver not be granted the project would not be able to be developed with fifty total rental units including ten affordable units to ease the demand on the local housing market. Off-street commercial parking creates an undue burden on the development and renders the project infeasible and therefore The Residence is requesting a concession for the off-street commercial parking requirement.

**J. If a parking modification is requested, a table showing parking required by the zoning ordinance and proposed parking. If a parking reduction provided by Section 24.16.256.2 is requested, evidence that the project is eligible for the requested parking reduction.**

The Residence Project is not requesting a parking modification in addition to the parking standards identified in the Density Bonus section of [WMC 14-47 Section 110 \(f\)](#) and as such Section J is not applicable.

**K. In phased housing projects, for each construction phase, the affordable housing plan shall specify, at the same level of detail as the application for the housing development: the number, unit type, tenure, number of bedrooms and baths, approximate location, size, and design, construction and completion schedule of all affordable units, phasing of all other affordable units in relation to market rate units, marketing plan, and intended rent or sale price and basis for calculation.**



The Residence Project will not be a phased housing development and as such Section K is not applicable.

**L. If the affordable units will not be constructed concurrently with the market rate units, the affordable housing plan shall describe the proposed phasing and specify the security to be provided to the city to ensure that the affordable units will be constructed.**

The mixed-use project, including 50 residential units, will be constructed at the same time. The 10 affordable units will be constructed simultaneously with the market rate units and as such Section L is not applicable.

**M. If a density bonus or concession is requested for a land donation, the application shall show the location of the land to be dedicated and provide evidence that each of the findings included in Section 24.16.230 can be made.**

The Residence Project is not proposing a concession for a land donation and as such Section M is not applicable.

**N. If a density bonus or concession is requested for a child care center, the application shall show the location and square footage of the child care center and provide evidence that the each of the standards included in Section 24.16.235 has been met.**

Residence Project is not proposing a concession for a child care center and as such Section N is not applicable.

**O. If a density bonus or incentive is requested for a condominium conversion, the application shall provide evidence that all of the requirements found in Section 24.16.240 have been met.**

The Residence Project is not requesting a condominium conversion and as such Section O is not applicable.

**P. If a commercial development bonus is requested for a commercial development, the application shall include the proposed partnered housing agreement, the proposed commercial development bonus, and evidence that each of the standards included in Section 24.16.258 has been met.**

The Residence Project is not requesting a commercial development bonus and as such Section P is not applicable.



The Residence at 558 Main will be the second large scale mixed-use housing project in our Historic Downtown during the past five years. The community has and will continue to benefit greatly from the additional housing supply these two projects provide. The affordable and market rate rental units of The Residence help to address the significant housing shortage in our community and provide access to quality housing without economic barriers.

If you have any additional questions concerning The Residence at 558 Main Project and the Density Bonus Housing Plan, please contact our office directly at (831) 724-7504 or [bill@pacificcoastdevelopment.com](mailto:bill@pacificcoastdevelopment.com). We look forward to completing the entitlement process and proceeding with the construction phase to deliver quality affordable housing to our community!

Sincerely,

A handwritten signature in black ink, appearing to read 'Will JH', is written over a light blue horizontal line.

William J. Hansen, Developer  
PACIFIC COAST DEVELOPMENT

Resource Documents;

[Watsonville Municipal Code](#)

[WMC Chapter 14-16 District Regulations](#)

[WMC Chapter 14-17 Parking and Loading Facilities](#)

[WMC Chapter 14-47 Density Bonus](#)

[Guide to the California Density Bonus Law Meyers Nave](#)

[City of Santa Cruz Density Bonus Ordinance](#)

[State of California Government Code Section 65915](#)



<b>PCR Tier</b>	<b>Requirements</b>
<b>Tier 1</b>	<b>Performance Requirement 1 – Site Design &amp; Runoff Reduction</b>
Projects that create or replace 2,500 sq. ft. or more of impervious surface, including detached single-family home projects.	<p>Implement site design and runoff reduction measures:</p> <ul style="list-style-type: none"> <li>• Limit disturbance of creeks and natural drainage features.</li> <li>• Minimize compaction of highly permeable soils.</li> <li>• Limit clearing and grading of native vegetation to the minimum area necessary.</li> <li>• Minimize impervious surfaces.</li> <li>• Minimize runoff by incorporating permeable surfaces and directing runoff toward permeable areas or to rain barrels for reuse.</li> </ul>
<b>Tier 2</b>	<b>Performance Requirement 2 – Water Quality Treatment</b>
Projects, except detached single-family homes, with 5,000 sq. ft. or more of net impervious surface*. (Detached single-family home projects with 15,000 sq. ft. or more of net impervious surface*.)	<p>Tier 1 performance requirements, plus:</p> <ul style="list-style-type: none"> <li>• Treat stormwater runoff using one or more onsite systems, including low impact development treatment systems, biofiltration treatment systems, and non-retention based treatment systems.</li> <li>• Project applicant must submit a Stormwater Control Plan to the City that sufficiently demonstrates that the project design meets performance requires of PCR Tier 2.</li> </ul>
<b>Tier 3</b>	<b>Performance Requirement 3 – Runoff Retention</b>
Projects, except detached single-family homes, that create or replace 15,000 sq. ft. or more of impervious surface. (Detached single-family home projects with 15,000 sq. ft. or more of net impervious surface*.)	<p>Tier 2 performance requirements, plus:</p> <ul style="list-style-type: none"> <li>• Use low impact development standards to prevent offsite discharge of runoff from events up to the 95th percentile rainfall event.</li> <li>• Where technical infeasibility prevents full onsite retention requirements, retention-based stormwater control measures shall be provided for no less than 10 percent of the project's impervious surface area.</li> <li>• Project applicant must submit a Stormwater Control Plan to the City that sufficiently demonstrates that the project design meets performance requires of PCR Tier 3.</li> </ul>
<b>Tier 4</b>	<b>Performance Requirement 4 – Peak Management</b>
Projects that create and/or replace 22,500 sq. ft. or more of impervious surface in Watershed Management Zone 1.	<p>Tier 3 performance requirements, plus:</p> <ul style="list-style-type: none"> <li>• Control peak flows to not exceed pre-project flows for the 2-year through 10-year storm event.</li> <li>• Project applicant must submit a Stormwater Control Plan to the City that sufficiently demonstrates that the project design meets performance requires of PCR Tier 4.</li> <li>• Submit an Operations and Maintenance Plan for structural stormwater control measures to the City of Watsonville for review and approval prior to final construction sign-off.</li> </ul>

\* Net impervious area equals new and replaced impervious area minus the total pre-project-to-post-project reduction in impervious area.

Source: Ordinance No. 1299-14 (CM).

Stormwater Control Plan  
for  
The Residence at  
558 Main Street  
Watsonville, CA  
APN 018-241-20

Applicant:  
Pacific Coast Development  
800 East Lake Avenue  
Watsonville, CA 95076

Prepared by:  
Roper Engineering  
64 Penny Lane, Suite A  
Watsonville, CA 95076  
(831) 724-5300



A handwritten signature in black ink that reads "Jeff Roper". The signature is stylized with a large, looping "J" and a cursive "Roper".

Job No. 19016  
May 15, 2020

## **Project Information**

1. Project Location:  
The property is located at 558 Main Street, between Fifth Street and East Lake Avenue, APN 018-241-20
2. Applicant:  
Pacific Coast Development  
800 East Lake Avenue, Suite 9  
Watsonville, CA 95076
3. Project Phase: N/A
4. Project Type: Mixed Use, Commercial/Residential
5. Total Project Area: 0.69 ± acres
6. Total new and/or replaced impervious area: 28,929 sf
7. Stormwater Performance Requirements:  
This project is subject to performance requirements No.1 Site Design and Runoff Reduction, No. 2 Water Quality Treatment and No. 3 Runoff Retention. This project is exempt from performance requirement No. 4, Peak Management, since it is located in Water Management Zone 4.
8. City of Watsonville Water Management Zone: Zone 4



**8. Site Design and Runoff Reduction Measures  
(Performance Requirement No. 1)**

Design Strategies	Y/N	Description
Limit disturbance of creeks and natural drainage features.	N	No creeks or natural drainage features exist on the site.
Minimize compaction of highly permeable soils	N	No permeable soils exist on the site.
Limit clearing and grading of native vegetation at the site to a minimum area needed to build the project, allow access, and provide fire protection	N	The property has been previously developed. No native vegetation exists at the site.
Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state.	N	The property has been previously developed. No areas are in their natural undisturbed state.
Minimize stormwater runoff by implementing one or more of the following site design measures: 1. Direct roof runoff into cisterns or rain barrels for reuse 2. Direct roof runoff onto vegetated areas safely away from building foundations and footings, consistent with California building code 3. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas safely away from building foundations and footings, consistent with California building code 4. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas safely away from building foundations and footings, consistent with California building code 5. Construct bike lanes, driveways, uncovered parking lots, sidewalks, walkways, and patios with permeable surfaces	Y	The proposed project complies with design measures 2, 3 & 4. All runoff from new and replaced impervious surfaces is to be directed to the Filterra Bioretention System.

**9. Water Quality Treatment (Performance Requirement No. 2)**

Performance requirement No. 2 requires the project to treat stormwater runoff to reduce pollutant loads and concentrations using physical, biological, and chemical removal. Runoff from all new impervious surfaces will be directed to the Filterra vault, where water quality treatment will be facilitated. The system was sized using flow based design as represented on the Filterra Sizing Spreadsheet attached to this report.

10. **Runoff Retention (Performance Requirement No. 3)**

Performance Requirement No. 3 requires the project to prevent discharge from events up to the 95<sup>th</sup> percentile 24-hour rainfall event (1.3"). Due to the clay soils found at the site, the type D soil percolation rate of 0.25"/hr was utilized in the SCM Sizing Calculator attached.

The Central Coast Region Stormwater Control Measure Sizing Calculator was prepared for and adopted by the Regional Water Quality Control Board for the Central Coast Region.

11. **Site Assessment Measures**

Site Assessment Measure	Description
Site topography	The existing site has a relatively gentle slope towards Main Street.
Hydrologic features including contiguous natural areas, wetlands, watercourses, seeps, or springs	None.
Depth to seasonal high groundwater	Ground water was found 23 feet below grade. See geotechnical report.
Locations of groundwater wells used for drinking water	No wells exist in the vicinity.
Depth to an impervious layer such as bedrock	No bedrock is expected at site.
Presence of unique geology (e.g., karst)	No unique geology expected.
Geotechnical hazards	No unique geologic hazards expected.
Documented soil and/or groundwater contamination	No documented contamination.
Soil types and hydrologic soil groups	Clayey Sand, see geotechnical investigation.
Vegetative cover/trees	The existing site was previously developed. No native vegetation exists on the site. New landscaping will be provided.
Run-on characteristics (source and estimated runoff from offsite which discharges to the project area)	The site receives as small area of run-on from the adjacent properties to the north and east.
Existing drainage infrastructure for the site and nearby areas including the location of municipal storm drains	Existing storm drainage is intercepted by the storm drain system in Main Street.
Structures including retaining walls	The site is currently vacant. A bank building was recently removed.
Utilities	Existing utilities servicing the property will be abandoned. New utilities will be constructed. See

	Utility Plan.
Easements	PG&E and access easements exist on the property.
Covenants	Property owner will be responsible for maintenance of the stormwater management system.
Zoning/Land Use	Current zoning is CCA – Central Commercial Core Area
Setbacks	CCA setback requirements
Open space requirements	No open space requirements
Other pertinent overlay(s)	No other pertinent overlays

## 12. Site Design Measures

Design Measure	Description
Define the development envelope and protected areas, identifying areas that are most suitable for development and areas to be left undisturbed	Project site previously developed. No areas to be left undisturbed.
Conserve natural areas, including existing trees, other vegetation, and soils	Project site previously developed, no native areas exist.
Limit the overall impervious footprint of the project	Overall impervious footprint minimized.
Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety or mobility uses are not compromised	Driveways and sidewalks have been proposed to the minimum width necessary.
Set back development from creeks, wetlands, and riparian habitats	No creeks, wetlands or riparian habitats exist in the vicinity of the project.
Conform the site layout along natural landforms	Project layout conforms to the natural landform.
Avoid excessive grading and disturbance of vegetation and soils	Grading has been minimized by utilizing the existing topography as much as possible in the project design.



13. **Post-Construction Stormwater Control Measures**

The stormwater quality control measure proposed for this development is a Contech Filterra Biofiltration Vault. All the new impervious and replaced impervious areas will be directed to this vault. The roof runoff from the units will be directed to the Filterra vault.

A detail of the Filterra vault is shown on sheet C3 of the improvement plans. The sizing spreadsheet attached shows that the 10' x 6' vault will handle 30,000 SF of impervious area during a storm intensity of 0.20 inches/hour.

The stormwater retention control measure is provided by the drain rock vault under the Biofiltration Vault and parking lot. See attached preliminary improvement plans.

14. **Statement of Compliance:**

The design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the City of Watsonville Stormwater post-Construction Standards (Resolution No. 4-14, Adopted January 14, 2014). The Water Quality Treatment Requirements have been met on the site by the proposed measures.



**Filterra Sizing Spreadsheet**  
**Uniform Intensity Approach**  
**Storm Intensity = 0.20 in/hr**

Filterra Infiltration Rate = **100** (in/hr)  
 Filterra Flow per Square Foot = 0.0023 (ft3/sec/ft2)

Filterra Flow Rate, Q = 0.0023 ft3/sec x Filterra Surface Area  
 Rational Method, Q = C x I x A

OR Site Flowrate, Q = (C x DI x DA x 43560) / (12 x 3600)  
 DA = (12 x 3600 x Q) / (C x 43560 x DI)

where Q = Flow (ft3/sec)  
 DA = Drainage Area (acres)  
 DI = Design Intensity (in/hr)  
 C = Runoff coefficient (dimensionless)

			DI	C	C	C
			<b>0.2</b>	<b>1.00</b>	<b>0.9</b>	<b>0.50</b>
Available Filterra Box Sizes			Filterra	100%	Typical	Residential
L	W	Filterra Surface Area	Flow Rate, Q	Imperv. DA	Impervious DA	max DA
(ft)	(ft)	(ft2)	(ft3/sec)	(sq ft)	(sq ft)	(sq ft)
4	4	16	0.0370	8,000	8,889	16,000
6	4	24	0.0556	12,000	13,333	24,000
6.5	4	26	0.0602	13,000	14,444	26,000
8	4	32	0.0741	16,000	17,778	32,000
6	6	36	0.0833	18,000	20,000	36,000
8	6	48	0.1111	24,000	26,667	48,000
<b>10</b>	<b>6</b>	<b>60</b>	<b>0.1389</b>	<b>30,000</b>	<b>33,333</b>	<b>60,000</b>
12	6	72	0.1667	36,000	40,000	72,000
13	7	91	0.2106	45,500	50,556	91,000

# Central Coast Region Stormwater Control Measure Sizing Calculator

Version: 2/26/2014

## 1. Project Information

Project name:	The Residence
Project location:	558 Main Stret
Tier 2/Tier 3:	Tier 3 - Retention
Design rainfall depth (in):	1.3
<b>Total project area (ft2):</b>	32281
Total new impervious area (ft2):	1256
Total replaced impervious in a USA (ft2):	0
Total replaced impervious not in a USA (ft2):	27673
Total pervious/landscape area (ft2):	3361

## 2. DMA Characterization

Name	DMA Type	Area (ft2)	Surface Type	New, Replaced?	Connection
DMA1	Drains to SCM	19966	Roof	Replaced	SCM1
DMA2	Drains to SCM	7707	Concrete or asphalt	Replaced	SCM1
DMA3	Drains to SCM	1256	Concrete or asphalt	New	SCM1

### DMA Summary Area

Total project impervious area (ft2):	28929
New impervious area (ft2):	1256
Replaced impervious within a USA (ft2):	0
Replaced impervious not in a USA (ft2):	27673
Total pervious/landscape area (ft2):	0

## 3. SCM Characterization

Name	SCM Type	Safety Factor	SCM Soil Type	Infilt. Rate (in/hr)	Area (ft2)
SCM1	Bioretention	1	HSG C/D	0.25	891

## 4. Run SBUH Model

## 5. SCM Minimum Sizing Requirements

SCM Name	Min. Required Storage Vol. (ft3)	Depth Below Underdrain (ft)	Drain Time (hours)
SCM1	1277	3.58	57.3

## 6. Self-Retaining Area Sizing Checks

Self-Retaining DMA Name	Self-Retaining DMA Area (ft2)	Tributary DMA Name	Tributary DMA Area (ft2)	Tributary / SRA Area Ratio



Transportation Impact Analysis

# **The Residence at 558 Main**

Watsonville, CA

April 2020

## Transportation Impact Analysis

# The Residence at 558 Main

Watsonville, CA

Prepared For:

**Pacific Coast Development**  
800 East Lake Avenue  
Watsonville, CA 95076  
(831) 724-7504

Prepared By:

**Kittelson & Associates, Inc.**  
155 Grand Avenue, Suite 900  
Oakland, California 94612  
(510) 839-1742

Project Manager: Amy Lopez

Project Principal: Mike Aronson, PE

Project No. 24999

April 2020



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## APPENDICES

### 1 – Intersection Analysis Sheets



## Section 1

### Executive Summary



## EXECUTIVE SUMMARY

Pacific Coast Development is proposing to develop The Residence at 558 Main, a four-story, mixed use building at 558 Main Street in downtown Watsonville, CA (project). The project includes ground floor retail of approximately 2,220 square feet and three upper levels of 50 total residential dwelling units. Access to the project is provided on Main Street and via an alley driveway to Brennan Street at the rear of the site. The project site previously was occupied by a bank with drive-through service.

The results of this study indicate that the proposed Residence at 558 Main development can be constructed while maintaining acceptable traffic operations at the study intersections and improving safety at the site access on Brennan Street, assuming provision of the recommended improvement measures at the alley driveway.

## FINDINGS

### Year 2020 Existing Conditions

- All of the study intersections operate at acceptable levels of service during the weekday a.m. and p.m. peak hours.
- A review of historical crash data revealed two (2) pedestrian fatalities within a three-year period. The City's Downtown Complete Streets Plan includes improvements that will enhance the circulation network and improve safety for people walking in downtown. Therefore, the crash patterns or trends in the site vicinity do not require mitigation associated with this project.

### Proposed Project

The proposed development is estimated to generate 20 net new trips (6 inbound, 14 outbound) are projected to occur during the weekday a.m. peak hour and 39 net new trips (24 inbound, 15 outbound) are projected to occur during the weekday p.m. peak hour. These levels of trip generation are lower than the previous use on the site: a bank with drive through tellers (48 a.m. peak hour trips and 102 p.m. peak hour trips), which was operational through April 2019. Therefore, the proposed project is expected to generate 28 fewer trips during the a.m. peak hour and 63 fewer trips during the p.m. peak hour than the previous use generated.

### *Existing Plus Project Conditions*

All of the study intersections, except for the intersection of E 5<sup>th</sup> Street and Brennan Street, are forecast to operate with acceptable levels of service during the weekday a.m. and p.m. peak hours.



- The project adds seven (7) trips during the p.m. peak hour to the eastbound approach at the E 5<sup>th</sup> Street/Brennan Street intersection, which is less than 3% of existing traffic volumes for this approach when the site is vacant and is within the typical daily fluctuation of traffic.
- The eastbound left-turn movement operations at the E 5<sup>th</sup> Street/Brennan Street intersection are projected to change from level of service E to F during the weekday p.m. peak hour with the addition of project traffic.
- The 95<sup>th</sup> percentile queue at the E 5<sup>th</sup> Street/Brennan Street intersection eastbound approach during the p.m. peak hour is projected to be seven (7) vehicles or approximately 175 feet, which would be accommodated within the length of the road segment.

### Site Access and Circulation Evaluation

- The existing alley driveway at the rear of the site providing access to Brennan Street has sightline constraints due to the existing building on the north side of the driveway.
- Drivers entering and existing the site at Brennan Street will continue to experience the existing sightline constraints after the project is constructed.

## RECOMMENDATIONS

The following activities are recommended to ensure adequate safety and operation at the internal intersections and roadways:

- Install lane striping within the alley and signs at the driveway to increase drivers' awareness of appropriate vehicle position within the cross section of the driveway and alley.
- Install a convex mirror on the south side of the driveway providing visibility around the corner of the existing building for drivers exiting the site and drivers entering from southbound Brennan Street.

Additional details of the study methodology, findings, and recommendations are provided within this report.

## Section 2

### Introduction



## INTRODUCTION

### PROJECT DESCRIPTION

The proposed project is a four-story, multi-use building at 558 Main Street Watsonville, CA. Figure 1 presents the location of the proposed project. The ground floor would be a sit-down restaurant of approximately 2,220 square feet. The three upper levels would have 50 residential dwelling units located, composed of 15 studios, 29 one-bedroom units, and 6 two-bedroom units. The covered ground floor parking provides 3 accessible stalls, 35 standard parking stalls, 8 long-term bike stalls. The gated rear parking lot is uncovered and includes 17 standard parking stalls and 8 long-term bike stalls. There is a shared alley and driveway providing access from the parking lot to Brennan Street. The project site is bounded by Main Street to the west, Brennan Street to the east, and existing commercial buildings to the north and south.

The site previously had a 5,000-square foot bank with drive-through service, which was accessed from curb cuts on Main Street and an alley connection from the rear parking lot to Brannan Street. The bank was demolished in April of 2019.

Figure 2 presents the preliminary site plan for the project. As shown, people walking and walking to/from transit stops have direct access to the building's main entrance from the sidewalk on Main Street and are expected to access the site primarily from Main Street. The nearest transit stop is located near the intersection of Main Street and W 5th Street. People driving and biking access the parking lot and bike storage through the alley connected with Brennan Street. People walking to and from Brennan Street share the alley with bicycles and vehicles. A sidewalk is not provided between the parking lot and Brennan Street, which was the case on this site with the prior use as well.

### SCOPE OF THE REPORT

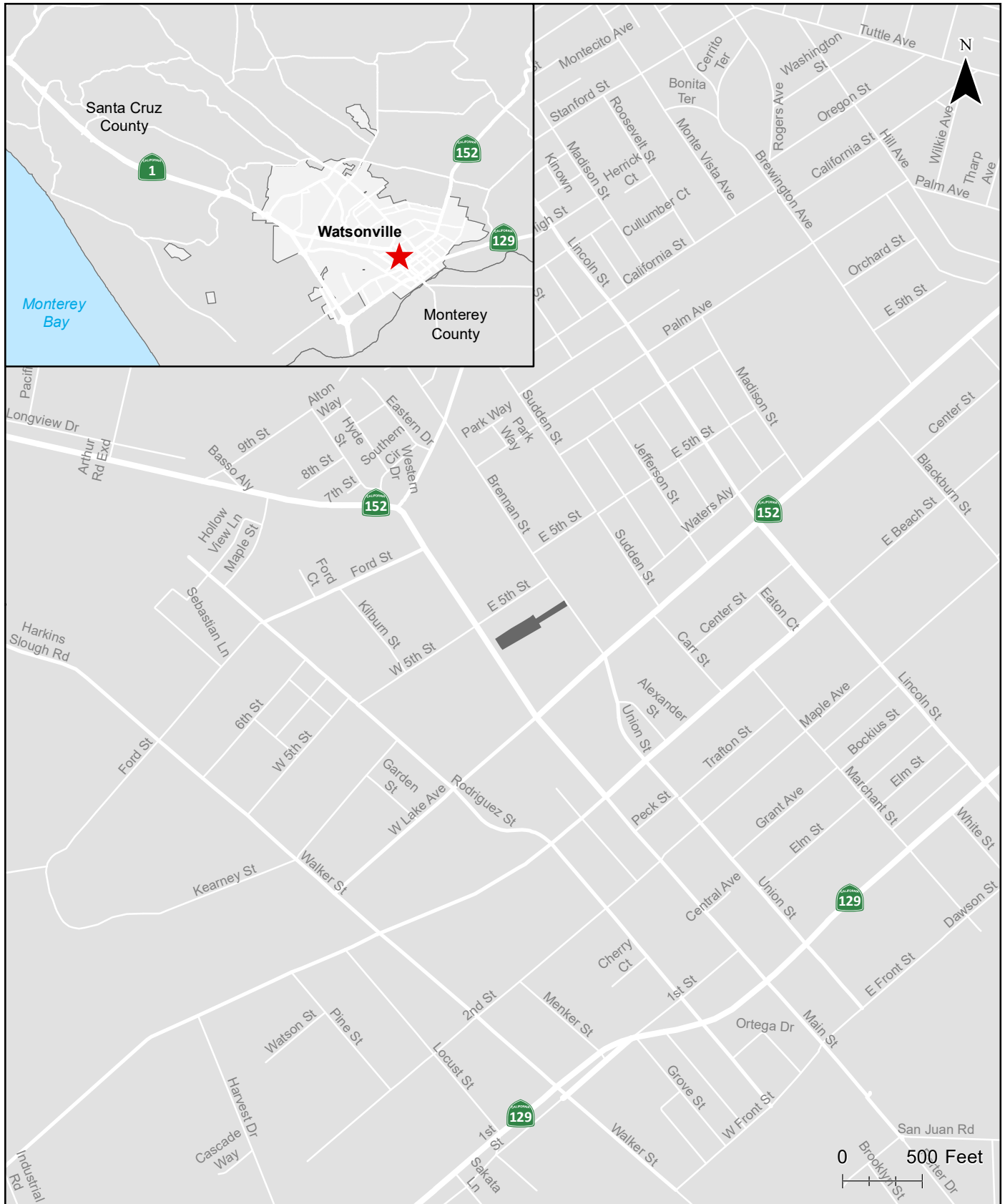
Kittelsohn & Associates, Inc. (Kittelsohn) prepared this memorandum for Pacific Coast Development (project Sponsor) to summarize the transportation analysis of the proposed residence and commercial building at 558 Main Street Watsonville, CA. The location was previously a 5,000-square foot bank with drive-through service, which was accessed from curb cuts on Main Street and a minor driveway connecting the rear parking lot with Brennan Street. The bank was demolished in April of 2019. The proposed development is a four-story mixed-use building with ground floor retail and 50 residential units on the upper floors.

