MENLO UPTOWN PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT
TECHNICAL APPENDICES

STATE CLEARINGHOUSE NO. 2019110498

MENLO PARK, CALIFORNIA

LSA

December 2020

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APPENDIX A

NOTICE OF PREPARATION AND COMMENT LETTERS

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NOTICE OF PREPARATION
ENVIRONMENTAL IMPACT REPORT
MENLO UPTOWN PROJECT
CITY OF MENLO PARK

Date: November 25, 2019

To: State Clearinghouse
State Responsible Agencies
State Trustee Agencies
Other Public Agencies
Interested Organizations

From: Tom A. Smith
Senior Planner
City of Menlo Park
701 Laurel Street
Menlo Park, CA 94025

Subject: **Notice of Preparation (NOP) of an Initial Study and Environmental Impact Report for the Menlo Uptown Project**

Lead Agency: City of Menlo Park, Planning Division

Project Title: Menlo Uptown Project

Project Area: Bayfront Area, City of Menlo Park

Notice is hereby given that the City of Menlo Park (City) will be the lead agency and will prepare a focused Environmental Impact Report (EIR) for the proposed Menlo Uptown Project (project). An Initial Study has been prepared along with this Notice of Preparation (NOP), which scopes out several environmental topics from further review. The focused EIR will address potential physical environmental effects of the proposed project that have not been scoped out, as outlined in the California Environmental Quality Act (CEQA). The City is requesting comments on the scope and content of this focused EIR.

A scoping session will be held as part of the Planning Commission meeting on **December 16, 2019,** at **7:00 p.m.** at the Menlo Park City Council Chambers, located at 701 Laurel Street, Menlo Park, CA 94025. The scoping session, which is part of the focused EIR process, is the time when the City solicits input from the public and agencies on specific topics they believe should be addressed in the environmental analysis. The scoping process is designed to enable the City to determine the scope and content of the focused EIR, identify the range of actions, and identify potentially significant environmental effects, alternatives, and mitigation measures to be analyzed in the focused EIR.

Written comments on the scope of the focused EIR may also be sent to:

Tom A. Smith
City of Menlo Park
Community Development Department, Planning Division
701 Laurel Street
Menlo Park, CA 94025

TASmith@menlopark.org
Phone: 650.330.6730

The 30-day comment period for the NOP is extended to account for the holidays and runs from Monday, November 25, 2019 through January 10, 2020. Comments on the NOP are due no later than the close of the NOP review period (5:00 p.m. on **Friday, January 10, 2020**). However, we would appreciate your response at the earliest possible date. Please send your written comments to Tom Smith at the address shown above or by email to TASmith@menlopark.org with "Menlo Uptown Project EIR" as the subject. Public agencies that provide comments are asked to include a contact person for the agency.

The Initial Study is available online at: https://www.menlopark.org/1576/Menlo-Uptown. Paper copies are also available for review at:

- Menlo Park Library (800 Alma Street, Menlo Park, CA 94025)
- Belle Haven Branch Library (413 Ivy Drive, Menlo Park, CA 94025)
- Community Development Department, Civic Center (701 Laurel Street, Menlo Park, CA 94025)

PROJECT LOCATION AND EXISTING CONDITIONS: The project site is located north of US Highway 101 (US 101) in the City of Menlo Park, as shown in Figure 1. The site consists of three parcels located at 141 Jefferson Drive, 180 Constitution Drive, and 186 Constitution Drive. The project site is generally surrounded by a mix of uses, including older buildings and new construction. The project site is bordered to the north by Constitution Drive, to the west by office uses, to the east by the two-story Synergy Badminton Club, and to the south by Jefferson Drive.

The project site is designated Mixed Use Residential within the Bayfront Area on the City's General Plan Land Use Designations Map and is within the Residential-Mixed Use-Bonus Zoning District. The generally-level site is currently developed with three buildings totaling approximately 102,212 square feet, as shown in Figure 2. The existing buildings were constructed between 1963 and 1964 and are currently occupied by commercial and industrial tenants. Vegetation on the project site consists of a small landscaped area along the southern border of the project site and trees along both the southern and northern borders.

PROJECT DESCRIPTION: The proposed project would result in the demolition of existing office and industrial space and redevelopment of the project site with three residential buildings totaling approximately 466,000 square feet of gross floor area with a maximum of 441 multi-family rental units and 42 townhomes for sale, as well as approximately 2,100 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements, as shown in Figures 3, 4, and 5. The project sponsor is currently proposing that 15 percent or a minimum of 73 of the total number of l units across the entire project would comply with the City's Below Market Rate Housing Program Ordinance, Chapter 16.96, and the City's Below Market Rate Guidelines.

Buildings M1 and M2 would each be seven stories in height (approximately 84 feet, 9 inches) and contain rental units and Building TH1 would consist of three-story units (approximately 39 feet, 5 inches in height) and contain for-sale units. The ground floor of each building would be raised 3 to 5 feet above grade to accommodate flood plain design requirements. Building M1 would contain 221 rental units and front to Constitution Drive. Building M2 would include 220 rental units and would front to Jefferson Drive. Building M1 would also include an approximately 2,100-square-foot commercial space on the ground floor that would be open to the public. The commercial space could include retail, an eating establishment, personal services, private recreation, or other commercial uses

that will be further refined and identified prior to conducting the environmental analysis. Building TH1 would front to Constitution Drive and would be made of up six townhome buildings that would each contain seven units, for a total of 42 units.

Buildings M1 and M2 would both include at-grade, two-level, approximately 53,078-square-foot, 256-space parking garages with automated lifts. A total of 512 parking spaces would be provided between the two buildings, 441 of which would be unbundled and available for residents (or others) to rent, and 71 of which would be designated as visitor parking. Dedicated bicycle storage areas would also be provided.

A total of approximately 55,085 square feet of open space would be provided with Buildings M1 and M2. . Building TH1 would include a total of approximately 40,484 square feet of open space. Publicly accessible open space would consist of the approximately 12,557-square-foot pedestrian paseo that would bisect the site and provide access between Constitution Drive and Jefferson Drive, and an approximately 11,206-square-foot extension of the pedestrian paseo running between the townhome buildings. Approximately 11.3 percent of the project site would be publicly accessible open space.

PROJECT APPROVALS: The following City discretionary approvals would be required prior to development at the project site:

- EIR Certification
- Use Permit
- Architectural Control
- Lot Line Adjustment
- Major Subdivision
- Heritage Tree Removal Permit
- Below Market Rate Housing Agreement

There will be a fiscal impact analysis conducted regarding the proposed project. In order to qualify for bonus-level development within the R-MU-B zoning district, the proposed project will also be required to complete an appraisal process to identify the value of the community amenities to be provided in exchange for the opportunity to develop at the bonus level.

RESPONSIBLE AGENCIES: The agencies listed below are expected to review the draft focused EIR to evaluate the proposed project:

- Pacific Gas & Electric
- California Department of Transportation
- California Regional Water Quality Control Board/San Mateo Countywide Water Pollution Prevention Program
- Native American Heritage Commission
- City/County Association of Governments
- Bay Area Air Quality Management District
- San Mateo County Transportation Authority
- San Mateo County Environmental Health Division
- Menlo Park Fire Protection District
- West Bay Sanitary District

INTRODUCTION TO EIR: ConnectMenlo, which updated the City's General Plan Land Use and Circulation Elements and rezoned land in the M-2 Area (now referred to as the Bayfront Area), was

approved on November 29, 2016. Because the City's General Plan is a long-range planning document, the ConnectMenlo EIR was prepared as a program EIR, pursuant to CEQA Guidelines Section 15168. The City certified the program EIR for ConnectMenlo on November 29, 2016. Section 15168(d) of the CEQA Guidelines provides information for simplifying the preparation of environmental documents by incorporating by reference analyses and discussions. CEQA Guidelines Section 15162(d) states that where an EIR has been prepared and certified for a program or plan, the environmental review for a later activity consistent with the program or plan should be limited to the effects that were not analyzed as significant in the prior EIR or susceptible to substantial reduction or avoidance.

An Initial Study for the proposed project, which is available for review online, at the City libraries, and at the Community Development Department (as listed above), has been prepared to evaluate the potential environmental impacts of the proposed project and determine what level of additional environmental review is appropriate. In accordance with the requirements outlined in Section 15168 of the CEQA Guidelines, the Initial Study has been prepared to disclose the relevant impacts and mitigation measures covered in the certified program-level ConnectMenlo EIR and discuss whether the proposed project is within the parameters of the certified ConnectMenlo EIR. In addition, as a result of the settlement agreement between the City of Menlo Park and the City of East Palo Alto regarding the ConnectMenlo EIR, certain topics are required to be analyzed. Based on the findings of the Initial Study, a focused EIR will be prepared for impacts that need further discussion and/or mitigation beyond that provided in the certified ConnectMenlo EIR. The focused EIR for the proposed project will be prepared and processed in accordance with CEQA and the CEQA Guidelines.

PROBABLE ENVIRONMENTAL EFFECTS: Based on the conclusions in the Initial Study, the following topics will be scoped out of the EIR: aesthetics; agriculture and forestry resources; biological resources; cultural resources; energy; geology and soils; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; public services; recreation; utilities and service systems; and wildfire. These topic areas were adequately analyzed in the ConnectMenlo EIR and no additional potential impacts or mitigation measures have been identified in the Initial Study. Therefore, the focused EIR will analyze whether the proposed project would have a significant environmental impact in the following areas:

- Air Quality;
- Greenhouse Gas Emissions;
- Noise (traffic noise);
- Population and Housing;
- Transportation; and
- Tribal Cultural Resources

ALTERNATIVES: Based on the significance conclusions determined in the focused EIR, alternatives to the proposed project will be identified and analyzed to reduce identified impacts. Section 15126.6(e) of the CEQA Guidelines requires the evaluation of a No Project Alternative. Other alternatives may be considered during preparation of the EIR and will comply with the CEQA Guidelines, which call for a "range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

EIR PROCESS: Following the close of the NOP comment period, a draft focused EIR will be prepared that will consider all NOP comments. In accordance with CEQA Guidelines Section 15105(a), the draft focused EIR will be released for public review and comment for a required 45-day review period. Following the close of the 45-day public review period, the City will prepare a final EIR, which will

include responses to all substantive comments received on the draft focused EIR. The draft focused EIR and final EIR will be considered by the Planning Commission in making the decision to certify the EIR and approve or deny the project.

Tom A. Smith
City of Menlo Park

November 25, 2019



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FIGURE 1

LEGEND

Project Site

0 500 1000

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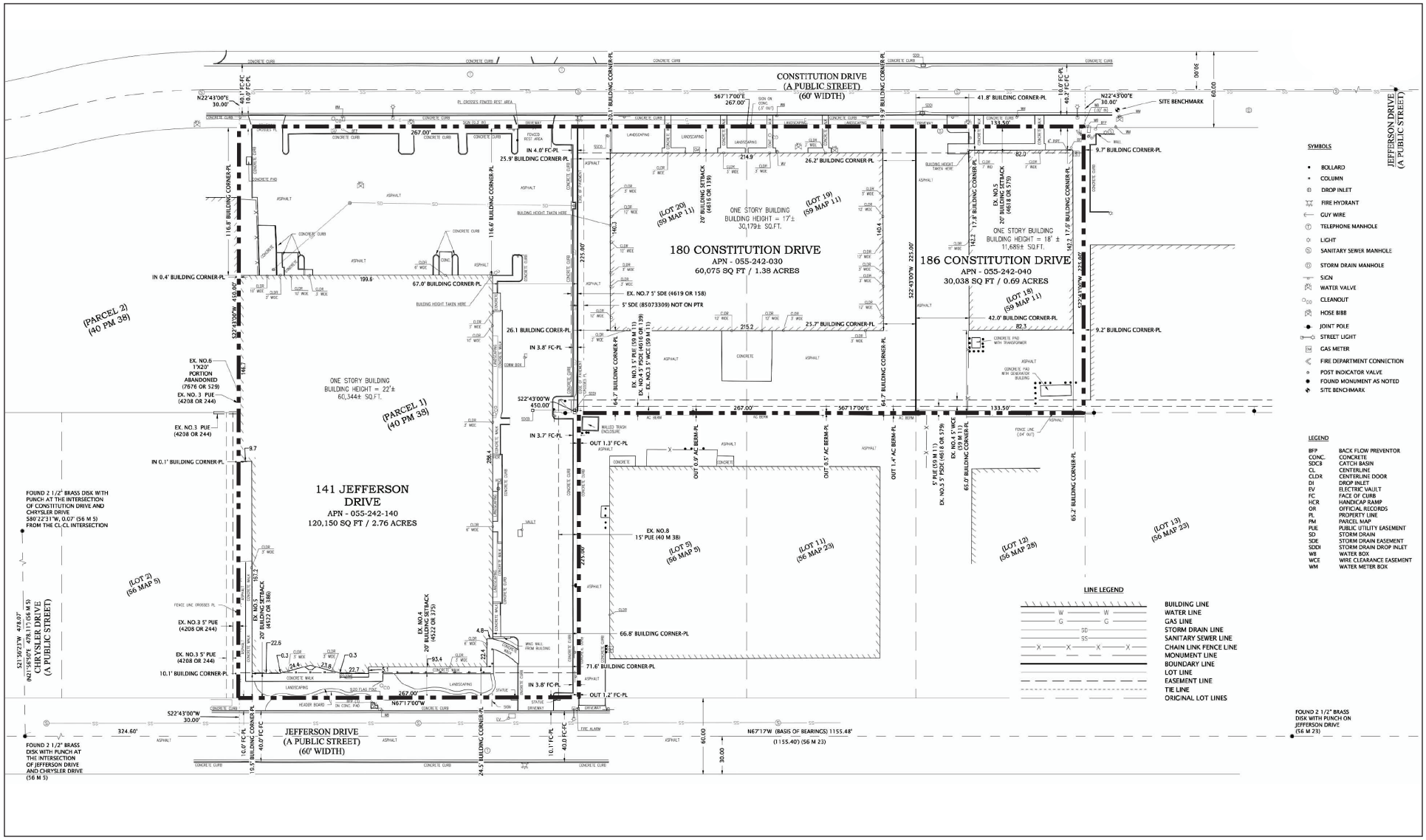
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Menlo Uptown Project NOP

Project Location and Regional Vicinity Map

SOURCE: ESRI World Map (08/19).

\\ptr11\images\CMK1902\GIS\Maps\Figure 1-1_Project Location and Regional Vicinity Map.mxd (10/16/2019)



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FIGURE 2

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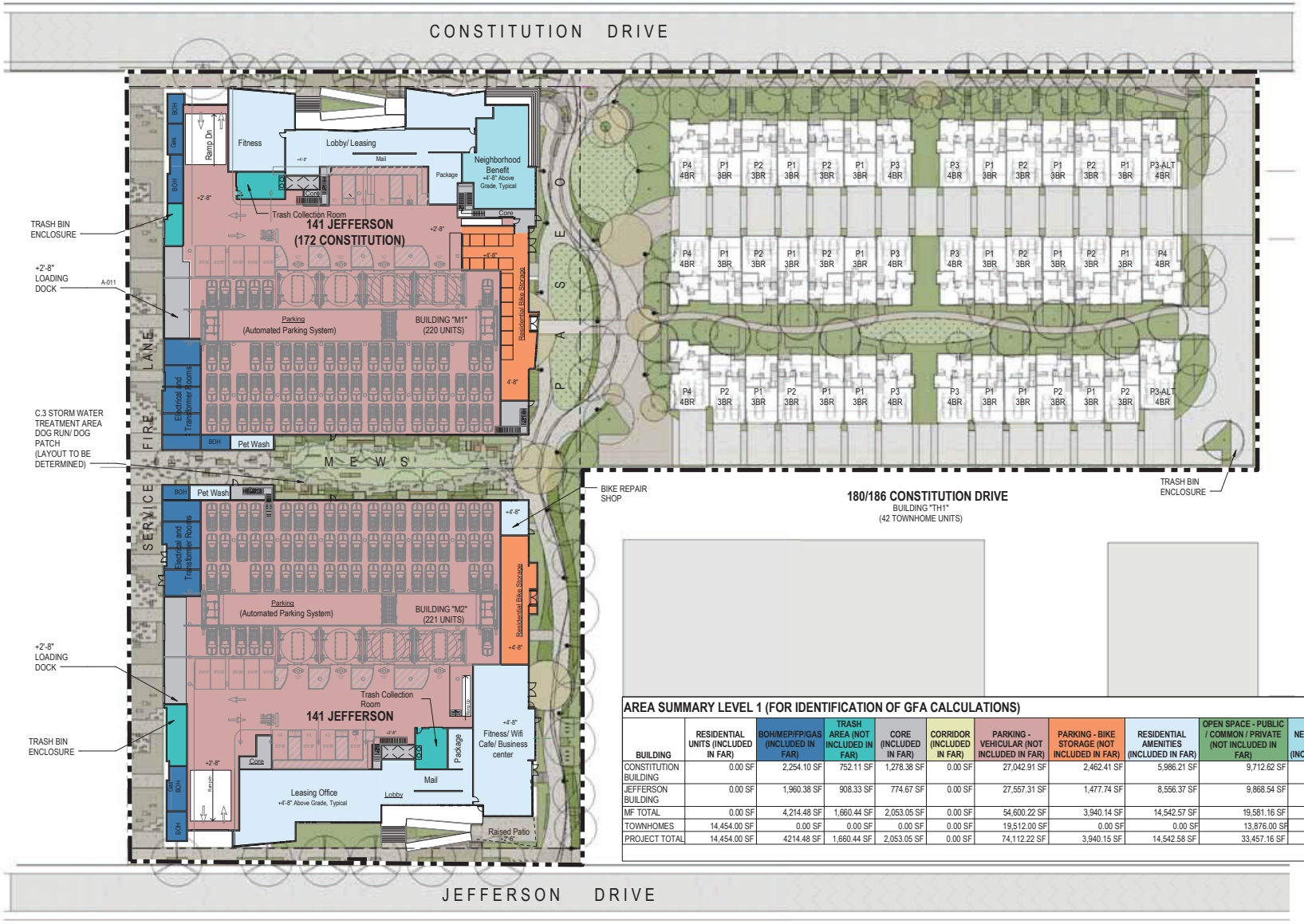
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Project Boundary

Menlo Uptown Project NOP
Existing Site Conditions

SOURCE: BKF, JULY 2019.

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AREA SUMMARY LEVEL 1 (FOR IDENTIFICATION OF GFA CALCULATIONS)

BUILDING	RESIDENTIAL UNITS (INCLUDED IN FAR)	BOH/MEP/FP/GAS (INCLUDED IN FAR)	TRASH AREA (NOT INCLUDED IN FAR)	CORE (INCLUDED IN FAR)	CORRIDOR (INCLUDED IN FAR)	PARKING - VEHICULAR (NOT INCLUDED IN FAR)	PARKING - BIKE STORAGE (NOT INCLUDED IN FAR)	RESIDENTIAL AMENITIES (INCLUDED IN FAR)	OPEN SPACE - PUBLIC / COMMON / PRIVATE (NOT INCLUDED IN FAR)	NEIGHBORHOOD BENEFIT (INCLUDED IN FAR)
CONSTITUTION BUILDING	0.00 SF	2,254.10 SF	752.11 SF	1,278.38 SF	0.00 SF	27,042.91 SF	2,462.41 SF	5,986.21 SF	9,712.62 SF	2,116.78 SF
JEFFERSON BUILDING	0.00 SF	1,960.38 SF	908.33 SF	774.67 SF	0.00 SF	27,557.31 SF	1,477.74 SF	8,556.37 SF	9,868.54 SF	0.00 SF
MF TOTAL	0.00 SF	4,214.48 SF	1,660.44 SF	2,053.05 SF	0.00 SF	54,600.22 SF	3,940.14 SF	14,542.57 SF	19,581.16 SF	2,116.78 SF
TOWNHOMES	14,454.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	19,512.00 SF	0.00 SF	0.00 SF	13,876.00 SF	0.00 SF
PROJECT TOTAL	14,454.00 SF	4214.48 SF	1,660.44 SF	2,053.05 SF	0.00 SF	74,112.22 SF	3,940.15 SF	14,542.58 SF	33,457.16 SF	2,116.87 SF

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FIGURE 3

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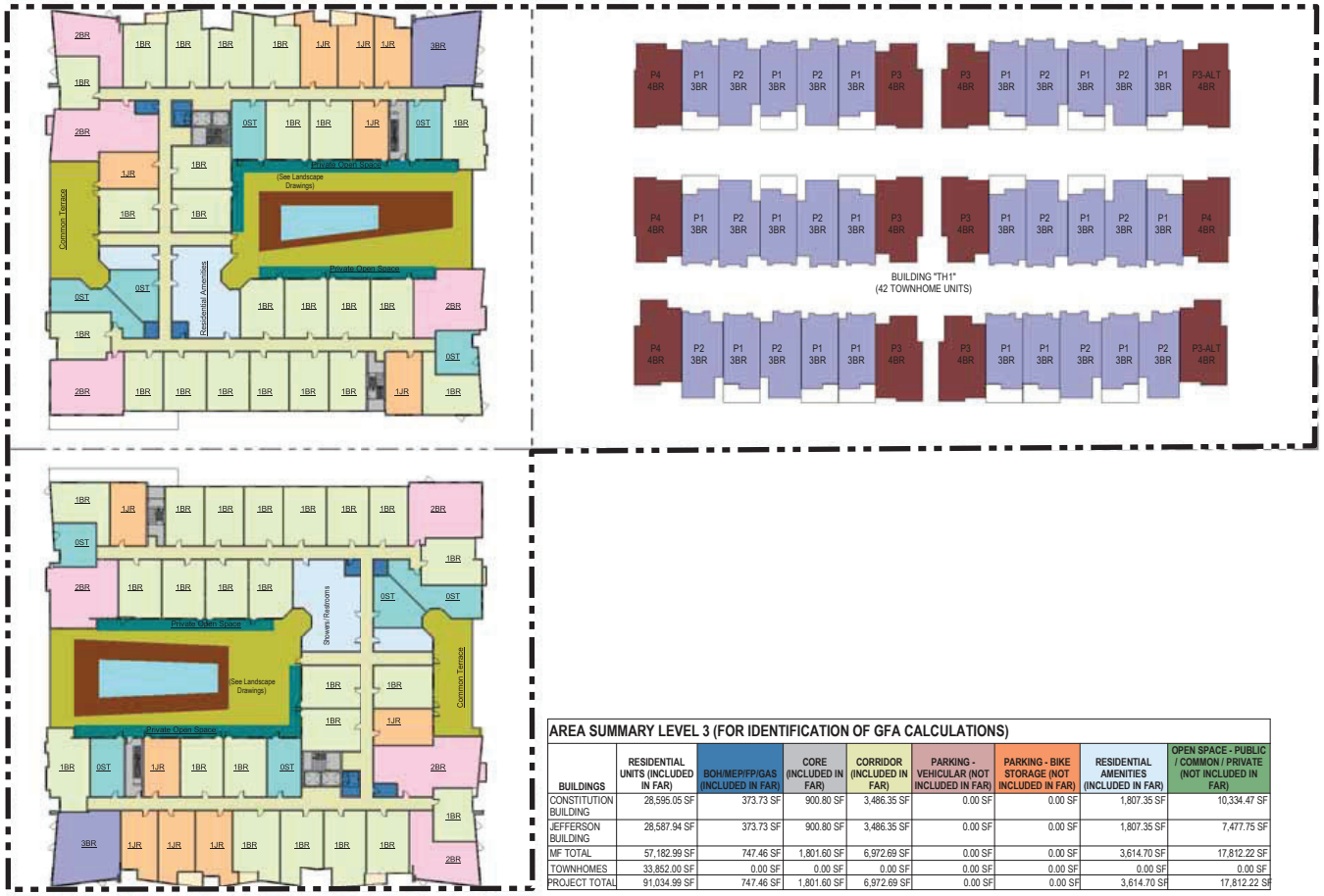
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Project Boundary

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

P:\CMK1902 141 Jefferson\PRODUCTS\Notices\NOP\Figures\Figure 3.ai (11/13/19)

Menlo Uptown Project NOP
Conceptual Ground Level Site Plan



PLAN LEGEND

- 0 Studio (FAR)
- 1 Junior Bedroom (FAR)
- 1 Bedroom (FAR)
- 2 Bedroom (FAR)
- 3 Bedroom (FAR)
- 4 Bedroom (FAR)

AREA SUMMARY LEVEL 3 (FOR IDENTIFICATION OF GFA CALCULATIONS)

BUILDINGS	RESIDENTIAL UNITS (INCLUDED IN FAR)	BOH/MEP/FP/GAS (INCLUDED IN FAR)	CORE (INCLUDED IN FAR)	CORRIDOR (INCLUDED IN FAR)	PARKING - VEHICULAR (NOT INCLUDED IN FAR)	PARKING - BIKE STORAGE (NOT INCLUDED IN FAR)	RESIDENTIAL AMENITIES (INCLUDED IN FAR)	OPEN SPACE - PUBLIC / COMMON / PRIVATE (NOT INCLUDED IN FAR)
CONSTITUTION BUILDING	28,595.05 SF	373.73 SF	900.80 SF	3,486.35 SF	0.00 SF	0.00 SF	1,807.35 SF	10,334.47 SF
JEFFERSON BUILDING	28,587.94 SF	373.73 SF	900.80 SF	3,486.35 SF	0.00 SF	0.00 SF	1,807.35 SF	7,477.75 SF
MF TOTAL	57,182.99 SF	747.46 SF	1,801.60 SF	6,972.69 SF	0.00 SF	0.00 SF	3,614.70 SF	17,812.22 SF
TOWNHOMES	33,852.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF
PROJECT TOTAL	91,034.99 SF	747.46 SF	1,801.60 SF	6,972.69 SF	0.00 SF	0.00 SF	3,614.70 SF	17,812.22 SF

LSA

FIGURE 4

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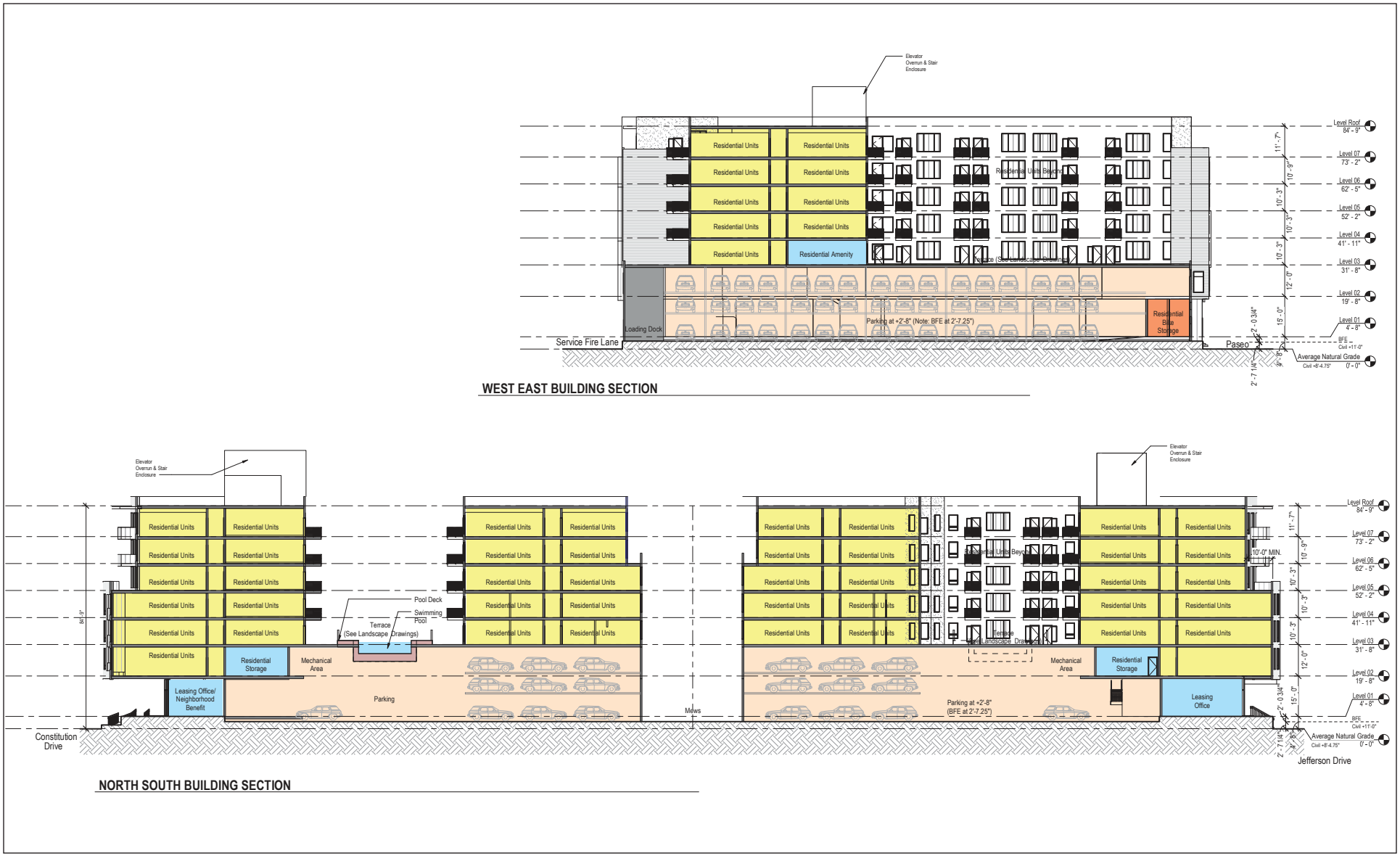
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Project Boundary

Menlo Uptown Project NOP
Conceptual Third (Podium) Level Site Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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FIGURE 5

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Menlo Uptown Project NOP
Conceptual Building Sections

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

P:\CMK1902 141 Jefferson\PRODUCTS\Notices\NOP\Figures\Figure 5.ai (11/13/19)

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF TRANSIT AND COMMUNITY PLANNING
P.O. BOX 23660, MS-10D
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

January 2, 2020

SCH #2019110498
GTS # 04-SM-2019-00289
GTS ID: 17906
SM/84/PM 26.43

Tom A. Smith, Senior Planner
City of Menlo Park
Community Development Department, Planning Division
701 Laurel Street
Menlo Park, CA 94025

Menlo Uptown Project – Notice of Preparation (NOP)

Dear Tom A. Smith:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Menlo Uptown Project. We are committed to ensuring that impacts to the State's multimodal transportation system and to our natural environment are identified and mitigated to support a safe, sustainable, integrated and efficient transportation system. The following comments are based on our review of the December 2019 NOP.

Project Understanding

The City of Menlo Park proposes the demolition of existing office and industrial space and redevelopment of the project site with three residential buildings totaling approximately 466,000 square feet of gross floor area with a maximum of 483 residential units, as well as approximately 2,100 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements. A total of 512 unbundled parking spaces would be included within two two-story parking garages integrated into the apartment buildings. A total of approximately 95,569 square feet of open space would be provided on the project site, including an approximately 12,557-square-foot pedestrian paseo. Regional access is provided from the State Route (SR) 84 and Chrysler Drive intersection approximately 0.21 mile away from the project site.

Travel Demand Analysis

Please submit a travel demand analysis that provides a Vehicle Miles Traveled (VMT) analysis resulting from the proposed project. With the enactment of Senate Bill (SB) 743, Caltrans is focusing on transportation infrastructure that supports smart growth and efficient development to ensure alignment with State policies using efficient development patterns, innovative travel demand reduction strategies, multimodal improvements, and VMT as the primary transportation impact metric. Please ensure that the travel demand analysis includes:

- A vicinity map, regional location map, and site plan clearly showing project access in relation to the State Transportation Network (STN). Ingress and egress for all project components should be clearly identified. Clearly identify the State right-of-way (ROW). Project driveways, local roads and intersections, car/bike parking, and transit facilities should be mapped.

- A VMT analysis pursuant to the City's guidelines or, if the City has no guidelines, the Office of Planning and Research's Draft Guidelines. Projects that result in automobile VMT per capita greater than 15% below existing (i.e. baseline) city-wide or regional values for similar land use types may indicate a significant impact. If necessary, mitigation for increasing VMT should be identified. Mitigation should support the use of transit and active transportation modes. Potential mitigation measures that include the requirements of other agencies such as Caltrans are fully enforceable through permit conditions, agreements, or other legally-binding instruments under the control of the City.

- A schematic illustration of walking, biking and auto conditions at the project site and study area roadways. Potential safety issues for all road users should be identified and fully mitigated.

- The project's primary and secondary effects on pedestrians, bicycles, travelers with disabilities and transit performance should be evaluated, including countermeasures and trade-offs resulting from mitigating VMT increases. Access to pedestrians, bicycle, and transit facilities must be maintained.

With respect to the local and regional roadway system, provide project related trip generation, distribution, and assignment estimates. To ensure that queue formation does not create traffic conflicts, the project-generated trips should be added to the existing, future and cumulative scenario traffic volumes for the intersections and freeway ramps. Potential queuing issues should be evaluated including on-ramp storage capacity and analysis of freeway segments near the

project; turning movements should also be evaluated. In conducting these evaluations, it is necessary to use demand volumes rather than output volumes or constrained flow volume.

Vehicle Trip Reduction

From Caltrans' *Smart Mobility 2010: A Call to Action for the New Decade*, the project site is identified as **Place Type 4: Suburban Communities** where location efficiency factors, such as community design, are often weak and regional accessibility varies. Given the place, type and size of the project, it should include a robust Transportation Demand Management (TDM) Program to reduce VMT and greenhouse gas emissions. Such measures are critical to facilitating efficient site access. The measures listed below can promote smart mobility and reduce regional VMT.

- Project design to encourage walking, bicycling and transit access;
- Improving or increasing access to transit;
- Ten percent vehicle parking reductions;
- Charging stations and designated parking spaces for electric vehicles;
- Carpool and clean-fuel parking spaces;
- Fix-it bicycle repair station(s);
- Bicycle route mapping resources;
- Participation/Formation in/of a Transportation Management Association (TMA) in partnership with other developments in the area; and
- Aggressive trip reduction targets with Lead Agency monitoring and enforcement.

TDM programs should be documented with annual monitoring reports by a TDM coordinator to demonstrate effectiveness. If the project does not achieve the VMT reduction goals, the reports should also include next steps to take in order to achieve those targets. Also, reducing parking supply can encourage active forms of transportation, reduce regional VMT, and lessen future transportation impacts on State facilities.

For additional TDM options, please refer to the Federal Highway Administration's *Integrating Demand Management into the Transportation Planning Process: A Desk Reference* (Chapter 8). The reference is available online at: http://www.ops.fhwa.dot.gov/publications/fhwahop12035/fhwahop12035.pdf.

Transportation Impact Fees
Please identify project-generated travel demand and estimate the costs of transit and active transportation improvements necessitated by the proposed project; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

Sea Level Rise
The effects of sea level rise may have impacts on transportation facilities located in the project area. Executive Order (EO) S-13-08 directs State agencies planning construction projects in areas vulnerable to sea level rise to begin planning for potential impacts by considering a range of sea level rise scenarios for the years 2050 and 2100. Higher water levels may increase erosion rates, change environmental characteristics that affect material durability, lead to increased groundwater levels and change sediment movement along shores and at estuaries and river mouths, as well as affect soil pore pressure at dikes and levees on which transportation facilities are constructed. All these factors must be addressed through geotechnical and hydrological studies conducted in coordination with Caltrans.

Lead Agency
As the Lead Agency, the City of Menlo Park is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Andrew Chan at 510-622-5433 or andrew.chan@dot.ca.gov.

Sincerely,

Mark Leong
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

Atherton • Belmont • Brisbane • Burlingame • Colma • Daly City • East Palo Alto • Foster City • Half Moon Bay • Hillsborough • Menlo Park
Millbrae • Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside

December 16, 2019

Tom A. Smith
Senior Planner
City of Menlo Park
701 Laurel Street
Menlo Park, CA 94025

RE: Notice of Preparation of an Environmental Impact Report for the proposed Menlo Uptown Project in the City of Menlo Park

Dear Mr. Smith:

Thank you for offering C/CAG the opportunity to review the Notice of Preparation of an Environmental Impact Report (EIR) for the proposed Menlo Uptown Project. The following comments are provided for your consideration in complying with the San Mateo County Congestion Management Program (CMP) Traffic Impact Analysis (TIA) Policy and Land Use Guidelines. In preparing a TIA and EIR for this project, refer to these two policies, which are included as Appendix I and L of the 2017 CMP: https://ccag.ca.gov/wp-content/uploads/2018/02/2017-Final-Draft-CMP-Appendix-1.pdf

Please forecast and discuss the expected impacts of the project on the CMP roadway network as outlined in the TIA policy. The scope of the TIA should not only include the immediate project area, but also other areas that may be impacted by the project. Please consult with C/CAG staff for any clarification on the scope and parameters of the analysis. The TIA policy provides a detailed definition of project impacts on CMP intersections, freeway segments, and arterial segments.

If the project will generate a net of 100 or more peak-hour trips on the CMP roadway network, mitigation measures are required to reduce the impact of the project. Potential mitigation strategies are documented in the Land Use Guidelines policy and include, but are not limited to, reducing project scope, building roadway and/or transit improvements, collecting traffic mitigation fees, and requiring project sponsors to implement transportation demand management (TDM) programs.

We request the opportunity to review and comment on the TIA, DEIR, and project TDM plan (if applicable) upon their completion. If you have any questions, please contact me at jlacap@smcgov.org or 650-599-1455.

Sincerely,

Jeffrey Lacap
Transportation Programs Specialist

From: cconroysf@gmail.com
To: Smith, Tom A
Subject: Menlo Uptown: Comment
Date: Monday, December 30, 2019 7:06:04 PM

CAUTION: This email originated from outside of the organization. Unless you recognize the sender's email address and know the content is safe, DO NOT click links, open attachments or reply.

Dear Mr. Smith,
I agree that 15% units for low income rental is too low. I know that meets current requirements but I recommend 20 to 25% low and very low income housing. The need is great.
Require at least 1.5 parking places per unit. Really think 2 per unit is better.
To reduce traffic recommend a free shuttle for Menlo Uptown looping in 111 Independence Drive to Caltrain with a loop to mid Santa Cruz Avenue, then to the Safeway shopping center on El Camino, two or three times in the morning, twice mid-day, and 3 times between 5 and 7:30 pm or so. Consider looping in a school. Use some of the Menlo Uptown land for a bump out on their private land to accommodate a shuttle stop with shelter. No stopping on the main street.
Do all possible to mitigate traffic but realize and acknowledge few people will bike or walk to work all through the year. (See Palo Alto's Research Park multi-year experiment to try to get more people to bike to work. Hardly any increase. Use of a shuttle had the greatest increase in use.)
Make sure green/flowers beautify streetscape.
Include green space/park. The 500+ residents will need it.
Coordinate/time traffic lights to keep traffic moving.
I strongly support a Child Care facility over a cafe.
Thank you.
Dorothy Conroy

From: Leah Elkins
To: Smith, Tom A
Subject: Menlo Uptown Development
Date: Monday, December 30, 2019 1:56:18 PM

CAUTION: This email originated from outside of the organization. Unless you recognize the sender's email address and know the content is safe, DO NOT click links, open attachments or reply.

I don’t hear anything about sea level rise in discussions about new building in the bayside areas. Is this not a factor?

Leah Elkins
Sent from my iPhone

San Francisco Bay Regional Water Quality Control Board

January 9, 2020

Tom A. Smith
City of Menlo Park
Community Development Department, Planning Division
701 Laurel Street
Menlo Park, CA 94025
Sent via email to: TASmith@menlopark.org

Subject: Comments on Scope of Environmental Impact Report – Menlo Uptown Project, San Mateo County

Thank you for the opportunity to comment on the scope of the focused Environmental Impact Report for the Menlo Uptown Project in Menlo Park, California. The San Francisco Bay Area Water Quality Control Board (Water Board) reviewed the Initial Study and Notice of Preparation and submits these comments.

Background

The proposed Menlo Uptown project would demolish existing office and industrial buildings and construct three new mixed-use residential and commercial buildings at 141 Jefferson Drive and 180 and 186 Constitution Drive in Menlo Park (the Site). Two of the new buildings are planned to be seven-stories built at-grade with the lower two levels used for a mixture of commercial use and parking and the upper levels for residential use. The third new building proposed is a three-story multi-unit townhome building. The ground floor of each building would be raised 3 to 5 feet above grade to accommodate flood plain design requirements.

The Initial Study, dated November 2019, states that "the public and/or the environment could be affected by the release of hazardous materials from the project site into the environment by: 1) exposing workers and/or the public to potentially contaminated soil and groundwater during construction and/or operation of the project; or 2) exposing workers and/or the public to hazardous building materials during demolition of the existing office and industrial structures."

A Phase I Environmental Site Assessment (ESA), dated July 2018, indicates that existing buildings on the Site have been utilized as hazardous materials facilities since their construction. A Phase II ESA, dated July 2018, determined that groundwater and soil vapor samples at the project site contained volatile organic compounds (VOCs) and petroleum hydrocarbons above residential environmental screening levels (ESLs). It further recommended assessment of vapor intrusion risks and concluded that implementation of vapor intrusion mitigation (VIM) measures could be necessary to protect the health of future building occupants.

The Initial Study identified the need for the following mitigation measures to ensure that "potential impacts of the proposed project would be less than significant and that no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR."

- Implementation of a project-specific Environmental Site Management Plan (ESMP) that is "prepared in consultation with" the Water Board; and
- A vapor intrusion assessment and associated vapor controls or source removal, as appropriate.

Water Board Comments

1) Because the proposed project is located within the area of a known regional VOC plume, the Water Board agrees that the proposed mitigation measures, including an ESMP, vapor intrusion assessment, and source removal and vapor intrusion mitigation as needed, should be required as described in the Initial Study.
2) The Water Board requests that the City of Menlo Park place conditions on permits as appropriate to require the project to obtain written acceptance of the items summarized below from the regulatory agency overseeing vapor intrusion assessment and mitigation concerns at the time.

Document Title	Timeframe
Environmental Site Management Plan and Vapor Intrusion Assessment – Including VIMS design, operations and maintenance plan, contingency plans, and financial assurance plan	Approval needed prior to start of construction
VIMS Construction Completion Report – Including as-built drawings	Approval needed prior to building occupancy

3) The Water Board is one of at least three regulatory agencies that could potentially oversee future vapor intrusion assessment and mitigation measures associated with this project. The others include the Department of Toxics Substances Control, or the San Mateo County Division of Environmental Health Services.
4) The overseeing regulatory agency will likely require a cost recovery agreement to allow for review and evaluation of monitoring and evaluation reports such as those included in the Water Board's Fact Sheet: Development on Properties with a Vapor Intrusion Threat.

If you have any questions, please contact Kimberlee West of my staff at (510) 622-2432 or kimberlee.west@waterboards.ca.gov.

Sincerely,

Michael Montgomery
Executive Officer

Copy by email:
Andrew Morcos, Uptown Menlo Park Venture, LLC, amorcos@greystar.com
Jacob Madden, San Mateo County Groundwater Protection Program, JMadden@smcgov.org

SEQUOIA UNION HIGH SCHOOL DISTRICT

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January 10, 2020

By U.S. Mail & E-Mail: TASmith@menlopark.org

Tom A. Smith
City of Menlo Park
Community Development Department, Planning Division
701 Laurel Street
Menlo Park, CA 94025

Re: Response of Sequoia Union High School District to Notice of Preparation of Focused Environmental Impact Report for Menlo Uptown Project

Dear Mr. Smith:

Sequoia Union High School District ("District") appreciates the opportunity to provide comments and input regarding the Notice of Preparation of an Initial Study and Environmental Impact Report for the Menlo Uptown Project ("Project"). Specifically, this letter responds to the City of Menlo Park's ("City") invitation to submit comments on the proposed scope and content of the Focused Environmental Impact Report ("EIR") that is planned to be prepared for the Project.

The District is particularly interested in and concerned about this Project because it is located directly across the street from the District's TIDE Academy on Jefferson Drive. The District requests that all direct and indirect impacts related to the Project's proximity to a school be thoroughly reviewed, analyzed, and mitigated.

The Project, sponsored by Uptown Menlo Park Venture, LLC ("Developer"), is proposed to be located at the approximately 4.83-acre site having the addresses of 141 Jefferson Drive, 180 Constitution Drive, and 186 Constitution Drive, Menlo Park, CA (collectively, the "Property"), which was previously a technology park consisting of three single story commercial and industrial buildings. The Developer is proposing to demolish the existing commercial and industrial space and redevelop the Property with three residential buildings totaling approximately 466,000 square feet ("sf") of gross floor area with 441 multi-family rental units, 42 townhomes, and 2,100 sf of commercial space, associated open space, circulation and parking, and infrastructure improvements. This Project, which will require a number of entitlements from the City, is anticipated to

generate approximately 14,150 new residents, and a corresponding increase of approximately 100 new high school students.

The City, through its Initial Study, concludes that the Project will have no additional impacts on the District's ability to provide its public service, other than those impacts addressed in the ConnectMenlo Final Environmental Impact Report ("ConnectMenlo EIR") that was certified by the City on December 6, 2016. Accordingly, the City is attempting to rely on the ConnectMenlo EIR as grounds to prepare a "focused," or limited EIR, which does not evaluate the Project's impacts on the District's ability to provide its public service. We believe that this approach is improper, and the limited scope of the City's proposed EIR inappropriate. Rather, the EIR prepared for the Project must contain a detailed discussion of the Project's potential impacts on the District, and manners in which to mitigate those impacts.

Neither the Initial Study nor the ConnectMenlo EIR adequately evaluated the Project's impacts to the District and, in particular, the District's TIDE Academy. Neither study adequately addressed how the Project will impact the District's abilities to house its students; how the Project's impacts on transportation, traffic, and circulation in the area will impact air quality at the TIDE Academy, as well as the safety and convenience of District students, parents, and staff; and generally how the Project will impact the District's ability to deliver its educational program at TIDE Academy. All of these impacts, in addition to mitigation measures for same, must be analyzed in the EIR for the Project.

District staff attended the Planning Commission scoping meeting for this Project and was pleased by some of the comments made by the Commissioners supporting consideration of the District. The District met with various developers of projects in the area, but has had very limited interaction with the Developer of this Project (Greystar Partners). We are hopeful that we will be able to forge a more collaborative relationship and discussion as this Project continues through the planning and approval stages.