This traffic impact study addresses the following topics:

- Existing conditions near the project site for people walking, biking, driving, and taking transit.
- Vehicle trip generation of the project and distribution of those trips to the local roadway network in the vicinity of the project.



- Evaluate the effects of project trips on the study intersections during morning and evening peak hours.
- Review of site access and site circulation for people walking, biking, driving, and taking transit.
- Review crash history data in the vicinity of the project.
- Recommend improvements to the local transportation network to minimize the impact of project-related traffic and safety issues.

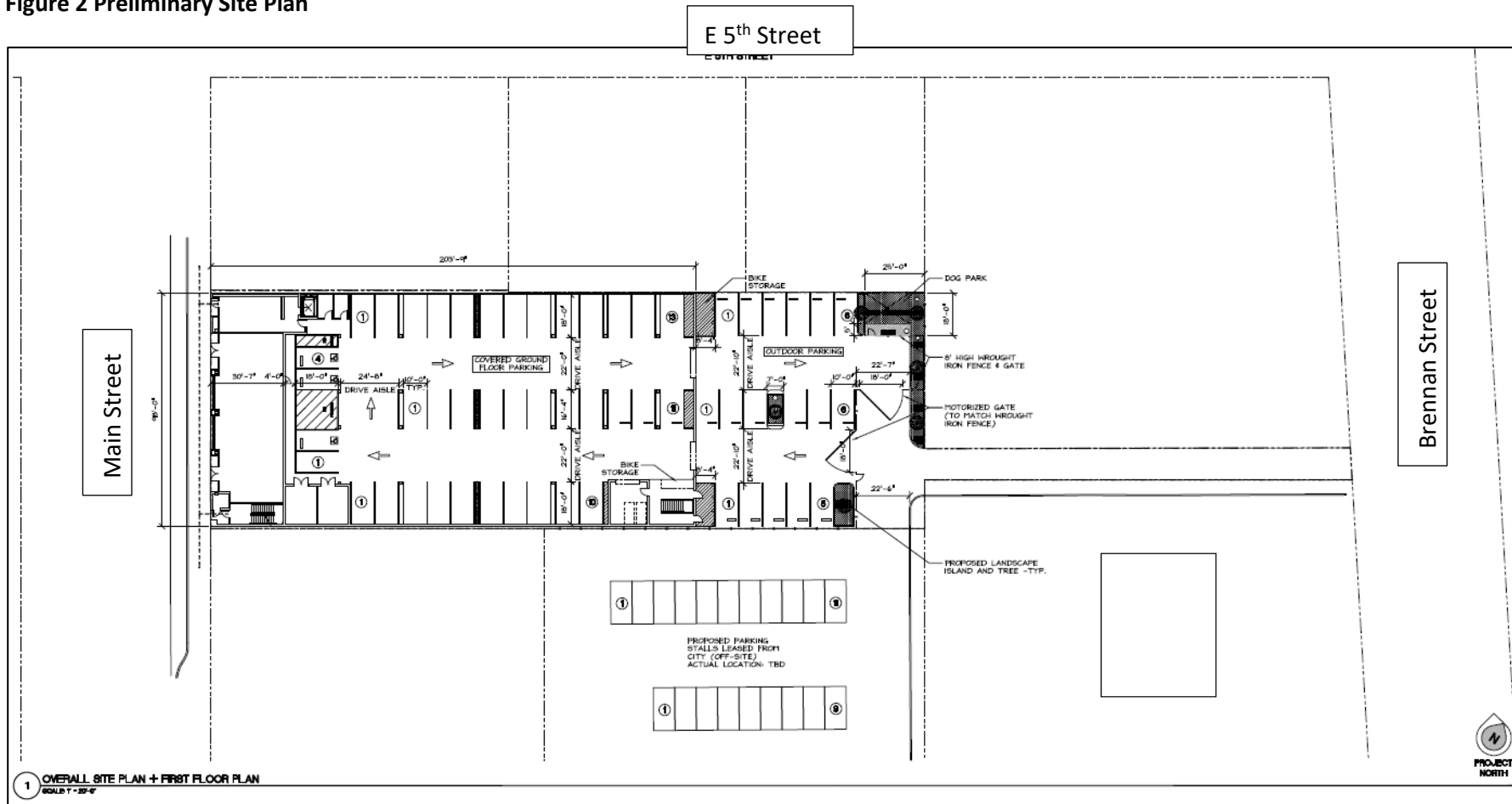


558 Main St Development

# **Study Area** **558 Main St Development TIA** **Watsonville, California**

**Figure**  
**1**

Figure 2 Preliminary Site Plan



Source: Pacific Coast Development, 10/31/2019.

## Section 3 Existing Conditions



## EXISTING CONDITIONS

The existing conditions analysis identifies the site conditions and current operational and geometric characteristics of the roadways within the study area. Later in this report, these conditions are compared with conditions that would result from construction of the proposed project.

Kittelson & Associates, Inc. (Kittelson) staff visited and inventoried the project site and surrounding study area on March 1, 2020. At that time, Kittelson collected information regarding site conditions, adjacent land uses, and transportation facilities in the study area. Kittelson had intersection turning movement count data collected for the four study intersections on March 5, 2020.

## SITE CONDITIONS AND ADJACENT LAND USES

The project site is in downtown Watsonville and currently is vacant. The land uses in the vicinity of the site are retail businesses along Main Street and retail, office, and single-family residential uses along Brennan Street.

This section discusses the existing conditions of the transportation and circulation network near the proposed project for people walking, biking, driving and taking transit. Figure 3 shows the location of the study intersections and the peak hour volumes. A systemic peak hour was identified for a.m. and p.m. based on the volumes at all four intersection. The a.m. peak hour is 7:30-8:30 a.m., and the p.m. peak hour is 5:05-6:05 p.m. Since the previous bank building at 558 Main Street was demolished in April 2019, bank-generated trips were not included as part of the existing condition.

### Existing Traffic Conditions

#### *Analysis Methodologies and Level-of-Service Standards*

Level of service (LOS) is a qualitative measure of the effect of a number of factors, including speed, travel time, traffic interruptions, freedom to maneuver, driving comfort and convenience. Levels of service are designated A through F from best to worst, which cover the entire range of traffic operations that might occur.

All intersection level-of-service evaluations used the peak 15-minute flow rate during the weekday a.m. and p.m. peak hours. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. For this reason, the analysis reflects conditions that are only likely to occur for 15 minutes out of each average peak hour. During all other periods, the transportation system likely will operate under conditions better than the conditions described in this memo.

#### *Intersection LOS*

LOS describes the operating conditions experienced by motorists. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver,

driving comfort, and convenience. LOS A through LOS F covers the entire range of traffic operations that might occur. Motorists using a facility that operates at LOS A experience very little delay, while those using a facility that operates at LOS F will experience long delays. These conditions are generally described in Table 1.

**Table 1 General Level of Service Definitions**

LOS	Description
<b>A</b>	<b>Free Flow or Insignificant Delays:</b> Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
<b>B</b>	<b>Stable Operation or Minimal Delays:</b> The ability to maneuver within the traffic stream is only slightly restricted, and control delay at signalized intersections are not significant.
<b>C</b>	<b>Stable Operation or Acceptable Delays:</b> The ability to maneuver and change lanes is somewhat restricted, and average travel speeds may be about 50 percent of the free flow speed.
<b>D</b>	<b>Approaching Unstable or Tolerable Delays:</b> Small increases in flow may cause substantial increases in delay and decreases in travel speed.
<b>E</b>	<b>Unstable Operation or Significant Delays:</b> Significant delays may occur, and average travel speeds may be 33 percent or less of the free flow speed.
<b>F</b>	<b>Forced Flow or Excessive Delays:</b> Congestion, high delays, and extensive queuing occur at critical signalized intersections with urban street flow at extremely low speeds.

Source: *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2016

Intersection analysis was conducted using the operational methodology outlined in the *Highway Capacity Manual* (HCM) 6<sup>th</sup> Edition (Transportation Research Board, Washington, D.C., 2016), as operationalized by Vistro version 2020 software tool. For signalized intersection, the HCM 6<sup>th</sup> Edition procedure calculates a weighted average control delay in seconds per vehicle at an intersection and assigns a level of service designation based on the delay. Table 2 presents the relationship of average delay to level of service for signalized intersections and two-way stop control (TWSC) intersections.

For two-way stop control (TWSC) intersections—in this case, the T-intersection of E 5<sup>th</sup> Street at Brennan Street with one-way stop control—the LOS criteria apply to each lane on a given approach and to each approach on the minor street, LOS is not calculated for major-street approaches or for the intersection as a whole. This is because major street through vehicles are assumed to experience no delay. The average control delay at the intersection level will also be provided in this section as additional information. In addition to average delay, a volume over capacity (V/C) ratio greater than 1.0 also indicates a LOS F for a minor street movement.

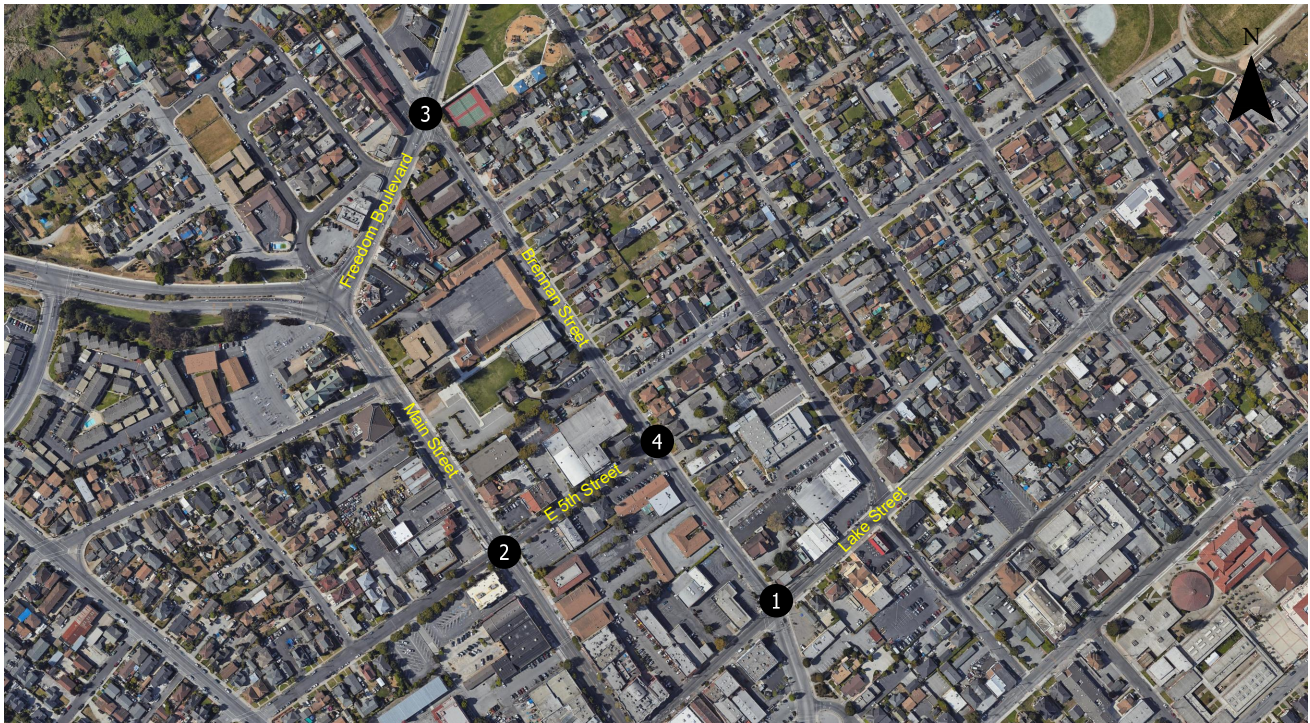
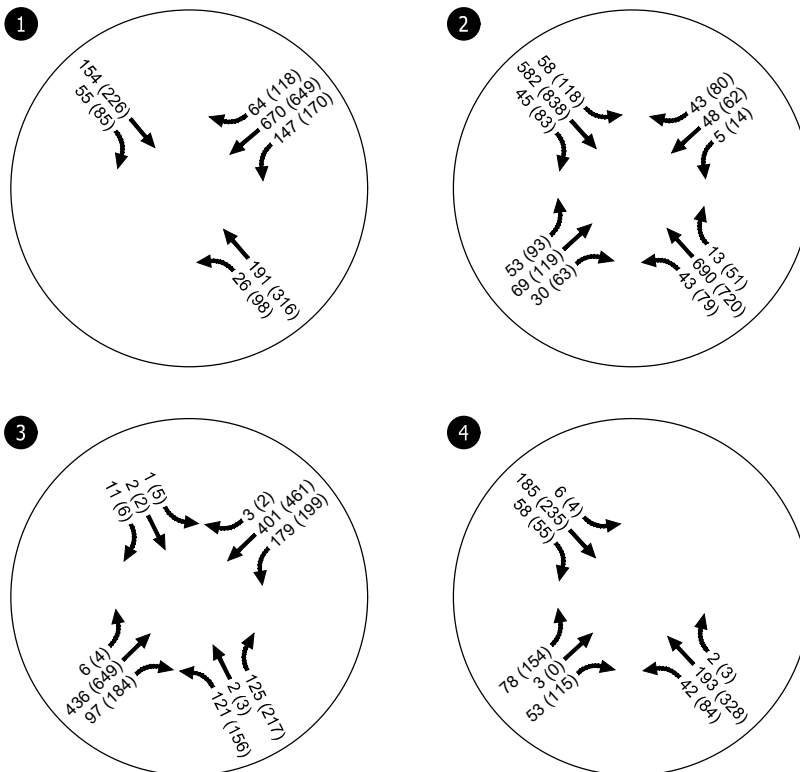


Image Source: Google Earth, 2020.



## - Study Intersections

AM (PM) - Traffic Volume

Existing Peak Hour Volumes  
Watsonville, California

Figure  
3

**Table 2 Intersection Level of Service Definitions by Average Delay**

Signalized Intersection	LOS	TWSC Intersection <sup>1</sup>
Average Delay Per Vehicle (seconds)		Average Delay Per Vehicle (seconds)
≤10.0	A	≤10.0
>10.0 and ≤20.0	B	>10.0 and ≤15.0
>20.0 and ≤35.0	C	>15.0 and ≤25.0
>35.0 and ≤55.0	D	>25.0 and ≤35.0
>55.0 and ≤80.0	E	>35.0 and ≤50.0
>80.0	F	>50.0 or V/C>1.0

Source: *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2016

<sup>1</sup> The LOS criteria apply to each lane on a given approach and to each approach on the minor street.

### Existing Intersection LOS Results

Table 3 summarizes the existing LOS for the study intersections for a.m. and p.m. peak hours. The eastbound approach at the T-intersection at E 5<sup>th</sup> Street and Brennan Street is stop controlled and the eastbound left-turn (EBL) is the worst movement for both a.m. and p.m. peak hours. During the p.m. peak hour, the EBL movement runs at the LOS E and the expected 95<sup>th</sup> percentile queue length for this approach is 7 vehicles. The three signalized intersections operate at LOS D or better. Appendix I includes the full intersection analysis reports exported from Vistro.

**Table 3 Intersection LOS under Existing Traffic Conditions**

#	Intersection	Control	Standard	Weekday a.m. Peak Hour		Weekday p.m. Peak Hour	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	W Lake Avenue and Brennan Street/Union Street	Signal	C	14.0	B	17.1	B
2	W 5th Street and Main Street	Signal	D	26.8	C	52.0	D
3	Freedom Boulevard and Brennan Street	Signal	D	16.3	B	20.3	C
4	E 5th Street and Brennan Street	Side-Street Stop Control	E	16.2 <sup>1</sup>	C	46.3 <sup>1</sup>	E

<sup>1</sup> The worst movement is eastbound left-turn. The average intersection delay is 3.7 seconds for a.m. and 12.6 seconds for p.m. peak hours.

Source: Kittelson & Associates, Inc., 2020

### Vehicle Facilities

This section discusses the key roadway and study intersections for people driving to and from the project site. Major regional corridors connecting the City of Watsonville with other cities are:



**Highway 1** is the primary north-south corridor for vehicular transportation. The traffic has steadily increased over the years as people travel into the greater Bay Area for employment related activities.

**Highway 152** is the primary east-west corridor through the City, connecting to the community of Gilroy and Highway 101 to the east.

**Highway 129** (East Riverside Drive) is another east-west corridor connecting Highway 101 in the east and Highway 1 in the west.

In the immediate vicinity of the project site, the road network consists of:

**Main Street**, Highway 152 in the City, is a four-lane north-south arterial with on-street parallel parking on both sides of the street when there is enough right of way. However, on-street parking is not permitted at the project site frontage given the limited right of way as a left-turn bay is added at the intersection with E 5<sup>th</sup> Street, north of the project Site. The speed limit is 25 mph.

**Brennan Street** is a north-south, two-lane local street with on-street parallel parking on both sides of the street. The speed limit is 25 mph. Single-family homes exist along Brennan Street.

**E Lake Avenue** is a two-lane one-way local street heading west between west of Lincoln Street to east of Rodriguez Street. On-street parallel parking is allowed on both sides of the street. The speed limit is 25 mph.

**Freedom Boulevard** is a two-lane local street. It provides limited on-street parking between Main Street and Brennan Street. East of Brennan Street, on-street parking is only allowed on the northwest side of the roadway. The speed limit is 25 mph.

## Pedestrian Facilities

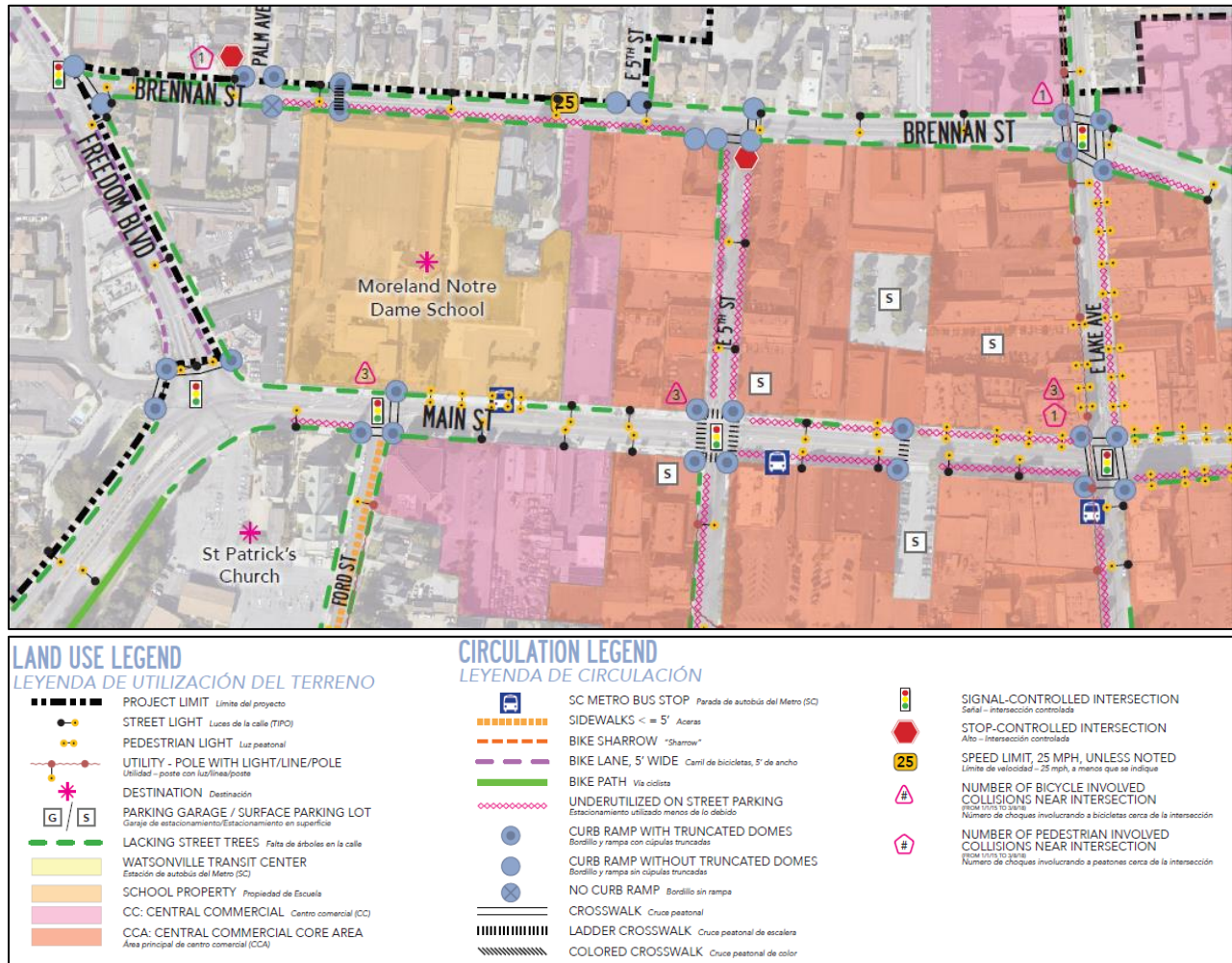
Figure 4 shows the existing pedestrian conditions along Main Street and Brennan Street and the crosswalks and curb ramps at the intersections in the vicinity of the project site.

Pedestrians can access the project site via the sidewalk along the east side of Main Street. An 8-foot-wide sidewalk is currently present at this location. The sidewalk is continuous to the north and south of the project site. The intersection of Main Street and E 5<sup>th</sup> Street north of the project site and the intersection of Main Street and E Lake Avenue south of the project site have pedestrian crosswalks, pedestrian signal heads and push buttons. There is one mid-block pedestrian crossing with rectangular rapid flash beacons (RRFB) on Main Street approximately 100 feet south of the project site. In addition, Main Street provides pedestrian lighting in front of Moreland Notre Dame School and the commercial buildings south of the project site. The curb ramps at intersections on Main Street have truncated domes.

Brennan Street has sidewalks on both sides of the street of approximately 6 feet at the project site. Pedestrians can access the site via the sidewalk along the west side of Brennan Street. The stop-controlled at the T-intersection of Brennan Street and E 5<sup>th</sup> Street has pedestrian crosswalks on the west

let on E 5<sup>th</sup> Street and south leg on Brennan Street. The signalized intersection of Brennan Street and Lake Avenue has ladder crosswalks on all four legs and pedestrian signal heads and pushbuttons. The curb ramps at intersections on Main Street lack truncated domes.

**Figure 4 Existing Conditions for Pedestrian and Bicycle Facility**



Source: Downtown Watsonville Complete Streets Plan, Figure 8 – Existing Conditions Plan, 2019.

## Bicycle Facilities

Bicycle facilities are defined by the following four classes in Chapter 1000 of California Department of Transportation's (Caltrans) *Highway Design Manual* and *Design Information Bulletin 89*:

**Class I** – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.

**Class II** – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.

**Class III** – Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.

**Class IV** – Provides a bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Based on the 2016 Santa Cruz County Bikeways Map, Main Street adjacent to the project site is identified as an alternative bike route, which is defined as a route that is favorable to bicyclists that is not striped and not necessarily signed. No signs or markings for bicyclists exist on Main Street or Brennan Street. Class III bicycle routes are present on Main Street and Brennan Street adjacent to the project site. Figure 4 illustrates the existing bicycle facilities in the vicinity of the project Site.

The observed numbers of bicyclists are minor at the study intersections. The great number of bicyclists traveling through a study intersection during a peak hour is three bicyclists on Main Street at E 5<sup>th</sup> Street and five on Brennan Street at E Lake Avenue.

### Transit Facilities

The transit system in the study area includes bus services provided by Santa Cruz Metro and Monterey-Salinas Transit. Transit stops near the project site are located on Main Street southbound south of W 5<sup>th</sup> Street (Routes 71, 75, and 79), on Main Street northbound south of Ford Street (Routes 71 and 75). Both stops serve for bus services provided by Santa Cruz Metro. The stops are marked by a sign post and each has a bench for people waiting for a bus.

A bus transit center is located next to the intersection of Rodriguez Street and W Lake Avenue, about 0.3 mile from the project Site. This transit center offers access to Santa Cruz Metro (Routes 69, 71, 72, 74, 75, 79, and 91) and Monterey-Salinas Transit bus lines (Routes 27, 28 and 29). Table 4 presents the details of the routes running near the project site. Figure 5 illustrates the transit routes and stops in the vicinity of the project site.

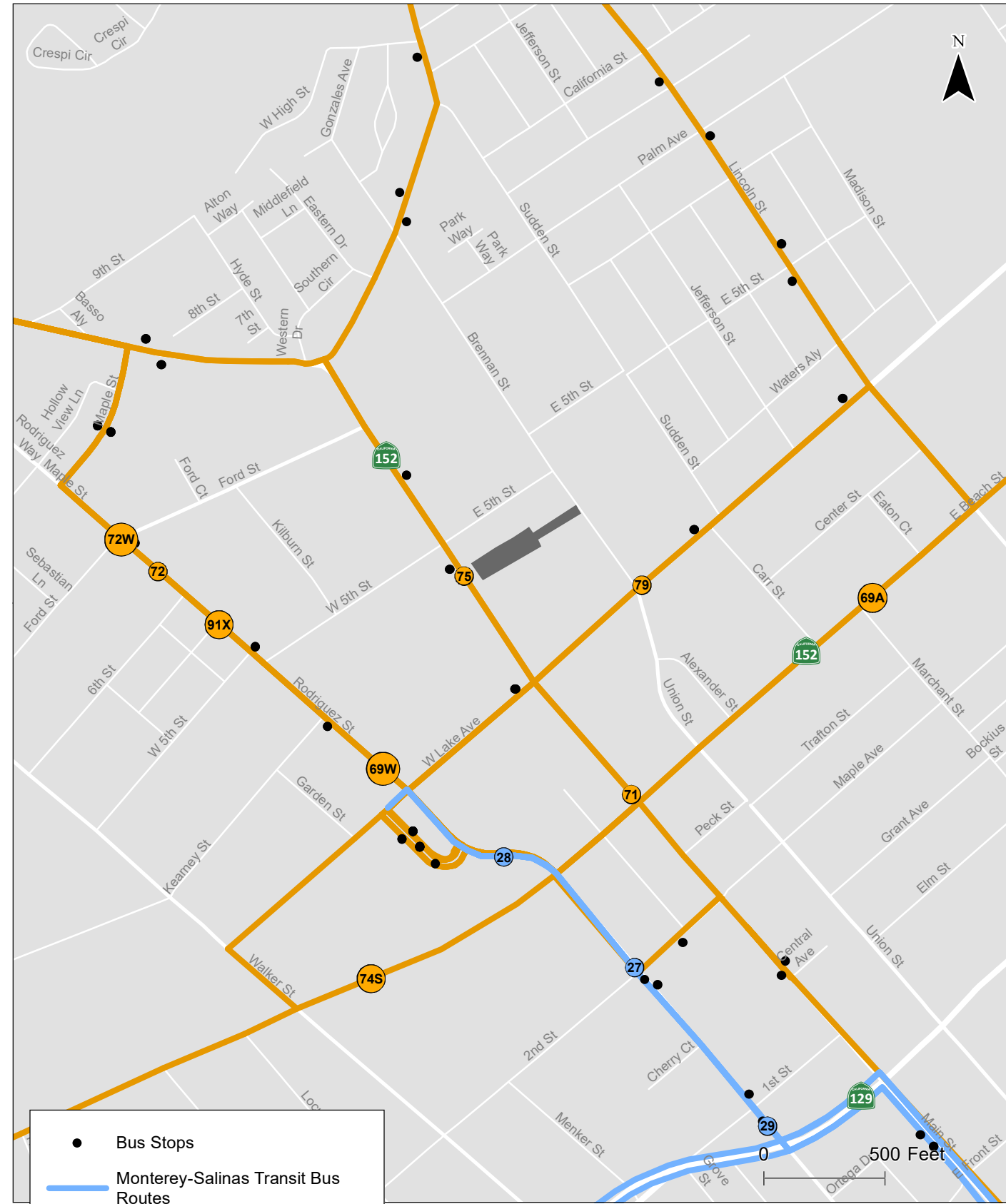
**Table 4 Bus Routes near the project Site**

Route	Route Description	Service Frequency on Weekday
Santa Cruz Metro		
69A/ 69W	Capitola Road / Cabrillo / Watsonville	Approx. every 30 minutes between 6:20 a.m. and 5:50 p.m., Approx. every hour between 5:50 p.m. and 9:50 p.m.
71	Santa Cruz to Watsonville	Approx. every 30 minutes between 5:30 a.m. and 8:40 p.m., Additional two runs at 9:40 p.m. and 11:15 p.m.
72	Hospital /Pinto Lake	Approx. every hour between 6:45 a.m. and 5:45 p.m.
74S	PVHS / Watsonville Hospital	Two runs per day, one at 7:00 a.m. and the other at 3:05 p.m.
75	Green Valley	Approx. every hour between 5:15 a.m. and 6:15 p.m.
79	East Lake / Crestview	Approx. every hour between 7:25 a.m. and 5:25 p.m.
91X	Commuter Express Santa Cruz to Watsonville	Approx. every 40 minutes between 6:00 a.m. and 4:30 p.m.
Monterey-Salinas Transit		
27	Watsonville - Marina	Approx. two hours between 5:50 a.m. and 5:50 p.m.
28	Watsonville – Salinas	Approx. two hours between 6:45 a.m. and 6:45 p.m.
29	Watsonville via Prunedale	Approx. two hours between 7:34 a.m. and 5:34 p.m.

Source: website <http://www.scmtd.com/media/bkg/20203/publications/headways.pdf>, headway information for departures at Watsonville Transit Center, accessed April 6, 2020.



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**Transit Facilities**  
**558 Main St Residence TIA**  
**Watsonville, California**

Figure  
**5**

## Crash Analysis

The crash analysis involves three years of crash data (2017 to 2019) for the study area, accessed from the California Statewide Integrated Traffic Record System (SWITRS). These crashes are geolocated and presented of Figure 6. The figure presents crashes on Main Street and Brennan Street between Freedom Boulevard and W Beach Street. During the three years evaluated, 101 crashes were reported in the study area. Table 5 summarizes the number of crashes by severity for each year. The fatal crash in 2017 involved a pedestrian fatality at the intersection of Main Street and Lake Avenue in the dark with streetlights working. The primary collision factor was pedestrian violation. The fatal crash in 2018 involved a pedestrian at the intersection of Main Street and Beach Street during daylight. The primary collision factor was a driver failing to yield to pedestrian right of way. Table 6 lists the crashes by mode.

visualizes the geographical locations of all the crashes, especially those involved pedestrians and bicycles. The two fatal crashes were marked in red.

**Table 5 Crash Severity by Year (2017 - 2019)**

Crash Severity	2017	2018	2019	3 - Year Total
Fatal	1	1	0	2
Minor Injury	2	3	0	5
Complain of Injury	7	8	10	25
PDO	22	23	24	69
<b>Total</b>	<b>32</b>	<b>35</b>	<b>34</b>	<b>101</b>

Source: SWITRS, Kittelson & Associates, 2020

**Table 6 Number of Crashes by Mode (2017 – 2019)**

Mode	Number Crashes	% Crashes
<b>Motor Vehicle Only</b>	84	83%
<b>Pedestrian Involved</b>	15	15%
<b>Bicyclist Involved</b>	2	2%
<b>Total</b>	101	100 %

Source: Kittelson & Associates, 2020

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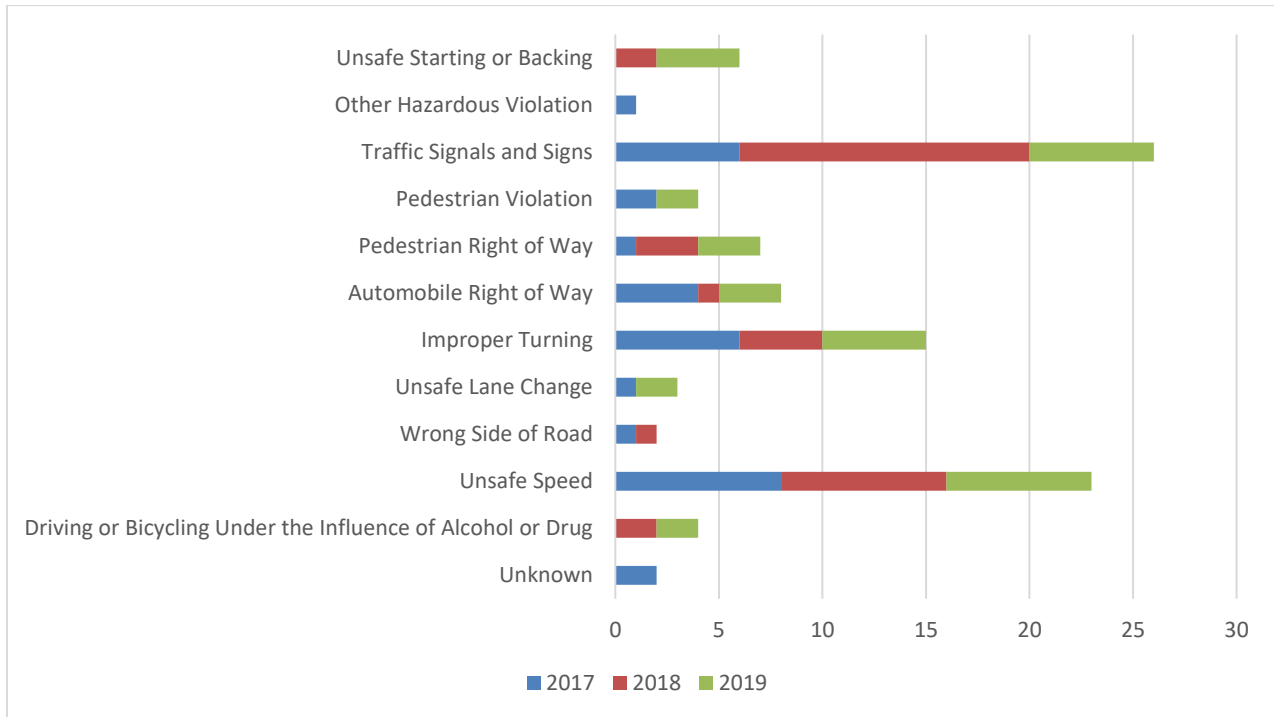
**Crashes by Severity and Mode (2017 - 2019)  
558 Main St Development  
Watsonville, California**

**Figure  
6**

Figure 7 illustrates the primary collision factors for the 101 reported crashes in the vicinity of the project sites from 2017 to 2019. The top three factors are:

- Motorist fails to comply with a traffic signal or sign
- Unsafe speed
- Improper turning

**Figure 7 Primary Collision Factors in the Vicinity of the project Site (2017 – 2019)**



Sources: SWITRS, Kittelson & Associates, Inc., 2020

*“Automobile Right of Way” is a crash resulting from one motorist failing to yield to a motorist with the right of way.*

*“Pedestrian Right of Way” is a crash in which a motorist failed to yield to a pedestrian with the right of way.*

*“Pedestrian Violation” is a crash in which a pedestrian violated a driver’s right of way.*

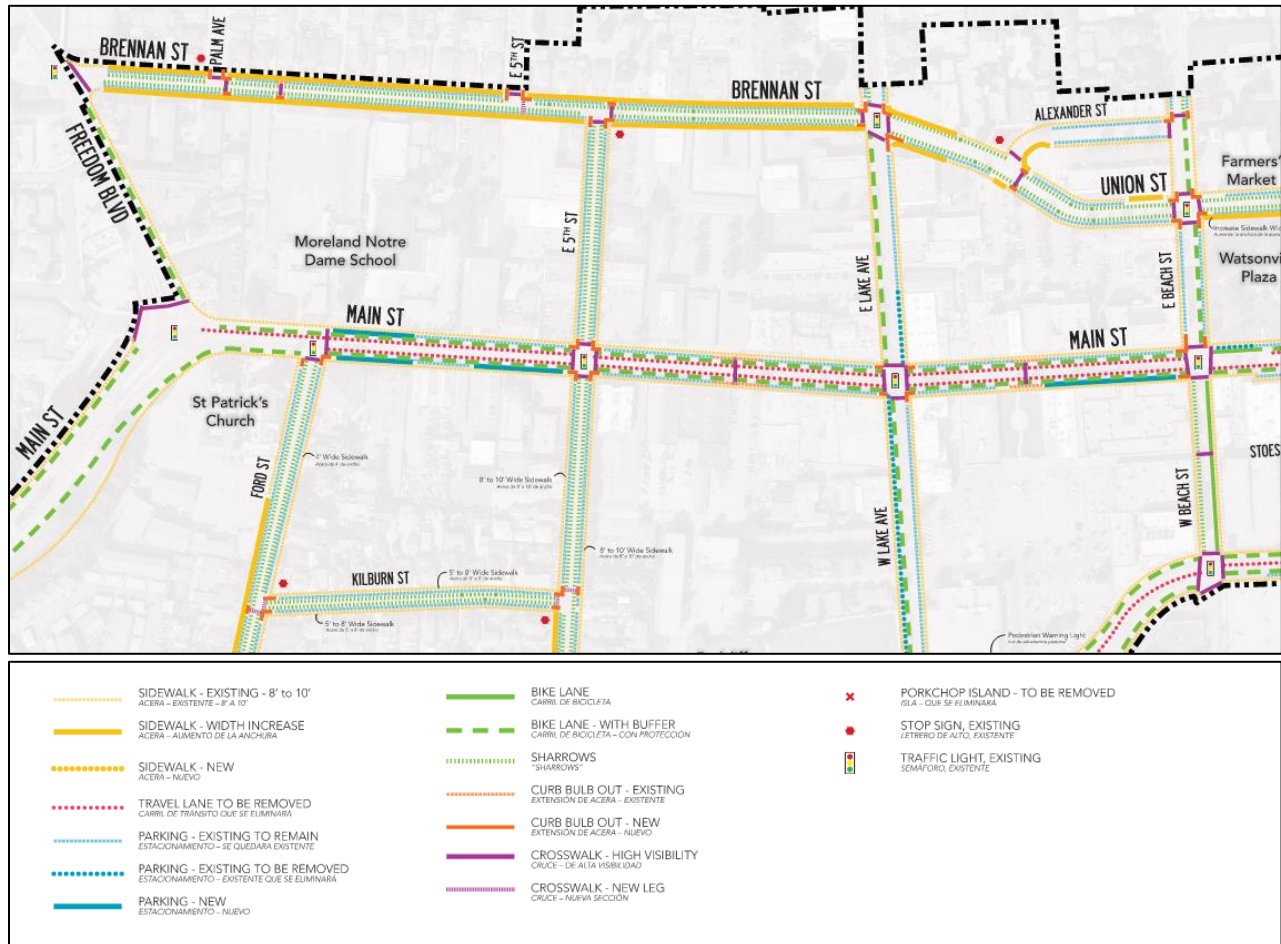
*“Traffic Signals and Signs: is a crash resulting from a motorist’s failure to comply with a traffic control device (traffic signal, yield sign, or stop sign).*

## Complete Street Plan

The City of Watsonville published the Downtown Watsonville Complete Streets Plan in 2019. The Plan outlines a vision for a revitalized Downtown that focuses on increased connectivity and safety for bicyclists, pedestrians, and transit users including the vicinity of the project site. The concepts provided in the plan would help slow down travel speeds on Main Street and improve safety in the vicinity of the project site for all travel modes. Figure 8 presents planned improvements to the circulation network, including constructing curb extensions and high-visibility crosswalks at the E 5<sup>th</sup> Street/Brennan Street intersection. Figure 9 presents planned amenities in downtown, including additional street lighting along Brennan Street, E 5<sup>th</sup> Street, and Main Street near the project site and bike parking on Brennan Street on the block north of E 5<sup>th</sup> Street.



Figure 8 Planned Improvements, Downtown Complete Streets Plan



Source: Downtown Watsonville Complete Streets Plan, Figure 34 – Circulation Plan, 2019.

Figure 9 Planned Amenities, Downtown Complete Streets Plan



Source: Downtown Watsonville Complete Streets Plan, Figure 34 – Circulation Plan, 2019.

## Section 4

### Transportation Impact Analysis

## TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate when the project is built. The effects of traffic that would be generated by the project during the typical weekday a.m. and p.m. peak hours were examined as follows:

- Site-generated trips were estimated for the proposed residential and retail uses.
- Distribution of trips were developed based on the current travel pattern.
- Existing (2020) with project conditions consist of existing traffic volumes and distribution of new trips associated with the site-generated trips.
- Site access and circulation for the project site were analyzed using the preliminary site plan.

## STANDARD INTERSECTION OPERATIONS THRESHOLDS

### Caltrans Facilities

Caltrans provided the following Level of Service (LOS) standards for Caltrans Facilities in the Guide for the Preparation of Traffic Impact Studies (TIS) published in 2002. Caltrans is currently updating the TIS guidelines to comply with Senate Bill 743 to establish methods for evaluating vehicle miles traveled and no longer focusing on LOS. However, this study uses Caltrans' historic threshold for operations analysis.

*Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.*

### Signalized Intersections

The City of Watsonville General Plan provides the following Level of Service (LOS) standards for signalized intersections<sup>1</sup>:

*Level of Service D provides an acceptable level of operation for urban areas and is generally used for planning purposes. Watsonville/Vista requires street improvements when traffic volumes exceed LOS D on roadway segments and at signalized intersections except for those accepted to operate at less than a LOS D in the 2004–2030 Major Streets Master Plan as updated in 2005.*

---

<sup>1</sup> Chapter 6 , Watsonville VISTA 2030 General Plan, <https://www.cityofwatsonville.org/DocumentCenter/Index/157>.



## Unsignalized Intersections

The General Plan provides the following direction for unsignalized intersections:

*This level of service standard is not applicable at unsignalized intersections where peak hour operations may exceed LOS D, but a traffic signal is not warranted. Unsignalized intersections that operate worse than LOS D should be evaluated for feasible improvements to improve operations.*

Since the worst scenario existing condition at the TWSC intersection at E 5th Street and Brennan Street is LOS E, the with-project condition at this intersection shall maintain LOS E or better.

## TRIP GENERATION

Trip generation estimates were developed for the project based on trip rates provided in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 10<sup>th</sup> Edition (2017). Table 7 summarizes the trip generation rates and in/out percentages used to develop the project trip generation. Table 8 shows the generated project vehicle trips for the project.

**Table 7 ITE Vehicle Trip Generation Rates**

Land Use	ITE Code	Unit	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
			Rate	In %	Out %	Rate	In %	Out %
Multifamily Housing (Mid-Rise)	221	Dwelling Unites	0.36	26%	74%	0.44	61%	39%
Quality Restaurant	931	TSF <sup>1</sup>	0.73	55% <sup>2</sup>	45% <sup>2</sup>	7.80	67%	33%

Source: ITE *Trip Generation Manual*, 10<sup>th</sup> Edition, 2017

<sup>1</sup> Thousand Square Feet.

<sup>2</sup> In/Out % for high turn-over sit-down restaurant (ITE Code 932) are used for quality restaurant because the percentages were not available for ITE 931 in weekday a.m. peak hour.

**Table 8 Project Vehicle Trip Estimates**

Land Use	Size	Units	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise)	50	Dwelling Units <sup>1</sup>	5	13	18	13	9	22
Quality Restaurant	2.22	TSF <sup>2</sup>	1	1	2	11	6	17
Total			6	14	20	24	15	39

Source: Kittelson & Associates, Inc., 2020

<sup>1</sup> The 50 units include 15 studios, 29 one-bedrooms, and 6 two-bedrooms.

<sup>2</sup> Thousand Square Feet.

For comparative purposes, Table 9 presents the trip generation for the prior use of this site—a bank with drive through teller service. As shown, the prior bank use would have generated approximately 48 trips in the a.m. peak hour and 102 trips in the p.m. peak hour. During both times of day, the prior use generated far more trips than the proposed project is expected to generate.

**Table 9 Comparison of Trip Estimates for Prior Use and Project**

Land Use	Size	Units	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
			In	Out	Total	In	Out	Total
Drive-in Bank	5	TSF <sup>1</sup>	28	20	48	51	51	102
Project <sup>2</sup>			6	14	20	24	15	39
Difference in Trips with Project			-22	-6	-28	-27	-36	-63

Source: ITE Trip Generation Manual, 10<sup>th</sup> Edition, 2017. Trip generation rates for ITE code 912 Drive-in Bank are used.

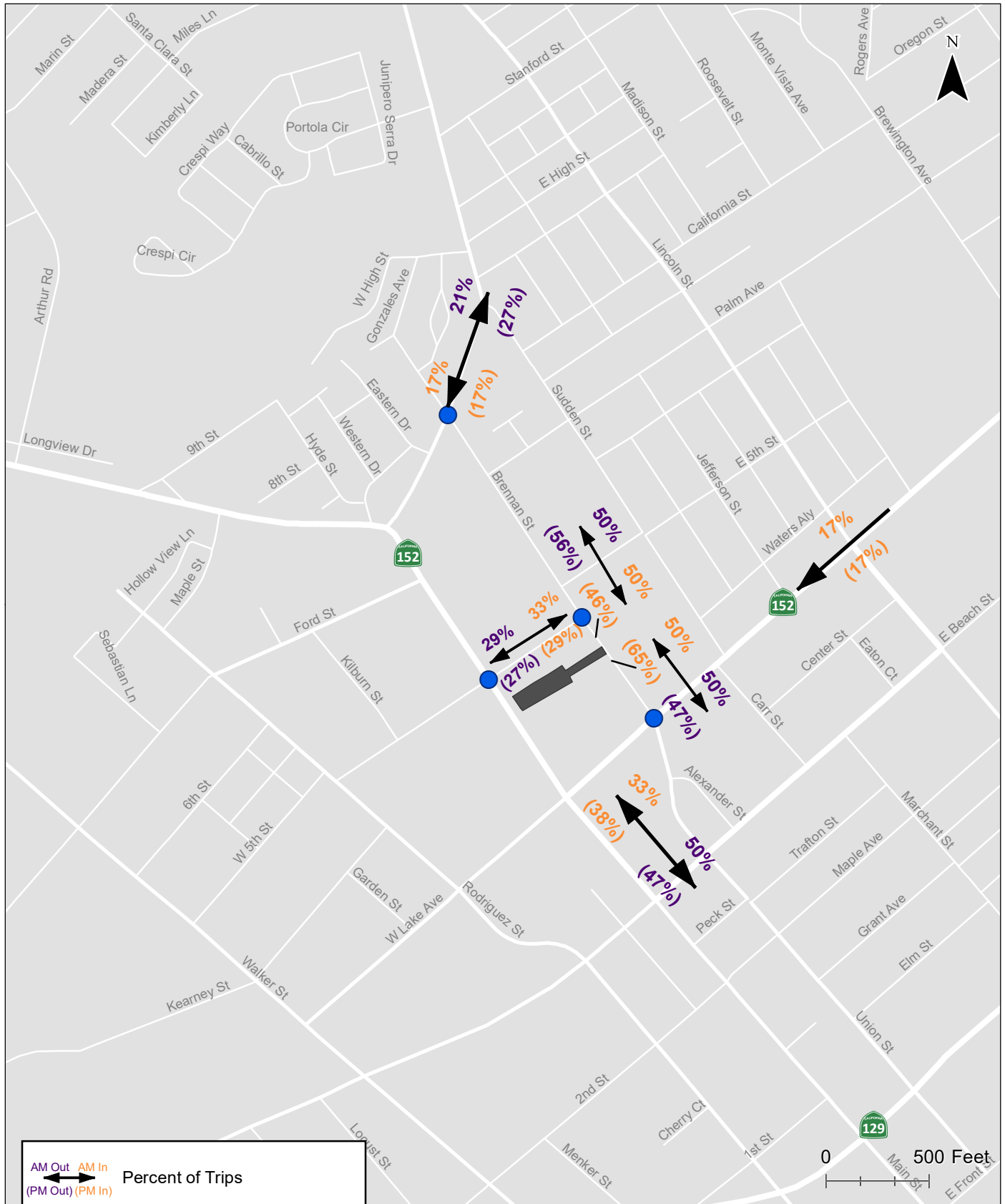
<sup>1</sup> Thousand Square Feet.