The District submits these comments in order to preserve its concerns and rights regarding the proposed scope and content of the proposed EIR.

Inappropriate Reliance on ConnectMenlo EIR

By contending that the ConnectMenlo EIR is a "program" EIR for purposes of evaluating the Project's impacts, the City relies on the ConnectMenlo EIR as its basis for preparing a "focused," or simplified EIR for the Project. Due to the City's failure to appropriately consider the ConnectMenlo program's impacts on the District's ability to provide its public service in the first place, and due to changed circumstances since the time that the ConnectMenlo EIR was prepared, the City's reliance on the ConnectMenlo EIR as the basis for disregarding certain Project impacts on the District is improper and misguided.

A "program" EIR is an EIR prepared for a series of small projects that can be characterized as one large project. (14 Cal. Code Regs. § 15168(a).) A project proponent may rely on a program EIR's analysis of the program's environmental impacts, mitigation measures, and alternatives in order to engage in a simplified environmental review for a future project contemplated by the program. (Id. at subd. (d).) However, when a program EIR is relied upon by a future project proponent, the new project proponent must carefully examine the impacts addressed in the program EIR and determine whether additional environmental review is required. An agency's evaluation of the sufficiency of a program EIR for later approval of a project contemplated by the program involves a two-step process:

1. First, the agency considers whether the project is covered by the program EIR by determining whether it will result in environmental effects that were not examined in the program EIR. (14 Cal. Code Regs. § 15168(c)(1).)

2. Second, the agency must consider whether any new environmental effects could occur, or new mitigation measures would be required, due to events occurring after the program EIR was certified. (14 Cal. Code Regs. §§ 15168(c)(2), 15162.)

If the project will result in significant environmental impacts that were not examined in the program EIR, then the project proponent must prepare an EIR analyzing those impacts and corresponding mitigation measures. (14 Cal. Code Regs. §§ 15162 and 15168(c)(1); Pub. Res. Code §§ 21100(a), 21151.)

The Project's Initial Study provides that the Initial Study "tiers from the ConnectMenlo Final EIR, as appropriate." (Initial Study, p. 1-11.) The Initial Study later concludes that the proposed Project would have a less-than-significant impact on schools because the "ConnectMenlo Final EIR determined that any development associated with ConnectMenlo would be subject to payment of development impact fees, which under Senate Bill 50 (SB 50) are deemed to be full and complete mitigation." (Initial Study, p. 3-45.) The ConnectMenlo EIR concluded that "[b]ecause future development under the proposed project would occur incrementally over the 24-year buildout horizon and, in compliance with SB 50, would be subject to pay development impact fees...impacts related to the SUHSD would be less than significant." (ConnectMenlo Draft EIR, p. 4.12-40.)

Both the City's reliance upon the ConnectMenlo EIR, and the City's conclusions regarding the Project's impacts on the District, are misplaced and inappropriate.

A. Neither the ConnectMenlo EIR nor the Initial Study Adequately Identify All Impacts on the District.

As discussed in greater depth throughout this letter, both the program and the Project will pose numerous, significant impacts on the District and its ability to provide its educational program, none of which were adequately identified and addressed in the ConnectMenlo EIR and, as a result, the Initial Study. ConnectMenlo likewise did not consider either the program or Project's specific impacts on the District's TIDE Academy, as this school did not yet exist when the ConnectMenlo EIR was prepared. Because TIDE Academy is located in the Bayfront Neighborhood, it is particularly vulnerable to the 5,500 residential units authorized by ConnectMenlo, most of which will be constructed in the Bayfront neighborhood. ConnectMenlo did not consider whether/how the placement of 483 residential units directly across the street from a District high school would impact the District's program at TIDE Academy.

Further, ConnectMenlo was based on the assumption that development under the program would take place in an incremental fashion, over the course of 24 years. The Initial Study acknowledges the fact that this assumption was incorrect, however, in providing that "[a]lthough the ConnectMenlo Final EIR assumed a buildout horizon of 2040, the maximum development potential may be reached sooner than anticipated." (Initial Study, p. 1-4, fn. 8.) The Initial Study goes on to provide that "the pace of development would not create additional impacts beyond those identified in the ConnectMenlo Final EIR for topic areas identified in this Initial Study." (Id.)

The District vehemently disagrees with the Initial Study's conclusion. If the City continues to approve new residential development projects at its current pace, the District will be subject to a rapid influx of students to the District's facilities, which are already at or exceeding capacity. This rapid influx, combined with the existing inadequacies of the District's school facilities funding sources (as discussed below), will prevent the District from engaging in meaningful long-term facilities planning, and will instead require the District to spend

valuable resources on temporary solutions to the District's facilities problems, such as the purchase and lease of portables.

B. Neither the ConnectMenlo EIR nor the Initial Study Adequately Identify Mitigation Measures to Impacts caused by the Project.

Aside from a brief discussion of SB 50, neither the Initial Study nor the ConnectMenlo EIR adequately considered mitigation measures intended to alleviate the impacts caused by development on the District's facilities. Of particular note, as part of the ConnectMenlo program, the City developed a "community amenities list" as a means by which project developers can mitigate the impacts of their projects under ConnectMenlo by providing amenities to the community. Specifically, the City approved a list of community amenities that developers may offer in exchange for "bonus level development" in the M-2 and other zoning districts in the City, including the Bayfront neighborhood. Despite several requests by the District, the City has not included any school facilities items on its community amenities list.

As discussed, the Developer and City, both in the Initial Study's and the ConnectMenlo EIR, rely upon SB 50 as a panacea to all District impacts caused by development under ConnectMenlo. Such reliance is neither legally nor factually justified, and displays a lack of understanding of how school facilities are funded.

By way of background, developer fees are fees that may be levied or imposed in connection with or made conditions of any legislative or adjudicative act by a local agency involving planning, use, or development of real property. (Ed. Code § 17620.) "Level 1" developer fees are levied against residential and commercial or industrial developments on a price per square foot basis. If a district is able to establish a sufficient "nexus" between the expected impacts of residential and commercial development and the district's needs for facilities funding, then the district may charge up to $3.79 per sf of residential development, and up to $0.61 per sf of commercial development, which maximum amounts are increased every two years based on the statewide cost index for class B construction.

SB 50 declares that the payment of the developer fees authorized by Education Code section 17620 constitutes "full and complete mitigation of the impacts of any legislative or adjudicative act on the provision of adequate school facilities." (Gov. Code § 65995(h).) However, California courts have since acknowledged that developer fees do not constitute full and complete mitigation for school-related impacts other than school overcrowding. (*Chawanakee Unified Sch. Dist. v. Cty. of Madera* (2011) 196 Cal.App.4th 1016.) Thus, contrary to the assertions of the City in the ConnectMenlo EIR and the Initial Study, the payment of fees do not constitute full mitigation for all impacts caused by development under ConnectMenlo related to traffic, noise, biological, pedestrian safety, and all other types of impacts.

From a practical standpoint, the amount of developer fees received by school districts typically fall woefully short of alleviating the impacts caused by development. This is due largely to the facts that: (1) statutory developer fee amounts fail to acknowledge the differences in costs of school construction from one district to another, which particularly burdens school districts in the bay area; (2) the developer fee amounts fail to contemplate the special facilities needs of those districts experiencing rapid growth, such as the need for portables; and (3) the adjustment formula for developer fees is based on a "construction cost index" and does not include indexing related to the increases in land costs, resulting in the actual costs of facilities (i.e., land and improvements) increasing at a greater rate than the adjustment.

The inadequacy of developer fees as a source of funding for school facilities has forced school districts to rely increasingly on other sources of funding, primarily including local bond funds and State bond funds administered under the State Facilities Program (SFP). However, these sources of funds are equally unreliable. The last State school facilities bond fund (Proposition 51) has been exhausted, and it is currently unclear

when/whether those school districts that apply for state funding will be able to receive such funding. Local bond funds are also difficult to generate, as local bonds are subject to school district bonding capacity limitations and voter approval. Either way, the funding formula was never intended to require the State and local taxpayers to shoulder a disproportionate portion of the cost of school facilities.

Additional changes to the circumstances under which the ConnectMenlo EIR was approved render the analysis of environmental impacts under that EIR inadequate. For one, if Proposition 13, placed on the ballot by California Assembly Bill ("AB") 48 is approved by the California voters at the March 2020 election, each of the three sources of funds discussed above will be significantly altered. Of particular note, and further undermining the contention that developer fees constitute full and adequate mitigation for impacts caused by the Project, AB 48: (1) eliminates school impact fees for multifamily homes within a half mile of a major transit stop; (2) reduces impact fees for all other multifamily homes by 20%; and (3) suspends level 3 school impact fees. Without full payment of school impact fees from the Project, coupled with the extremely high and rising costs of land, the District will be unable to alleviate many of the Project's impacts through the acquisition of land and construction of new school facilities.

In light of the ConnectMenlo EIR and Initial Study's many inadequacies, below are specific scoping requests for the EIR, which the City must address in the EIR to evaluate adequately the potential environmental impacts of the Project on the District and its students.

Transportation/Circulation/Traffic Analysis

1. **Describe the existing and the anticipated vehicular traffic and student pedestrian movement patterns to and from school sites, including movement patterns to and from TIDE Academy and Menlo Atherton High School, and including consideration of bus routes.**

2. **Assess the impact(s) of increased vehicular movement and volumes caused by the Project, including but not limited to potential conflicts with school pedestrian movement, school transportation, and busing activities to and from TIDE Academy and Menlo Atherton High School.**

3. **Estimate travel demand and trip generation, trip distribution, and trip assignment by including consideration of school sites and home-to-school travel.**

4. **Assess cumulative impacts on schools and the community in general resulting from increased vehicular movement and volumes expected from additional development already approved or pending in the City and Bayfront neighborhood.**

5. **Discuss the direct, indirect, and cumulative impacts on the circulation and traffic patterns in the community as a result of traffic generated by the transportation needs of students to and from the Project and schools throughout the District during and after the Project build-out.**

6. Assess the impacts on the routes and safety of students traveling to school by vehicle, bus, walking, and bicycles.

The District has significant concerns about the traffic, transportation, and circulation impacts that the Project may have on the District, including the District's staff, parents, and students that attend the TIDE Academy. The foregoing categories of information are critical for determining the extent of those impacts on the District, none of which were adequately identified or discussed in either the Initial Study or the ConnectMenlo EIR.

Any environmental analysis related to the proposed Project must address potential effects related to traffic, noise, air quality, and any other issues affecting schools. (Pub. Resources Code, §§ 21000, *et seq.*; Cal. Code Regs., tit. 14, §§ 15000, *et seq.*; *Chawanakee Unified School District v. County of Madera, et al.*, (2011) 196 Cal.App.4th 1016.) Additionally, specifically related to traffic, there must also be an analysis of safety issues related to traffic impacts, such as reduced pedestrian safety, particularly as to students walking or bicycling to and from TIDE Academy; potentially reduced response times for emergency services and first responders traveling to these schools; and increased potential for accidents due to gridlock during school drop-off and pick up hours. (See, Journal of Planning Education and Research, "Planning for Safe Schools: Impacts of School Siting and Surrounding Environments on Traffic Safety," November 2015, Chia-Yuan Yu and Xuemei Zhu, pg. 8 [Study of traffic accidents near Austin, Texas schools found that "[a] higher percentage of commercial uses was associated with more motorist and pedestrian crashes" around schools].)

The State Office of Planning and Research has developed new CEQA Guidelines which set forth new criteria for the assessment of traffic impacts, and now encourages the use of metrics such as vehicle miles traveled (VMT), rather than level-of-service (LOS), to analyze project impacts on traffic. (14 Cal. Code Regs. § 15064.3.) However, local agencies may still consider impacts on traffic congestion at intersections where appropriate, and must do so where such traffic congestion will cause significant impacts on air quality, noise, and safety issues caused by traffic. (Pub. Res. Code § 21099(b)(3).)

Regional vehicular access to the Property is provided by US Highway 101 (US 101), via the Marsh Road on- and off-ramps located to the west and State Route 84 (SR 84 or the Bayfront Expressway) located to the north. Direct local access is via Jefferson Drive and Constitution Drive, which border the Property to the north and south. The Project Site is located in the Bayfront Area of Menlo Park that has experienced a drastic impact in traffic over the last ten to fifteen years as the City has continued to approve of newer corporate campuses and mixed biotechnology, commercial, office, and residential land uses. As discussed, the City's 2016 General Plan Update calls for an increase of 4.7 million square feet of non-residential office space, 850 hotel rooms, 5,430 residential units, 13,960 residents, and 20,150 employees, all within the Bayfront Area.[1] The ConnectMenlo EIR concluded that the General Plan Update would result in significant and unavoidable impacts to roadway segments and increase peak hour delays at intersections from increased traffic, even after the mitigation measures called for in the General Plan Update are implemented (if ever).[2] The General Plan Update does not consider how these impacts would be exacerbated by the current Project.

Construction of the Project will severely exacerbate the already stifling traffic in the general area and Bayfront neighborhood, and the safety issues posed thereby. These impacts will inhibit the District's abilities to operate its educational programs, including at TIDE Academy.

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[1] Menlo Park Small High School Project Final EIR (October 6, 2016), p. 2-12; ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update Draft EIR (June 1, 2016), Table 3-2.

[2] Menlo Park Small High School Project Final EIR (October 6, 2016), pp. 2-15 – 2-16; ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update (June 1, 2016), p. 4.13-73.

As discussed, the District's TIDE Academy is located across Jefferson Drive from the Project Site (less than 100 feet away), in the Bayfront neighborhood of Menlo Park. Thus, both TIDE Academy and the proposed Project would be accessed by Jefferson Drive and the immediately surrounding streets.

The proposed Project is anticipated to impede circulation in the Bayfront neighborhood, and clog the access roads to, from, and around the District's TIDE Academy. (See, 5 Cal. Code Regs. § 14010(k), which requires that school facilities be easily accessible from arterial roads.) In addition to drawing over 14,000 new residents to the area, including an estimated 100 new high school students, the proposed Project will draw thousands of daily office commuters, visitors, and emergency access vehicles from around the Bay Area. In addition to the immediate roads surrounding the Property and TIDE Academy, these new residents and commuters will rely heavily on the Bayfront Expressway, Bayshore Freeway, Willow Road, and Marsh Road to the west of TIDE Academy. As indicated in the City's General Plan, the City's roads are not currently equipped to accommodate such high density development and high levels of traffic. Accordingly, such increases to traffic in the area will negatively impact the District's abilities to operate its educational program, and also cause a drastic increase in the risk of vehicular accidents to District families, students, and staff traveling to and from TIDE Academy. It is important that these traffic impacts are not only assessed through a VMT analysis, but also a LOS analysis, as the proposed Project will cause severe traffic congestion surrounding the District's TIDE Academy, which impacts will in turn cause issues related to safety, noise, and air quality.

Adding to the District's concerns regarding traffic surrounding the Project site and the TIDE Academy are the vast number of development projects that have recently been approved, and the speed at which the development projects have been approved by the City and/or completed in the area, including the 777 Hamilton Drive project (195 new apartments), the Facebook Campus Project at former 1601 Willow Road and 312 and 313 Constitution Drive (78.9 acres of mixed use development), and the Menlo Gateway Project at 100-190 Independence Drive (cafe/restaurant, health club, 230-room hotel, three office and research and development buildings, and three parking structures covering 15.9 acres). There are several other projects that are being considered by the City, including the Facebook Campus Expansion Projects at 301-309 Constitution Drive, the Willow Village Master Plan Project at 1350-1390 Willow Road, 925-1098 Hamilton Avenue, and 1005-1275 Hamilton Court (1,735 residential units), and the 111 Independence Drive Project (106 multi-family dwelling units). Each of these projects alone promise to drastically increase traffic in the neighborhood. When considered together, their collective impact on traffic in the neighborhood will be devastating. The impacts of the Project must, therefore, be considered in conjunction with the anticipated impacts of all the other development being considered and approved in this area. (See *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 CA4th 713, 720, finding that piecemeal approval of several projects with related impacts could lead to severe environmental harm.)

Further, the traffic impacts posed by the Project, combined with all the other City-approved development in the area, will severely impact the safety and convenience of TIDE Academy students who walk or bike to school, significantly increasing their risk of suffering from traffic-related physical injuries and death. The analysis of student safety must be clearly delineated and given the extensive focus that it deserves. Title 5 of the California Code of Regulations requires that school sites be located within a proposed attendance area that encourages student walking and avoids extensive bussing. (5 Cal. Code Regs. § 14010(l).) To mitigate the impacts of increased traffic in the Project Site neighborhood in implementing the District's TIDE Academy project, the District committed to develop and implement a Travel Demand Management Plan. Through this Plan, the District encourages the use of student walking, biking, and other alternative means of student transport to school.[3] To mitigate the impacts of conflicts and/or dangerous interactions between pedestrians, bicyclists, and

[3] Menlo Park Small High School Project Draft EIR (July 8, 2016), p. S-4; The City of Menlo Park's Comprehensive Bicycle Development Plan (2005) identifies school-aged bicycle commuters as one of the two key bicycle commute groups utilizing the City's bicycle infrastructure.

vehicles, the District agreed to prepare a "Safe Routes to School Map" that identifies facilities such as traffic lights, crosswalks, and demarcated bikeways that promote safe routes to school.[4] The City, through the City's General Plan Land Use and Circulation Element, has committed to support and promote such safe route to school programs to enhance the safety of school children who walk to school.[5] The EIR must analyze and mitigate any impacts on the District's ability to implement its transportation and safety mitigation measures for the TIDE Academy, and the District's abilities to promote alternative modes of transportation to and from TIDE Academy. As TIDE Academy did not yet exist, these impacts were not adequately addressed in the ConnectMenlo EIR.

Finally, as previously discussed, the City must consider the extent to which the Project's impacts on traffic, transportation, circulation, and safety will be exacerbated by AB 48 (discussed above), coupled with the extremely high costs of land. As the District's ability to transport students to and from District schools becomes more constrained due to increased development in the District, the District will need to construct new educational facilities to accommodate changes in transportation patterns. However, AB 48 will hamstring the District's ability to construct new facilities by dramatically reducing the amount of developer fees available to the District.

We urge the City thoroughly to address and analyze each of the above listed items through its EIR, and implement extensive and thoughtful mitigation measures.

Air Quality

7. **Identify and assess the direct and indirect air quality impacts of the Project on sensitive receptors, such as the District's TIDE Academy.**

8. **Identify and assess cumulative air quality impacts on schools and the community in general resulting from increased vehicular movement and volumes expected from additional development already approved or pending in the City and Bayfront neighborhood.**

The Bay Area Air Quality Management District's (BAAQMD) CEQA Guidelines (May 2017) impose numerous limitations on the exposure of "sensitive receptors," such as schools, to odors, toxics, and pollutants, including pollutants from vehicular exhaust.

It is anticipated that the Project, when combined with all of the other development being considered and approved in the Bayfront neighborhood, will have a significant impact on the air quality of the neighborhood due to increases in vehicular traffic. These air quality impacts and corresponding mitigation measures must be analyzed in the EIR. Even more importantly, the Project is anticipated to result in significant impacts to sensitive receptors as increased vehicles enter and exit the Project, creating increased levels of air toxins and particulate matter that could negatively impact student health. These impacts, as they relate to the District's students at the TIDE Academy, were not adequately addressed in the ConnectMenlo EIR.

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[4] Menlo Park Small High School Project Draft EIR (July 8, 2016), p. S-6

[5] ConnectMenlo: General Plan Land Use & Circulation Elements and M-2 Area Zoning Update Draft EIR (June 1, 2016), p. 4.9-7 – 4.9-8

Noise

9. **Identify any noise sources and volumes which may affect school facilities, classrooms and outdoor school areas.**

It is expected that noise from construction and operation of the Project will cause impacts on the District's educational programs at the TIDE Academy. Request No. 9 is intended to clarify that the EIR's consideration of noise issues take into account all of the various ways in which noise may impact schools, including increases in noise levels in the immediate vicinity of TIDE Academy. Again, as the District's TIDE Academy did not yet exist, the ConnectMenlo EIR did not consider these impacts on the District, and so may not be relied upon by the City as grounds to disregard noise impacts in the Project EIR.

Population

10. **Describe historical, current, and future population projections for the District.**

11. **Assess the impacts of population growth within the District on the District's ability to provide its educational program.**

In addition to 483 anticipated residential units, it is anticipated that the proposed Project's 2,100 sf of commercial space sf will draw thousands of residents into the area on a permanent, or at least a daily basis. Using the District's current student generation rate of 0.2, 483 anticipated residential units is likely to generate at least 97 new high school students to the District. Without the anticipated increase in students from the Project, the District's student population at TIDE Academy is already expected to exceed capacity by 2023. The second closest District high school to the Property, Menlo Atherton High School, is currently over capacity.

The District, therefore, specifically requests that historical, current, and future population projections for the District be addressed in the EIR. Population growth or shrinkage is a primary consideration in determining the impact that development may have on a school district, as a booming population can directly impact the District and its provision of educational services, largely because of resulting school overcrowding, while a district with declining enrollment may depend on new development to avoid school closure or program cuts. Overcrowding can constitute a significant impact within the meaning of CEQA. (See, 14 Cal. Code Regs. §§ 15064(e).) This is particularly true where the overcrowding results in unsafe conditions, decreased quality of education, the need for new bus routes, and a need for new school construction. The same can hold true for potential school closures or program cuts resulting from a declining population.

While the ConnectMenlo EIR discussed the District's student population projections, the City, in reliance on SB 50, disregarded any impacts the General Plan Update's increase in student population could have on the District. For the reasons discussed above, such disregard was legally and practically improper.

Housing

12. **Describe the type and number of anticipated dwelling units indirectly resulting from the Project.**

13. **Describe the average square footage for anticipated dwelling units, broken down by type of unit, indirectly resulting from the Project.**

14. **Estimate the amount of development fees to be generated by development in accordance with implementation of the Project.**

The foregoing categories of information are critical for determining the extent of both physical and fiscal impacts on the District caused by increased population growth. These impacts were not adequately addressed in the ConnectMenlo EIR.

California school districts are dependent on developer fees authorized by the provisions of Government Code Sections 65995, *et seq.*, and Education Code sections 17620, *et seq.*, for financing new school facilities and maintenance of existing facilities. The developer fees mandated by Section 65995 provide the District a significant portion of its local share of financing for facilities needs related to development. However, as discussed, AB 48, combined with the extremely high costs of land, may significantly impair the District's abilities to mitigate impacts caused by school facilities overcrowding.

The adequacy of the statutory development fees to offset the impact of new development on local school districts can be determined only if the types of housing and average square footage can be taken into consideration. For instance, larger homes often generate approximately the same number of students as smaller homes. At the same time, however, a larger home will generate a greater statutory development fee, better providing for facilities to house the student being generated. It is for these reasons that the Government Code now requires a school district to seek – and presumably to receive – such square footage information from local planning departments. (Gov. Code § 65995.5(c)(3).)

While the foregoing funding considerations raise fiscal issues, they translate directly into physical, environmental impacts, in that inadequate funding for new school construction results in overcrowding of existing facilities. Furthermore, fiscal and social considerations are relevant to an EIR, particularly when they either contribute to or result from physical impacts. (Pub. Resources Code § 21001(g); 14 Cal. Code Regs. §§ 15021(b), 15131(a)-(c), 15142 & 15382.)