<sup>2</sup> Project trips calculated in Table 8.

## TRIP DISTRIBUTION

The distribution of project trips was developed based on existing travel patterns and traffic count data. For a conservative approach, all the vehicle traffic was assumed to originate and end from the rear of the site on Brannan Street. This includes the limited amount of traffic generated by the restaurant. Figure 10 presents the general distribution of trips. Figure 11 shows the turning movement volumes for project only trips at the four study intersections and Figure 12 shows the turning movement volumes for project plus existing trips at the four study intersections.

C:\Users\carsky\OneDrive - Kittelson & Associates, Inc\Desktop\WFH Files\24999 - Watsonville Residence 558 Main St\TIA\fig10\_TripDistribution.mxd - garsky - 4:43 PM 4/10/2020



**Trip Distribution Percentages  
558 Main St Residence TIA  
Watsonville, California**

**Figure  
10**

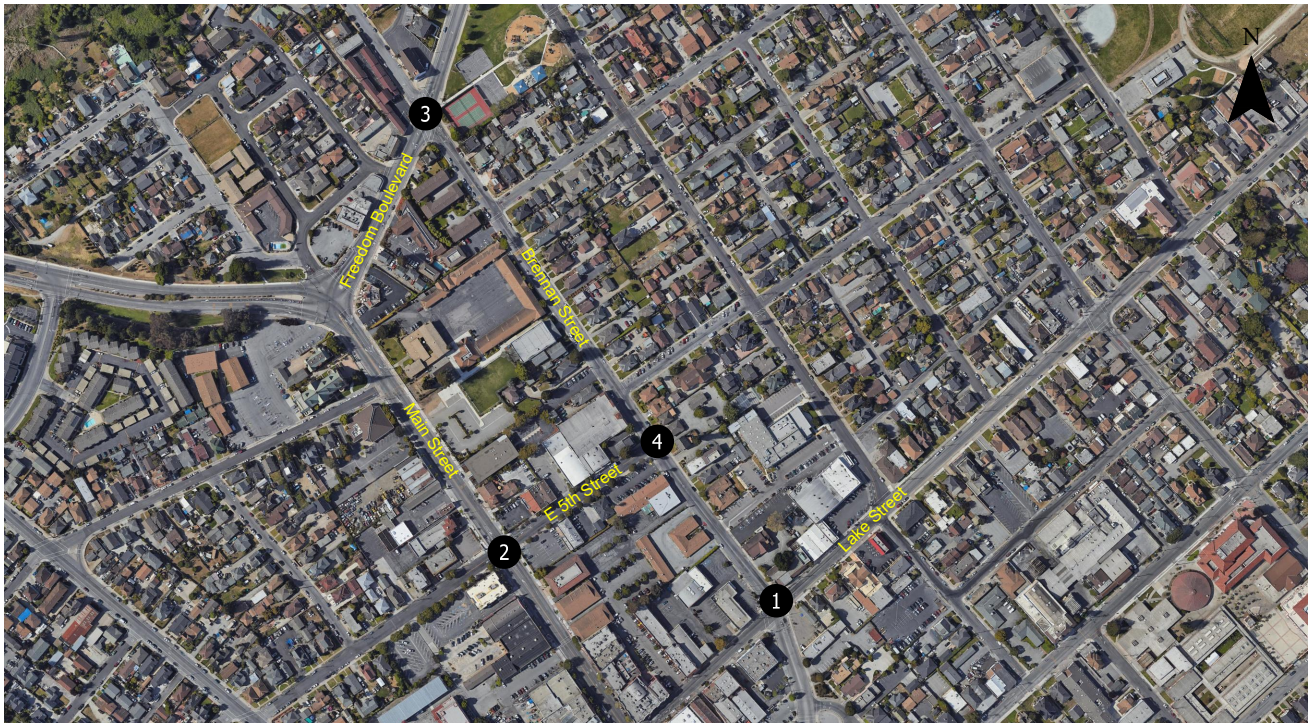
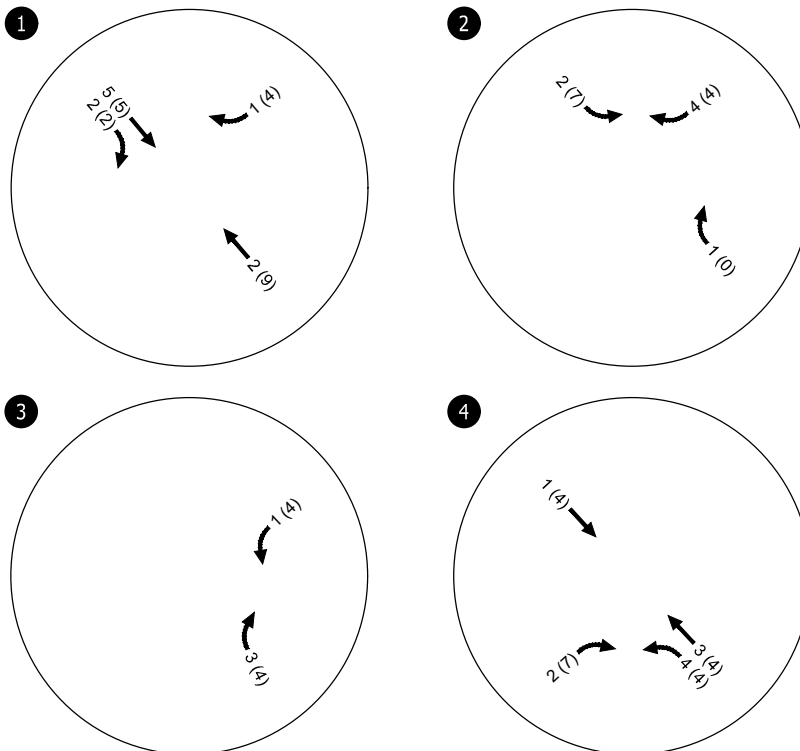


Image Source: Google Earth, 2020.



## - Study Intersections

AM (PM) - Traffic Volume

Project Generated Peak Hour Volumes  
Watsonville, California

Figure  
11



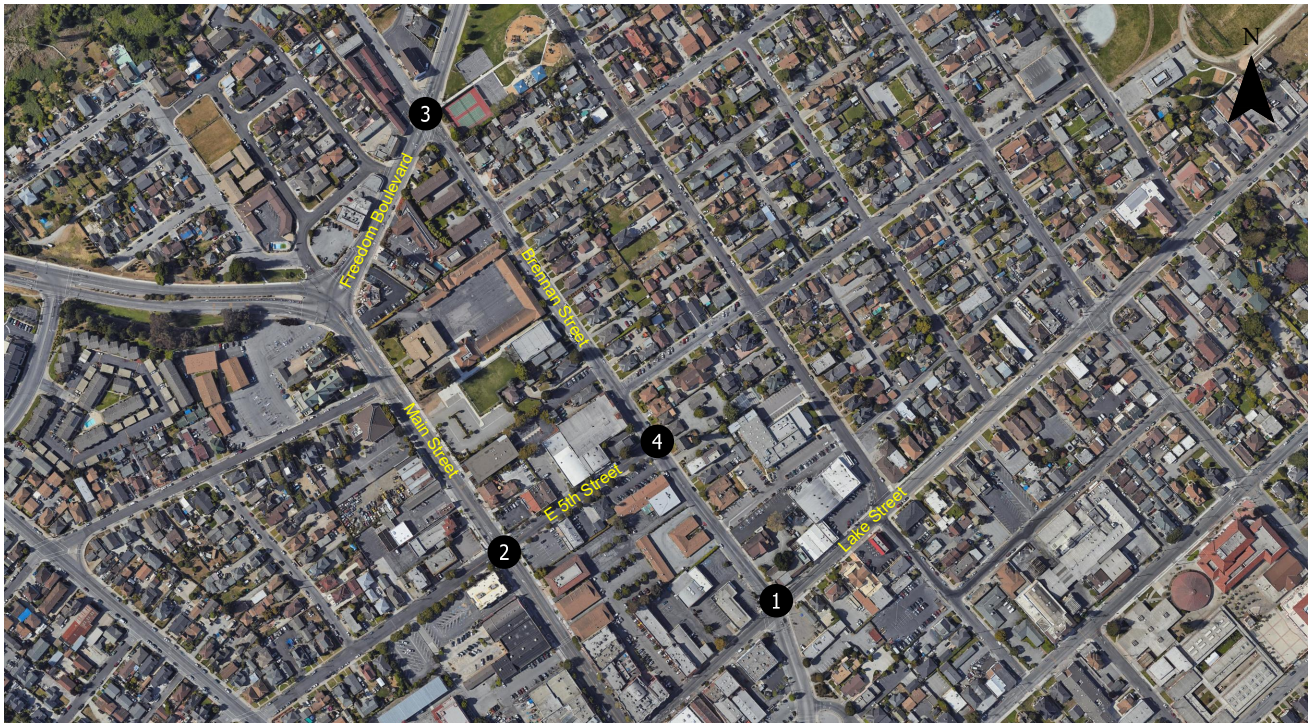
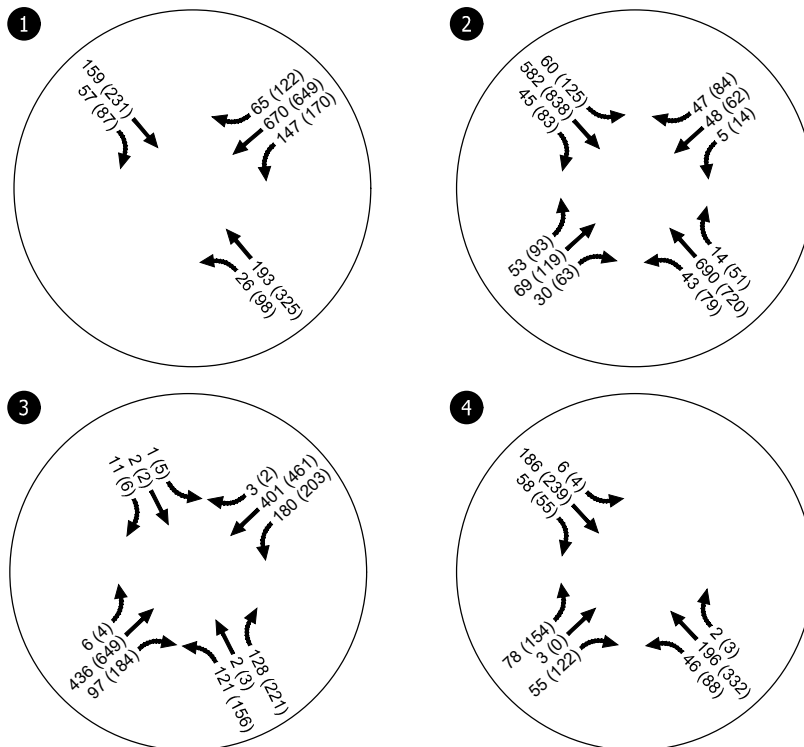


Image Source: Google Earth, 2020.



## - Study Intersections

AM (PM) - Traffic Volume

Existing + Project Peak Hour Volumes  
Watsonville, California

Figure  
12

## EXISTING PLUS PROJECT CONDITIONS

Table 10 summarizes the LOS results for the study intersections for Existing Plus Project conditions. All signalized intersections are expected to operate at the same LOS as under Existing conditions, at LOS D or better. At the stop-controlled T-intersection of E 5<sup>th</sup> Street and Brennan Street, the eastbound left-turn (EBL) is the worst movement for both a.m. and p.m. peak hours. During the p.m. peak hour, the EBL movement is expected to operate at LOS F, compared to LOS E under Existing conditions shown in Table 3. This change in LOS corresponds to an increase in delay per vehicle of about five (5) seconds during the p.m. peak hour. The expected 95<sup>th</sup> percentile queue length for this approach is eight (8) vehicles, compared to seven (7) vehicles under Existing conditions. As shown in Figure 11, the project adds seven (7) vehicles to this approach during the p.m. peak hour, which is less than 3% of existing traffic on that approach and would be within typical daily fluctuation of traffic volumes. Moreover, the existing condition analysis did not include trips generated by the prior bank use, which may have contributed some traffic on E 5<sup>th</sup> Street. Appendix I includes the full intersection analysis reports exported from Vistro.

**Table 10 Intersection LOS under Existing Plus Project Conditions**

#	Intersection	Control	Standard	Weekday a.m. Peak Hour		Weekday p.m. Peak Hour	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	W Lake Avenue and Brennan Street/Union Street	Signal	C	14.1	B	17.2	B
2	W 5th Street and Main Street	Signal	D	26.8	C	52.0	D
3	Freedom Boulevard and Brennan Street	Signal	D	16.5	B	21.2	C
4	E 5th Street and Brennan Street	Side-Street Stop Control	E	16.5 <sup>1</sup>	C	<b>51.2 <sup>1</sup></b>	<b>F</b>

<sup>1</sup> The worst movement is eastbound left-turn. Average intersection delay is 3.8 seconds for a.m. and 13.9 seconds for p.m. peak hours.

**Bold and shaded** indicates intersection would operate beyond the standard.

Source: Kittelson & Associates, Inc., 2020

## SITE ACCESS AND CIRCULATION ANALYSIS

Kittelsohn conducted a qualitative assessment of site access and circulation for vehicles, pedestrians, bicyclists, and deliveries based on the preliminary site plan presented in Figure 2. The results of this review are summarized in this section.

### VEHICLE ACCESS

**Residential Use.** People driving to the site and accessing the residential units would access the parking lot through the existing alley driveway from Brennan Street. The two-way alley driveway is approximately 20 feet in width and would serve both in-bound and out-bound traffic. The alley and driveway would be shared with pedestrians and bicyclists.

When two large vehicles (e.g., SUVs and pick-up trucks) enter/exit the site concurrently, the width of the driveway and alley may be insufficient for comfortable 2-way travel. At such times, drivers would need to take turns using the alley. This condition exists on the site today and would continue to exist with construction of the proposed project.

For drivers exiting the site, the sightline toward people approaching from the north on Brennan Street (pedestrians and drivers) is encumbered by an existing commercial building. This condition exists on the site today and would continue to exist with construction of the proposed project. Likewise, for drivers entering the site, the sightline toward the alley is encumbered by the existing building—a condition that would remain after construction of the project.

Vehicles volumes at the driveway resulting from the project are expected to be low (on average, one vehicle about every three minutes during the peak hours; volumes for the remainder of the day). Therefore, drivers would need to continue exercising caution to enter and exit the site at the alley driveway.

**Commercial Use.** No on-site parking is provided for the restaurant. Therefore, people driving to the site to visit the restaurant would use public parking available within downtown and walk to the site.

### Recommendations

The following activities are recommended to ensure adequate safety and operation at the internal intersections and roadways:

- Install lane striping within the alley and signs at the driveway to increase drivers' awareness of appropriate vehicle position within the cross section of the driveway and alley.
- Install a convex mirror on the south side of the driveway providing visibility around the corner of the existing building for drivers exiting the site and drivers entering from southbound Brennan Street.

## PEDESTRIAN AND BICYCLIST ACCESS

**Residential Use.** Residents of the building, both as pedestrians and bicyclists, have access through two paths:

- Via the two-way alley connected to Brennan Street
- From E Lake Avenue via the connected parking lots south of the project site

Visitors can access the building via the front of the entrance on Main Street.

**Commercial Use.** Customers of the restaurant located on the ground floor can access the building from the entrance located on Main Street. Bicyclists would use publicly available bike parking. No bike parking is provided for the restaurant use.

Transit users, both as pedestrians and bicyclists, can access the project site via sidewalks in the vicinity of the project site.

## PASSENGER AND FREIGHT LOADING

The existing red-curb on Main Street in front of the project site does not allow parking or loading activities since two driveways serving the previous bank drive-through are narrowly spaced. With construction of the project, the two curb-cuts would be removed, and the curb at the project frontage would be non-colored to accommodate passenger and freight loading activities for the proposed project. This unrestricted section of curb would be approximately 100 feet long.

**Residential Use.** Passenger loading for the apartments would take place in the garage and/or the open parking area to the rear of the building. When people move into and out of the residential units, loading would occur in the garage and/or the parking lot at the rear of the building.

**Commercial Use.** Passenger loading activities for the restaurant are expected to take place at the curb on Main Street in front of the building. Delivery trucks for the restaurant also are expected to be loaded at the curb on Main Street.



## Section 5

### Conclusions and Recommendations

## CONCLUSIONS AND RECOMMENDATIONS

The results of this study indicate that the proposed Residence at 558 Main development can be constructed while maintaining acceptable traffic operations at the study intersections and improving safety at the site access on Brennan Street, assuming provision of the recommended improvement measures at the alley driveway on Brennan Street.

## FINDINGS

### Year 2020 Existing Conditions

- All of the study intersections operate at acceptable levels of service during the weekday a.m. and p.m. peak hours.
- A review of historical crash data revealed two (2) pedestrian fatalities within a three-year period. The City's Downtown Complete Streets Plan includes improvements that will enhance the circulation network and improve safety for people walking in downtown. Therefore, the crash patterns or trends in the site vicinity do not require mitigation associated with this project.

### Existing Plus Project Conditions

All of the study intersections, except for the intersection of E 5<sup>th</sup> Street and Brennan Street, are forecast to operate with acceptable levels of service during the weekday a.m. and p.m. peak hours.

- The project adds seven (7) trips during the p.m. peak hour to the eastbound approach at the E 5<sup>th</sup> Street/Brennan Street intersection, which is less than 3% of existing traffic volumes for this approach and is within the typical daily fluctuation of traffic.
- The eastbound left-turn movement operations at the E 5<sup>th</sup> Street/Brennan Street intersection are projected to change from level of service E to F during the weekday p.m. peak hour with the addition of project traffic.
- The 95<sup>th</sup> percentile queue at the E 5<sup>th</sup> Street/Brennan Street intersection eastbound approach during the p.m. peak hour is projected to be seven (7) vehicles or approximately 175 feet, which would be accommodated within the length of the road segment.
- The project would generate 20 weekday a.m. peak hour vehicle-trips, and 39 weekday p.m. peak hour vehicle-trips. The project would generate fewer trips than the prior bank use that was on this site until April 2019 (with 48 a.m. and 102 p.m. peak hour trips). Given the lower vehicle trips generated on the roadway, the project is not expected to contribute significantly to the operational and safety conditions prior to the project.

## Site Access and Circulation Evaluation

- The existing alley driveway at the rear of the site providing access to Brennan Street has sightline constraints due to the existing building on the north side of the driveway.
- Drivers entering and existing the site at Brennan Street will continue to experience the existing sightline constraints after the project is constructed.

## RECOMMENDATIONS

The following activities are recommended to ensure adequate safety and operation at the internal intersections and roadways:

- Install lane striping within the alley and signs at the driveway to increase drivers' awareness of appropriate vehicle position within the cross section of the driveway and alley.
- Install a convex mirror on the south side of the driveway providing visibility around the corner of the existing building for drivers exiting the site and drivers entering from southbound Brennan Street.

## Appendix 1

### Intersection Analysis Sheets



Vistro File: C:\...\Existing\_20200403.vistro  
Report File: C:\...\lex\_am.pdf

Scenario 1 Existing\_AM  
4/10/2020

### Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lake Ave/Brennan St-Union St	Signalized	HCM 6th Edition	NB Left	0.478	14.0	B
2	5th St and Main St	Signalized	HCM 6th Edition	EB Thru	1.225	26.8	C
3	Freedom Blvd and Brennan St	Signalized	HCM 6th Edition	NB Left	0.789	16.3	B
4	Brennan St and E 5th St	Two-way stop	HCM 6th Edition	EB Left	0.206	16.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**  
**Intersection 1: Lake Ave/Brennan St-Union St**

Control Type:	Signalized	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.478

**Intersection Setup**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Base Volume Input [veh/h]	26	191	0	0	154	55	0	0	0	147	670	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	3.00	2.00	2.00	3.00	4.00	2.00	2.00	2.00	3.00	3.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	191	0	0	154	55	0	0	0	147	670	64
Peak Hour Factor	0.8800	0.8800	1.0000	1.0000	0.8800	0.8800	1.0000	1.0000	1.0000	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	54	0	0	44	16	0	0	0	42	190	18
Total Analysis Volume [veh/h]	30	217	0	0	175	63	0	0	0	167	761	73
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	5			7			5			6		
v_di, Inbound Pedestrian Volume crossing major street	5			6			5			7		
v_co, Outbound Pedestrian Volume crossing minor street	3			14			15			3		
v_ci, Inbound Pedestrian Volume crossing minor street	3			15			14			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			2		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	48.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	0	0	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	0	27	0	0	27	0	0	0	0	0	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	3.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	39	0	0	39	0	0	0	0	0	34	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	0	0	0	6	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	2.2	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	C	R		C	C
C, Cycle Length [s]	75	75	75	75		75	75
L, Total Lost Time per Cycle [s]	4.20	4.20	4.20	4.20		4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	2.20	2.20		2.20	2.20
g_i, Effective Green Time [s]	14	14	14	14		53	53
g / C, Green / Cycle	0.18	0.18	0.18	0.18		0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.10	0.05		0.32	0.32
s, saturation flow rate [veh/h]	1011	1669	1669	1341		1643	1471
c, Capacity [veh/h]	156	308	308	247		1157	1035
d1, Uniform Delay [s]	34.20	28.68	27.87	26.12		4.84	4.86
k, delay calibration	0.08	0.08	0.08	0.08		0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.44	2.21	1.23	0.40		1.30	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

**Lane Group Results**

X, volume / capacity	0.19	0.71	0.57	0.25		0.46	0.46
d, Delay for Lane Group [s/veh]	34.64	30.89	29.10	26.52		6.14	6.32
Lane Group LOS	C	C	C	C		A	A
Critical Lane Group	No	Yes	No	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.54	3.71	2.86	0.96		2.97	2.72
50th-Percentile Queue Length [ft/ln]	13.40	92.69	71.58	23.95		74.17	68.04
95th-Percentile Queue Length [veh/ln]	0.96	6.67	5.15	1.72		5.34	4.90
95th-Percentile Queue Length [ft/ln]	24.11	166.85	128.84	43.10		133.50	122.46

**Movement, Approach, & Intersection Results**

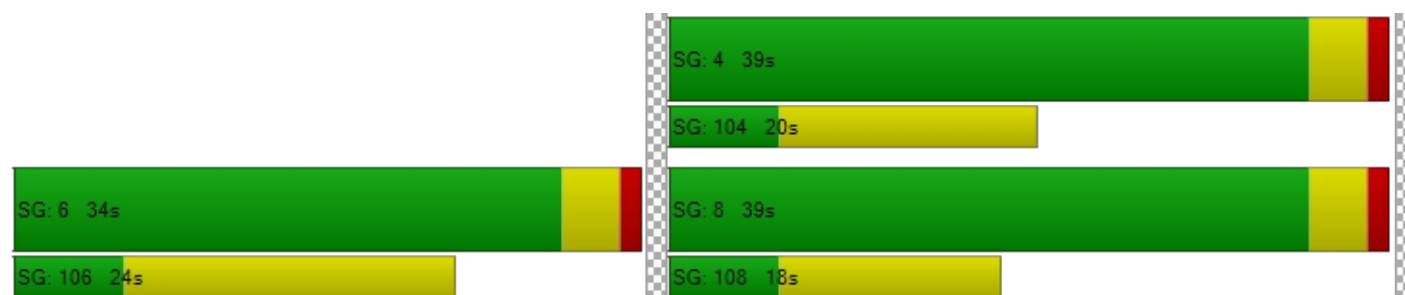
d_M, Delay for Movement [s/veh]	34.64	30.89	0.00	0.00	29.10	26.52	0.00	0.00	0.00	6.14	6.23	6.32
Movement LOS	C	C			C	C				A	A	A
d_A, Approach Delay [s/veh]	31.35			28.42			0.00			6.22		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	13.95											
Intersection LOS	B											
Intersection V/C	0.478											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.123	2.103	2.165	2.194
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	928	928	0	795
d_b, Bicycle Delay [s]	10.77	10.77	37.50	13.63
I_b,int, Bicycle LOS Score for Intersection	1.967	1.952	4.132	2.385
Bicycle LOS	A	A	D	B

**Sequence**

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
Intersection 2: 5th St and Main St**

Control Type: Signalized  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 26.8  
 Level Of Service: C  
 Volume to Capacity (v/c): 1.225

**Intersection Setup**

Name	Main St			Main St			5th St			5th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	75.00	100.00	100.00	55.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	75.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Main St			Main St			5th St			5th St		
Base Volume Input [veh/h]	43	690	13	58	582	45	53	69	30	5	48	43
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	5.00	8.00	3.00	3.00	2.00	2.00	4.00	3.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	690	13	58	582	45	53	69	30	5	48	43
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	198	4	17	167	13	15	20	9	1	14	12
Total Analysis Volume [veh/h]	49	793	15	67	669	52	61	79	34	6	55	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	7			12			6			12		
v_di, Inbound Pedestrian Volume crossing major street	6			12			7			12		
v_co, Outbound Pedestrian Volume crossing minor street	4			4			4			4		
v_ci, Inbound Pedestrian Volume crossing minor street	4			4			4			4		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			0			0		



**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	17	40	0	17	40	0	0	22	0	0	22	0
Amber [s]	3.2	3.6	0.0	3.2	3.6	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	29	0	19	29	0	0	27	0	0	27	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.7	2.6	0.0	1.7	2.6	0.0	0.0	2.2	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	3.70	4.60	4.60	3.70	4.60	4.60	4.20	4.20	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	1.70	2.60	2.60	1.70	2.60	2.60	2.20	2.20	2.20	2.20
g_i, Effective Green Time [s]	4	35	35	5	35	35	23	23	23	23
g / C, Green / Cycle	0.06	0.46	0.46	0.07	0.47	0.47	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.25	0.04	0.22	0.22	0.74	0.02	0.06	0.03
s, saturation flow rate [veh/h]	1603	1642	1630	1590	1669	1625	189	1401	941	1419
c, Capacity [veh/h]	96	757	752	112	787	767	126	423	337	428
d1, Uniform Delay [s]	34.20	14.45	14.46	33.84	13.39	13.40	27.83	18.72	19.63	18.91
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.50	0.08	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.57	2.70	2.73	1.92	1.96	2.02	112.96	0.06	0.19	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.51	0.54	0.54	0.60	0.46	0.46	1.11	0.08	0.18	0.11
d, Delay for Lane Group [s/veh]	35.77	17.15	17.19	35.76	15.35	15.42	140.79	18.78	19.82	19.00
Lane Group LOS	D	B	B	D	B	B	F	B	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.89	5.07	5.04	1.21	4.23	4.14	6.22	0.41	0.75	0.60
50th-Percentile Queue Length [ft/ln]	22.15	126.70	126.07	30.32	105.79	103.59	155.45	10.31	18.86	15.01
95th-Percentile Queue Length [veh/ln]	1.60	8.76	8.73	2.18	7.60	7.46	10.87	0.74	1.36	1.08
95th-Percentile Queue Length [ft/ln]	39.88	219.00	218.14	54.57	190.12	186.45	271.74	18.56	33.94	27.02

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	35.77	17.17	17.19	35.76	15.38	15.42	140.79	140.79	18.78	19.82	19.82	19.00
Movement LOS	D	B	B	D	B	B	F	F	B	B	B	B
d_A, Approach Delay [s/veh]	18.24			17.12			116.95			19.45		
Approach LOS	B			B			F			B		
d_I, Intersection Delay [s/veh]	26.75											
Intersection LOS	C											
Intersection V/C	1.225											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.605	2.708	2.039	2.019
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	651	651	608	608
d_b, Bicycle Delay [s]	17.08	17.07	18.17	18.17
I_b,int, Bicycle LOS Score for Intersection	2.267	2.210	1.847	1.741
Bicycle LOS	B	B	A	A

**Sequence**





Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 3: Freedom Blvd and Brennan St**

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.789

**Intersection Setup**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	60.00	100.00	80.00	200.00	100.00	100.00	80.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		



**Volumes**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Base Volume Input [veh/h]	6	436	97	179	401	3	1	2	11	121	2	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	1.00	3.00	3.00	33.00	0.00	0.00	36.00	3.00	33.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	436	97	179	401	3	1	2	11	121	2	125
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	131	29	54	121	1	0	1	3	36	1	38
Total Analysis Volume [veh/h]	7	525	117	216	483	4	1	2	13	146	2	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	2			5			6			2		
v_di, Inbound Pedestrian Volume crossing major street	2			6			5			2		
v_co, Outbound Pedestrian Volume crossing minor street	2			5			2			4		
v_ci, Inbound Pedestrian Volume crossing minor street	2			4			2			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	5	4	0	1	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	15	32	0	15	32	0	15	15	0	15	15	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	L	C	L	C
C, Cycle Length [s]	50	50	50	50	50	50	50	50	50
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	18	18	8	26	11	11	11	11
g / C, Green / Cycle	0.01	0.37	0.37	0.17	0.52	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.08	0.14	0.29	0.00	0.01	0.12	0.14
s, saturation flow rate [veh/h]	1629	1656	1434	1590	1667	1117	1443	1239	1055
c, Capacity [veh/h]	15	607	525	268	876	203	323	363	236
d1, Uniform Delay [s]	24.51	14.62	10.87	19.90	7.92	22.36	15.13	19.11	17.51
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.06	3.88	0.21	5.69	0.55	0.01	0.06	0.72	2.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.46	0.87	0.22	0.81	0.56	0.00	0.05	0.40	0.65
d, Delay for Lane Group [s/veh]	44.58	18.50	11.08	25.59	8.47	22.37	15.19	19.83	20.47
Lane Group LOS	D	B	B	C	A	C	B	B	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	5.16	0.78	2.57	2.66	0.01	0.12	1.47	1.59
50th-Percentile Queue Length [ft/ln]	4.02	128.88	19.42	64.23	66.43	0.27	3.09	36.86	39.82
95th-Percentile Queue Length [veh/ln]	0.29	8.88	1.40	4.62	4.78	0.02	0.22	2.65	2.87
95th-Percentile Queue Length [ft/ln]	7.23	221.97	34.95	115.61	119.58	0.48	5.57	66.34	71.68

**Movement, Approach, & Intersection Results**

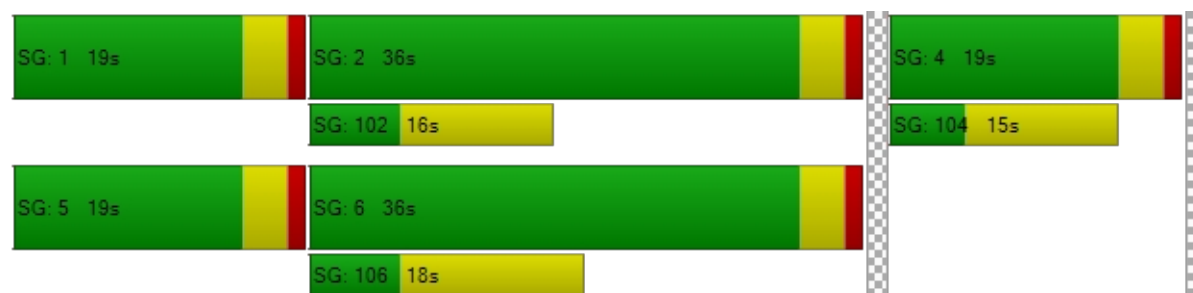
d_M, Delay for Movement [s/veh]	44.58	18.50	11.08	25.59	8.47	8.47	22.37	15.19	15.19	19.83	20.47	20.47
Movement LOS	D	B	B	C	A	A	C	B	B	B	C	C
d_A, Approach Delay [s/veh]	17.44			13.73			15.64			20.16		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	16.35											
Intersection LOS	B											
Intersection V/C	0.789											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	35.56	35.56
I_p,int, Pedestrian LOS Score for Intersection	2.655	2.392	1.950	2.147
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	711	333	333
d_b, Bicycle Delay [s]	18.69	18.69	31.27	31.25
I_b,int, Bicycle LOS Score for Intersection	2.630	2.720	1.586	2.053
Bicycle LOS	B	B	A	B

**Sequence**

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






### Intersection Level Of Service Report

#### Intersection 4: Brennan St and E 5th St

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 16.2  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.206

#### Intersection Setup

Name	Brennan St		Brennan St		E 5th St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

#### Volumes

Name	Brennan St		Brennan St		E 5th St	
Base Volume Input [veh/h]	42	193	185	58	78	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	3.00	0.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	193	185	58	78	53
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	54	52	16	22	15
Total Analysis Volume [veh/h]	47	217	208	65	88	60
Pedestrian Volume [ped/h]	1		25		17	



**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.21	0.08
d_M, Delay for Movement [s/veh]	7.96	0.00	0.00	0.00	16.16	12.46
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	1.17	1.17
95th-Percentile Queue Length [ft/ln]	2.90	2.90	0.00	0.00	29.13	29.13
d_A, Approach Delay [s/veh]	1.42		0.00		14.66	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.71					
Intersection LOS	C					

Vistro File: C:\...\Existing\_20200403.vistro

Scenario 1 Existing\_AM

Report File: C:\...\lex\_am.pdf

4/10/2020

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound		Southbound		Westbound			Total Volume
		Left	Thru	Thru	Right	Left	Thru	Right	
1	Lake Ave/Brennan St-Union St	26	191	154	55	147	670	64	1307

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	5th St and Main St	43	690	13	58	582	45	53	69	30	5	48	43	1679

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Freedom Blvd and Brennan St	6	436	97	179	401	3	1	2	11	121	2	125	1384

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
4	Brennan St and E 5th St	42	193	185	58	78	53	609

Vistro File: C:\...\Existing\_20200403.vistro  
Report File: C:\...\lex\_pm.pdf

Scenario 2 Existing\_PM  
4/10/2020

### Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lake Ave/Brennan St-Union St	Signalized	HCM 6th Edition	NB Left	0.557	17.1	B
2	5th St and Main St	Signalized	HCM 6th Edition	EB Thru	1.616	52.0	D
3	Freedom Blvd and Brennan St	Signalized	HCM 6th Edition	NB Left	0.883	20.3	C
4	Brennan St and E 5th St	Two-way stop	HCM 6th Edition	EB Left	0.618	46.3	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**  
**Intersection 1: Lake Ave/Brennan St-Union St**

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

**Intersection Setup**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Base Volume Input [veh/h]	98	316	0	0	226	85	0	0	0	170	649	118
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	2.00	2.00	1.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	98	316	0	0	226	85	0	0	0	170	649	118
Peak Hour Factor	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	85	0	0	61	23	0	0	0	46	174	32
Total Analysis Volume [veh/h]	105	340	0	0	243	91	0	0	0	183	698	127
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	10			8			9			7		
v_di, Inbound Pedestrian Volume crossing major street	9			7			10			8		
v_co, Outbound Pedestrian Volume crossing minor street	6			12			13			6		
v_ci, Inbound Pedestrian Volume crossing minor street	6			13			12			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			3			0			4		



**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	48.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	0	0	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	0	27	0	0	27	0	0	0	0	0	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	3.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	39	0	0	39	0	0	0	0	0	34	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	0	0	0	6	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	2.2	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R		C	C
C, Cycle Length [s]	75	75	75	75		75	75
L, Total Lost Time per Cycle [s]	4.20	4.20	4.20	4.20		4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	2.20	2.20		2.20	2.20
g_i, Effective Green Time [s]	21	21	21	21		46	46
g / C, Green / Cycle	0.28	0.28	0.28	0.28		0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.10	0.20	0.14	0.07		0.32	0.33
s, saturation flow rate [veh/h]	1010	1696	1696	1395		1655	1447
c, Capacity [veh/h]	235	478	478	393		1003	877
d1, Uniform Delay [s]	31.11	24.19	22.58	20.64		8.59	8.64
k, delay calibration	0.08	0.08	0.08	0.08		0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.99	1.47	0.62	0.22		2.03	2.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

**Lane Group Results**

X, volume / capacity	0.45	0.71	0.51	0.23		0.53	0.54
d, Delay for Lane Group [s/veh]	32.09	25.66	23.20	20.86		10.63	11.01
Lane Group LOS	C	C	C	C		B	B
Critical Lane Group	No	Yes	No	No		No	Yes
50th-Percentile Queue Length [veh/ln]	1.83	5.34	3.51	1.20		4.76	4.31
50th-Percentile Queue Length [ft/ln]	45.82	133.43	87.81	29.95		119.05	107.64
95th-Percentile Queue Length [veh/ln]	3.30	9.13	6.32	2.16		8.34	7.71
95th-Percentile Queue Length [ft/ln]	82.48	228.15	158.06	53.91		208.52	192.72

**Movement, Approach, & Intersection Results**

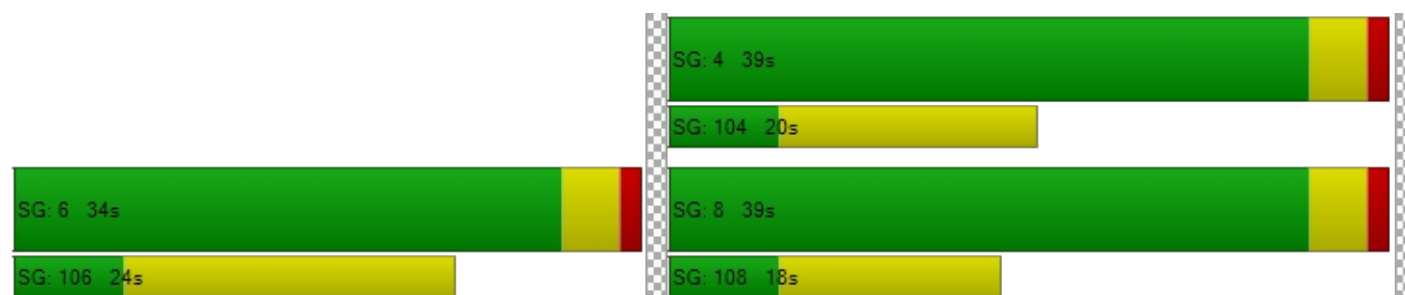
d_M, Delay for Movement [s/veh]	32.09	25.66	0.00	0.00	23.20	20.86	0.00	0.00	0.00	10.63	10.82	11.01
Movement LOS	C	C			C	C				B	B	B
d_A, Approach Delay [s/veh]	27.18			22.56			0.00			10.81		
Approach LOS	C			C			A			B		
d_I, Intersection Delay [s/veh]	17.08											
Intersection LOS	B											
Intersection V/C	0.557											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.214	2.192	2.291	2.197
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	928	928	0	795
d_b, Bicycle Delay [s]	10.77	10.79	37.50	13.65
I_b,int, Bicycle LOS Score for Intersection	2.294	2.111	4.132	2.391
Bicycle LOS	B	B	D	B

**Sequence**

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
Intersection 2: 5th St and Main St**

Control Type: Signalized  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 52.0  
 Level Of Service: D  
 Volume to Capacity (v/c): 1.616

**Intersection Setup**

Name	Main St			Main St			5th St			5th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	75.00	100.00	100.00	55.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	75.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Main St			Main St			5th St			5th St		
Base Volume Input [veh/h]	79	720	51	118	838	83	93	119	63	14	62	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	4.00	0.00	2.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	720	51	118	838	83	93	119	63	14	62	80
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	194	14	32	225	22	25	32	17	4	17	22
Total Analysis Volume [veh/h]	85	774	55	127	901	89	100	128	68	15	67	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	30			10			29			9		
v_di, Inbound Pedestrian Volume crossing major street	29			9			30			10		
v_co, Outbound Pedestrian Volume crossing minor street	6			17			18			7		
v_ci, Inbound Pedestrian Volume crossing minor street	7			18			17			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			1			2			2		



**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	17	40	0	17	40	0	0	22	0	0	22	0
Amber [s]	3.2	3.6	0.0	3.2	3.6	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	29	0	19	29	0	0	27	0	0	27	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.7	2.6	0.0	1.7	2.6	0.0	0.0	2.2	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	3.70	4.60	4.60	3.70	4.60	4.60	4.20	4.20	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	1.70	2.60	2.60	1.70	2.60	2.60	2.20	2.20	2.20	2.20
g_i, Effective Green Time [s]	6	33	33	7	34	34	23	23	23	23
g / C, Green / Cycle	0.08	0.43	0.43	0.10	0.45	0.45	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.25	0.08	0.30	0.30	1.00	0.05	0.13	0.06
s, saturation flow rate [veh/h]	1616	1696	1647	1629	1683	1610	227	1329	619	1385
c, Capacity [veh/h]	127	737	715	159	763	730	138	401	243	418
d1, Uniform Delay [s]	33.65	15.97	16.00	33.16	16.01	16.10	28.57	19.24	20.67	19.50
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.50	0.08	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.25	3.18	3.31	3.44	4.43	4.81	325.95	0.15	0.60	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.67	0.57	0.57	0.80	0.66	0.67	1.66	0.17	0.34	0.21
d, Delay for Lane Group [s/veh]	35.90	19.15	19.31	36.60	20.44	20.91	354.52	19.39	21.27	19.68
Lane Group LOS	D	B	B	D	C	C	F	B	C	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.55	5.62	5.53	2.35	7.05	6.94	14.92	0.85	1.04	1.09
50th-Percentile Queue Length [ft/ln]	38.63	140.57	138.16	58.70	176.33	173.41	373.09	21.21	26.11	27.18
95th-Percentile Queue Length [veh/ln]	2.78	9.51	9.38	4.23	11.41	11.26	26.23	1.53	1.88	1.96
95th-Percentile Queue Length [ft/ln]	69.54	237.79	234.55	105.65	285.21	281.39	655.82	38.18	47.00	48.92

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	35.90	19.22	19.31	36.60	20.65	20.91	354.52	354.52	19.39	21.27	21.27	19.68
Movement LOS	D	B	B	D	C	C	F	F	B	C	C	B
d_A, Approach Delay [s/veh]	20.78			22.48			277.53			20.45		
Approach LOS	C			C			F			C		
d_I, Intersection Delay [s/veh]	51.98											
Intersection LOS	D											
Intersection V/C	1.616											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.682	2.838	2.106	2.087
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	651	651	608	608
d_b, Bicycle Delay [s]	17.09	17.08	18.18	18.18
I_b,int, Bicycle LOS Score for Intersection	2.314	2.481	2.048	1.837
Bicycle LOS	B	B	B	A

**Sequence**





Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 3: Freedom Blvd and Brennan St**

Control Type:	Signalized	Delay (sec / veh):	20.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

**Intersection Setup**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	60.00	100.00	80.00	200.00	100.00	100.00	80.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Base Volume Input [veh/h]	4	649	184	199	461	2	5	2	6	156	3	217
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	649	184	199	461	2	5	2	6	156	3	217
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	171	48	52	121	1	1	1	2	41	1	57
Total Analysis Volume [veh/h]	4	683	194	209	485	2	5	2	6	164	3	228
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	4			3			4			5		
v_di, Inbound Pedestrian Volume crossing major street	5			4			3			4		
v_co, Outbound Pedestrian Volume crossing minor street	4			1			3			0		
v_ci, Inbound Pedestrian Volume crossing minor street	3			0			4			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			5			1		



**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	5	4	0	1	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	15	50	0	15	50	0	15	10	0	15	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	L	C	L	C
C, Cycle Length [s]	56	56	56	56	56	56	56	56	56
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	25	25	9	34	10	10	10	10
g / C, Green / Cycle	0.01	0.45	0.45	0.16	0.60	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.40	0.14	0.13	0.29	0.00	0.01	0.13	0.16
s, saturation flow rate [veh/h]	1629	1696	1428	1616	1682	1051	1451	1254	1421
c, Capacity [veh/h]	9	764	643	257	1016	128	258	300	252
d1, Uniform Delay [s]	27.92	14.25	9.84	22.87	6.22	28.16	19.15	24.10	22.75
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.20	0.31
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	31.30	3.98	0.26	6.11	0.35	0.12	0.05	2.81	28.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.45	0.89	0.30	0.81	0.48	0.04	0.03	0.55	0.92
d, Delay for Lane Group [s/veh]	59.22	18.23	10.10	28.98	6.57	28.28	19.20	26.91	50.79
Lane Group LOS	E	B	B	C	A	C	B	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	7.37	1.33	2.90	2.37	0.07	0.08	2.23	4.71
50th-Percentile Queue Length [ft/ln]	3.21	184.31	33.17	72.46	59.24	1.71	2.09	55.79	117.83
95th-Percentile Queue Length [veh/ln]	0.23	11.83	2.39	5.22	4.27	0.12	0.15	4.02	8.27
95th-Percentile Queue Length [ft/ln]	5.78	295.63	59.70	130.43	106.64	3.08	3.76	100.43	206.84

**Movement, Approach, & Intersection Results**

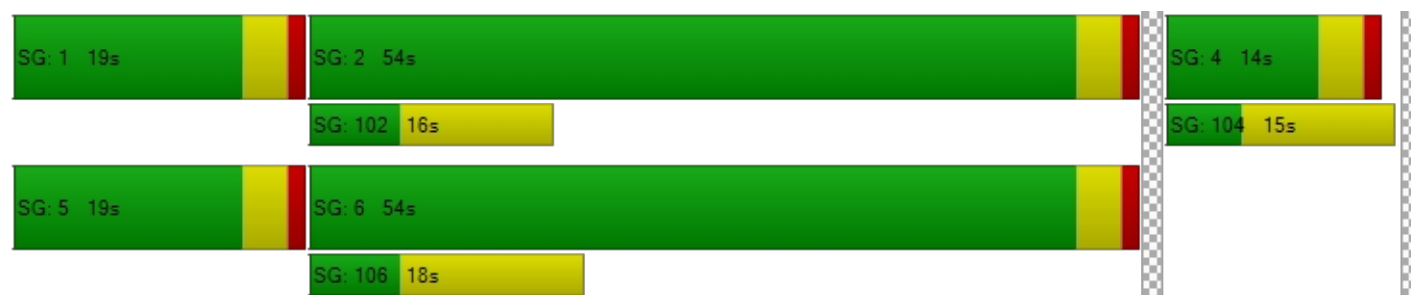
d_M, Delay for Movement [s/veh]	59.22	18.23	10.10	28.98	6.57	6.57	28.28	19.20	19.20	26.91	50.79	50.79
Movement LOS	E	B	B	C	A	A	C	B	B	C	D	D
d_A, Approach Delay [s/veh]	16.62			13.30			22.69			40.88		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	20.32											
Intersection LOS	C											
Intersection V/C	0.883											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			10.0			10.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	36.45			36.45			35.56			35.56		
I_p,int, Pedestrian LOS Score for Intersection	2.740			2.473			1.948			2.201		
Crosswalk LOS	B			B			A			B		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1111			1111			222			222		
d_b, Bicycle Delay [s]	8.89			8.89			35.64			35.57		
I_b,int, Bicycle LOS Score for Intersection	3.013			2.708			1.581			2.211		
Bicycle LOS	C			B			A			B		

**Sequence**

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






### Intersection Level Of Service Report

#### Intersection 4: Brennan St and E 5th St

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 46.3  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.618

#### Intersection Setup

Name	Brennan St		Brennan St		E 5th St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