Phasing of development is also a crucial consideration in determining the extent of impacts on schools. The timing of the development will determine when new students are expected to be generated, and therefore is an important consideration particularly when considering the cumulative impact of a project in conjunction with other approved or pending development.

Public Services

15. **Describe existing and future conditions within the District, on a school-by-school basis, including size, location and capacity of facilities.**

16. **Describe the adequacy of both existing infrastructure serving schools and anticipated infrastructure needed to serve future schools.**

17. **Describe the District's past and present enrollment trends.**

18. **Describe the District's current uses of its facilities.**

19. **Describe projected teacher/staffing requirements based on anticipated population growth and existing State and District policies.**

20. **Describe any impacts on curriculum as a result of anticipated population growth.**

21. **Identify the cost of providing capital facilities to properly accommodate students on a per-student basis, by the District (including land costs).**

22. **Identify the expected shortfall or excess between the estimated development fees to be generated by the Project and the cost for provision of capital facilities.**

23. **Assess the District's present and projected capital facility, operations, maintenance, and personnel costs.**

24. **Assess financing and funding sources available to the District, including but not limited to those mitigation measures set forth in Section 65996 of the Government Code.**

25. **Identify any expected fiscal impacts on the District, including an assessment of projected cost of land acquisition, school construction, and other facilities needs.**

26. **Assess cumulative impacts on schools resulting from additional development already approved, pending, or anticipated.**

27. **Identify how the District will accommodate students from the Project who are not accommodated at current District schools, including the effects on the overall operation and administration of the District, the students and employees.**

As discussed, the Initial Study's reliance on the ConnectMenlo EIR as grounds to disregard the Project's impacts on the District's ability to provide its public services is inappropriate, as the ConnectMenlo EIR did not adequately examine numerous environmental impacts caused by the program and/or the Project, in part due to changes that occurred after the City certified the ConnectMenlo EIR. (14 Cal. Code Regs. § 15168(c)(1).) Nor is the City's reliance upon SB 50 as the sole mitigation measure proper, as developer fees are legally and practically inadequate to mitigate all impacts caused by the Project. Therefore, the District submits the above scoping requests related to the District's ability to continue providing its public service.

Conclusion

The District does not oppose development within District boundaries, and recognizes the importance of housing on the health and welfare of the community. However, the District maintains that the community can only thrive if the District's educational program and its facilities are viable and sufficient, and District staff, families, and students are safe. Accordingly, the needs of the District must be appropriately considered in the environmental review process for all proposed new development that will impact the District, such as the Project.

The District is hopeful that its continued collaboration with Developer and the City will yield solutions that alleviate the impacts caused by the Project, and is prepared to provide any information necessary to assist the City in preparation of the EIR and in addressing each of the comment and scope/content issues set forth above.

We request that all notices and copies of documentation with regard to this Project be mailed both to the District directly, and also to our legal counsel's attention as follows:

Mary E. Streshly, Superintendent
Sequoia Union High School District
480 James Avenue
Redwood City, CA 94062

Kelly M. Rem
Lozano Smith
2000 N. Main St., Suite 500
Walnut Creek, CA 94596

Please feel free to contact me directly if we can be of any assistance. Thank you.

Sincerely,

Crystal Leach
Associate Superintendent Administrative Services

cc: Kelly Rem, Lozano Smith, Mary E. Streshly

From:	Steve Taffee
To:	_Planning Commission
Subject:	Comments on Menlo Uptown
Date:	Monday, December 30, 2019 1:44:10 PM

CAUTION: This email originated from outside of the organization. Unless you recognize the sender's email address and know the content is safe, DO NOT click links, open attachments or reply.

My concern about all of the proposed projects East of 101 has to do with forecasted sea level rise and how this and other projects along the Bay fit into the regional plan for to deal with this eventuality.

A combination of marsh restoration, sea walls, and planned areas of flood zones for king tides and large rainstorms can't be effectively created on a local basis. It must be regional.

Additionally, the minimum standards for the site preparation, deconstruction of existing structures, and building must conform to the absolute highest of building standards such as LEED Platinum and Living Buildings, to not just be carbon neutral but to produce more power than they consume.

Housing is a priority in the area and yes, I know, it comes with traffic. But clever people can figure out a way to induce residents to not own cars that need to be parked on-site and use alternate forms of transportation to get to work, school, and shopping and individual and family car use on an as needed basis rather than the default.

Steve Taffee

Menlo Park resident

From: Nina
To: Smith, Tom A
Subject: Menlo Uptown Project
Date: Friday, January 3, 2020 3:46:09 PM

CAUTION: This email originated from outside of the organization. Unless you recognize the sender's email address and know the content is safe, DO NOT click links, open attachments or reply.

Hi, Tom

It is pure wishfult thinking to imagine that the members of 500 projected households of Menlo Uptown will all be able to walk to work unless residence can be restricted to people who work at Facebook, their children who attend schools in Belle Haven, and non-working household members. I am not sure this would be legal.

It doesn't matter how much BMR housing the project includes unless the people who move into those units already live in Belle Haven. Otherwise the project will add more crowding and more cars.

There should not be any building over here until we know what our air quality is, how the proposed development will affect it, what mitigations are possible, and whether those are acceptable.

There is plenty of land available for housing in the rest of the city. There just needs to be the political will.

Sincerely

Nina G. Wouk
Belle Haven Resident since 1986

APPENDIX B

INITIAL STUDY

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MENLO UPTOWN PROJECT
INITIAL STUDY

MENLO PARK, CALIFORNIA

LSA

November 2019

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MENLO UPTOWN PROJECT
INITIAL STUDY

MENLO PARK, CALIFORNIA

Submitted to:

City of Menlo Park
Community Development Department
Planning Division
701 Laurel Street
Menlo Park, California 94025

Prepared by:

LSA
157 Park Place
Pt. Richmond, California 94801
510.236.6810

Project No. CMK1902

LSA

November 2019

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LIST OF ABBREVIATIONS AND ACRONYMS

AB 52	Assembly Bill 52
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
Bay	San Francisco Bay
BMPs	Best Management Practices
CalEEMod	California Emissions Estimator Model
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	Methane
City	City of Menlo Park
CO_2	Carbon dioxide
ConnectMenlo	General Plan Land Use and Circulation Elements
ConnectMenlo Final EIR	ConnectMenlo Final Environmental Impact Report
DPR	California Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
ESLs	Environmental Screening Levels
EV	Electric vehicle
EVA	Emergency vehicle access
FEMA	Federal Emergency Management Agency
GHG	Greenhouse gases

gsf	Gross square feet
GWh	Gigawatt-hours
I-280	Interstate 280
kWh	Kilowatt-hours
LID	Low Impact Development
MGD	Million gallons per day
MGY	Million gallons per year
MLD	Most Likely Descendant
MPFPD	Menlo Park Fire Protection District
mpg	Miles per gallon
MPMW	Menlo Park Municipal Water
MPPD	Menlo Park Police Department
N_2O	Nitrous oxide
NAHC	Native American Heritage Commission
NWIC	Northwest Information Center
PCB	Polychlorinated biphenyls
PCE	Peninsula Clean Energy
PG&E	Pacific Gas & Electric
Phase I ESA	Phase I Environmental Site Assessment
R-MU-B	Residential – Mixed Use District – Bonus
SamTrans	San Mateo County Transit District
SB 50	Senate Bill 50
SFPUC	San Francisco Public Utilities Commission
SHPO	State Historic Preservation Office

SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SR 84	State Route 84
SRA	State Responsibility Area
Stanford HCP	Stanford University Habitat Conservation Plan
SVCW	Silicon Valley Clean Water
TCE	Trichloroethene
TDM	Transportation Demand Management
TIA	Transportation Impact Analysis
TIF	Transportation Impact Fee
UPRR	Union Pacific Railroad
US 101	US Highway 101
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VMT	Vehicle miles traveled
Water Board	San Francisco Bay Regional Water Quality Control Board
WBSD	West Bay Sanitary District
WTP	Water Treatment Plant
WWTP	Waste Water Treatment Plant

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1.0 PROJECT INFORMATION

1. **Project Title:**

   Menlo Uptown Project

2. **Lead Agency Name and Address:**

   City of Menlo Park
   City Hall – 1st Floor
   701 Laurel Street
   Menlo Park, California 94025

3. **Contact Person and Phone Number:**

   Tom Smith, Senior Planner
   City of Menlo Park
   Community Development Department, Planning Division

   Phone: 650-330-6730
   Email: TASmith@menlopark.org

4. **Project Location:**

   141 Jefferson Drive, 180 Constitution Drive, and 186 Constitution Drive
   Menlo Park, San Mateo County
   Assessor's Parcel Numbers (APNs): 055-242-140, 055-242-030, and 055-242-040

5. **Project Sponsor's Name and Address:**

   Uptown Menlo Park Venture, LLC
   450 Sansome Street, Suite 500
   San Francisco, California 94111

6. **General Plan Designation:** Mixed Use Residential, Bayfront Area

7. **Zoning:** Residential – Mixed Use District – Bonus (R-MU-B)

8. **Description of Project:**

This section describes the proposed Menlo Uptown Project (proposed project) submitted by Uptown Menlo Park Venture, LLC (project sponsor) and evaluated in this Initial Study. A description of the proposed project's location, context, and objectives is followed by details of the proposed project itself and a summary of required approvals and entitlements.

Project Site

The following describes the geographic context of the project site and provides a brief overview of the existing land uses within and in the vicinity of the site.

Regional Location and Access

The approximately 4.83-acre project site is comprised of three parcels located at 141 Jefferson Drive, 180 Constitution Drive, and 186 Constitution Drive within the City of Menlo Park, San Mateo County. Menlo Park is located approximately 30 miles south of San Francisco, at the southern end of San Francisco Bay (Bay).

Regional vehicular access to the project site is provided by US Highway 101 (US 101), via the Marsh Road on- and off-ramps located to the west and State Route 84 (SR 84 or the Bayfront Expressway) located to the north.[1] Direct local access is via Jefferson Drive and Constitution Drive, which border the site to the north and south. The Menlo Park and Palo Alto Caltrain stations are located within 3 miles of the site to the south, providing weekday service from San Francisco to Gilroy and weekend service from San Francisco to San Jose. Figure 1-1 depicts the site's regional and local context. Figure 1-2 is an aerial photograph of the project site and the vicinity.

Site Characteristics and Current Site Conditions

The generally-level project site is currently developed with two single-story commercial office buildings and a single-story industrial building totaling approximately 102,000 square feet. Table 1.A provides a summary of the existing conditions on the project site. Ingress and egress to the project site is provided by four driveways along Jefferson Drive and three driveways along Constitution Drive.

Table 1.A: Existing Conditions Summary

Address	APN	Parcel Size (acres)	Building Size (square feet)	Current Use	Parking Spaces
141 Jefferson	055-242-140	2.76	60,344	Office	149
180 Constitution	055-242-030	1.38	30,179	Industrial	50
186 Constitution	055-242-040	0.69	11,689	Office	22

Source: Menlo Park, City of, 2019.

The existing buildings on the project site were constructed between 1963 and 1964 and are currently occupied by commercial and industrial tenants. A total of 221 parking spaces are provided across all three parcels.

[1] The street grid in the immediate vicinity of the project site generally extends northeast-southwest and northwest-southeast. To simplify the direction descriptions used in this document, roadways progressing parallel to US 101 are designated eastbound-westbound roadways and roadways parallel to Marsh Road are designated northbound-southbound. The directional descriptions throughout this document use this geographic convention. However, with respect to transportation and circulation, US 101 and SR 84 are considered to be northbound-southbound roadways.

Vegetation on the project site consists of a small landscaped area along the southern border of the project site and trees along both the southern and northern borders. A total of 33 trees, including 3 street trees and 10 heritage-sized trees are located on the project site. Figure 1-3 depicts an aerial view of the project site and Figure 1-4 depicts current site conditions. Figure 1-5 includes photos of the existing buildings on the project site; viewpoint locations are depicted in Figure 1-3.

Regulatory Setting

The project site is designated Mixed Use Residential on the City of Menlo Park's (City) General Plan Land Use Designations Map, which was updated as part of the City's General Plan Land Use and Circulation Elements Update (referred to herein as ConnectMenlo). One purpose of ConnectMenlo was to create live/work/play environments and to encourage office, research and development, residential, commercial uses, and hotels, all in close proximity or integrated with one another in the Bayfront Area, which is generally located north of US 101. The Mixed Use Residential designation provides for higher density housing to meet the needs of all income levels. This designation is intended to promote live/work/play environments oriented towards pedestrians, transit, and bicycle use, especially for commuting to nearby jobs.[2]

The project site is located within the Residential Mixed Use Bonus (R-MU-B) zoning district.[3] The purpose and intent of the R-MU-B zoning district, as identified in the Zoning Ordinance, is to: 1) provide high density housing to nearby employment; 2) encourage mixed use development with a quality living environment and neighborhood-serving retail and services on the ground floor that are oriented to the public, and promote a live/work/play environment with pedestrian activity; and 3) blend with and complement existing neighborhoods through site regulations and design standards that minimize impacts to adjacent uses.[4] The maximum base residential density is 30 units per acre, a floor area ratio (FAR) of up to 90 percent for residential uses and a height of up to 40 feet. In addition, the bonus-level zoning standard allows for a density of up to 100 dwelling units per acre, a FAR of up to 225 percent for residential uses, and a height of up to 85 feet in exchange for providing community amenities.

Background

On November 29, 2016, the Menlo Park City Council certified the ConnectMenlo Final Environmental Impact Report (ConnectMenlo Final EIR)[5, 6] and approved updates to the Land Use and Circulation Elements of the General Plan.[7]

---

2 Menlo Park, City of, 2016. *Menlo Park General Plan*. November 29.

3 Menlo Park, City of, 2019. City of Menlo Park GIS Viewer. Available online at: cmpweb2.menlopark.org/Html5Viewer/Index.html?configBase=https://cmpweb2/Geocortex/Essentials/REST/sites/Menlo_Park/viewers/MPGVH/virtualdirectory/Resources/Config/Default (accessed March 13, 2019).

4 Menlo Park, City of, 2019. Menlo Park Municipal Code. January 15.

5 Menlo Park, City of, 2016. *ConnectMenlo: General Plan Land Use and Circulation Elements and M-2 Area Zoning Update, Public Review Draft Environmental Impact Report*, SCH#2015062054. June 1.

6 Menlo Park, City of, 2016. *ConnectMenlo: General Plan Land Use and Circulation Elements and M-2 Area Zoning Update, Response to Comments Document*, SCH#2015062054. October 10.

7 Menlo Park, City of, 2016. *General Plan: ConnectMenlo, Menlo Park Land Use and Mobility Update*. November 29.

ConnectMenlo also included changes to the City's zoning map and rezoned specific properties to reflect the General Plan updates, including the new land uses within the Bayfront Area of the city. The ConnectMenlo Final EIR provided a program-level analysis of the development potential envisioned for the entire City, including the increased development potential in the Bayfront Area. The Land Use Element specifically identifies new development potential in the Bayfront Area of up to 2.3 million square feet of non-residential space, 400 hotel rooms, and 4,500 residential units. The buildout potential for future development is expected to occur over a 24-year buildout horizon (from approximately 2016 to 2040).[8]

On December 29, 2016, the City of East Palo Alto filed suit challenging the certification of the ConnectMenlo Final EIR. The City of East Palo Alto alleged that the City of Menlo Park did not comply with the California Environmental Quality Act (CEQA) because the Final EIR underestimated the amount of new employment and failed to adequately analyze the traffic impacts that would result from development under ConnectMenlo. To resolve the litigation, the City of Menlo Park and the City of East Palo Alto entered into a settlement agreement. The key terms of the settlement agreement are as follows:

1. Reciprocal Environmental Review for Future Development Projects. Menlo Park will prepare an EIR for any project located in the Office (O), Life Science (LS) or Residential Mixed Use (R-MU) district that exceeds 250,000 net new square feet and would require a use permit, that proposes bonus level development, that proposes a master plan project, or that may have a significant environmental impact. Menlo Park may, with the exception of housing and traffic (which were the focus of East Palo Alto's challenge), simplify the environmental review for future development projects by incorporating analysis and discussions from the ConnectMenlo Final EIR pursuant to CEQA Guidelines Section 15168(d). East Palo Alto will prepare an initial study for future development projects to determine the appropriate level of environmental review and will conduct that review, which can be simplified by incorporating by reference analysis and discussions from its General Plan update referred to as Vista 2035.

2. Reciprocal Traffic Studies. Menlo Park and East Palo Alto will work together to ensure that future development projects' potentially significant traffic impacts on the other jurisdiction are analyzed and mitigated.

3. Reciprocal Study of Multiplier Effect. When the preparation of an EIR is required as described above, Menlo Park or East Palo Alto, as applicable, will conduct a Housing Needs Assessment, which to the extent possible, will include an analysis of the multiplier effect for indirect and induced employment.[9]

[8] Although the ConnectMenlo Final EIR assumed a buildout horizon of 2040, the maximum development potential may be reached sooner than anticipated. Nevertheless, the pace of development would not create additional impacts beyond those identified in the ConnectMenlo Final EIR for topic areas identified in this Initial Study. The ConnectMenlo Final EIR evaluated the maximum development potential that could occur at any given time and did not consider phased buildout of the development potential.

[9] Housing affordability and availability are not directly CEQA issues and nothing in the settlement agreement was intended to suggest such an analysis is required by CEQA.



LSA

FIGURE 1-1

LEGEND

Project Site

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Menlo Uptown Project Initial Study

Project Location and Regional Vicinity Map

SOURCE: ESRI World Map (08/19).

\\ptr11\images\CMK1902\GIS\Maps\Figure 1-1_Project Location and Regional Vicinity Map.mxd (10/16/2019)



LSA

FIGURE 1-2

0 250 500
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N

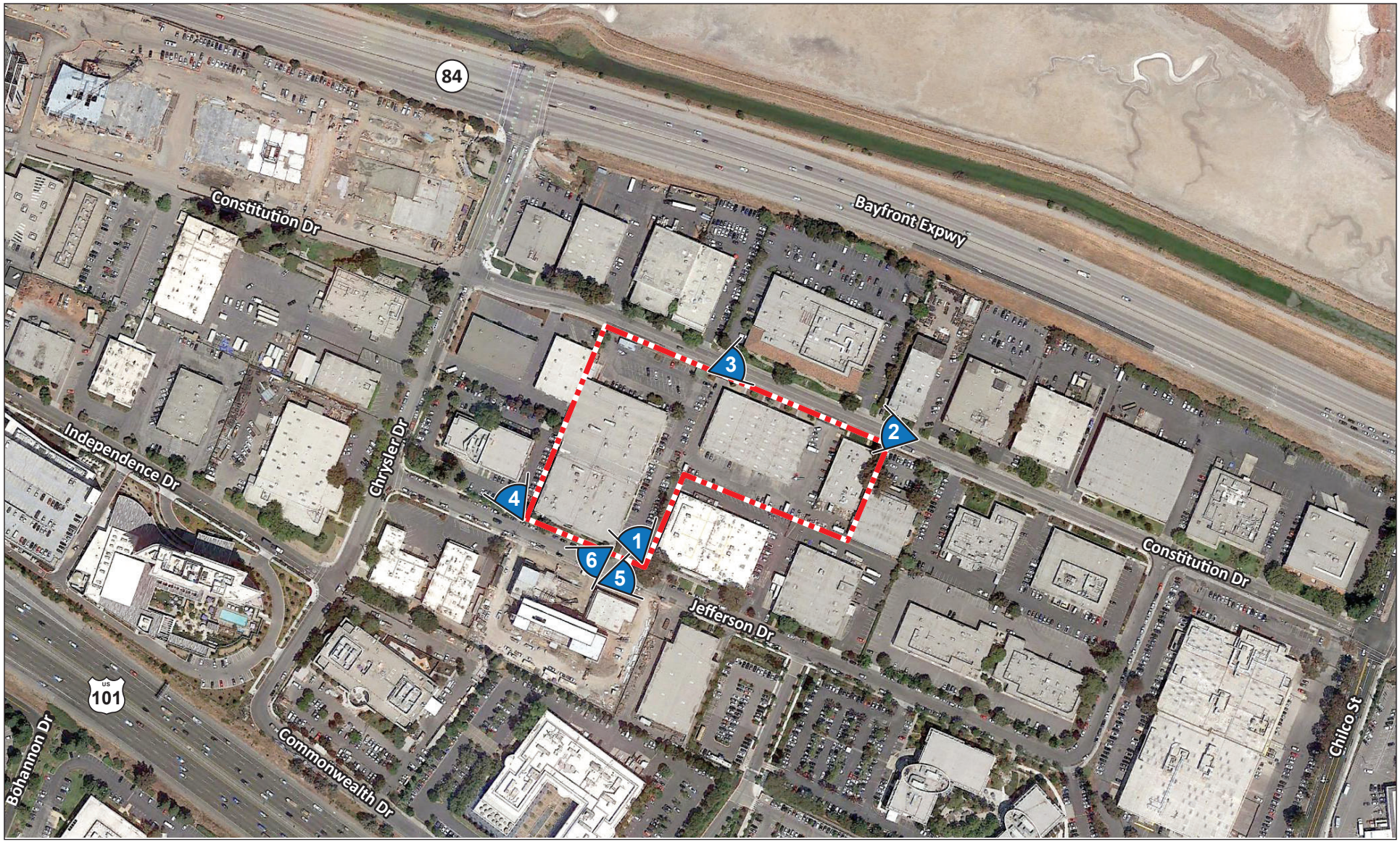
Project Site

Menlo Uptown Project Initial Study

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: GOOGLE EARTH 8/9/18; LSA, 2019,

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LSA

FIGURE 1-3

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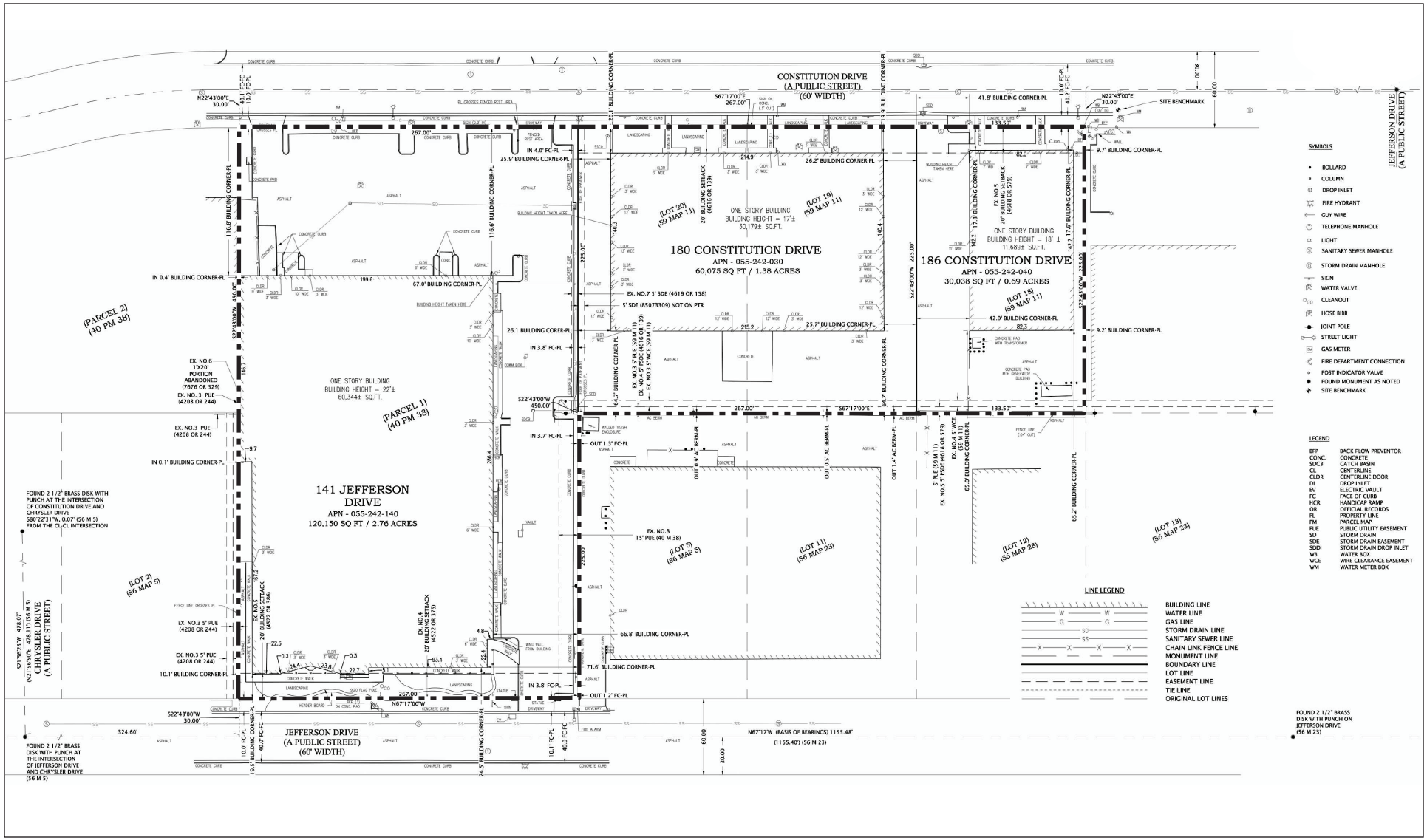
2 Photo Locations

Project Site

Menlo Uptown Project Initial Study
Photo Locations

SOURCES: GOOGLE EARTH 8/9/18; LSA, 2019,

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LSA

FIGURE 1-4

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Project Boundary

Menlo Uptown Project Initial Study
Existing Site Conditions

SOURCE: BKF, JULY 2019.

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Photo 1: Existing building at 141 Jefferson Drive, as seen from Jefferson Drive



Photo 2: Existing buildings at 180 and 188 Constitution Drive, as seen from Constitution Drive

LSA

FIGURE 1-5

Menlo Uptown Project Initial Study
Photos of Existing Site

SOURCE: LSA, 2019.

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This Initial Study was prepared in accordance with the terms of the settlement agreement, which allows simplification in accordance with CEQA Guidelines Section 15168 for all topic areas except housing and transportation and incorporates by reference the information contained in the ConnectMenlo Final EIR. Per CEQA Guidelines Section 15168, later activities occurring under a program EIR may be examined in light of the program EIR and tier from the program EIR as provided for in CEQA Guidelines Section 15152. Per CEQA Guidelines Section 15152, "where an EIR has been prepared and certified for a program… consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program… should limit the EIR… on the later project to effects which: 1) were not examined as significant effects on the environment in the prior EIR; or 2) are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means." The analysis provided in this Initial Study tiers from the ConnectMenlo Final EIR, as appropriate.

The proposed project would be required to comply with all applicable mitigation measures identified in the ConnectMenlo Mitigation Monitoring or Reporting Program (MMRP), which is a requirement of any proposed development project in the city. The proposed project has been determined to have less than significant impacts in a number of topic areas within this Initial Study (refer to Section 3.0) based on compliance with the ConnectMenlo mitigation measures. A copy of the ConnectMenlo MMRP is included in Appendix A.

Proposed Project

This section provides a description of the proposed project as identified in the project sponsor's application materials submitted to the City, dated July 3, 2019.[10] The proposed project would result in the demolition of approximately 102,212 square feet of existing office and industrial space and redevelopment of the project site with three residential buildings totaling approximately 466,000 square feet of gross floor area with a maximum of 441 multi-family rental units and 42 townhomes for sale, as well as approximately 2,100 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements. The project sponsor is currently proposing that 15 percent or a minimum of 73 of the total number of units across the entire project, with a mix of apartments and townhomes, would comply with the City's Below Market Rate Housing Program Ordinance, Chapter 16.96, and the City's Below Market Rate Guidelines. Individual project components are further described below.

Figure 1-6 depicts the overall conceptual site plan for the proposed project. Figures 1-7 through 1-11 depict the currently available conceptual site plans for the first through seventh floors of the proposed buildings. Figure 1-12 depicts conceptual sections of the proposed buildings. Figure 1-13 and Figure 1-14 show conceptual landscape plans for the street level and podium level.

[10] Uptown Menlo Park Venture, LLC, 2019. City of Menlo Park Development Permit Application for the Menlo Uptown Project. July 3. It should be noted that project plans may be subject to refinement prior to City action on project entitlements.

Building Program

The proposed project would result in the demolition of existing office and industrial square footage and the redevelopment of the project site with three residential buildings. Two of the new residential buildings would be seven stories in height and contain rental units (Buildings M1 and M2) and the third building would be three stories in height and contain for-sale units (Building TH1), as further described below. The average building height for all proposed buildings on the site would be approximately 61 feet, and a maximum height of approximately 84 feet, 9 inches at the tallest point of the multi-family buildings. The ground floor of each building would be raised three to five feet above grade to accommodate flood plain design requirements. A ground-floor pedestrian paseo would separate Buildings M1 and M2 from Building TH1 and provide a connection between Constitution Drive and Jefferson Drive.

Buildings M1 and M2. Building M1 would contain 221 rental units and front to Constitution Drive. Building M2 would include 220 rental units and would front to Jefferson Drive. Both buildings would be a maximum of approximately 84 feet, 9 inches in height. The approximately 441 rental units and residential amenity spaces in Buildings M1 and M2 would total approximately 383,433 square feet of floor area. The residential units would be located on the second floor and above in Buildings M1 and M2.

Building M1 would include 15 residential units on the second floor. Building M2 would include 14 units on the second floor. Both buildings would include 39 residential units on the third floor, as well as an approximately 14,982-square-foot amenities deck that would include a pool, social area with a fire pit, an outdoor living room, outdoor kitchen, and dining area. The fourth through six levels of both buildings would consist of 43 residential units each, with private porches facing either Jefferson and Constitution Drives or the interior of the building on a portion of the units. The seventh floor of each building would include 38 residential units, and two outdoor terraces totaling approximately 2,421 square feet per building.

Residential units would consist of approximately 92 studio units at an average size of approximately 550 square feet, approximately 81 junior one-bedroom units at an average size of approximately 630 square feet, approximately 214 one-bedroom units at an average size of approximately 700 square feet, approximately 45 two-bedroom units at an average size of approximately 900 square feet, and approximately 9 three-bedroom units at an average size of approximately 1,200 square feet.



LSA

FIGURE 1-6

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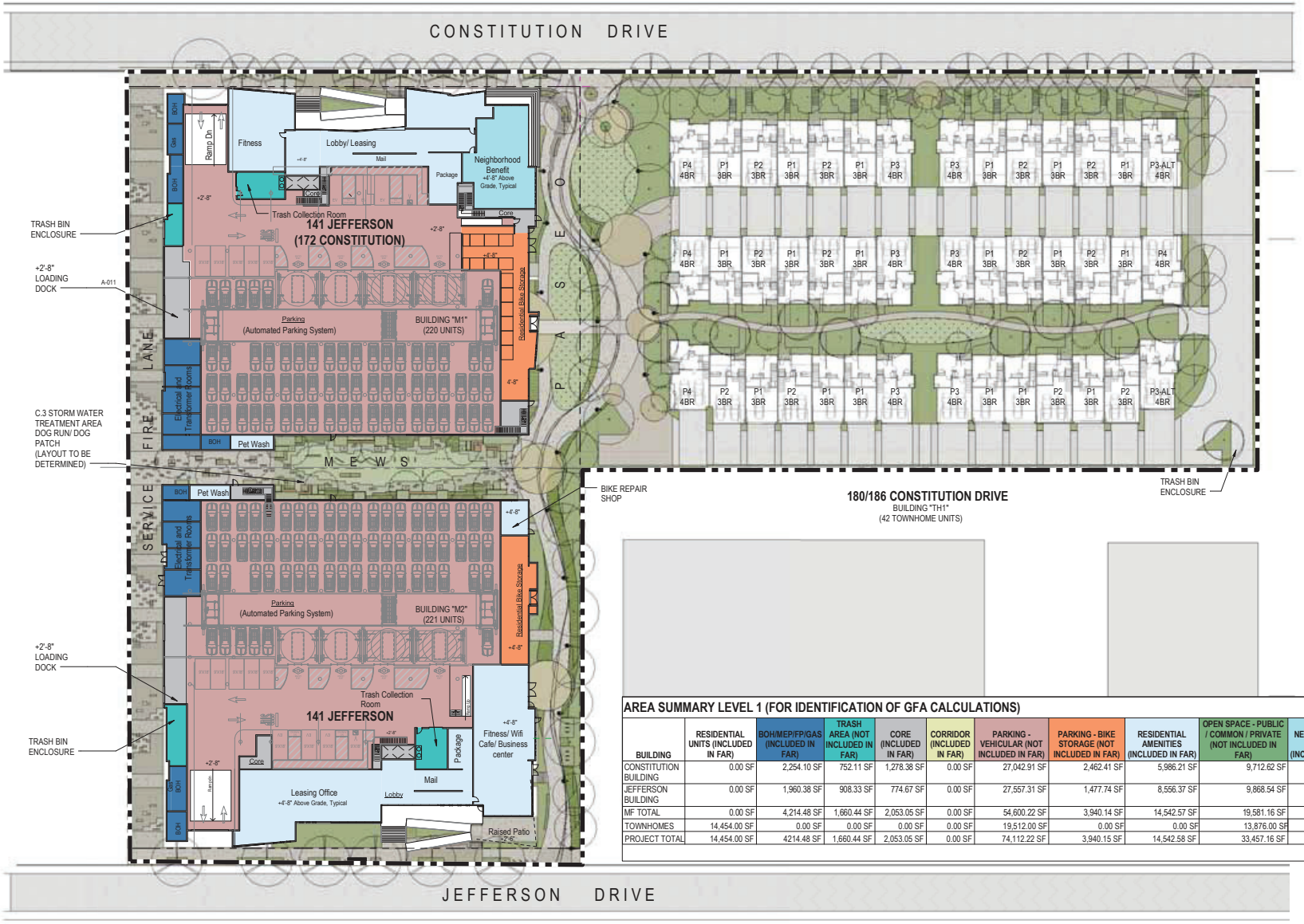
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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Site Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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AREA SUMMARY LEVEL 1 (FOR IDENTIFICATION OF GFA CALCULATIONS)

BUILDING	RESIDENTIAL UNITS (INCLUDED IN FAR)	BOH/MEP/FP/GAS (INCLUDED IN FAR)	TRASH AREA (NOT INCLUDED IN FAR)	CORE (INCLUDED IN FAR)	CORRIDOR (INCLUDED IN FAR)	PARKING - VEHICULAR (NOT INCLUDED IN FAR)	PARKING - BIKE STORAGE (NOT INCLUDED IN FAR)	RESIDENTIAL AMENITIES (INCLUDED IN FAR)	OPEN SPACE - PUBLIC / COMMON / PRIVATE (NOT INCLUDED IN FAR)	NEIGHBORHOOD BENEFIT (INCLUDED IN FAR)
CONSTITUTION BUILDING	0.00 SF	2,254.10 SF	752.11 SF	1,278.38 SF	0.00 SF	27,042.91 SF	2,462.41 SF	5,986.21 SF	9,712.62 SF	2,116.78 SF
JEFFERSON BUILDING	0.00 SF	1,960.38 SF	908.33 SF	774.67 SF	0.00 SF	27,557.31 SF	1,477.74 SF	8,556.37 SF	9,868.54 SF	0.00 SF
MF TOTAL	0.00 SF	4,214.48 SF	1,660.44 SF	2,053.05 SF	0.00 SF	54,600.22 SF	3,940.14 SF	14,542.57 SF	19,581.16 SF	2,116.78 SF
TOWNHOMES	14,454.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	19,512.00 SF	0.00 SF	0.00 SF	13,876.00 SF	0.00 SF
PROJECT TOTAL	14,454.00 SF	4214.48 SF	1,660.44 SF	2,053.05 SF	0.00 SF	74,112.22 SF	3,940.15 SF	14,542.58 SF	33,457.16 SF	2,116.87 SF

LSA

FIGURE 1-7

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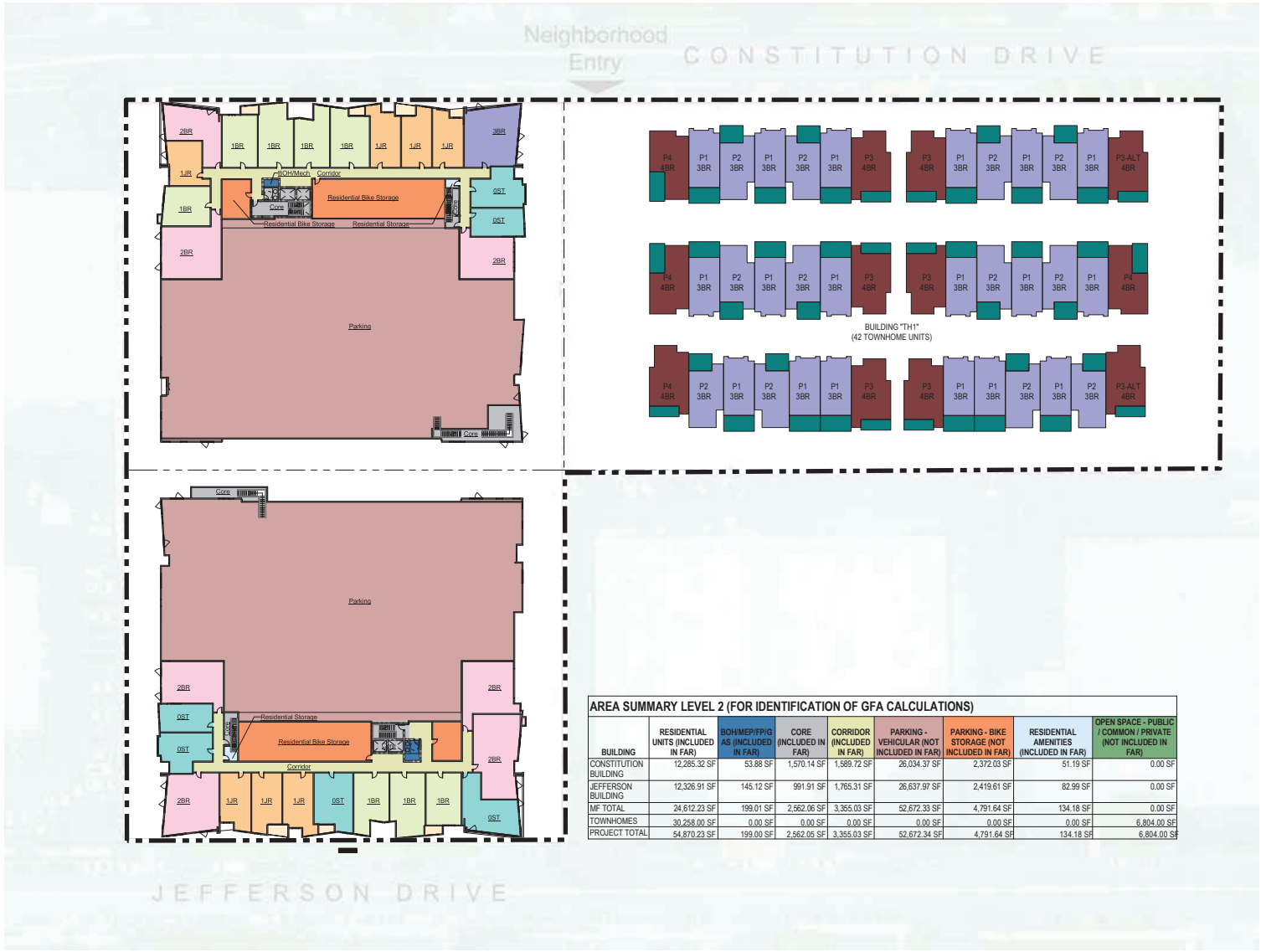
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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Ground Level Site Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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PLAN LEGEND

- 0 Studio (FAR)
- 1 Junior Bedroom (FAR)
- 1 Bedroom (FAR)
- 2 Bedroom (FAR)
- 3 Bedroom (FAR)
- 4 Bedroom (FAR)

AREA SUMMARY LEVEL 2 (FOR IDENTIFICATION OF GFA CALCULATIONS)

BUILDING	RESIDENTIAL UNITS (INCLUDED IN FAR)	BOH/MEP/FP/GAS (INCLUDED IN FAR)	CORE (INCLUDED IN FAR)	CORRIDOR (INCLUDED IN FAR)	PARKING - VEHICULAR (NOT INCLUDED IN FAR)	PARKING - BIKE STORAGE (NOT INCLUDED IN FAR)	RESIDENTIAL AMENITIES (INCLUDED IN FAR)	OPEN SPACE - PUBLIC / COMMON / PRIVATE (NOT INCLUDED IN FAR)
CONSTITUTION BUILDING	12,285.32 SF	53.88 SF	1,570.14 SF	1,589.72 SF	26,034.37 SF	2,372.03 SF	51.19 SF	0.00 SF
JEFFERSON BUILDING	12,326.91 SF	145.12 SF	991.91 SF	1,765.31 SF	26,637.97 SF	2,419.61 SF	82.99 SF	0.00 SF
MF TOTAL	24,612.23 SF	199.01 SF	2,562.06 SF	3,355.03 SF	52,672.33 SF	4,791.64 SF	134.18 SF	0.00 SF
TOWNHOMES	30,258.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	6,804.00 SF
PROJECT TOTAL	54,870.23 SF	199.00 SF	2,562.05 SF	3,355.03 SF	52,672.34 SF	4,791.64 SF	134.18 SF	6,804.00 SF

LSA

FIGURE 1-8

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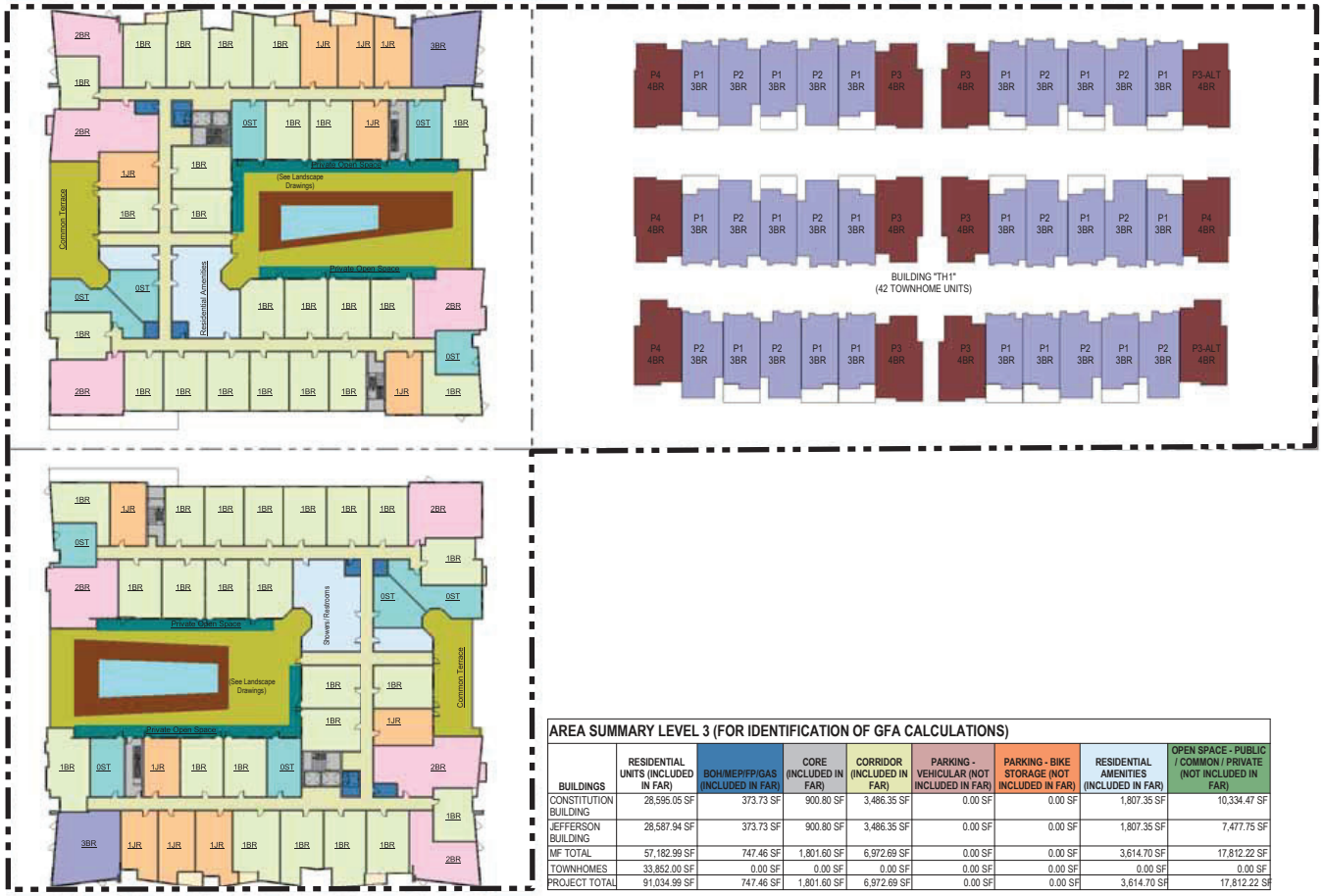
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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Second Level Site Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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PLAN LEGEND

- 0 Studio (FAR)
- 1 Junior Bedroom (FAR)
- 1 Bedroom (FAR)
- 2 Bedroom (FAR)
- 3 Bedroom (FAR)
- 4 Bedroom (FAR)

AREA SUMMARY LEVEL 3 (FOR IDENTIFICATION OF GFA CALCULATIONS)