#### Volumes

Name	Brennan St		Brennan St		E 5th St	
Base Volume Input [veh/h]	84	328	235	55	154	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	1.00	0.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	328	235	55	154	115
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	92	66	15	43	32
Total Analysis Volume [veh/h]	94	369	264	62	173	129
Pedestrian Volume [ped/h]	1		15		15	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.62	0.18
d_M, Delay for Movement [s/veh]	8.22	0.00	0.00	0.00	46.31	38.45
Movement LOS	A	A	A	A	E	E
95th-Percentile Queue Length [veh/ln]	0.25	0.25	0.00	0.00	6.87	6.87
95th-Percentile Queue Length [ft/ln]	6.30	6.30	0.00	0.00	171.78	171.78
d_A, Approach Delay [s/veh]	1.67		0.00		42.96	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	12.60					
Intersection LOS	E					



Vistro File: C:\...\Existing\_20200403.vistro

Scenario 2 Existing\_PM

Report File: C:\...\lex\_pm.pdf

4/10/2020

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound		Southbound		Westbound			Total Volume
		Left	Thru	Thru	Right	Left	Thru	Right	
1	Lake Ave/Brennan St-Union St	98	316	226	85	170	649	118	1662

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	5th St and Main St	79	720	51	118	838	83	93	119	63	14	62	80	2320

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Freedom Blvd and Brennan St	4	649	184	199	461	2	5	2	6	156	3	217	1888

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
4	Brennan St and E 5th St	84	328	235	55	154	115	971

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Report File: C:\...\ex+proj\_am.pdf

Scenario 3 Existing+Proj\_AM  
4/10/2020

### Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lake Ave/Brennan St-Union St	Signalized	HCM 6th Edition	NB Left	0.479	14.1	B
2	5th St and Main St	Signalized	HCM 6th Edition	EB Thru	1.227	26.8	C
3	Freedom Blvd and Brennan St	Signalized	HCM 6th Edition	NB Left	0.791	16.5	B
4	Brennan St and E 5th St	Two-way stop	HCM 6th Edition	EB Left	0.211	16.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**  
**Intersection 1: Lake Ave/Brennan St-Union St**

Control Type:	Signalized	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

**Intersection Setup**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Base Volume Input [veh/h]	26	193	0	0	159	57	0	0	0	147	670	65
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	3.00	2.00	2.00	3.00	4.00	2.00	2.00	2.00	3.00	3.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	193	0	0	159	57	0	0	0	147	670	65
Peak Hour Factor	0.8800	0.8800	1.0000	1.0000	0.8800	0.8800	1.0000	1.0000	1.0000	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	55	0	0	45	16	0	0	0	42	190	18
Total Analysis Volume [veh/h]	30	219	0	0	181	65	0	0	0	167	761	74
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	5			7			5			6		
v_di, Inbound Pedestrian Volume crossing major street	5			6			5			7		
v_co, Outbound Pedestrian Volume crossing minor street	3			14			15			3		
v_ci, Inbound Pedestrian Volume crossing minor street	3			15			14			3		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			2		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	48.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	0	0	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	0	27	0	0	27	0	0	0	0	0	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	3.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	39	0	0	39	0	0	0	0	0	34	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	0	0	0	6	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	2.2	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	C	R		C	C
C, Cycle Length [s]	75	75	75	75		75	75
L, Total Lost Time per Cycle [s]	4.20	4.20	4.20	4.20		4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	2.20	2.20		2.20	2.20
g_i, Effective Green Time [s]	14	14	14	14		53	53
g / C, Green / Cycle	0.19	0.19	0.19	0.19		0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.11	0.05		0.32	0.32
s, saturation flow rate [veh/h]	1006	1669	1669	1342		1643	1470
c, Capacity [veh/h]	156	314	314	252		1151	1029
d1, Uniform Delay [s]	34.18	28.46	27.73	25.92		4.97	4.98
k, delay calibration	0.08	0.08	0.08	0.08		0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.44	2.09	1.25	0.40		1.32	1.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

**Lane Group Results**

X, volume / capacity	0.19	0.70	0.58	0.26		0.46	0.46
d, Delay for Lane Group [s/veh]	34.62	30.55	28.98	26.32		6.29	6.47
Lane Group LOS	C	C	C	C		A	A
Critical Lane Group	No	Yes	No	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.54	3.72	2.96	0.98		3.03	2.78
50th-Percentile Queue Length [ft/ln]	13.39	93.00	73.94	24.60		75.85	69.55
95th-Percentile Queue Length [veh/ln]	0.96	6.70	5.32	1.77		5.46	5.01
95th-Percentile Queue Length [ft/ln]	24.11	167.39	133.09	44.29		136.53	125.19

**Movement, Approach, & Intersection Results**

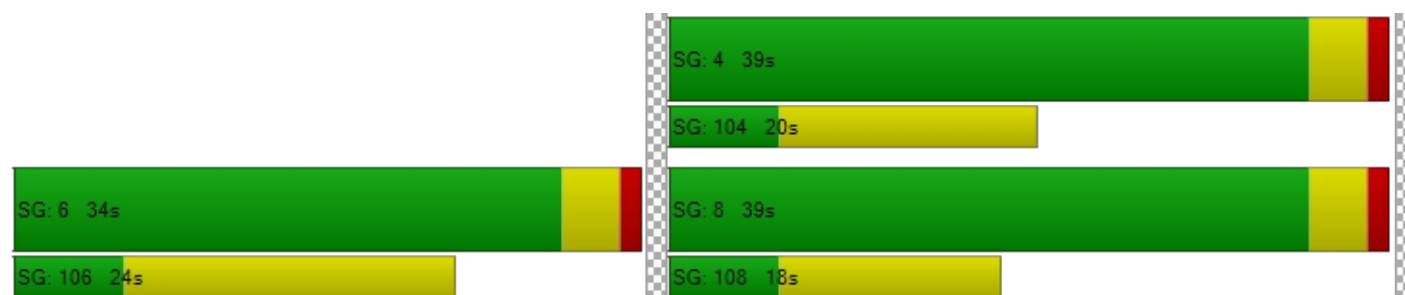
d_M, Delay for Movement [s/veh]	34.62	30.55	0.00	0.00	28.98	26.32	0.00	0.00	0.00	6.29	6.38	6.47
Movement LOS	C	C			C	C				A	A	A
d_A, Approach Delay [s/veh]	31.04			28.28			0.00			6.37		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	14.08											
Intersection LOS	B											
Intersection V/C	0.479											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.125	2.107	2.166	2.195
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	928	928	0	795
d_b, Bicycle Delay [s]	10.77	10.77	37.50	13.63
I_b,int, Bicycle LOS Score for Intersection	1.970	1.966	4.132	2.386
Bicycle LOS	A	A	D	B

**Sequence**

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report**  
**Intersection 2: 5th St and Main St**

Control Type: Signalized  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 26.8  
 Level Of Service: C  
 Volume to Capacity (v/c): 1.227

**Intersection Setup**

Name	Main St			Main St			5th St			5th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	75.00	100.00	100.00	55.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	75.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Main St			Main St			5th St			5th St		
Base Volume Input [veh/h]	43	690	14	60	582	45	53	69	30	5	48	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	5.00	8.00	3.00	3.00	2.00	2.00	4.00	3.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	690	14	60	582	45	53	69	30	5	48	47
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	198	4	17	167	13	15	20	9	1	14	14
Total Analysis Volume [veh/h]	49	793	16	69	669	52	61	79	34	6	55	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	7			12			6			12		
v_di, Inbound Pedestrian Volume crossing major street	6			12			7			12		
v_co, Outbound Pedestrian Volume crossing minor street	4			4			4			4		
v_ci, Inbound Pedestrian Volume crossing minor street	4			4			4			4		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	17	40	0	17	40	0	0	22	0	0	22	0
Amber [s]	3.2	3.6	0.0	3.2	3.6	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	29	0	19	29	0	0	27	0	0	27	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.7	2.6	0.0	1.7	2.6	0.0	0.0	2.2	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	3.70	4.60	4.60	3.70	4.60	4.60	4.20	4.20	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	1.70	2.60	2.60	1.70	2.60	2.60	2.20	2.20	2.20	2.20
g_i, Effective Green Time [s]	4	34	34	5	35	35	23	23	23	23
g / C, Green / Cycle	0.06	0.46	0.46	0.07	0.47	0.47	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.25	0.04	0.22	0.22	0.74	0.02	0.06	0.04
s, saturation flow rate [veh/h]	1603	1642	1629	1590	1669	1625	189	1401	941	1419
c, Capacity [veh/h]	96	756	750	113	787	767	126	423	337	428
d1, Uniform Delay [s]	34.20	14.51	14.52	33.82	13.39	13.40	27.83	18.72	19.63	18.98
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.50	0.08	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.57	2.73	2.76	1.97	1.96	2.02	112.96	0.06	0.19	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.51	0.54	0.54	0.61	0.46	0.46	1.11	0.08	0.18	0.13
d, Delay for Lane Group [s/veh]	35.77	17.24	17.28	35.79	15.35	15.42	140.79	18.78	19.82	19.08
Lane Group LOS	D	B	B	D	B	B	F	B	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.89	5.09	5.06	1.25	4.23	4.14	6.22	0.41	0.75	0.66
50th-Percentile Queue Length [ft/ln]	22.15	127.29	126.61	31.24	105.79	103.59	155.45	10.31	18.86	16.61
95th-Percentile Queue Length [veh/ln]	1.60	8.79	8.76	2.25	7.61	7.46	10.87	0.74	1.36	1.20
95th-Percentile Queue Length [ft/ln]	39.88	219.80	218.88	56.24	190.13	186.46	271.74	18.56	33.94	29.89

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	35.77	17.26	17.28	35.79	15.38	15.42	140.79	140.79	18.78	19.82	19.82	19.08
Movement LOS	D	B	B	D	B	B	F	F	B	B	B	B
d_A, Approach Delay [s/veh]	18.31			17.17			116.95			19.47		
Approach LOS	B			B			F			B		
d_I, Intersection Delay [s/veh]	26.78											
Intersection LOS	C											
Intersection V/C	1.227											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.605	2.709	2.039	2.022
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	651	651	608	608
d_b, Bicycle Delay [s]	17.08	17.07	18.17	18.17
I_b,int, Bicycle LOS Score for Intersection	2.267	2.211	1.847	1.749
Bicycle LOS	B	B	A	A

**Sequence**





Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 3: Freedom Blvd and Brennan St**

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.791

**Intersection Setup**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	60.00	100.00	80.00	200.00	100.00	100.00	80.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Base Volume Input [veh/h]	6	436	97	180	401	3	1	2	11	121	2	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	1.00	3.00	3.00	33.00	0.00	0.00	36.00	3.00	33.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	436	97	180	401	3	1	2	11	121	2	128
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	131	29	54	121	1	0	1	3	36	1	39
Total Analysis Volume [veh/h]	7	525	117	217	483	4	1	2	13	146	2	154
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	2			5			6			2		
v_di, Inbound Pedestrian Volume crossing major street	2			6			5			2		
v_co, Outbound Pedestrian Volume crossing minor street	2			5			2			4		
v_ci, Inbound Pedestrian Volume crossing minor street	2			4			2			5		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	5	4	0	1	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	15	32	0	15	32	0	15	15	0	15	15	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



**Lane Group Calculations**

Lane Group	L	C	R	L	C	L	C	L	C
C, Cycle Length [s]	50	50	50	50	50	50	50	50	50
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	18	18	8	26	11	11	11	11
g / C, Green / Cycle	0.01	0.37	0.37	0.17	0.53	0.23	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.08	0.14	0.29	0.00	0.01	0.12	0.15
s, saturation flow rate [veh/h]	1629	1656	1434	1590	1667	1114	1443	1239	1055
c, Capacity [veh/h]	15	606	525	269	876	201	326	365	238
d1, Uniform Delay [s]	24.71	14.76	10.97	20.05	7.98	22.57	15.18	19.17	17.63
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.09	3.91	0.21	5.71	0.55	0.01	0.06	0.71	3.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.46	0.87	0.22	0.81	0.56	0.00	0.05	0.40	0.65
d, Delay for Lane Group [s/veh]	44.80	18.67	11.18	25.76	8.53	22.58	15.24	19.88	20.66
Lane Group LOS	D	B	B	C	A	C	B	B	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.16	5.22	0.79	2.60	2.69	0.01	0.12	1.48	1.64
50th-Percentile Queue Length [ft/ln]	4.04	130.48	19.66	65.12	67.31	0.27	3.11	37.10	41.06
95th-Percentile Queue Length [veh/ln]	0.29	8.97	1.42	4.69	4.85	0.02	0.22	2.67	2.96
95th-Percentile Queue Length [ft/ln]	7.27	224.15	35.39	117.21	121.16	0.49	5.61	66.78	73.91

**Movement, Approach, & Intersection Results**

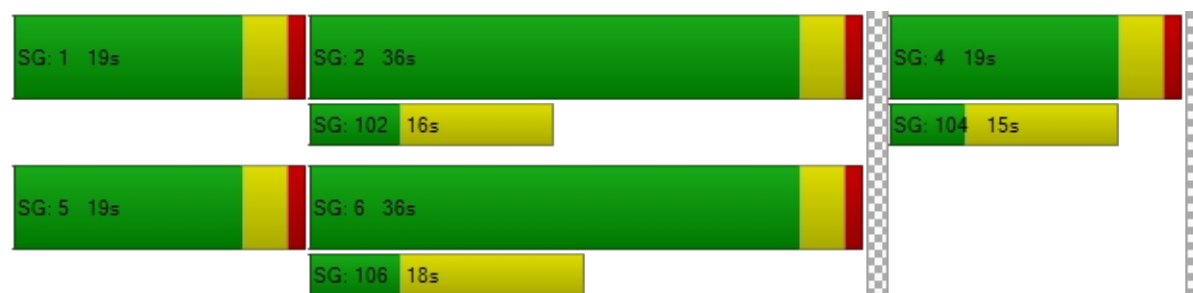
d_M, Delay for Movement [s/veh]	44.80	18.67	11.18	25.76	8.53	8.53	22.58	15.24	15.24	19.88	20.66	20.66
Movement LOS	D	B	B	C	A	A	C	B	B	B	C	C
d_A, Approach Delay [s/veh]	17.60			13.84			15.70			20.28		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	16.48											
Intersection LOS	B											
Intersection V/C	0.791											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			10.0			10.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	36.45			36.45			35.56			35.56		
I_p,int, Pedestrian LOS Score for Intersection	2.655			2.393			1.950			2.148		
Crosswalk LOS	B			B			A			B		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	711			711			333			333		
d_b, Bicycle Delay [s]	18.69			18.69			31.27			31.25		
I_b,int, Bicycle LOS Score for Intersection	2.630			2.721			1.586			2.058		
Bicycle LOS	B			B			A			B		

**Sequence**

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






### Intersection Level Of Service Report

#### Intersection 4: Brennan St and E 5th St

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 16.5  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.211

#### Intersection Setup

Name	Brennan St		Brennan St		E 5th St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

#### Volumes

Name	Brennan St		Brennan St		E 5th St	
Base Volume Input [veh/h]	46	196	186	58	78	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	3.00	0.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	196	186	58	78	55
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	55	52	16	22	15
Total Analysis Volume [veh/h]	52	220	209	65	88	62
Pedestrian Volume [ped/h]	1		25		17	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.21	0.08
d_M, Delay for Movement [s/veh]	7.98	0.00	0.00	0.00	16.50	12.60
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.00	0.00	1.21	1.21
95th-Percentile Queue Length [ft/ln]	3.22	3.22	0.00	0.00	30.19	30.19
d_A, Approach Delay [s/veh]	1.52		0.00		14.89	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.81					
Intersection LOS	C					

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Scenario 3 Existing+Proj\_AM

Report File: C:\...\ex+proj\_am.pdf

4/10/2020

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound		Southbound		Westbound			Total Volume
		Left	Thru	Thru	Right	Left	Thru	Right	
1	Lake Ave/Brennan St-Union St	26	193	159	57	147	670	65	1317

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	5th St and Main St	43	690	14	60	582	45	53	69	30	5	48	47	1686

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Freedom Blvd and Brennan St	6	436	97	180	401	3	1	2	11	121	2	128	1388

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
4	Brennan St and E 5th St	46	196	186	58	78	55	619



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Report File: C:\...\lex+prj\_pm.pdf

Scenario 4 Existing+Proj\_PM  
4/10/2020

### Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lake Ave/Brennan St-Union St	Signalized	HCM 6th Edition	NB Left	0.564	17.2	B
2	5th St and Main St	Signalized	HCM 6th Edition	EB Thru	1.616	52.0	D
3	Freedom Blvd and Brennan St	Signalized	HCM 6th Edition	NB Left	0.890	21.2	C
4	Brennan St and E 5th St	Two-way stop	HCM 6th Edition	EB Left	0.638	51.2	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report**  
**Intersection 1: Lake Ave/Brennan St-Union St**

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.564

**Intersection Setup**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Union St			Brennan St			Lake Ave			Lake Ave		
Base Volume Input [veh/h]	98	325	0	0	231	87	0	0	0	170	649	122
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	2.00	2.00	1.00	0.00	2.00	2.00	2.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	98	325	0	0	231	87	0	0	0	170	649	122
Peak Hour Factor	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	1.0000	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	87	0	0	62	23	0	0	0	46	174	33
Total Analysis Volume [veh/h]	105	349	0	0	248	94	0	0	0	183	698	131
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	10			8			9			7		
v_di, Inbound Pedestrian Volume crossing major street	9			7			10			8		
v_co, Outbound Pedestrian Volume crossing minor street	6			12			13			6		
v_ci, Inbound Pedestrian Volume crossing minor street	6			13			12			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			3			0			4		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	48.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

**Phasing & Timing**

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	0	0	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	0	27	0	0	27	0	0	0	0	0	30	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	3.2	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	39	0	0	39	0	0	0	0	0	34	0
Vehicle Extension [s]	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	0	0	0	6	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	0	0	0	18	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	2.2	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	R		C	C
C, Cycle Length [s]	75	75	75	75		75	75
L, Total Lost Time per Cycle [s]	4.20	4.20	4.20	4.20		4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	2.20	2.20		2.20	2.20
g_i, Effective Green Time [s]	21	21	21	21		45	45
g / C, Green / Cycle	0.28	0.28	0.28	0.28		0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.10	0.21	0.15	0.07		0.32	0.33
s, saturation flow rate [veh/h]	1006	1696	1696	1395		1655	1444
c, Capacity [veh/h]	235	483	483	397		998	871
d1, Uniform Delay [s]	31.09	24.16	22.47	20.51		8.74	8.79
k, delay calibration	0.08	0.08	0.08	0.08		0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	0.99	1.54	0.63	0.23		2.08	2.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

**Lane Group Results**

X, volume / capacity	0.45	0.72	0.51	0.24		0.54	0.54
d, Delay for Lane Group [s/veh]	32.07	25.70	23.10	20.74		10.82	11.23
Lane Group LOS	C	C	C	C		B	B
Critical Lane Group	No	Yes	No	No		No	Yes
50th-Percentile Queue Length [veh/ln]	1.83	5.49	3.58	1.23		4.85	4.38
50th-Percentile Queue Length [ft/ln]	45.81	137.31	89.47	30.85		121.28	109.57
95th-Percentile Queue Length [veh/ln]	3.30	9.34	6.44	2.22		8.46	7.82
95th-Percentile Queue Length [ft/ln]	82.46	233.40	161.05	55.53		211.59	195.40

**Movement, Approach, & Intersection Results**

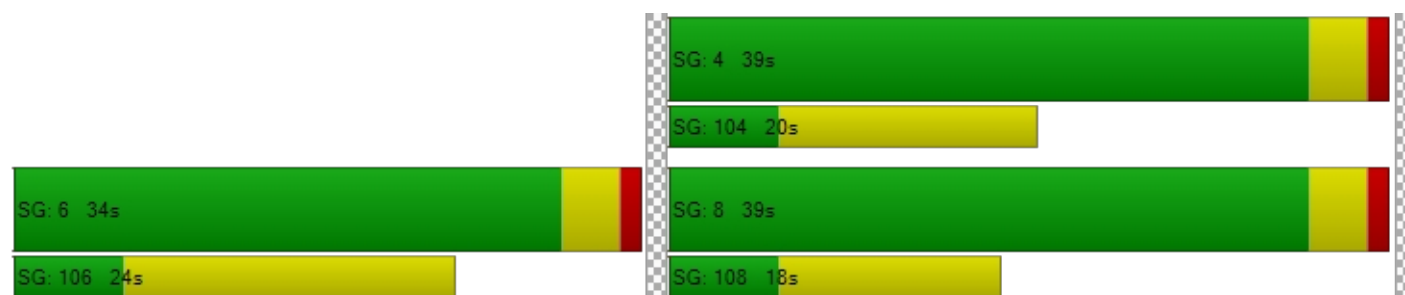
d_M, Delay for Movement [s/veh]	32.07	25.70	0.00	0.00	23.10	20.74	0.00	0.00	0.00	10.82	11.02	11.23
Movement LOS	C	C			C	C				B	B	B
d_A, Approach Delay [s/veh]	27.17			22.45			0.00			11.01		
Approach LOS	C			C			A			B		
d_I, Intersection Delay [s/veh]	17.23											
Intersection LOS	B											
Intersection V/C	0.564											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.219	2.199	2.293	2.199
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	928	928	0	795
d_b, Bicycle Delay [s]	10.77	10.79	37.50	13.65
I_b,int, Bicycle LOS Score for Intersection	2.309	2.124	4.132	2.395
Bicycle LOS	B	B	D	B

**Sequence**

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









**Intersection Level Of Service Report**  
**Intersection 2: 5th St and Main St**

Control Type: Signalized  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 52.0  
 Level Of Service: D  
 Volume to Capacity (v/c): 1.616

**Intersection Setup**

Name	Main St			Main St			5th St			5th St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	1	0	0	1
Entry Pocket Length [ft]	75.00	100.00	100.00	55.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	75.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Main St			Main St			5th St			5th St		
Base Volume Input [veh/h]	79	720	51	125	838	83	93	119	63	14	62	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	1.00	4.00	0.00	2.00	0.00	0.00	1.00	2.00	0.00	0.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	720	51	125	838	83	93	119	63	14	62	84
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	194	14	34	225	22	25	32	17	4	17	23
Total Analysis Volume [veh/h]	85	774	55	134	901	89	100	128	68	15	67	90
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	30			10			29			9		
v_di, Inbound Pedestrian Volume crossing major street	29			9			30			10		
v_co, Outbound Pedestrian Volume crossing minor street	6			17			18			7		
v_ci, Inbound Pedestrian Volume crossing minor street	7			18			17			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			1			2			2		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	1 - Coordination Group
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	50.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	17	40	0	17	40	0	0	22	0	0	22	0
Amber [s]	3.2	3.6	0.0	3.2	3.6	0.0	0.0	3.2	0.0	0.0	3.2	0.0
All red [s]	0.5	1.0	0.0	0.5	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	29	0	19	29	0	0	27	0	0	27	0
Vehicle Extension [s]	2.0	3.0	0.0	2.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	6	0	0	6	0	0	6	0	0	6	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.7	2.6	0.0	1.7	2.6	0.0	0.0	2.2	0.0	0.0	2.2	0.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	C	L	C	C	C	R	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	3.70	4.60	4.60	3.70	4.60	4.60	4.20	4.20	4.20	4.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	1.70	2.60	2.60	1.70	2.60	2.60	2.20	2.20	2.20	2.20
g_i, Effective Green Time [s]	6	32	32	8	34	34	23	23	23	23
g / C, Green / Cycle	0.08	0.43	0.43	0.10	0.45	0.45	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.05	0.25	0.25	0.08	0.30	0.30	1.00	0.05	0.13	0.06
s, saturation flow rate [veh/h]	1616	1696	1647	1629	1683	1610	227	1329	619	1385
c, Capacity [veh/h]	127	728	707	167	763	730	138	401	243	418
d1, Uniform Delay [s]	33.65	16.25	16.28	32.96	16.01	16.10	28.57	19.24	20.67	19.56
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.50	0.08	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.25	3.30	3.44	3.35	4.43	4.81	325.95	0.15	0.60	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.67	0.58	0.58	0.80	0.66	0.67	1.66	0.17	0.34	0.22
d, Delay for Lane Group [s/veh]	35.90	19.54	19.72	36.31	20.44	20.91	354.52	19.39	21.27	19.75
Lane Group LOS	D	B	B	D	C	C	F	B	C	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.55	5.70	5.60	2.47	7.05	6.94	14.92	0.85	1.04	1.14
50th-Percentile Queue Length [ft/ln]	38.63	142.42	140.00	61.71	176.32	173.42	373.09	21.21	26.11	28.53
95th-Percentile Queue Length [veh/ln]	2.78	9.61	9.48	4.44	11.41	11.26	26.23	1.53	1.88	2.05
95th-Percentile Queue Length [ft/ln]	69.54	240.28	237.02	111.08	285.20	281.40	655.82	38.18	47.00	51.36

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	35.90	19.62	19.72	36.31	20.65	20.91	354.52	354.52	19.39	21.27	21.27	19.75
Movement LOS	D	B	B	D	C	C	F	F	B	C	C	B
d_A, Approach Delay [s/veh]	21.14			22.53			277.53			20.47		
Approach LOS	C			C			F			C		
d_I, Intersection Delay [s/veh]	52.01											
Intersection LOS	D											
Intersection V/C	1.616											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	10.0	10.0	10.0	10.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	28.17	28.17	28.17	28.17
I_p,int, Pedestrian LOS Score for Intersection	2.682	2.840	2.106	2.090
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	651	651	608	608
d_b, Bicycle Delay [s]	17.09	17.08	18.18	18.18
I_b,int, Bicycle LOS Score for Intersection	2.314	2.487	2.048	1.843
Bicycle LOS	B	B	B	A

**Sequence**





Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 3: Freedom Blvd and Brennan St**

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.890

**Intersection Setup**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	60.00	100.00	80.00	200.00	100.00	100.00	80.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		



**Volumes**

Name	Freedom Blvd			Freedom Blvd			Brennan St			Brennan St		
Base Volume Input [veh/h]	4	649	184	203	461	2	5	2	6	156	3	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	1.00	1.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	649	184	203	461	2	5	2	6	156	3	221
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	171	48	53	121	1	1	1	2	41	1	58
Total Analysis Volume [veh/h]	4	683	194	214	485	2	5	2	6	164	3	233
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	4			3			4			5		
v_di, Inbound Pedestrian Volume crossing major street	5			4			3			4		
v_co, Outbound Pedestrian Volume crossing minor street	4			1			3			0		
v_ci, Inbound Pedestrian Volume crossing minor street	3			0			4			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			5			1		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	12.00

**Phasing & Timing**

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	1	6	0	5	2	0	5	4	0	1	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	5	5	0	5	5	0	5	5	0
Maximum Green [s]	15	50	0	15	50	0	15	10	0	15	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	6	0	0	6	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	12	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	L	C	L	C
C, Cycle Length [s]	57	57	57	57	57	57	57	57	57
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	25	25	9	34	10	10	10	10
g / C, Green / Cycle	0.01	0.45	0.45	0.16	0.61	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.40	0.14	0.13	0.29	0.00	0.01	0.13	0.17
s, saturation flow rate [veh/h]	1629	1696	1428	1616	1682	1046	1451	1254	1420
c, Capacity [veh/h]	9	763	642	262	1020	127	256	298	250
d1, Uniform Delay [s]	28.13	14.37	9.92	22.94	6.18	28.37	19.36	24.34	23.08
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.20	0.33
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	31.33	4.01	0.26	6.10	0.35	0.13	0.05	2.93	33.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.45	0.90	0.30	0.82	0.48	0.04	0.03	0.55	0.94
d, Delay for Lane Group [s/veh]	59.45	18.38	10.18	29.04	6.52	28.49	19.40	27.26	56.98
Lane Group LOS	E	B	B	C	A	C	B	C	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	7.46	1.34	2.99	2.37	0.07	0.08	2.26	5.21
50th-Percentile Queue Length [ft/ln]	3.22	186.41	33.56	74.65	59.23	1.73	2.11	56.55	130.23
95th-Percentile Queue Length [veh/ln]	0.23	11.93	2.42	5.37	4.26	0.12	0.15	4.07	8.95
95th-Percentile Queue Length [ft/ln]	5.80	298.37	60.40	134.37	106.62	3.11	3.80	101.78	223.81

**Movement, Approach, & Intersection Results**

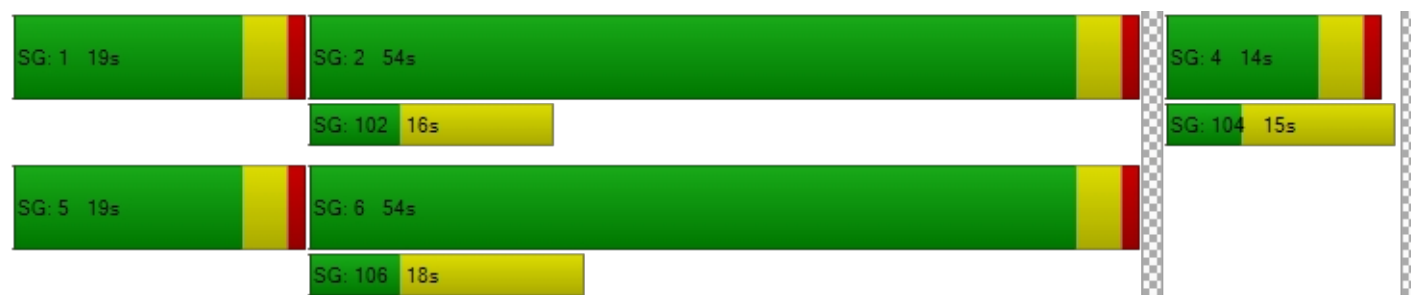
d_M, Delay for Movement [s/veh]	59.45	18.38	10.18	29.04	6.52	6.52	28.49	19.40	19.40	27.26	56.98	56.98
Movement LOS	E	B	B	C	A	A	C	B	B	C	E	E
d_A, Approach Delay [s/veh]	16.76			13.40			22.90			44.80		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	21.24											
Intersection LOS	C											
Intersection V/C	0.890											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	9.0			9.0			10.0			10.0		
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	36.45			36.45			35.56			35.56		
I_p,int, Pedestrian LOS Score for Intersection	2.740			2.476			1.948			2.204		
Crosswalk LOS	B			B			A			B		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1111			1111			222			222		
d_b, Bicycle Delay [s]	8.89			8.89			35.64			35.57		
I_b,int, Bicycle LOS Score for Intersection	3.013			2.716			1.581			2.220		
Bicycle LOS	C			B			A			B		

**Sequence**

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






### Intersection Level Of Service Report

#### Intersection 4: Brennan St and E 5th St

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 51.2  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.638

#### Intersection Setup

Name	Brennan St		Brennan St		E 5th St	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

#### Volumes

Name	Brennan St		Brennan St		E 5th St	
Base Volume Input [veh/h]	88	332	239	55	154	122
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	1.00	0.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	332	239	55	154	122
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	93	67	15	43	34
Total Analysis Volume [veh/h]	99	373	269	62	173	137
Pedestrian Volume [ped/h]	1		15		15	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.64	0.19
d_M, Delay for Movement [s/veh]	8.25	0.00	0.00	0.00	51.15	42.90
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	7.52	7.52
95th-Percentile Queue Length [ft/ln]	6.69	6.69	0.00	0.00	187.91	187.91
d_A, Approach Delay [s/veh]	1.73		0.00		47.51	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	13.97					
Intersection LOS	F					



Vistro File: C:\...\Existing\_20200403.vistro

Scenario 4 Existing+Proj\_PM

Report File: C:\...\lex+prj\_pm.pdf

4/10/2020

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound		Southbound		Westbound			Total Volume
		Left	Thru	Thru	Right	Left	Thru	Right	
1	Lake Ave/Brennan St-Union St	98	325	231	87	170	649	122	1682

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	5th St and Main St	79	720	51	125	838	83	93	119	63	14	62	84	2331

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Freedom Blvd and Brennan St	4	649	184	203	461	2	5	2	6	156	3	221	1896

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
4	Brennan St and E 5th St	88	332	239	55	154	122	990

RESOLUTION NO. \_\_\_\_\_ (PC)

**RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WATSONVILLE, CALIFORNIA, RECOMMENDING THE CITY COUNCIL ADOPT A RESOLUTION APPROVING A DESIGN REVIEW PERMIT WITH DENSITY BONUS AND ENVIRONMENTAL REVIEW (PP2019-432/APP#18) TO ALLOW THE CONSTRUCTION OF 50 APARTMENTS ON A +/- .745 ACRE SITE LOCATED AT 558 MAIN STREET, WATSONVILLE, CALIFORNIA (APN: 018-241-20)**

**Project: The Residence, 558 Main Street  
APN: 018-241-20**

**WHEREAS**, on November 5, 2019, property owner, the Hansen Family Trust dated March 27, 2001, applied for a Design Review Permit with Environmental Review (PP2019-432/APP#18) to construct a 5-story mixed-use building to include a restaurant and podium parking on the first floor and 75 apartment units on the upper floors at 558 Main Street (APN: 018-241-20); and

**WHEREAS**, on September 4, 2020, the applicant submitted revised plans and project proposal for the construction of a 4-story mixed-use building to include a restaurant and podium parking on the first floor and 50 apartments on the upper floor at 558 Main Street (APN: 018-241-20); and

**WHEREAS**, on November 18, 2020, the applicant amended its application to request a Density Bonus to provide a concession to the commercial parking requirement for the project, which would reduce the parking requirement by 16 spaces; and

**WHEREAS**, WMC Chapter 14-47.130(a)(3) exempts mixed-use developments from providing financial analysis to determine feasibility of any requested concessions; and

**WHEREAS**, pursuant to Section 65915 of Chapter 4.3 of Division 1 of Title 7 of the California Government Code, when an applicant seeks a density bonus for a housing

development within the jurisdiction of a city, county, or city and county, that local government shall comply with this section; and

**WHEREAS**, pursuant to WMC Section 14-12.400 of the Watsonville Municipal Code (WMC), developments subject to Design Review include all new construction, exterior remodeling, additions, or changes in use requiring additional parking, which involves structures used for multi-family residential, commercial, industrial or public purpose; and

**WHEREAS**, a Class 32 Categorical Exemption has been prepared for the project, in accordance with the provisions of the California Environmental Quality Act (CEQA); and

**WHEREAS**, notice of time and place of the hearing to consider the Design Review Permit with Density Bonus and Environmental Review (PP2019-432/APP#18) was given at the time and in the manner prescribed by the Zoning Ordinance of the City of Watsonville. The matter called for hearing evidence both oral and documentary introduced and received, and the matter submitted for decision.

**NOW, THEREFORE, BE IT RESOLVED** by the Planning Commission of the City of Watsonville, California, as follows:

Good cause appearing, and upon the Findings, attached hereto and incorporated herein as Exhibit "A", the Planning Commission of the City of Watsonville does hereby recommend that the City Council approve the Design Review Permit with Density Bonus and Environmental Review (PP2019-432/APP#18), attached hereto and marked as Exhibit "C," subject to the Conditions of Approval, attached hereto and marked as Exhibit "B," to allow the construction of 50 apartments on a .745 +/- acre site at 558 Main Street (APN: 018-241-20).

**I HEREBY CERTIFY** that the foregoing Resolution was introduced at a regular meeting of the Planning Commission of the City of Watsonville, California, held on the 11th day of January, 2021, by Commissioner \_\_\_\_\_, who moved its adoption, which motion being duly seconded by Commissioner \_\_\_\_\_, was upon roll call, carried and the resolution adopted by the following vote:

Ayes:           Commissioners:

Noes:           Commissioners:

Absent:         Commissioners:

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Suzi Merriam, Secretary  
Planning Commission

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Anna Kammer, Acting Chairperson  
Planning Commission

**Application No:** PP2019-432/APP#18

**APNs:** 018-241-20

**Applicant:** Pacific Coast Development

**Hearing Date:** January 11, 2021

**DENSITY BONUS FINDINGS (WMC § 14-47.140[b])**

- 1. The application is eligible for a Density Bonus and any concessions, or incentives requested if conform to all standards included in WMC Chapter 14-47 and include a financing mechanism for all implementation and monitoring costs.**

**Supportive Evidence**

The project will provide 20% of the 50 units for affordable housing for a minimum 55-year period. The project will be monitored annually by the Planning Department's Housing Division through a Density Bonus Affordable Housing Agreement. Based on the project proposal, the project is eligible for up to 2 concessions per state Density Bonus law. CA Govt. Code § 65915.

The applicant has provided a letter describing the need for a concession eliminating the commercial off-street parking requirement, as the project cannot accommodate additional parking. The applicant has indicated that off-street commercial parking would require the development of a subterranean parking garage, with costs ranging between \$65,000-90,000 per parking space. The project is located within the historic Downtown Core, where both publicly-owned parking lots and on-street parking are available.

Per Section 14-47.130(a)(3), mixed-use developments are not required to provide financial analysis to determine financial feasibility of the requested concession(s).

- 2. Any requested incentive or concession will result in identifiable, financially sufficient, and actual cost reductions based upon appropriate financial analysis and documentation as described in Section 14-47.130 of Chapter 14-47.**

**Supportive Evidence**

As described above, mixed-use developments are exempt from providing financial analysis of requested concessions.

- 3. If the Density Bonus is based all or in part on donation of land, the approval body has made the findings included in Section 14-47.070(c) of Chapter 14-47.**

**Supportive Evidence**

Not applicable. The proposed project does not involve a land donation.

4. **If the Density Bonus, incentive, or concession is based all or in part on the inclusion of a Day Care Center, the approval body has made the findings required by Section 14-47.080(b) of Chapter 14-47.**

**Supportive Evidence**

Not applicable. The proposed project does not include a Day Care Center.

5. **A Density Bonus Housing Agreement in recordable form has been signed by the owner of the Residential Development with terms and conditions reasonably to satisfy the requirements of Chapter 14-47 and the Density Bonus Program Guidelines.**

**Supportive Evidence**

As part of the Conditions of Approval for the project, a Density Bonus Affordable Housing Agreement will be required to be signed and approved by City Council prior to issuance of a building permit. 10 units will be set aside as affordable at the following income levels:

5% Median

5% Low

5% Very Low

5% for Section 8

**DESIGN REVIEW FINDINGS (WMC § 14-12.403)**

1. **The proposed development is consistent with the goals and policies embodied in the adopted General Plan and the general purpose and intent of the applicable district regulations.**

**Supportive Evidence**

The project site is designated CC (Central Commercial) on the General Plan Land Use Diagram and is within the CCA (Central Commercial Core Area) Zoning District. The purpose of the Central Commercial designation is to allow retail sales; personal, professional, financial and medical services; lodging; entertainment; and restaurants serving the needs of the community. Intensities in this area may not exceed a Floor Area Ratio of 2.75 when all parking can be accommodated on site. The project would not result in a residential density that exceeds a Floor Area Ratio of 2.75. The General Plan also envisions the construction of multi-family residential units above first floor retail uses in the Downtown.

Per state law, the project is eligible for a density bonus of up to 20 percent greater than the maximum allowed because it will provide 20% of the residential units at affordable levels per the City of Watsonville's Affordable Housing Ordinance, and is eligible for up to 2 concessions.



The proposed project is consistent with the following General Plan goals, policies and implementation measures concerning housing, land use compatibility, design, site improvement, and wildlife habitat protection.

- **Housing Element Goal 3.0: Housing Production** – *Provide housing opportunity for Watsonville’s share of the regional housing need for all income groups.*
- **Housing Element Policy 3.1** – *Encourage the production of housing that meets the needs of all economic segments, including lower, moderate, and above moderate-income households, to achieve a balanced community.*
- **Housing Element Policy 3.2** – *Provide high quality rental and ownership housing opportunities for current and future residents that are affordable to a diverse range of income levels.*
- **Housing Element Policy 3.4** – *Continue to implement the Affordable Housing Ordinance, Density Bonus Ordinance, and other programs as a means of integrating affordable units within new residential development.*
- **Housing Element Policy 4.2** – *Implement and enforce residential design guidelines to ensure that the community’s expectations are met with respect to the quality and style of housing projects.*
- **Housing Element Program 18: Design Review Process** – *The City will continue to use the Livable Community Residential Design Guidelines in concert with the City’s General Plan, Zoning and Subdivision Ordinance and other area plans. The City will continue to ensure that projects comply with the City’s design review process and the Design Guidelines.*
- **Goal 4.7 Land Use Suitability** – *Ensure that the orderly development of land for the needs of the existing and projected population within in the City limit and Sphere of Influence is based on the land’s overall suitability, including: the accessibility of existing and proposed public facilities, services, and utilities, physical and financial constraints; and/or growth inducing impacts.*
- **Policy 4.G Land Use Suitability** – *The City shall encourage the development of urban uses on those lands best suited for urban uses and discourage it on lands unsuited for urban uses.*
- **Implementation Measure 4.C.8: Housing Support-** *A variety of moderate- and high-density housing shall be developed to support the downtown commercial area and provide housing for the employment base of the Westside Industrial Area.*
- **Implementation Measure 4.A.2: Land Use Compatibility** – *The City shall monitor housing production to ensure compatibility with surrounding land uses.*
- **Goal 5.1 Visual Resources** – *Preserve and enhance the built and natural visual resources within Watsonville.*

- **Goal 5.2 Community Appearance** – Blend new development and recognized values of community appearance and scenic qualities, and ensure that new development enhances, rather than detracts from its surroundings.
- **Goal 5.6 Urban Design** – Achieve high standards of street, site and building design that are both efficient, and aesthetically pleasing.
- **Policy 5.A Project Design Review** – The preservation of visual resources shall be accomplished through the design review process.
- **Policy 5.B Design Consistency** – The City shall review new development proposals to encourage high standards of urban design and to ensure that elements of architectural design and site orientation do not degrade or conflict with the appearance of existing structures.
- **Implementation Measure 5.A.4: Development Standards** – In addition to the Design Review Guidelines, the City shall use the adopted standards for multiple family residential developments to ensure that medium- and high-density development is designed so as to enhance rather than detract from the urban environment.
- **Implementation Measure 5.B.3: Enhancement** – The City shall utilize the development standards, zoning ordinance regulations for each district, and the design review guidelines to ensure that new development is an asset to the existing neighborhood and community with regard to parking, landscaping, open space, and project design.
- **Goal 9.5 Water Quality** – Ensure that surface and groundwater resources are protected.
- **Policy 9.D Water Quality** – The City shall provide for the protection of water quality to meet all beneficial uses, including domestic, agricultural, industrial, recreational, and ecological uses.

The project would provide high-density housing above a modern restaurant space within the historic Downtown core. The development of 50 rental units, 10 of which would be affordable to a variety of income levels, will both provide much needed housing for residents while also contributing to achieving the RHNA<sup>1</sup> figures in the City's 2015-2023 Housing Element for these income categories for the 10 affordable units.

The parcel abuts existing utilities that can be extended to serve the project. The project is not anticipated to induce population growth other than the residents that would directly inhabit the proposed residential units.

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<sup>1</sup> The Regional Housing Needs Allocation (or "RHNA") is based on State of California projections of population growth and housing unit demand and assigns a share of the region's future housing need to each jurisdiction within the Association of Monterey Bay Area Governments (AMBAG). These housing need numbers serve as the basis for the update of the Housing Element in each California city and county.

The parcel is within the Central Commercial Core Area (CCA) Zoning District. The purpose of the CCA Zoning District is to establish an area for the development of a concentrated, pedestrian-oriented downtown center with intensive commercial, financial, administrative, professional, entertainment, cultural, and residential uses within the heart of the City.

The project is consistent with the list of allowable uses for and general purpose of the CCA Zoning District, in that restaurants are principally permitted on the first floor, and condominiums and apartments are principally permitted use on upper floors in the Downtown. If the restaurant proposes the sale of alcohol, a separate Conditional Use Permit shall be required.

2. **The proposed development is compatible with and preserves the character and integrity of adjacent development and neighborhoods and includes improvements or modifications either on-site or within the public rights-of-way to mitigate development related adverse impacts such as traffic, noise, odors, visual nuisances, or other similar adverse effects to adjacent development and neighborhoods.**

#### **Supportive Evidence**

The proposed project would be an in-fill opportunity in the historic downtown core, providing a high-quality restaurant space on the first floor with 50-apartment units on the upper 3-stories. The project has been designed in conformance with the Livable Community Residential Design Standards and the Downtown Land Use and Architectural Guidelines.

- The proposed project would not generate traffic in such an amount that would overload the street network outside the development. A Traffic Study was prepared for the project that indicated that, as conditioned, the project will not cause significant adverse impacts to the levels of service in the vicinity. Improvements include:
  - Installation of lane striping within the alley off of Brennan Street and signs at the driveway to increase drivers' awareness of appropriate vehicle position within the cross-section of the driveway and alley.
  - Installation of a convex mirror on the south side of the driveway off of Brennan Street providing visibility around the corner of the existing building for drivers exiting the site and drivers entering from southbound Brennan Street.
  - Installation of a sound and light alert system for pedestrians on Brennan Street to alert to cars approaching the intersection from the driveway. This will give additional warning and protection to pedestrians when vehicles are exiting.

Nighttime illumination has the potential to change ambient lighting conditions and create a visual nuisance. A complete photometric lighting plan shall be submitted with the building permit application for the project to determine consistency with the City's General Plan and lighting standards. The Downtown Land Use and Architectural Guidelines call for the use of a variety of lighting levels, with increased

lighting levels at entries and courtyards, to highlight signs, and to bring out the architectural details of the building.

The project will include an internal trash collection area within the podium parking lot that would collect trash, recycling, and food scraps into separate containers that would be dropped from collection stations on each residential floor of the building. Management would relocate all refuse to an outside trash enclosure and yard waste containers prior to trash pickup days.

3. **The proposed development will not generate pedestrian or vehicular traffic which will be hazardous or conflict with the existing and anticipated traffic in the neighborhood.**

**Supportive Evidence**

The proposed project would not generate traffic which would be hazardous or conflict with existing and anticipated traffic in the neighborhood. A Traffic Study was prepared for the project by Kittelson & Associates that indicated that with conditions, the project would not cause adverse impacts to vehicular traffic or pedestrians in the area. The following conditions will be added to the project approval:

- Install lane striping within the alley off of Brennan Street and signs at the driveway to increase drivers' awareness of appropriate vehicle position within the cross-section of the driveway and alley.
- Install a convex mirror on the south side of the driveway off of Brennan Street providing visibility around the corner of the existing building for drivers exiting the parcel and drivers entering from southbound Brennan Street.
- Install a sound and light alert system for pedestrians on Brennan Street to alert to cars approaching the intersection from the driveway. This will give additional warning and protection to pedestrians when vehicles are exiting.

4. **The proposed development incorporates roadway improvements, traffic control devices or mechanisms, or access restrictions to control traffic flow or divert traffic as needed to reduce or eliminate development impacts on surrounding neighborhood streets.**

**Supportive Evidence**

Primary access is by a twenty-foot wide driveway to and from Brennan Street. The Hansen Trust owns 13.5 foot of the driveway and has an easement over another 6.5 feet for a total of twenty.

Secondary access is by a 20-foot easement over other parcels to East Lake Avenue. Mitigation measures to reduce transportation-related impacts to a less than significant level have been included as conditions of approval. No other roadway improvements, traffic control devices or access restrictions to control or divert traffic flow is needed.

5. **The proposed development incorporates features to minimize adverse effects including visual impacts of the proposed development on adjacent properties:**
- a) **Harmony and proportion of the overall design and the appropriate use of materials;**
  - b) **The suitability of the architectural style for the project; provided, however, it is not the intent of this section to establish any particular architectural style;**
  - c) **The sitting of the structure on the property, as compared to the sitting of other structures in the immediate neighborhood;**
  - d) **The size, location, design, color, number, and lighting; and**
  - e) **The bulk, height, and color of the project structure as compared to the bulk, height, and color of other structures in the immediate neighborhood.**

**Supportive Evidence**

The project involves providing an infill mixed-use project within the historic downtown core.

The project is designed in accordance with the City of Watsonville Livable Community Residential Design Guidelines and the Downtown Main Street Land Use and Architectural Guidelines. The project design is well-composed, balanced, and appropriately articulated on the front and rear facades with materials and architectural details that are aesthetically pleasing and harmonious. The massing of wall and roof planes are broken up by the use of dormers, trim, offsets in surfaces, and varying roof heights. Buildings materials are a brick veneer on the first floor with stucco siding (painted 3 different colors); a 3-foot wide stucco belly band in contrasting Grays Harbor blue divides the first floor and the upper floors. Parking is unobtrusively tucked under and behind the building.

The project's trash enclosure would not attract nuisance pest species, as trash will be collected and stored within the covered parking area in a secured trash room and moved out to the trash enclosure before trash pick-up day.