BUILDINGS	RESIDENTIAL UNITS (INCLUDED IN FAR)	BOH/MEP/FP/GAS (INCLUDED IN FAR)	CORE (INCLUDED IN FAR)	CORRIDOR (INCLUDED IN FAR)	PARKING - VEHICULAR (NOT INCLUDED IN FAR)	PARKING - BIKE STORAGE (NOT INCLUDED IN FAR)	RESIDENTIAL AMENITIES (INCLUDED IN FAR)	OPEN SPACE - PUBLIC / COMMON / PRIVATE (NOT INCLUDED IN FAR)
CONSTITUTION BUILDING	28,595.05 SF	373.73 SF	900.80 SF	3,486.35 SF	0.00 SF	0.00 SF	1,807.35 SF	10,334.47 SF
JEFFERSON BUILDING	28,587.94 SF	373.73 SF	900.80 SF	3,486.35 SF	0.00 SF	0.00 SF	1,807.35 SF	7,477.75 SF
MF TOTAL	57,182.99 SF	747.46 SF	1,801.60 SF	6,972.69 SF	0.00 SF	0.00 SF	3,614.70 SF	17,812.22 SF
TOWNHOMES	33,852.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF
PROJECT TOTAL	91,034.99 SF	747.46 SF	1,801.60 SF	6,972.69 SF	0.00 SF	0.00 SF	3,614.70 SF	17,812.22 SF

LSA

FIGURE 1-9

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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Third (Podium) Level Site Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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AREA SUMMARY LEVEL 4 (FOR IDENTIFICATION OF GFA CALCULATIONS)

BUILDING	RESIDENTIAL UNITS (INCLUDED IN FAR)	BOH/MEP/FP/GAS (INCLUDED IN FAR)	CORE (INCLUDED IN FAR)	CORRIDOR (INCLUDED IN FAR)	PARKING - VEHICULAR (NOT INCLUDED IN FAR)	PARKING - BIKE STORAGE (NOT INCLUDED IN FAR)	RESIDENTIAL AMENITIES (INCLUDED IN FAR)	OPEN SPACE - PUBLIC / COMMON / PRIVATE (NOT INCLUDED IN FAR)
CONSTITUTION BUILDING	30,731.79 SF	373.73 SF	900.80 SF	3,053.32 SF	0.00 SF	0.00 SF	0.00 SF	575.70 SF
JEFFERSON BUILDING	30,731.64 SF	373.73 SF	900.80 SF	3,053.32 SF	0.00 SF	0.00 SF	0.00 SF	575.70 SF
MF TOTAL	61,463.43 SF	747.46 SF	1,801.60 SF	6,106.63 SF	0.00 SF	0.00 SF	0.00 SF	1,151.39 SF
TOWNHOMES	0.00 SF	0.00 SF	606.00 SF	0.00 SF	0.00 SF	0.00 SF	0.00 SF	9,360.00 SF
PROJECT TOTAL	61,463.43 SF	747.46 SF	2,407.60 SF	6,106.63 SF	0.00 SF	0.00 SF	0.00 SF	10,511.39 SF

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FIGURE 1-10

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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Fourth through Sixth Levels Site Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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AREA SUMMARY LEVEL 7 (FOR IDENTIFICATION OF GFA CALCULATIONS)

BUILDINGS	RESIDENTIAL UNITS (INCLUDED IN FAR)	BOH/MEP/FP/GAS (INCLUDED IN FAR)	CORE (INCLUDED IN FAR)	CORRIDOR (INCLUDED IN FAR)	PARKING - VEHICULAR (NOT INCLUDED IN FAR)	PARKING - BIKE STORAGE (NOT INCLUDED IN FAR)	RESIDENTIAL AMENITIES (INCLUDED IN FAR)	OPEN SPACE - PUBLIC / COMMON / PRIVATE (NOT INCLUDED IN FAR)
CONSTITUTION BUILDING	24,102.30 SF	392.80 SF	850.77 SF	2,995.12 SF	0.00 SF	0.00 SF	0.00 SF	5,668.72 SF
JEFFERSON BUILDING	24,101.98 SF	392.80 SF	850.77 SF	2,995.12 SF	0.00 SF	0.00 SF	0.00 SF	5,668.72 SF
MF TOTAL	48,204.28 SF	785.61 SF	1,701.54 SF	5,990.24 SF	0.00 SF	0.00 SF	0.00 SF	11,337.45 SF

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FIGURE 1-11

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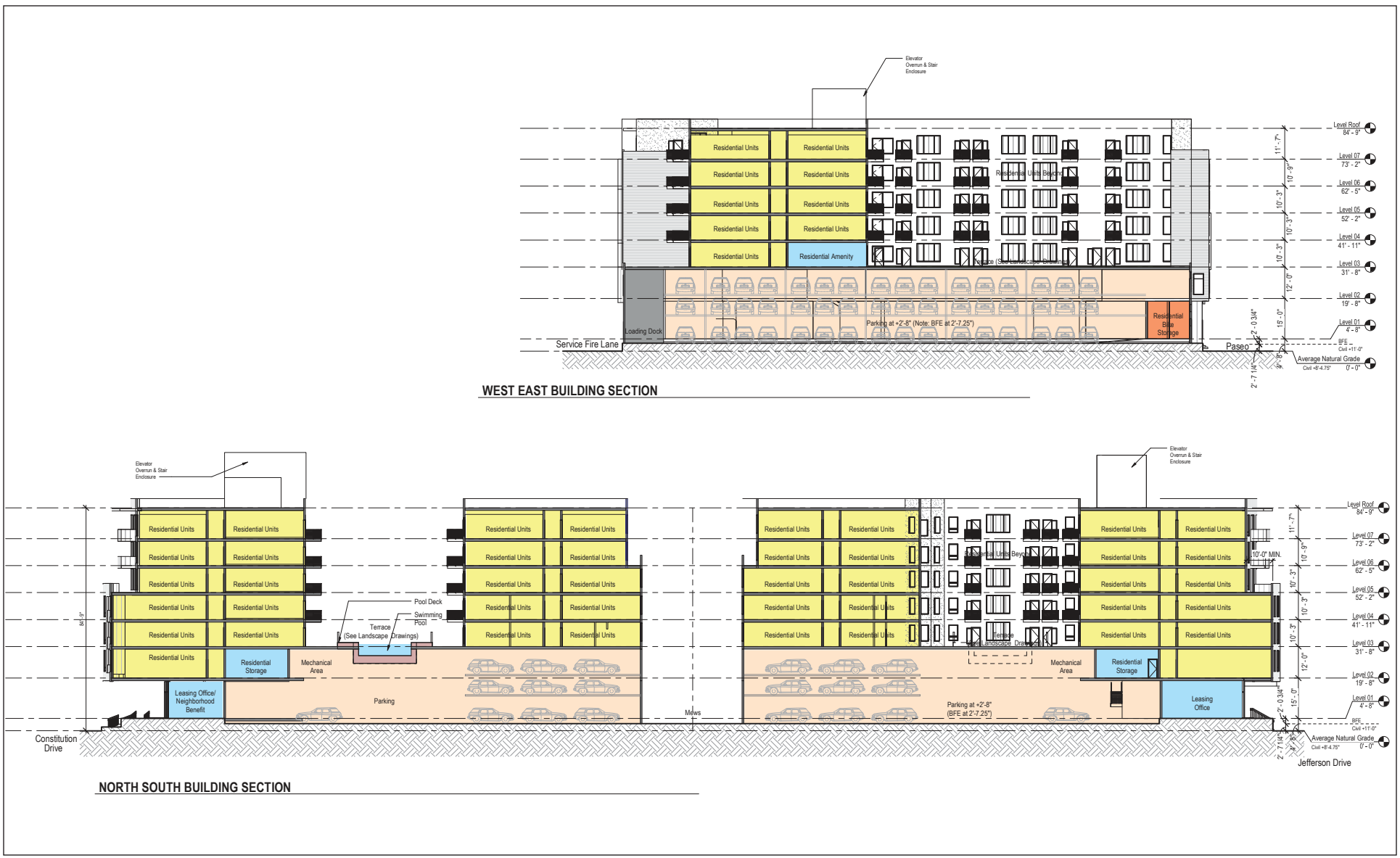
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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Seventh Floor Site Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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FIGURE 1-12

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Menlo Uptown Project Initial Study
Conceptual Building Sections

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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LSA

FIGURE 1-13

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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Street Level Landscape Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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LSA

FIGURE 1-14

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Project Boundary

Menlo Uptown Project Initial Study
Conceptual Podium Level Landscape Plan

SOURCE: CITY OF MENLO PARK, NOVEMBER 6, 2019.

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The ground level and second floor of Buildings M1 and M2 would both include the parking garage and dedicated bicycle storage areas, the program for which is further described below, under Access, Circulation and Parking. The ground floor of Buildings M1 and M2 would both include a lobby, storage, residential amenities, which could include a fitness or business center, and stairwells and elevators providing access to the residential portion of the building. Building M1 would also include an approximately 2,100-square-foot commercial space on the ground floor that would be open to the public. The commercial space could include retail, an eating establishment, personal services, private recreation uses, or other commercial uses that would be further refined and identified.

Building TH1. Building TH1 would front to Constitution Drive and would be made of up six townhome buildings that would each contain seven three-story units that would be a maximum of 45 feet, 6 inches in height. A total of approximately 82,126 square feet of residential uses (approximately 42 units) would be located on all three levels of Building TH1. Units would consist of 30 three-bedroom units and 12 four-bedroom units that would have an average size of approximately 1,774 square feet.

Open Space and Landscaping

A total of approximately 55,085 square feet of open space would be provided with Buildings M1 and M2. Private residential open space would consist of private balconies and terraces, totaling approximately 15,620 square feet. Common useable space for residents would consist of an approximately 7,024-square-foot plaza on the ground floor between the two buildings, the combined total of approximately 14,982 square feet of amenity decks on the third floors, and the combined total of approximately 4,901 square feet of roof terraces on the seventh floors, for a total of 26,907 square feet of common open space across Buildings M1 and M2. Publicly accessible open space on the multifamily portion of the development site would consist of an approximately 12,557-square-foot pedestrian paseo on the ground floor that would bisect the site and provide access between Constitution Drive and Jefferson Drive.

Building TH1 would include a total of 40,484 square feet of open space. Private residential open space would consist of private balconies on the second floor of each unit, which would total approximately 16,164 square feet. Common useable open space would consist of an approximately 2,670-square-foot park area in the center of Building TH1. Publicly accessible open space would consist of an approximately 11,206-square-foot extension of the pedestrian paseo, running between the townhome buildings. The remaining approximately 10,444 square feet of open space would consist of landscaped areas located throughout Building TH1.

The City's Zoning Ordinance requires a minimum of 6.25 percent (13,142 square feet) of the site to be publicly-accessible open space. Approximately 11.3 percent of the project site would be publicly-accessible open space, consisting of the paseo and paseo extension running between the townhome buildings.

Approximately 20 new trees would be planted on the project site, including between each of the three buildings and along Jefferson Drive and Constitution Drive. In addition, landscaping would be provided throughout the project site in the open space areas mentioned above. Figure 1-13 shows the conceptual landscape plan for the ground floor, and Figure 1-14 shows the conceptual landscape plan for the third floor.

Access, Circulation and Parking

Pedestrian access to the proposed buildings would be provided by Constitution Drive and Jefferson Drive and from within the site interior. As described above, Buildings M1 and M2 would include residential lobbies on the ground floor, and the residential units would be accessed via a stairwell and two elevators within the lobby, or stairwells located adjacent to the plaza between the two buildings. The pedestrian paseo would provide access to all three buildings.

Buildings M1 and M2 would both include at-grade, two-level, approximately 53,078-square-foot, 256-space parking garages with automated lifts. A total of 512 parking spaces would be provided between the two buildings, 441 of which would be unbundled and available for residents (or others) to rent, and 71 of which would be designated as visitor parking. The parking garage for Building M1 would be accessed via a ramp located along Constitution Drive in the northern corner of the building. The parking garage for Building M2 would be accessed via a ramp located along Jefferson Drive in the western corner of the building. A total of 729 bicycle parking spaces would be provided throughout Buildings M1 and M2, consisting of 662 long-term spaces located in a dedicated bicycle storage room on the first and second floors of these buildings and 67 short-term parking spaces located along Constitution Drive and Jefferson Drive.

A driveway from Constitution Drive at the eastern corner of the project site would connect to an internal roadway that would provide access to each of the units in Building TH1. Of the 42 units, 18 would include a one-car garage, and 24 would include a two-car garage, for a total of 66 residential parking spaces. An additional four parking spaces would be provided on the internal roadway, which would result in a total of 70 parking spaces. A total of 63 long-term indoor and 7 short-term outdoor bicycle parking spaces would be provided throughout Building TH1.

Utilities and Infrastructure

The project site is located in an urban area with existing utilities and infrastructure. The proposed project would be required to install the following utility connections to the satisfaction of the applicable utility providers: water; wastewater; stormwater drainage; power; and telecommunications services. The proposed buildings would be required to be all electric and no natural gas connections would be installed. Connections to existing infrastructure would occur within the adjacent public right-of-way. The proposed project would incorporate drought-tolerant, non-invasive plants, efficient irrigation, and low-flow fixtures.

The existing project site includes approximately 197,749 square feet of impervious surfaces and approximately 12,517 square feet of pervious surfaces. The proposed project would result in a net decrease in impervious surface coverage of approximately 11,362 square feet compared to existing conditions for a total of 186,387 square feet of impervious surfaces and 23,879 square feet of pervious surfaces.

The on-site stormwater would be collected, treated pursuant to Provision C.3 of the Municipal Regional Permit (MRP) issued by the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) pursuant to the National Pollutant Discharge Elimination System (NPDES) permit, and conveyed to the City's storm drain main within Jefferson Drive.

Demolition, Grading and Construction

The proposed project would include demolition of the 110,800 square feet of existing buildings and surface parking lots on the project site. Construction debris, such as old foundations, pavements, and structures, would be collected and hauled off site for disposal. Approximately 25,000 cubic yards of demolition waste would be generated by the proposed project.

Grading of existing site soils would be balanced on the site and no site soils are anticipated to be off-hauled. A total of 16,500 cubic yards of soils would be imported to the project site to raise the grade to meet FEMA requirements. Foundation footings may extend up to 4 feet below grade.

If approved, construction of the proposed project is anticipated to begin in September 2020. The proposed project would include phased construction, which would consist of an approximately two-month demolition phase, a three-month grading phase and approximately 32 months of building construction. Up to 90 residential units would be constructed in Building M1 and could be granted temporary occupancy by approximately September 2022, subject to approval by the City of partial temporary occupancy for the building. Overall, construction of the proposed project is anticipated to last approximately 37 months, and is anticipated to be fully operational and occupied by late 2023.

9. Surrounding Land Uses and Setting:

The project site is located in the northern area of the City, within the Bayfront Area near Bedwell Bayfront Park and San Francisco Bay. The Bayfront Area is generally bounded by US 101, San Francisco Bay, and the limits of San Mateo County, Redwood City, and East Palo Alto. The site is generally surrounded by a mix of uses, including older buildings and new construction, as depicted in Figure 1-3 and further described below. Figure 1-15 and Figure 1-16 include photos of surrounding land uses; refer to Figure 1-3 for photo viewpoint locations.

- **North of the Project Site.** The project site is immediately bordered to the north by Constitution Drive. Across Constitution Drive are office and industrial uses (see Photo 3), as well as SR 84 and the Bedwell Bayfront Park, an approximately 160-acre park managed by the City.

- **West of the Project Site.** The project site is bordered to the west by office uses (Photo 4) and Chrysler Drive. Across Chrysler Drive are office and industrial uses, as well as the Constitution Site of the Menlo Gateway project,[11] which is currently under construction and anticipated to be occupied in April 2020.

[11] The Menlo Gateway project, approved in 2010, includes three office buildings, three parking structures, a hotel, and a private health club and cafe on 15.9 acres at 100 to 200 Independence Drive (west of the project site) and 101 to 155 Constitution Drive (east of the project site).

- **East of the Project Site.** The project site is bordered immediately to the east by the two-story Synergy Badminton Club (Photo 5). Further east of the project site are additional commercial and light manufacturing uses. The Facebook campus, consisting of approximately 14 buildings along SR 84, begins approximately 0.1 mile east of the project site. Union Pacific Railroad (UPRR) tracks are also located just east of the Facebook campus. Across the UPRR tracks and approximately 0.6 mile east of the site is the Belle Haven residential neighborhood, which is generally occupied by single-family residences.

- **South of the Project Site.** The project site is bordered immediately to the south by Jefferson Drive. Across Jefferson Drive is the TIDE Academy (Photo 6), which recently opened in August 2019, commercial and light industrial buildings, and US 101.

10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):

A number of permits and approvals would be required to allow development of the proposed project. As lead agency for consideration of the proposed project, the City of Menlo Park would be responsible for the majority of the approvals required for project development. Other agencies also may have some authority related the proposed project and its approvals. A list of required permits and approvals, including the discretionary actions described above, which may be required by the City and other agencies, is provided in Table 1.B.



Photo 3: Existing building west of the project site, as seen from Constitution Drive



Photo 4: Existing buildings north of the project site, as seen from Constitution Drive

LSA

FIGURE 1-15

Menlo Uptown Project Initial Study
Photos of Surrounding Land Uses

SOURCE: LSA, 2019.

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Photo 5: TIDE Academy, south of the project site



Photo 6: Existing building east of the project site, as seen from Jefferson Drive

LSA

FIGURE 1-16

Menlo Uptown Project Initial Study
Photos of Surrounding Land Uses

SOURCE: LSA, 2019.

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Table 1.B: Anticipated Permits and Approvals for Project Implementation

Lead Agency	Permit/Approval
City of Menlo Park	● EIR Certification ● Use Permit ● Architectural Control ● Lot Line Adjustment ● Major Subdivision ● Heritage Tree Removal Permit ● Below Market Rate Housing Agreement
Responsible Agencies	
Pacific Gas & Electric (PG&E)	● Approval of electrical improvements and connection permits ● Undergrounding of electrical infrastructure
California Department of Transportation (Caltrans)	● Review of traffic circulation effects and consultation on potential traffic improvements that may affect state highway facilities, ramps, and intersections
California Department of Toxic Substance Control	● Approval of Environmental Site Management Plan
California Regional Water Quality Control Board/San Mateo Countywide Water Pollution Prevention Program	● Approval of National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharge ● Approval of Environmental Site Management Plan
City/County Association of Governments	● Review of potential effects on Routes of Regional Significance
Bay Area Air Quality Management District (BAAQMD)	● Permits for onsite generators, boilers, and other utility equipment
San Mateo County Transportation Authority	● Review of potential effect on public transit
San Mateo County Environmental Health Division	● Review of onsite generators
Menlo Park Fire Protection District	● Residential Site Plan review
West Bay Sanitary District	● Approval of wastewater hookups

Source: LSA (2019).

There will be a fiscal impact analysis conducted regarding the proposed project. In order to qualify for bonus-level development within the R-MU-B zoning district, the proposed project will also be required to complete an appraisal process to identify the value of the community amenities to be provided in exchange for the opportunity to develop at the bonus level.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

A request form describing the proposed project was sent to the Native American Heritage Commission (NAHC) in West Sacramento requesting a list of tribes eligible to consult with the City, pursuant to Public Resources Code section 21080.3.1. The consultation process and its conclusion will be further discussed in the EIR.

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2.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist in Chapter 3.0.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☒ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☒ Population/Housing[12]	☐ Public Services
☐ Recreation	☒ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

2.1 DETERMINATION

On the basis of this initial evaluation:

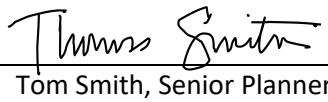
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☒ I find that the proposed project MAY have a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Tom Smith, Senior Planner

11/22/19
Date

[12] Because the proposed project is a housing project, it is not anticipated to have potentially significant impacts on population and housing; however, this topic area is identified for further analysis to comply with the settlement agreement.

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3.0 CEQA ENVIRONMENTAL CHECKLIST

3.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☒	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Pursuant to Public Resources Code Section 21099(d)(1), aesthetic impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment. A transit priority area is an area within one-half mile of a major transit stop, which is defined by Section 51064.3 as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

The nearest public transit stop to the project site is served by SamTrans Route 270 and is located approximately 0.5 miles to the west on Haven Avenue. Route 270 operates on an hourly timetable and provides access to the Redwood City Transit Center, located approximately 4.7 miles northwest of the site. The Atherton Caltrain Station is located approximately 2.8 miles south of the site; however, direct local public transit service to this station is not provided within the vicinity of the site. Facebook is currently constructing a new bus stop to serve the Chilco Campus at 180-200 Jefferson Drive, a few blocks from the project site; however, this bus stop serves buses and trams used by Facebook employees only and does not provide public transit service. Therefore, the project site is not within a transit priority area.

Although the proposed project is a residential development located on an infill site, because the project is not located within a transit priority area, the proposed project's potential impacts related to aesthetics are discussed below.

a. Would the project have a substantial effect on a scenic vista? ***(Less-Than-Significant Impact)***

As stated in the ConnectMenlo Final EIR, scenic corridors are considered public views as seen along a linear transportation route and scenic vistas are views of a specific scenic feature. Scenic vistas are generally interpreted as long-range views, while scenic corridors are short-, middle-, and long-range views. The City has not designated any official scenic corridors or vistas. However, the ConnectMenlo Final EIR considered views of the Santa Cruz Mountain Range, views to the Bay, and views of the foothills and San Francisquito Creek within the City as scenic vistas.

The ConnectMenlo Final EIR determined that due to the natural topography and location of the Bayfront Area at the city's northern border, the distant views of the Santa Cruz Mountain Range, foothills and San Francisquito Creek would not be impacted by new development occurring within the Bayfront Area. Potential building heights in the Bayfront Area, where the project site is located, could block views of the Bay and its scenic resources from various vantage points. Because the topography in the Bayfront Area is essentially flat, the views from street-level to the scenic resources are currently inhibited by existing conditions such as buildings, structures, overhead utilities, and mature trees/vegetation. The ConnectMenlo Final EIR determined that even before the height increases permitted by ConnectMenlo, the opportunity for views of scenic vistas from street-level public viewing areas was limited. Therefore, the height increases permitted with ConnectMenlo would not cause any further substantial obstruction from the street level view to any scenic resource.

The developed parcels in the Bayfront Area are not considered public Bay-viewing destination points. Public Bay-viewing destination points include the Bayfront Expressway and the San Francisco Bay Trail. No new development is planned between the Bay and these viewing points; thus, no obstruction of views would occur under ConnectMenlo. Furthermore, potential future development would be subject to the City's existing architectural control process, in accordance with Section 16.68.020 of the Zoning Ordinance and would be required to comply with existing design standards outlined in the Zoning Ordinance. The design standards, which apply to all new construction, ensure development results in high-quality design.

Because the project site is located within a developed portion of the Bayfront Area and does not provide public views of the Bay, and because the proposed project would be subject to the City's existing architectural control process, the proposed project would have a less-than-significant impact on scenic vistas and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ***(Less-Than-Significant Impact)***

As noted in the ConnectMenlo Final EIR, the section of Interstate 280 (I-280) within the City is considered a State scenic highway. However, the Bayfront Area is not located within the viewshed of I-280 and development in the Bayfront Area, as identified in the ConnectMenlo EIR, would have a less than significant impact. Because the project site is located in the Bayfront Area, the proposed project would have a less than significant impact on scenic resources and no new or more severe

impacts would occur beyond those examined in the ConnectMenlo Final EIR. In addition, the existing buildings on the project site were built between 1963 and 1964 and are not considered historic resources, as noted in Section 3.5, Cultural Resources. Therefore, this impact would be less than significant.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? ***(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that future development occurring under ConnectMenlo would create a shift in uses in the Bayfront Area from light industrial and business park uses to office, technology, research and development, life sciences and mixed-use with multi-family residential and commercial, and involve notable changes in building intensity and height from 35 feet to 120 feet. However, given the existing commercial, industrial, and residential uses surrounding the areas of potential new growth, the gradual development of future projects would continue to be compatible with the existing visual character and quality of the Bayfront Area and its surroundings.