6. **The proposed development complies with all additional standards imposed on it by the particular provisions of this chapter, any City of Watsonville architectural guidelines, development and public improvement standards, and all other requirements of this title applicable to the proposed development.**

**Supportive Evidence**

There are no additional standards applicable to the proposed development. As discussed previously, the project is designed in accordance with the City of

7. **The proposed development will not be materially detrimental to the public health, safety, convenience and welfare or result in material damage or prejudice to other property in the vicinity.**

**Supportive Evidence**

The project involves providing a mixed-use infill project within the historic downtown core. The project will provide 50 residential units, 10 of which will be deed restricted for affordable for 55 years. The first floor of the building facing Main Street will include a modern restaurant space to provide an additional amenity to the downtown area.

In addition, the project site is within a developed area that is currently served by municipal services, including water, sewer, police and fire, and therefore would not cause a serious public health or safety problem to future residents.



**CITY OF WATSONVILLE  
PLANNING COMMISSION**

**EXHIBIT “B”**

**Application No:** PP2019-432/APP#18

**APNs:** 018-241-20

**Applicant:** Pacific Coast Development

**Hearing Date:** January 11, 2021

**DESIGN REVIEW PERMIT  
CONDITIONS OF APPROVAL**

**General Conditions:**

1. **Approval.** This approval applies to the Plan Set identified as “The Residence at 558 Main” located at 558 Main Street, Watsonville, CA 95076, dated and received by the Community Development Department on November 19, 2020, and filed by William J. Hansen and Neva J. Hansen, co-trustees of The Hansen Family Trust dated March 27, 2001 as property owners and Pacific Coast Development. As developer. (CDD-P)
2. **Conditional Approval Timeframe.** This Design Review Permit with Density Bonus and Environmental Review (PP2019-432/APP#18) shall expire and be null and void if not acted upon within **24 months** from the effective date of the approval thereof. Time extensions may be considered upon receipt of written request submitted no less than forty-five (45) days prior to expiration and in accordance with the provisions of Section 14-10.1201 of the Watsonville Municipal Code (WMC). (CDD-P)
3. **Modifications.** Modifications to the project or conditions imposed may be considered in accordance with WMC Sections 14-12.1000 and 14-10.1305. All revisions shall be submitted prior to field changes and are to be clouded on the plans. (CDD-P)
4. **Substantial Compliance.** Project development shall be accomplished in substantial accordance with the approved Plan Set. Any required revisions to the Plan Set shall be completed to the satisfaction of the Community Development Director or designee. (CDD-P)
5. **Grounds for Review.** The project shall be in compliance with the conditions of approval, all local codes and ordinances, appropriate development standards, and current City policies. Any deviation will be grounds for review by the City and may possibly result in revocation of the Special Use Permit or Design Review Permit, pursuant to Part 13 of WMC Chapter 14-10, or other code enforcement actions, pursuant to WMC Chapter 14-14. (CDD-P)

6. **Appeal Period/Effective Date.** This Special Use Permit with Design Review shall not be effective until **14 days** after approval by the decision-making body or following final action on any appeal. (CDD-P)
7. **Necessary Revisions.** The applicant shall make and note all revisions necessary to comply with all conditions of approval. The applicant shall certify in writing below the list(s) of conditions that the building plans comply with the conditions of approval. (CDD-P)
8. **Conditions of Approval.** A copy of the final conditions of approval must be printed on the first or second sheet of plans submitted for future permits. ***Plans without the conditions of approval printed directly on the first or second page will not be accepted at the plan check phase.*** (CDD-P)
9. **Required Statement.** The applicant and contractor who obtains a building permit for the project shall be required to sign the following statement, which will become conditions of the building permit:

“I understand that the subject permit involves construction of a building (project) with an approved Special Use Permit with Design Review. I intend to perform or supervise the performance of the work allowed by this permit in a manner which results in a finished building with the same level of detail, articulation, and dimensionality shown in the plans submitted for building permits. I hereby acknowledge that failure to construct the building as represented in the building permit plans, may result in delay of the inspections process and/or the mandatory reconstruction or alteration of any portion of the building that is not in substantial conformance with the approved plans, prior to continuation of inspections or the building final.”

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Signature of Building Contractor

Date

**Affordable Housing Condition:**

10. **Density Bonus (Affordable) Housing Agreement.** The applicant shall record a Density Bonus Housing Agreement prior to issuance of a building permit. The Council, by Resolution, shall process, review, and consider the Density Bonus Housing Agreement in the same manner it considers Affordable Housing Agreements pursuant to WMC Section 14-46.110. (CDD-P, CA)

**Building and Fire-related Conditions:**

11. **Required Permits.** The applicant shall obtain all required building permits (Building, Electrical, Plumbing, Mechanical, Grading, etc.) for this project. (CDD-B-E)
12. **Building Code.** Project construction shall comply with the California Building Code as adopted by the City. (CDD-B)

13. **Fire Code.** Project construction shall comply with California Fire Code as adopted by the City. (WFD)
14. **Energy Efficiency.** The project design shall conform with energy conservation measures articulated in Title 24 of the California Administrative Code and will address measures to reduce energy consumption such as low-flow shower heads, flow restrictors for toilets, low consumption lighting fixtures, and insulation and shall use drought tolerant landscaping. (CDD-B)

**Prior to or concurrent with the submittal of a Building Permit Application, the following requirements shall be met:**

15. **Stormwater Control Plan Revisions.** Submit a revised stormwater control plan that shows the calculations and rationale behind the design concepts for review by the City Engineer. Provide the specifications for the proposed permeable paving system. Attachment of the manufacturer's specifications to the updated stormwater control plan will be acceptable.
  - A. Sign the Maintenance of Structural of Treatment Control Best Management Practices Agreement. (CDD-E)
16. **Access Easements.** Submit a title report showing that the access easement over Parcels 018-241-39, -34,-35, and -45 has been amended to show relocation as shown on the conceptual plans and the amended easement shall be recorded. (CDD-P, E,WFD)
17. **Driveway entrance from Brennan Street.** Revise the plans to show the following:
  - A. Install lane striping within the alley to and from Brennan Street and signs at the driveway to increase drivers' awareness of appropriate vehicle position within the cross-section of the driveway and alley.
  - B. Install a convex mirror on the south side of the driveway at Brennan Street providing visibility around the corner of the existing building for drivers exiting the site and drivers entering from southbound Brennan Street.
  - C. Install a sound and light alert system for pedestrians on the Brennan Street sidewalk to alert pedestrians to cars approaching the intersection from the driveway.
  - D. Show the removal of any improvements constructed over the 6.5 foot easement area to provide 20-feet clear width and 13'-6" vertical clearance for fire access (CDD-P, WFD)
18. **Colors & Materials.** Plans submitted for building permit shall indicate that all final colors and materials shall be consistent with the colors and materials approved by this permit. (CDD-P)
19. **Landscaping & Irrigation Plan.** The applicant shall submit three copies of the final Landscaping and Irrigation Plan for review and approval by the Community Development Director prior to issuance of a building permit. The Landscaping Plan shall provide drought-tolerant plants suitable for the Central Coast region. The

Irrigation Plan shall provide an automatic water system (e.g., drip system) to irrigate all landscape areas. (CDD-B-E-P)

- A. LANDSCAPING – The Landscape Plan shall indicate the types, quantities, locations and sizes of all plant material, including any existing major vegetation designated to remain and method of protecting planting areas from vehicular traffic. The Landscape Plan shall be drawn to scale, and plant types shall be clearly located and labeled. The plant list shall give the botanical name, common name, gallon sizes to be planted, and quantity of each planting. A minimum of 25 percent of all shrub material shall have a minimum 5-gallon container size. (CDD-E-P)
  - B. IRRIGATION SYSTEM – Automatic, low-flow irrigation system(s) shall be installed in all landscaped areas. Irrigation shall be programmed for night or early morning hours in order to minimize evaporation. (CDD-P)
  - C. WATER CONSERVATION – The project shall utilize water conservation, water recycling, and xeriscaping to the maximum extent possible. Irrigation systems shall be designed and maintained to avoid run-off, over-spray, or other similar conditions where water flows to waste. (CDD-B-E-P)
  - D. NEW TREES – The final landscape plan shall include the provision of at least 4 trees in the rear parking area, 3 of which shall be a minimum 24” box size. The tree to be placed in the Filterra tree well shall be a minimum 15-gallon. A minimum of 8 trees shall be installed in the second floor courtyard. A minimum of 3 24” inch box trees shall be installed within tree grates on Main Street in front of the building. (CDD-P)
  - E. LANDSCAPE & IRRIGATION INSTALLATION – All landscaping and irrigation shall be approved and installed prior to occupancy of the project. (CDD-P)
  - F. WATER EFFICIENT LANDSCAPE ORDINANCE – The applicant shall submit a landscape documentation package and demonstrate compliance with the Model Water Efficient Landscape Ordinance, pursuant to WMC Section 6-3.801. (CDD-P-E)
20. **Lighting.** A photometric plan shall be submitted for review and approval by CDD staff. Plans submitted for building permit issuance shall show the locations and details of any exterior lighting fixtures. All lighting shall be downward facing and/or shielded and shall not spillover onto adjacent property, or public roadways. (CDD-P)
21. **Trash Enclosure.** The trash enclosure shall conform with City of Watsonville Public Improvement Standard No. S-602, and is subject to review and approval by the Community Development Department. (CDD-P-E, PW)
22. **Street Frontage Improvements.** The applicant shall install street improvements as follows:

- A. Remove and replace all existing Main Street frontage improvements and replace with new curb, gutter and sidewalk.
  - B. The driveway approach at Brennan Street shall be removed and replaced per COW Standard S-101. (CDD-E)
23. **Utility Connection.** The project shall connect to City utilities. Provide completed civil plans to show how all of the existing and proposed underground utilities on- and off-site will serve the project.
- A. Verify that the elevation of the proposed (N) 6" private sanitary sewer will tie into the 10" City sewer main without requiring a new sewer lift station passing through any other utilities.
  - B. If there is an existing private sanitary sewer lateral serving this parcel, it must be abandoned to the satisfaction of the City Engineer.
  - C. Project shall comply with WMC 6-3.504- sanitary sewer lateral and connection permits are required. (CDD-E)
24. **Utility Capacity.** The developer shall video-inspect the existing sewer lateral and 10" sewer main before construction to verify existing conditions. Submit capacity calculations to verify that existing utilities have the ability to carry the new proposed flows for the development. (CDD-E)
25. **Dog Park Catch Basin.** The new catch basin proposed for serving the dog park shall be designed to prevent any stormwater from outside the dog park from entering the catch basin. (CDD-E)
26. **Back-Flow Preventer.** All utilities shall be required to be back-flow protected per COW Standard W-10 or W-11 depending on the size of the new water meter. (CDD-E)
27. **Fire Service.** The existing water line serving the project from Brennan Street shall be resized to meet minimum requirements for fire flow. (WFD)
28. **Fire Hydrant.** The exact location of the new fire hydrant shall be established prior to construction. The developer is responsible for coordinating with the Fire Inspector to determine the proper location. (WFD)
29. **On/Off Site Permit.** Separate On/Off Site Permits are required for work in the public right-of-way and on the project site. The applicant shall obtain an encroachment permit for all off-site work. (CDD-E)
30. **Mechanical Equipment Screening.** All new mechanical equipment and appurtenances, including gas and water meters, electrical boxes, roof vents, air conditioners, antennas, etc. visible from the public way and from adjacent properties, shall be screened with material compatible with the materials of the building and shall be subject to the approval of the Zoning Administrator. (CDD-P)

31. **Address Assignment.** Prior to building permit issuance, complete and submit an application for address assignment. (CDD-E)
32. **California Building Code** All construction activities shall meet the California Building Code for seismic safety. Construction plans shall be subject to review and approval of the City prior to the issuance of a building permit. All work shall be subject to inspection by the City and must conform to all applicable code requirements and approved improvement plans prior to final inspection approval or the issuance of a certificate of occupancy. The Applicant shall be responsible for notifying construction contractors about California Building Code regulations for seismic safety. (CDD-B)
33. **Erosion and Sediment Control Plan or Stormwater Pollution Prevention Plan**  
The Applicant shall submit an Erosion and Sediment Control Plan or Stormwater Pollution Prevention Plan prepared by a registered professional engineer or qualified stormwater pollution prevention plan developer as an integral part of the grading plan. The Plan shall be subject to review and approval of the City prior to the issuance of a grading permit. The Plan shall include all erosion control measures to be used during construction, including run-on control, sediment control, and pollution control measures for the entire site to prevent discharge of sediment and contaminants into the drainage system. The Plan shall include the following measures as applicable:
- A. Throughout the construction process, ground disturbance shall be minimized, and existing vegetation shall be retained to the extent possible to reduce soil erosion. All construction and grading activities, including short-term needs (equipment staging areas, storage areas and field office locations) shall minimize the amount of land area disturbed. Whenever possible, existing disturbed areas shall be used for such purposes.
  - B. All drainage ways, wetland areas and creek channels shall be protected from silt and sediment in storm runoff using appropriate BMPs such as silt fences, diversion berms and check dams. Fill slopes shall be stabilized and covered when appropriate. All exposed surface areas shall be mulched and reseeded. All cut and fill slopes shall be protected with hay mulch and/or erosion control blankets, as appropriate.
  - C. All erosion control measures shall be installed according to the approved plans prior to the onset of the rainy season but no later than October 15th. Erosion control measures shall remain in place until the end of the rainy season but may not be removed before April 15th. The applicant shall be responsible for notifying construction contractors about erosion control requirement.
  - D. Example design standards for erosion and sediment control include, but are not limited to, the following: avoiding disturbance in especially erodible areas; minimizing disturbance on slopes exceeding 30 percent; using berms, swales, ditches, vegetative filter strips, and catch basins to prevent



the escape of sediment from the site; conducting development in increments; and planting bare soils to restore vegetative cover.

- E. The applicant will also develop an inspection program to evaluate if there is any significant on-site erosion as a result of the rainfall. If there were problem areas at the site, recommendations will be made to improve methods to manage on-site erosion. (CDD-E, PW)

- 34. **Construction Period Transportation Impacts.** The applicant shall submit a Construction Period Traffic Control Plan to the City for review and approval. The plan shall include traffic safety guidelines compatible with section 12 of the Caltrans Standard Specifications ("Construction Area Traffic Control Devices") to be followed during construction. The plan shall also specify provision of adequate signing and other precautions for public safety to be provided during project construction. In particular, the plan shall include a discussion of bicycle and pedestrian safety needs due to project construction and later, project operation. In addition, the plan shall address emergency vehicle access during construction. The applicant or their general contractor for the project shall notify the Public Works & Utilities Department and local emergency services (i.e., the Police and Fire Departments) prior to construction to inform them of the proposed construction schedule and that traffic delays may occur.

Prior to approval of a grading permit, the City shall review and approve the project Construction Period Traffic Control Plan. During construction, the City shall periodically verify that traffic control plan provisions are being implemented. (CDD-E, PW)

**Prior to permit issuance, the following conditions shall be addressed:**

- 35. **Preconstruction Meeting.** Prior to issuance of a building permit or the commencement of any site work, the project applicant and the general contractor shall attend a pre-construction meeting with the Building Official and City staff to discuss the project conditions of approval, working hours, site maintenance and other construction matters. The general contractor shall acknowledge that he/she has read and understands the project conditions of approval, particularly those pertaining to construction practices and site safety, and will make certain that all project sub-contractors have read and understand them prior to commencing work and that a copy of the project conditions of approval will be posted on site at all times during construction. (CDD-P-B-E)
- 36. **Solid Waste Service Plan.** Solid waste generated during the construction shall be serviced by the City of Watsonville Solid Waste Enterprise. Applicant shall submit a Solid Waste Service Plan on the City form for review and approval. (CDD-E)
- 37. **Main Street Frontage Improvements.** Applicant shall secure a Caltrans encroachment permit in order to excavate for new utilities and install frontage improvements. (CDD-E).

**During construction, the following conditions shall be adhered to:**

38. **Superintendent.** Applicant shall have onsite at all times, a superintendent who shall act as the applicant's representative and as a point of contact for the City's Public Works Inspector. The superintendent shall be authorized by the Owner to direct the work of all contractors doing work on public and private improvements. (CDD-E, PW)
39. **Best Management Practices (BMPs).** Provide BMPs during construction to prevent sediment, debris and contaminants from draining offsite. BMPs shall comply with the City of Watsonville Erosion Control Standards and the Erosion and Sediment Control Field Manual by the California Regional Water Quality Control Board - Central Coast Region, latest edition. All erosion control shall be installed prior to October 15 and be maintained in place until April 15. Provide a note on the improvement plans stating that construction should take place between April 15 and October 15. The applicant shall ensure that all contractors are aware of all erosion control standards and BMPs. (CDD-E, PW)
40. **BMPs for Controlling Construction Emissions (Monterey Bay Air Resources District Recommendation).** The project applicant shall implement the following Best Management Practices to limit the potential fugitive dust, construction emissions, and odors generated by the project:
  - A. Water all exposed surfaces (e.g., staging areas, soil piles, graded areas, and unpaved access roads) at least two times per day during construction and adequately wet demolition surfaces to limit visible dust emissions.
  - B. Cover all haul trucks transporting soil, sand, or other loose materials off the project site.
  - C. Use wet power vacuum street sweepers at least once per day to remove all visible mud or dirt track-out onto adjacent public roads (dry power sweeping is prohibited) during construction of the proposed project.
  - D. Vehicle speeds on unpaved roads/areas shall not exceed 15 miles per hour.
  - E. Complete all areas to be paved as soon as possible and lay building pads as soon as possible after grading unless seeding or soil binders are used.
  - F. Minimize idling time of diesel-powered construction equipment to five minutes and post signs reminding workers of this idling restriction at access points and equipment staging areas during construction of the proposed project.
  - G. Maintain and properly tune all construction equipment in accordance with manufacturer's specifications and have a CARB-certified visible emissions evaluator check equipment prior to use at the site.

Post a publicly visible sign with the name and telephone number of the construction contractor and City staff person to contact regarding dust complaints. This person

shall respond and take corrective action within 48 hours. The publicly visible sign shall also include the contact phone number for the Monterey Bay Air Resources Management District to ensure compliance with applicable regulations. (CDD-E, PW, MBARD)

41. **Complimentary Dust Control Measures.** To minimize dust/grading impacts during construction the applicant shall:
  - A. Spray water on all exposed earth surfaces during clearing, grading, earth moving and other site preparation activities throughout the day to minimize dust.
  - B. Use tarpaulins or other effective covers on all stockpiled earth material and on all haul trucks to minimize dust.
  - C. Sweep the adjacent street frontages at least once a day or as needed to remove silt and other dirt which is evident from construction activities.
  - D. Ensure that construction vehicles are cleaned prior to leaving the construction site to prevent dust and dirt from being tracked off-site.
  - E. The City shall have the authority to stop all grading operations, if in opinion of City staff, inadequate dust control or excessive wind conditions contribute to fugitive dust emissions. (CDD-E)
42. **Unanticipated Discovery of Contaminated Soils.** In the unlikely event that contaminated soils are discovered during the earth-moving activities, all development activities shall cease immediately and remain stopped until an assessment has been completed by a geotechnical firm approved by the City. If remediation is necessary, the applicant shall enter into a Remedial Action Agreement with the Santa Cruz County Environmental Health Service Agency. (CDD-P-E)
43. **Solid Waste Disposal.** All solid waste generated inside City limits must be hauled from the site of generation by the City of Watsonville Solid Waste Utility Enterprise, pursuant to Chapter 3 (City Utilities) of Title 6 (Sanitation and Health) of the Watsonville Municipal Code. This includes all wastes generated at construction sites, excavation projects, land clearing, demolition, earthwork projects, remodels, grading, and tenant improvement projects as well as ongoing business/residential use on the premises. Applicant shall comply with all applicable requirements for removal and disposal of hazardous materials. (PW)
44. **Work Hours.** No work for which a building permit is required shall be performed within the hours of 7 p.m. to 7 a.m., Monday through Friday, nor prior to 8 a.m. or after 5 p.m. on Saturday. No Work shall occur on Sundays or holidays. A sign shall be posted at a conspicuous location near the main entry to the site, prominently displaying these hour restrictions and identifying the phone # of the Job superintendent. (CDD-B)

**Construction notes to be included with the Improvement Plans:**

45. **Damaged Public Facilities.** Existing public facilities damaged during the course of construction or in an existing state of disrepair shall be repaired by the applicant, at the applicant's expense, to the satisfaction of the City. (CDD-E)
46. **Inspection Notice.** Contractor shall provide a minimum of 48 hours notice in advance of any required inspection. Any temporary suspension of work or returning to work for any reason shall be cause for the developer or contractor to telephone the Public Works Inspector at 831-768-3100. (CDD-E)
47. **Underground Utilities.** Prior to excavation, contractor shall locate all existing underground utilities. Call Underground Service Alert (U.S.A.) at 1-800-642-2444 to have utilities located and marked in the field. (CDD-E)

**Prior to Final Inspection or Certificate of Occupancy, the following conditions shall be met:**

48. **Statements of Compliance.** All project design professionals who prepared plans for the project (e.g., civil, structural, and geotechnical engineers) shall provide statements of compliance attesting that they have reviewed the completed project and that it was constructed in conformance with their recommendations and plans. Where special inspections and testing were involved, the letters of compliance shall be accompanied by inspection logs, testing and analysis that support the engineer's conclusions. (CDD-B-E)
49. **Completion of Improvements.** All improvements as shown on the plans must be completed. (CDD-E)
50. **Landscaping Installation.** All landscaping and irrigation shall be installed and approved by Community Development Department staff. (CDD-P-E)
51. **Trash Removal.** All trash and construction debris shall be removed from the site. (CDD-B, PW)

**Ongoing Conditions:**

52. **Post Construction Stormwater Ordinance – Inspection, Maintenance and Annual Reporting.** Applicant shall perform inspections, maintenance to the post-construction stormwater management facilities and report to the City each year on these activities. (CDD-E, PW)
53. **Solid Waste Service.** All trash, recycling and green-waste materials generated onsite shall be disposed of at a City-approved landfill or recycling center. The applicant shall contact the Solid Waste Division of the City Public Works Department to coordinate disposal of all trash, recycling and green-waste materials. (PW)
54. **Trash Enclosure Maintenance.** Trash and recycling enclosure shall be maintained to the satisfaction of Watsonville Municipal Services. (PW)

55. **Lighting and Landscape Maintenance.** Lighting, landscaping and all other site improvements shall be maintained in perpetuity. Landscaping shall be maintained in good growing condition by a professional landscape maintenance company; and such maintenance shall include, where appropriate, weeding, mowing, pruning, cleaning, fertilizing and regular watering. All dead, dying and diseased vegetation shall be immediately replaced in kind. (CDD-P)
56. **Ongoing Maintenance.** Common (patio) areas, landscaping, street trees, driveways, parking areas and spaces, driveways, walks, fences and walls shall be maintained on an ongoing basis by the property owner(s) for the entire development area. (CDD-P)
57. **Potential Attractive Pest Nuisance Avoidance.** To ensure trash enclosures do not attract nuisance pest species, such as Norway rat, raccoon, and opossum, the applicant shall develop a monitoring program to ensure trash areas are routinely cleaned and secured at night. (PW)

**Future Sign Permit:**

58. **Sign Permit.** Any proposed new or changed exterior signage for the parcel shall require sign and building permits from the Community Development Department. (CDD-P-B)

**Indemnity Provision:**

59. **Indemnity Provision.** The applicant shall sign a defense and indemnity contract agreeing to defend, indemnify, and hold harmless the City of Watsonville, its elected and appointed officials, officers, employees, and agents arising out approval of Special Use Permit with Design Review and Environmental Review (PP2019-432/APP#18), including but not limited to any approval or condition of approval of the City employees, City of Watsonville Planning Commission or City Council. The City shall promptly notify the applicant of any claim, action, or proceeding concerning this permit and the applicant and City shall cooperate in the defense of the matter. The City reserves the right to select counsel in the defense of the matter. (CA)

**Key to Department Responsibility**

CDD-B	–	Community Development Department (Building)
CDD-P	–	Community Development Department (Planning)
CDD-E	–	Community Development Department (Engineering)
PW	–	Public Works Department
WFD	–	Watsonville Fire Department
MBARD	–	Monterey Bay Air Resources District
CA	–	City Attorney