The proposed project would consist of two seven-story multi-family residential buildings with a maximum height of 84 feet, 9 inches and six three-story residential buildings with a maximum height of 45 feet, 6 inches and an average height of 61 feet across all three buildings. The maximum allowed average height for the project site is 62 feet, 6 inches. As noted above, the proposed project would be subject to the City existing architectural control process, which would ensure the proposed project complies with the existing design standards outlined in the Zoning Ordinance. Therefore, the proposed project would have a less-than-significant impact related to existing visual character or quality of public views and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Less-Than-Significant Impact)***

As stated in the ConnectMenlo Final EIR, the City contains many existing sources of nighttime illumination. These include street and parking area lights, security lighting, and exterior lighting on existing residential, commercial, and institutional buildings. Additional onsite light and glare is caused by surrounding land uses and traffic, specifically from US 101 and the Bayfront Expressway in the Bayfront Area. In addition to new building, security, and lighting for parking areas, buildout of the Bayfront Area would also include lighting aimed at properly illuminating the overall Bayfront Area. Additionally, new larger buildings with more exterior glazing could result in new sources of glare.

New development in the Bayfront Area, including the proposed project, would be required to comply with General Plan policies that ensure new land uses do not generate excessive light levels that would spill on to adjacent sensitive receptors and reduce light and glare spillover from future development to surrounding land uses. Specifically, Policy LU-2.3 requires that new development

with residential units address potential compatibility issues such as light spillover. The proposed project would be required to comply with this policy as part of the site plan review and architectural control process. Therefore, the proposed project would have a less-than-significant impact related to substantial light or glare and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.2 AGRICULTURE AND FORESTRY RESOURCES

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ***(No Impact)***

The ConnectMenlo Final EIR determined that impacts related to the conversion of farmland to non-agricultural uses would not occur. The project site and vicinity are located within an urban area in the City of Menlo Park. The project site is classified as "Urban and Built-Up land" by the State Department of Conservation[13] and, as identified in the ConnectMenlo Final EIR, there are no agricultural resources located on or near the project site. The physical conditions on and in the vicinity of the site related to agricultural resources have not changed since certification of the ConnectMenlo Final EIR; therefore, development of the proposed project would not convert

[13] California Department of Conservation, 2016. California Important Farmland Finder (map). Website: maps.conservation.ca.gov/dlrp/ciff (accessed October 2019).

agricultural land to non-agricultural uses, would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, or result in new or more severe impacts beyond those examined in the ConnectMenlo Final EIR.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No Impact)***

The ConnectMenlo Final EIR determined that impacts related to existing zoning for agricultural uses or Williamson Act contracts would not occur. The project site is within the R-MU-B zoning district and is not under a Williamson Act contract.[14] The physical conditions on and in the vicinity of the site related to agricultural resources have not changed since certification of the ConnectMenlo Final EIR; therefore, development of the proposed project would not conflict with existing zoning for an agricultural use or a Williamson Act contract and would not result in new or more severe impacts beyond those examined in the ConnectMenlo Final EIR.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? ***(No Impact)***

The ConnectMenlo Final EIR determined that impacts related to existing zoning for forest land or timerland would not occur. The developed project site is located within an urban area in the City of Menlo Park and is within the City's R-MU-B zoning district. The physical conditions on and in the vicinity of the site related to forest land and timberland resources have not changed since certification of the ConnectMenlo Final EIR; therefore, development of the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland and would not result in new or more severe impacts beyond those examined in the ConnectMenlo Final EIR.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? ***(No Impact)***

Refer to Section 3.2.c. The proposed project would not result in the loss of forest land or conversion of forestland to non-forest uses and would not result in new or more severe impacts beyond those examined in the ConnectMenlo Final EIR.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? ***(No Impact)***

Refer to Sections 3.2.a and 3.2.c. The project site is located within an existing urban environment and would not result in the extension of infrastructure into an undeveloped area, the development of urban uses on a previously undeveloped greenfield site, or other physical changes that would result in the conversion of farmland to non-agricultural uses or forest land to non-forest uses. The proposed project would not adversely affect agricultural or forestry resources and would not result in new or more severe impacts beyond those examined in the ConnectMenlo Final EIR.

[14] California Department of Conservation, 2012. *San Mateo County Williamson Act FY 2006/2007 (map)*. Available online at: ftp.consrv.ca.gov/pub/dlrp/wa (accessed October 2019).

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

a. through c. ***(Potentially Significant Impact)***

The ConnectMenlo Final EIR found that future development would result in a substantial long-term increase in criteria air pollutants. The ConnectMenlo Final EIR identified Mitigation Measures AQ-2a, AQ-2b, and AQ-2b2, which require a technical assessment evaluating potential project operation- and construction phase-related air quality impacts and compliance with the Bay Area Air Quality Management District's (BAAQMD) basic control measures for reducing construction emissions. In addition, based on the proposed project's location in proximity to US 101, Marsh Road, and SR 84, and consistent with the requirements of Mitigation Measure AQ-3b from the ConnectMenlo Final EIR, a health risk assessment is required to determine the potential health risk to future residents of the project site. These assessments will be completed as part of the EIR; therefore, this impact is potentially significant.

As noted in Section 3.17, a transportation evaluation will be prepared. This evaluation may identify new or more significant impacts related to transportation, and therefore air quality, than was previously analyzed in the ConnectMenlo Final EIR. Development activity associated with implementation of the proposed project could increase pollutant concentrations in Menlo Park through increased vehicle trips and construction. This increase could contribute to existing air pollution in the San Francisco Bay Area Air Basin and has the potential to exceed regional air emission thresholds established by the BAAQMD. Construction activities associated with project development, including building demolition, grading, and ground disturbance, could increase concentrations of particulate matter and could expose sensitive receptors to toxic air contaminants. Therefore, the criteria identified above for topics 3.a through 3.c are potentially significant and will be evaluated in an EIR. The EIR will recommend appropriate mitigation measures.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? ***(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR concluded that buildout potential analyzed under ConnectMenlo could include potential odor sources that could affect new sensitive receptors, such as composting, greenwaste, and recycling operations; food processing; and painting/coating operations. Responses to odors are subjective and vary by individual and type of land use. Residential uses are not included in Table 4.2-9 of the ConnectMenlo Final EIR, which lists uses that could be required to undergo environmental review to ensure sensitive land uses are not exposed to objectionable odors, and the proposed project would not be a source of odors. Therefore, the proposed project would not result in other emissions, such as those leading to odors, that would adversely affect a substantial number of people, and this impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

*a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? **(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that the potential for occurrence of special-status species in developed areas is generally very remote in comparison to undeveloped lands with natural habitat that contain essential habitat characteristics for the range of species known to occur in the Menlo Park vicinity. ConnectMenlo included goals, policies, and programs and bird-safe regulations for the Bayfront Area that would help protect special-status species and birds and minimize impacts.

The project site is currently developed and does not include any sensitive habitat, nor is it located near any sensitive habitats, and therefore a project-specific baseline biological resources assessment pursuant to Mitigation Measure BIO-1 from the ConnectMenlo Final EIR would not be required. In addition, the proposed project would be required to comply with the bird-safe design measures included in the building regulations for the Bayfront Area. Therefore, the proposed project would not result in direct or indirect adverse effects on special-status plant or wildlife species and this

impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less-Than-Significant Impact)***

As stated in the ConnectMenlo Final EIR, sensitive natural communities within the City consist of areas of coastal salt marsh vegetation in the baylands, native valley oaks in Saint's Patrick's Seminary, and possibly areas of riparian scrubs and woodland along San Francisquito Creek and other drainages. The project site is currently developed and is not located within or in the immediate vicinity of one of these areas, and therefore would have a less-than-significant impact related to riparian habitat and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that development could have a significant adverse effect on wetlands by allowing development on previously undeveloped parcels in the Bayfront Area with mapped wetlands, which are along University Avenue. The project site is currently developed and does not support any federally protected wetlands. Compliance with all applicable requirements associated with the protection of water quality in stormwater runoff would further ensure that there are no impacts to wetlands within or beyond the Bayfront Area as a result of the proposed project. Compliance with stormwater quality requirements is discussed in Section 3.10, Hydrology and Water Quality, of this Initial Study. Therefore, the proposed project would have a less than significant impact related to wetlands and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that development and land use activities consistent with ConnectMenlo would result in a reduction in the remaining natural habitat within the City. However, most wildlife in these areas are already acclimated to human activity in the urbanized portions of the City. As noted above, the project site is currently developed and does not contain, nor is it located near, any sensitive habitats. Ornamental landscaping located throughout the project site would be removed. Vegetation and landscaping generally have the potential to support nests of common native bird species. All native birds and their nests, regardless of their regulatory status, are protected under the federal Migratory Bird Treaty Act and California Fish and Game Code. However, because the project site is located in a busy urban area and vegetation on the project site is limited, potential impacts to nesting birds would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less-Than-Significant Impact)***

There are a total of 33 existing trees on the project site, 10 of which are considered heritage trees, as defined by the City's Municipal Code.[15] The City's Tree Preservation Ordinance requires a permit to remove any protected trees and replacement of protected trees at a 1:1 ratio. The proposed project would include the planting of at least 20 new trees; therefore, the proposed project would not conflict with the City's Tree Preservation Ordinance. In addition, the proposed project would include the installation of new landscaping that would comply with Municipal Code Chapter 12.44, Water-Efficient Landscaping, and therefore would not conflict with any local policies or ordinances protecting biological resources. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(No Impact)***

As noted in the ConnectMenlo Final EIR, portions of the City are within the Stanford University Habitat Conservation Plan (Stanford HCP).[16] However, the Stanford HCP only applies to land owned by Stanford University. The project site is not owned by Stanford University, and therefore is not located within the boundaries of an adopted conservation plan. Therefore, the proposed project would not conflict with the provisions of a habitat conservation plan, natural community plan or other approved local, regional or State habitat conservation plan, and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

15 HortScience, 2019. Arborist Report, 141 Jefferson Drive, 180 & 186 Constitution Drive, Menlo Park, CA. August 29.

16 Stanford University, 2015. *Stanford University Habitat Conservation Plan*. December 22.

3.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

*a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? **(Less-Than-Significant Impact)***

As noted in the ConnectMenlo Final EIR, the two main categories of historical resources that are subject to adverse impacts, and that may be adversely affected by development allowed under ConnectMenlo, are historical archaeological deposits and historical architectural resources. Refer to Section 3.5.b, below for a discussion of archaeological deposits.

There are several recognized historic properties within the City; however, none of these are located within the Bayfront Area, where the project site is located. The ConnectMenlo Final EIR Mitigation Measure CULT-1 requires site-specific historic resources evaluations for individual projects that are proposed on sites with a building more than 50 years old or any site adjoining with a building more than 50 years old. The existing buildings on the project site were constructed between 1963 and 1964, and therefore meet the 50-year-old threshold. A Historic Resources Assessment prepared for the project site determined that none of the three buildings appear to be eligible for listing in the National Register of Historical Places or the California Register of Historical Resources.[17] In addition, adjoining properties include buildings that are 50 years or older; however, as noted above, none of the recognized historic properties within the City are located within the Bayfront Area or within the immediate project vicinity. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5 and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

*b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? **(Less-Than-Significant with Mitigation Incorporated)***

The ConnectMenlo Final EIR determined that it is highly improbable that archaeological deposits associated with the historic period of Menlo Park and Native American prehistoric archeological sites exist on the locations identified for future development, because these locations are concentrated on sites either already developed, and/or in close proximity to existing development, where development will have a lesser impact on historical archeological resources. However, future

[17] FirstCarbon Solutions, 2019. *Historic Resources Assessment, Menlo Uptown Multi-family Housing and Townhomes Project, City of Menlo Park, San Mateo County, California*. September 17.

projects that require substantial excavation reaching significant depths below the ground surface could result in the disturbance of unidentified subsurface materials that have the potential to contain prehistoric archaeological resources, including unrecorded Native American prehistoric archaeological sites. The ConnectMenlo Final EIR identified Mitigation Measure CULT-2a, which is presented below, to ensure this impact would be reduced to a less-than-significant level. This mitigation measure would be applicable to the proposed project and would be required to ensure that potential impacts of the proposed project to archaeological deposits would be less than significant and that no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

> **Connect Menlo Final EIR Mitigation Measure CULT-2a:** If a potentially significant subsurface cultural resource is encountered during ground disturbing activities, all construction activities within a 100-foot radius of the find shall cease until a qualified archeologist determines whether the resource requires further study. All developers in the study area shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of the CEQA criteria by a qualified archeologist. If the resource is determined significant under CEQA, the qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant. The archaeologist shall also perform appropriate technical analyses; prepare a comprehensive report complete with methods, results, and recommendations; and provide for the permanent curation of the recovered resources. The report shall be submitted to the City of Menlo Park, Northwest Information Center (NWIC), and State Historic Preservation Office (SHPO), if required.

c. Would the project disturb any human remains, including those interred outside of formal cemeteries? ***(Less-Than-Significant with Mitigation Incorporated)***

The ConnectMenlo Final EIR determined that human remains associated with pre-contact archaeological deposits could exist within the City and could be encountered at the time potential future development occurs. The associated ground-disturbing activities, such as site grading and trenching for utilities, have the potential to disturb human remains interred outside of formal cemeteries. Any human remains encountered during ground-disturbing activities are required to be treated in accordance with California Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98 and the California Code of Regulations Section 15064.5(e) (CEQA), which state the mandated procedures of conduct following the discovery of human remains. The ConnectMenlo Final EIR identified Mitigation Measure CULT-4, which is presented below, to ensure this impact would be reduced to a less-than-significant level. This mitigation measure would be applicable to the proposed project and would be required to ensure that potential impacts of the proposed project to pre-contact human remains would be less than significant and that no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Connect Menlo Final EIR Mitigation Measure CULT-4: Procedures of conduct following the discovery of human remains have been mandated by Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98 and the California Code of Regulations Section 15064.5(e) (CEQA). According to the provisions in CEQA, if human remains are encountered at the site, all work in the immediate vicinity of the discovery shall cease and necessary steps to ensure the integrity of the immediate area shall be taken. The San Mateo County Coroner shall be notified immediately. The Coroner shall then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner shall notify the NAHC within 24 hours, who will, in turn, notify the person the NAHC identifies as the Most Likely Descendant (MLD) of any human remains. Further actions shall be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the MLD does not make recommendations within 48 hours, the owner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance. Alternatively, if the owner does not accept the MLD's recommendations, the owner or the descendent may request mediation by the NAHC.

3.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

*a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? **(Less-Than-Significant Impact)***

Energy conservation was evaluated in Section 4.15.5 of the ConnectMenlo Final EIR, consistent with CEQA Guidelines Appendix F. The ConnectMenlo Final EIR did not quantify energy demand associated with buildout of ConnectMenlo; however, a brief discussion of energy use and conservation, including the City's Climate Change Action Plan, was included. The ConnectMenlo Final EIR determined that development pursuant to ConnectMenlo would be subject to new requirements under rule making developed at the State and local level regarding greenhouse gas (GHG) emissions. Specifically, the ConnectMenlo Final EIR found that individual projects would be required to adhere to the Heavy Duty National Program, which has been adopted by the United States Environmental Protection Agency (USEPA). The Heavy Duty National Program establishes fuel efficiency and GHG emission standards in the heavy-duty highway sector, which include combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). In addition, as required by Mitigation Measure AQ-2b1 in the ConnectMenlo Final EIR, individual development projects would be required to comply with the current BAAQMD's basic control measures for reducing construction emissions, which would also improve the energy efficiency of the project during construction.

The ConnectMenlo Final EIR determined that new development pursuant to ConnectMenlo would be constructed using energy efficient modern building materials and construction practices, in accordance with the CALGreen Building Code, the California Public Utility Commission's Long Term Energy Efficiency Strategic Plan, and Chapter 12.18 of the Menlo Park Municipal Code which contains the Green Building Ordinance. In addition, the ConnectMenlo Final EIR found that new buildings would also use new modern appliances and equipment, in accordance with the 2006 Appliance Efficiency Regulations.

As discussed in the ConnectMenlo Final EIR, implementation of ConnectMenlo inherently furthers objectives of energy conservation by focusing activities in areas of existing infrastructure and services. In addition, the Land Use, Circulation, and Open Space/Conservation elements of ConenctMenlo contain goals, policies, and programs that would require local planning and development decisions to consider impacts to energy resources. As a part of ConnectMenlo, all new building within the Bayfront Area are required to comply with specific green building requirements

for LEED certification, provide outlets for Electric Vehicle (EV) charging, provide on-site renewable energy generation, and enroll in the USEPA's Energy Star Building Portfolio Manager.

Similar to buildout of ConnectMenlo, the proposed project would increase the demand for energy during construction of the proposed project and would increase the demand for electricity and gasoline during operation of the proposed project. The proposed project would not increase the demand for natural gas as the City's reach codes would require the buildings to be all electric. The discussion and analysis provided below is based on data included in the California Emissions Estimator Model (CalEEMod) output, which is included in Appendix B.

The anticipated construction schedule for the proposed project assumes that the proposed project would be built over 37 months. The proposed project would require demolition, grading, site preparation, and building activities during construction. Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for demolition and grading activities, and construction of the project. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. In order to increase energy efficiency on the site during project construction, the project would restrict equipment idling times to 5 minutes or less and would require construction workers to shut off idle equipment, as required by the ConnectMenlo Final EIR Mitigation Measure AQ-2b1. In addition, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Therefore, construction energy impacts would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Similar to buildout of ConnectMenlo, energy use consumed during operation of the proposed project would be associated with electricity consumption and fuel used for vehicle trips associated with the proposed project. Energy consumption was estimated for the proposed project using default energy intensities by building type in CalEEMod. In addition, the proposed buildings would be constructed to current CALGreen standards, which was included in CalEEMod inputs. Electricity usage estimates associated with the proposed project are shown in Table 3.A.

The proposed project would result in energy usage associated with gasoline to fuel project-related trips. Based on the CalEEMod analysis, the proposed project would result in approximately 6,505,637 vehicle miles traveled (VMT) per year.[18] The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.0 mpg in 2015.[19] Therefore, using the USEPA fuel economy estimates for 2015, the proposed project would result in the consumption of approximately 295,711 gallons of

[18] It should be noted that a Transportation Impact Analysis (TIA) will be prepared as part of the EIR. The TIA and EIR may include a refined estimate of VMT; however, any variation in estimated VMT would not affect the analysis or conclusions related to energy as presented in this section.

[19] U.S. Department of Transportation. "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Website: www.bts.gov/archive/publications/national_transportation_statistics/table_04_23/ (accessed October 2019).

gasoline per year. Table 3.A below, shows the estimated potential increased electricity and gasoline demand associated with the proposed project.

Table 3.A: Estimated Annual Energy Use of Proposed Project

Land Use	Electricity Use (kWh per year)	Gasoline (gallons per year)
Residential	2,039,220	290,700
Retail	20,960	5,011
Parking Structure	654,832	0
Open Space	0	0
Total	**2,715,002**	**295,711**

Source: LSA (October 2019).

As shown in Table 3.A, the estimated potential increased electricity demand associated with the proposed project is 2,715,002 kilowatt-hours (kWh) per year. In 2018, California consumed approximately 281,120 gigawatt-hours (GWh) (281,120,193,430 kWh).[20] Of this total, San Mateo County consumed 4,225 GWh or 4,225,602,787 kWh.[21] Therefore, electricity demand associated with the proposed project would only be approximately 0.06 percent of San Mateo County's total electricity demand.

In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. As shown above in Table 3.A, vehicle trips associated with the proposed project would consume approximately 295,711 gallons of gasoline per year. In 2015, vehicles in California consumed approximately 15.1 billion gallons of gasoline.[22] Therefore, gasoline demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in California.

Consistent with ConnectMenlo requirements, the proposed project would comply with specific green building requirements for LEED certification, provide outlets for EV charging, provide on-site renewable energy generation, enroll in the USEPA's Energy Star Building Portfolio Manager, use new modern appliances and equipment, and comply with current CALGreen standards, which would help to reduce energy consumption. The proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Therefore, construction and operation period impacts related to consumption of energy resources would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

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20 California Energy Commission. 2018a. Energy Consumption Data Management Service. Electricity Consumption by County. Available online at: www.ecdms.energy.ca.gov/elecbycounty.aspx. (accessed October 2019).

21 Ibid.

22 California Energy Commission. 2017. California Gasoline Data, Facts, and Statistics. Available online at: www.energy.ca.gov/almanac/transportation_data/gasoline/ (accessed April 2019).

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ***(Less-Than-Significant Impact)***

As previously stated, the proposed project would be required to comply with the CALGreen Code, which includes provisions related to insulation and design aimed at minimizing energy consumption. In addition, as described in the ConnectMenlo Final EIR, new development as envisioned in ConnectMenlo would be constructed using modern and energy efficient building materials and construction practices, in accordance with the CALGreen Building Code, the California Public Utility Commission's Long Term Energy Efficiency Strategic Plan, and Chapter 12.18 of the Menlo Park Municipal Code, which contains the Green Building Ordinance. In addition, the ConnectMenlo Final EIR found that new buildings would also use new modern appliances and equipment, in accordance with the 2006 Appliance Efficiency Regulations.

As discussed in the ConnectMenlo Final EIR, implementation of ConnectMenlo inherently furthers objectives of energy conservation by focusing activities in areas of existing infrastructure and services. In addition, the Land Use, Circulation, and Open Space/Conservation elements of ConnectMenlo contain goals, policies, and programs that would require local planning and development decisions to consider impacts to energy resources. As a part of ConnectMenlo, all new buildings within the Bayfront Area are required to comply with specific green building requirements for LEED certification, provide outlets for EV charging, provide on-site renewable energy generation, and enroll in the USEPA's Energy Star Building Portfolio Manager.

The ConnectMenlo Final EIR also found that future development under ConnectMenlo, as part of the City's project approval process, would be required to comply with existing regulations, including General Plan policies and Zoning Ordinance regulations that have been prepared to promote energy conservation and efficiency by implementing sustainable building practices and reducing automobile dependency. Furthermore, the ConnectMenlo Final EIR found that with continued implementation of the City's Climate Action Plan (CAP), compliance with the CALGreen Building Code, and the other applicable State and local energy efficiency measures cited above, significant energy conservation and savings would be realized from future development under ConnectMenlo.

In addition, as discussed in the ConnectMenlo Final EIR, as infill development, ConnectMenlo inherently furthers objectives of energy conservation related to transportation by focusing activities in areas of existing infrastructure and services. Transportation features that are priorities of ConnectMenlo promote non-motorized transportation within and to anticipated development within the Bayfront Area, as well as city-wide, thereby potentially reducing energy consumption that would otherwise be related to motorized vehicle use (i.e., automobiles).

Consistent with ConnectMenlo requirements, the proposed project would comply with specific green building requirements for LEED certification, provide outlets for EV charging, provide on-site renewable energy generation, enroll in the USEPA's Energy Star Building Portfolio Manager, use new modern appliances and equipment, and comply with current CALGreen standards, which would help to reduce energy consumption. The proposed project would also be consistent with the ConnectMenlo energy conservation policies, as noted above, and the City's CAP. In addition, the project site consists of an infill site in an urban area and the proposed project would provide residential uses to help balance high job-generating uses in the project vicinity.

The proposed project would also implement Transportation Demand Management (TDM) measures, which would help reduce transportation energy usage consistent with ConnectMenlo requirements.

In addition, as indicated above, energy usage on the project site during construction would be temporary in nature and energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the proposed project's total impact to regional energy supplies would be minor, the proposed project would not conflict with energy conservation plans. Thus, as shown above, the proposed project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and would not result in any irreversible or irretrievable commitments of energy. Therefore, the proposed project would be consistent with applicable plans related to renewable energy and energy efficiency. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☐	☒
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The information presented in this section is based on data and findings provided in the Preliminary Geotechnical Investigation[23] prepared for the project site, unless otherwise noted.

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ii. Strong seismic ground shaking? iii. Seismic-related ground failure, including liquefaction? iv. Landslides? ***(No Impact)***

The California Supreme Court concluded in its *CBIA v. BAAQMD* decision that "CEQA generally does not require an analysis of how existing environmental conditions will affect a project's future users or residents." With this ruling, CEQA no longer considers the impact of the environment on a project (such as the impact of existing seismic hazards on new project occupants) to be an environmental impact, unless the project could exacerbate an existing environmental hazard. The proposed project would not change existing seismic hazards and, therefore, would not exacerbate existing hazards

[23] Rockridge Geotechnical, 2018. *Preliminary Geotechnical Investigation to Support Due Diligence Evaluation, Uptown Menlo Park, Menlo Park, California.* April 20.

related to surface fault rupture and seismic ground shaking. As such, the following discussions of seismic hazards related to surface fault rupture and seismic ground shaking are provided for informational purposes only.

Fault Rupture. Surface fault rupture occurs when the ground surface is broken due to fault movement during an earthquake. Fault rupture is generally expected to occur along active fault traces. Areas susceptible to fault rupture are delineated by the California Geological Survey Alquist-Priolo Earthquake Fault Zones and require specific geological investigations prior to development to reduce the threat to public health and safety and to minimize the loss of life and property posed by an earthquake-induced ground failure.

The ConnectMenlo Final EIR determined that no Alquist-Priolo Earthquake Fault Zones have been mapped within the Bayfront Area. There are no mapped faults going through or adjacent to the project site, and the project site is not located within an Earthquake Fault Zone. The closest active fault to the project site is the Monte Vista-Shannon fault, which is located approximately 5.1 miles southwest. Therefore, the proposed project would have no impact related to fault rupture and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Ground Shaking. Seismic ground shaking generally refers to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The magnitude of a seismic event is a measure of the energy released by an earthquake; it is assessed by seismographs that measure the amplitude of seismic waves. The intensity of an earthquake is a subjective measure of the perceptible effects of a seismic event at a given point.

In the future, the proposed project would likely experience severe ground shaking during moderate and large magnitude earthquakes produced along the San Andreas Fault or other active Bay Area fault zones. Using information from recent earthquakes, improved mapping of active faults, ground motion modeling, and a new model for estimating earthquake probabilities, there is a 72 percent chance that at least one earthquake of Magnitude 6.7 or greater will occur in the Bay Area before 2043. The Hayward Fault, located approximately 13 miles northeast of the project site, has the highest likelihood of an earthquake greater than or equal to Magnitude 6.7 in the Bay Area, estimated at 14.3 percent.

The risk of ground shaking impacts is reduced through adherence to the design and materials set forth in building codes. The City of Menlo Park has adopted the 2016 California Building Code (Title 24, California Code of Regulations), which provides for stringent construction requirements on projects in areas of high seismic risk. The Preliminary Geotechnical Investigation prepared for the project site recommends seismic design parameters to be used in accordance with the 2016 California Building Code to account for earthquake ground motions. As noted in the ConnectMenlo Final EIR, the design and construction for the proposed project is required to conform with, or exceed, current best standards for earthquake resistant construction in accordance with the most current California Building Code and with the generally accepted standards of geotechnical practice for seismic design in Northern California.

Seismic hazards cannot be completely eliminated, even with site-specific geotechnical investigation/design and advanced building practices. However, the seismic design standards of the California Building Code are intended to prevent catastrophic building failure in the most severe earthquakes currently anticipated. Therefore, compliance with current building codes would ensure that there would be no impact associated with ground shaking and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Seismic-Related Ground Failure and Liquefaction. The potential for different types of ground failure to occur during a seismic event is discussed below. As noted above, the ConnectMenlo Final EIR determined that compliance with existing regulations, including General Plan policies that have been prepared to minimize impacts related to strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landsliding, impacts related to seismic-related ground failure and liquefaction would be less than significant. Because geotechnical and soil conditions can vary by geographic location, a site-specific analysis is presented below.

Liquefaction. Soil liquefaction is a phenomenon primarily associated with saturated soil layers located close to the ground surface. During ground shaking, these soils lose strength and acquire a "mobility" sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie relatively close to the ground surface. However, loose sands that contain a significant amount of fines (silt and clay) may also liquefy. Based on testing at the project site, multiple layers of potentially liquefiable soil present at all investigation locations. Total settlement that could occur at the ground surface as a result of liquefaction is estimated to range from approximately 0.5 to 1.5 inches.

The Preliminary Geotechnical Investigation provided a preliminary recommendation that the proposed buildings be supported on a shallow foundation system bearing on a ground improvement system. Final grading, foundation, and building plans must be designed in accordance with the California Building Code, which requires preparation of and compliance with the recommendations of a site-specific geotechnical investigation. These designs would include measures that would address the potential for differential settlement related to liquefaction. Therefore, compliance with the California Building Code would ensure that the potential impacts associated with liquefaction would not occur and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Lateral Spreading. Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surficial soils are transported downslope or in the direction of a free face by earthquake and gravitational forces. The project site is not susceptible to lateral spreading due to the lack of a nearby free slope face and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Surface Settlement. Settlement can occur when non-saturated, cohesionless soil is densified by earthquake vibrations. The fill and native soils above the ground water at the project site are typically composed of stiff to very stiff clays, and therefore the potential for settlement of these surface soils during a major earthquake is low. In addition, recompaction of any poorly-

compacted or undocumented fills encountered during earthwork construction, as recommended by the Geotechnical Investigation, would further reduce the risk of differential compaction during a major earthquake. Therefore, the proposed project would have no impact related to surface settlement and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Landslides. Seismically-induced landslides occur as the rapid movement of large masses of soil on unstable slopes during an earthquake. The Seismic Hazard Zones mapped by the California Geological Survey (CGS) delineate areas susceptible to seismically-induced landslides that require additional investigation to determine the extent and magnitude of potential ground failure. According to CGS, the project site is not located within a Seismic Hazard Zone for seismically-induced landslides.[24] Therefore, the proposed project would have no impact related to landslides and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Would the project result in substantial soil erosion or the loss of topsoil? ***(Less-Than-Significant Impact)***

The Geotechnical Investigation did not identify topsoil on the project site. The project site is developed and has been mapped as an "urban land" area by the Natural Resources Conservation Service.[25] Areas designated as "urban land" have essentially no exposed soil and are covered by streets, parking lots, buildings, and other structures. The redevelopment of the project site would involve demolition and construction activities, such as grading and excavation, which could result in temporary soil erosion when the disturbed soils are exposed to wind or rainfall. However, this would be temporary and limited to the period of grading. Upon completion of construction, the project site would be covered with structures, pavement, and landscaping and would not include areas of exposed soil. In addition, the ConnectMenlo Final EIR determined that compliance with the City's Engineering Division's Grading and Drainage Control Guidelines would reduce the impacts from erosion and the loss of topsoil to the extent practicable. Therefore, the proposed project would result in less-than-significant impacts related to soil erosion or loss of top soil and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? ***(Less-Than-Significant Impact)***

As previously discussed in Section 3.2.a, above, the soils at the project site are susceptible to liquefaction and seismically-induced settlement, but they are not susceptible to lateral spreading or landslides. As noted in the ConnectMenlo Final EIR, the proposed project's required compliance with the California Building Code would reduce the potential risks to people and structures as a result of liquefaction and seismically-induced settlement to a less-than-significant level and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

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24 California Geological Survey, 2006. *Seismic Hazard Zones; Palo Alto Quadrangle.* October 18.

25 Natural Resources Conservation Service. Web Soils Survey, USDA Mapping. Website: websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed October 2019).

Subsidence. Subsidence or collapse can result from the removal of subsurface water resulting in either catastrophic or gradual depression of the surface elevation of the project site. Since the proposed project would connect to the Menlo Park Municipal Water (MPMW) water system, groundwater extraction that could potentially result in subsidence is not expected on the project site and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Consolidation. Consolidation of soils is a process by which the soil volume decreases as water is expelled from saturated soils under static loads. As the water moves out from the pore space of the soil, the solid particles realign into a denser configuration that results in settlement. Consolidation typically occurs as a result of new buildings or fill materials being placed over compressible soils.

Final grading, foundation, and building plans must be designed in accordance with the California Building Code. These designs would include foundation alternatives, such as conventional shallow spread footing foundations combined with ground improvement methods (e.g., Geopiers or drilled displacement columns) or deeper foundation options (e.g., auger-cast piles) to transfer structural building loads to deeper, dense supporting strata below the soft, compressible clay layers onsite. Therefore, compliance with the existing building codes would ensure that the potential impacts associated with consolidation would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? ***(Less-Than-Significant Impact)***

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume.

The ConnectMenlo Final EIR determined that expansive soils are most prevalent in the neighborhoods that lie closest to the Bay. It is anticipated that the near-surface clay on the project site may be moderately to highly expansive.

As stated in the ConnectMenlo Final EIR, final grading, foundation, and building plans must be designed in accordance with the California Building Code. As noted in Section 3.7.a, the City has adopted the 2016 California Building Code, and the proposed project would be required to comply with the current code in effect. Project designs would include measures to excavate the existing soils that are susceptible to expansion and either replace the materials with engineered fill or further evaluate the possible reuse of the materials as engineered fill. Compliance with the existing building codes would ensure that the potential impacts associated with expansive soils would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? (No Impact)

The project site would be served by a wastewater conveyance system maintained by the West Bay Sanitary District (WBSD). Wastewater from the WBSD's collection system is conveyed to the Silicon Valley Clean Water (SVCW) Waste Water Treatment Plant (WWTP) in Redwood Shores. Development of the proposed project would not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, the proposed project would have no impact related to septic tanks or alternative waste water disposal systems and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(Less-Than-Significant with Mitigation Incorporated)***

The ConnectMenlo Final EIR determined that no known fossils or unique paleontological resources or unique geologic features are present within the study area; however, geological formations underlying Menlo Park have the potential for containing paleontological resources (i.e., fossils).[26] Demolition, site preparation, and construction activities associated with the proposed project could reach significant depths below the ground surface where no such excavation has previously occurred and unrecorded fossils of potential scientific significance and other unique geologic features could exist. The ConnectMenlo Final EIR identified Mitigation Measure CULT-3,[27] which is presented below, to ensure this impact would be reduced to a less-than-significant level. This mitigation measure would be applicable to the proposed project and would be required to ensure that potential impacts of the proposed project to paleontological resources would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

> **ConnectMenlo Final EIR Mitigation Measure CULT-3:** In the event that fossils or fossil bearing deposits are discovered during ground disturbing activities, excavations within a 50-foot radius of the find shall be temporarily halted or diverted. Ground disturbance work shall cease until a City-approved qualified paleontologist determines whether the resource requires further study. The paleontologist shall document the discovery as needed in accordance with Society of Vertebrate Paleontology standards [Society of Vertebrate Paleontology 1995]), evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction activities are allowed to resume at the location of the find. If avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of construction activities on the discovery. The excavation plan shall be submitted to the City of Menlo Park for review and approval prior to implementation, and all construction activity shall adhere to the recommendations in the excavation plan.

[26] Menlo Park, City of, 2016, op. cit.

[27] In December 2018, after certification of the ConnectMenlo Final EIR, the CEQA Guidelines were revised. As a part of this revision, the consideration of impacts to paleontological resources was moved from Cultural Resources to Geology and Soils. For ease of reference, this document identifies Mitigation Measures consistent with their labelling in the ConnectMenlo Final EIR.

3.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

a. and b. ***(Potentially Significant Impact)***

The ConnectMenlo Final EIR identified two significant and unavoidable impacts related to GHG emissions as a result of implementation of ConnectMenlo (Impact GHG-1 and GHG-2). The ConnectMenlo Final EIR identified Mitigation Measure GHG-1, which requires the City to update its Climate Action Plan (CAP) prior to January 1, 2020. However, because there are no post-2020 federal and State measures that would assist the City in achieving the efficient target at the ConnectMenlo buildout year of 2040, these impacts remained significant and unavoidable.

Construction activities associated with the proposed project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site operation of the proposed project (i.e., residential-based trips, including commuting) would generate GHG emissions from area and mobile sources as well as indirect emissions from sources associated with energy consumption. As noted in Section 3.17, Transportation, a transportation evaluation of the proposed project will be prepared, which could indicate more significant impacts related to transportation, and therefore GHGs, than were previously analyzed in the ConnectMenlo Final EIR. Mobile-source GHG emissions would also include project-generated vehicle trips associated with activities such as landscaping and maintenance on the project site, and other sources. Therefore, the proposed project could potentially conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The criteria identified above for topics 3.8.a and 3.8.b will be evaluated in the EIR. Mitigation measures for project specific impacts will be recommended if necessary.

3.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

*a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? **(Less-Than-Significant Impact)***

The proposed project includes the demolition of the existing structures and parking lots on the project site and the construction of three new residential buildings, including parking garages and associated site improvements. The ConnectMenlo Final EIR determined that these types of land uses typically do not involve transport, use, or disposal of significant quantities of hazardous materials. Generally, small quantities of hazardous materials, such as paints, cleaning chemicals, and fertilizers would be used for routine maintenance and landscaping. Therefore, a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials would not occur and potential impacts related to operational use of hazardous materials would be less than significant.

During the construction period, hazardous materials such as fuel, lubricants, paint, sealants, and adhesives would be transported to and used at the project site. However, compliance with existing regulations that govern the transportation of hazardous materials and the use and disposal of such materials would ensure that the proposed project would not result in spills or leaks that could

create a significant hazard to the public or the environment during and after construction by ensuring that these materials are properly handled, and if spills or leaks occur, they are properly and promptly cleaned up and the materials disposed of at an appropriate waste-handling facility. Therefore, potential impacts of the proposed project associated with routine transport, use, or disposal of hazardous materials would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ***(Less-Than-Significant with Mitigation Incorporated)***

The public and/or the environment could be affected by the release of hazardous materials from the project site into the environment by: 1) exposing workers and/or the public to potentially contaminated soil and groundwater during construction and/or operation of the project; or 2) exposing workers and/or the public to hazardous building materials (e.g., Polychlorinated Biphenyls [PCBs], lead paint, asbestos) during demolition of the existing office and industrial structures.

The ConnectMenlo Final EIR determined that future development associated with ConnectMenlo could occur on properties that possibly are contaminated. Future development would be required to comply with existing regulations, including General Plan policies that have been prepared to minimize impacts related to accidents and spills of hazardous materials. In particular, Policy S-1.18, which requires developers to conduct an investigation of soils, groundwater and buildings affected by hazardous-material potentially released from prior land uses in areas historically used for commercial or industrial uses, and to identify and implement mitigation measures to avoid adversely affecting the environment or the health and safety of residents or new uses.

A Phase I Environmental Site Assessment (Phase I ESA) was prepared for the project site in July 2018.[28] The Phase I ESA reviewed past uses of the project site and surrounding vicinity to evaluate whether past uses or releases of hazardous materials may have impacted the project site. The Phase I ESA indicated that all three buildings on the project site have been utilized as hazardous materials facilities since their construction. While limited subsurface investigations have taken place on the project site, sampling was not comprehensive in terms of chemicals considered nor in geographic scope, and therefore the possibility that spills or releases of chemicals or petroleum products may have affected the soil and groundwater conditions at the site cannot be ruled out. In addition, low levels of volatile organic compounds (VOCs) were encountered in groundwater beneath the site in 1997. The San Francisco Regional Water Quality Control Board (Regional Water Board) issued a No Further Action (NFA) letter based on the assumption that the source of the impacts were not attributable to the site, and conditional on the agency's ability to access the site for further investigation, as necessary. In addition, the Phase I ESA noted that asbestos-containing materials (ACMs) and lead-based paint (LBP) may be present in the buildings on the project site.

[28] Ramboll US Corporation, 2018. *Phase I Environmental Site Assessment, Uptown Menlo Park: 141 Jefferson Drive & 172-188 Constitution Drive, Menlo Park, California.* July.

A Phase II ESA was prepared for the project site in July 2018 and included soil sampling as recommended in the Phase I ESA.[29] The Phase II ESA found that soil samples on the project site contained concentrations of metals, VOCs, organochlorine pesticides (OCPs), and petroleum hydrocarbons; however, none of the concentrations were above the residential Environmental Screening Levels (ESLs) for residential land use. Groundwater samples at the project site contained both VOCs and petroleum hydrocarbons above residential ESLs. Elevated concentrations of VOCs in sub-slab soil vapor that exceed residential ESLs were also reported in the eastern portion of the project site. The Phase II ESA recommended further assessment of vapor intrusion risks and identified that implementation of vapor intrusion mitigation measures may be necessary for the development of residential land uses on the project site, particularly in the eastern area of the site. While VOC concentrations encountered in soil, soil vapor, and groundwater at the site are not indicative of widespread or significant contamination, the elevated concentrations were identified in regions near former hazardous materials storage, processing, and treatment areas. The ConnectMenlo Final EIR identified Mitigation Measures HAZ-4a and HAZ-4b, which are presented below, to ensure that impacts associated with potential exposure to hazardous soil vapor and groundwater conditions during project construction and operation would be reduced to a less-than-significant level. These mitigation measures would be applicable to the proposed project and would be required to ensure that potential impacts of the proposed project would be less than significant and that no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

> **Connect Menlo Final EIR Mitigation Measure HAZ-4a:** Construction at the sites of any site in the City with known contamination, shall be conducted under a project-specific Environmental Site Management Plan (ESMP) that is prepared in consultation with the Regional Water Quality Control Board (RWQCB) or the Department of Toxic Substances Control (DTSC), as appropriate. The purpose of the ESMP is to protect construction workers, the general public, the environment, and future site occupants from subsurface hazardous materials previously identified at the site and to address the possibility of encountering unknown contamination or hazards in the subsurface. The ESMP shall summarize soil and groundwater analytical data collected on the project site during past investigations; identify management options for excavated soil and groundwater, if contaminated media are encountered during deep excavations; and identify monitoring, irrigation, or other wells requiring proper abandonment in compliance with local, State, and federal laws, policies, and regulations.
>
> The ESMP shall include measures for identifying, testing, and managing soil and groundwater suspected of or known to contain hazardous materials. The ESMP shall: 1) provide procedures for evaluating, handling, storing, testing, and disposing of soil and groundwater during project excavation and dewatering activities, respectively; 2) describe required worker health and safety provisions for all workers potentially exposed to hazardous materials in accordance with State and federal worker safety regulations; and 3) designate personnel responsible for implementation of the ESMP.

[29] Ramboll US Corporation, 2018. *Phase II Investigation Report, 141 Jefferson Drive and 172-188 Constitution Drive, Menlo Park, California.* July 3.

Connect Menlo Final EIR Mitigation Measure HAZ-4b: For those sites throughout the city with potential residual contamination in soil, gas, or groundwater that are planned for redevelopment with an overlying occupied building, a vapor intrusion assessment shall be performed by a licensed environmental professional. If the results of the vapor intrusion assessment indicate the potential for significant vapor intrusion into an occupied building, project design shall include vapor controls or source removal, as appropriate, in accordance with regulatory agency requirements. Soil vapor mitigations or controls could include vapor barriers, passive venting, and/or active venting. The vapor intrusion assessment and associated vapor controls or source removal can be incorporated into the ESMP (Mitigation Measure HAZ-4a).

With implementation of the above mitigation measures, the proposed project would have a less-than-significant impact related to the release of hazardous materials into the environment and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ***(No Impact)***

The proposed project would not involve handling or emissions of acutely hazardous materials, substances, or wastes. The Tide Academy, a high school within the Sequoia Union High School District, began operation in Fall 2019 at 150 Jefferson Drive, located across Jefferson Drive to the south of the project site. However, as noted in Sections 3.9.a and 3.9.b, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste, and therefore no impact related to hazardous emissions within proximity to a school would occur and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? ***(Less-Than-Significant Impact)***

The provisions of Government Code Section 65962.5 require the California Department of Toxic Substances Control (DTSC), the State Water Resources Control Board, the California Department of Health Services, and the California Department of Resources Recycling and Recovery (formerly the California Integrated Waste Management Board) to submit information pertaining to sites associated with solid waste disposal, hazardous waste disposal, leaking underground tank sites, and/or hazardous materials releases to the Secretary of the California Environmental Protection Agency (Cal/EPA). Based on a review of regulatory databases performed as part of the Phase I ESA prepared for the project site, including listed hazardous materials release sites compiled pursuant to Government Code Section 65962.5, the project site is listed as a hazardous materials release site related to the historical uses of the project site, including potential contaminants of concern for soil and groundwater. The Phase II ESA performed for the site confirmed these findings. However, the project site is not an active site included on the State's Hazardous Waste and Substances Site List (Cortese List), and as noted in Section 3.9.b., implementation of ConnectMenlo Final EIR Mitigation Measures HAZ-4a and HAZ-4b, would ensure the proposed would not result in the release of

hazardous materials. Therefore, this impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? ***(No Impact)***

The ConnectMenlo Final EIR determined that the study area would not be subject to any airport safety hazards, and no impact would occur. The project site is located approximately 4 miles west of the Palo Alto Airport and approximately 4.5 miles of the San Carlos Airport. The project site is not located within an airport land use plan, or within 2 miles of a public airport.[30,31] Therefore, no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that implementation of ConnectMenlo does not include potential land use changes that would impair or physically interfere with the ability to implement the City's Emergency Operation Plan. The proposed project would be consistent with the policies outlined in ConnectMenlo and would not obstruct emergency evacuation routes. The proposed project would not substantially alter the adjacent roadways and, therefore, would not be expected to impair the function of nearby evacuation routes. Therefore, the proposed project would have a less-than-significant impact on implementation of an adopted emergency response plan or emergency evacuation plan and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ***(Less-Than-Significant Impact)***

As noted in the ConnectMenlo Final EIR, the City is located in a highly urbanized area, is not surrounded by woodlands or vegetation, and does not contain areas of moderate, high, or very high Fire Hazard Severity Zones for the Local Responsibility area, nor does it contain any areas of moderate, high, or very high Fire Hazard Severity for the State Responsibility area. Future development within the City, including the proposed project, would be required to comply with the existing regulations as described in Section 4.7.1.1 of the ConnectMenlo Final EIR. In particular, all development in the study area would be constructed pursuant to the California Building Code, California Fire Code, and the Menlo Park Fire Protection District Code. Therefore, because the project site is in an urban area, is not within or adjacent to a wildland fire hazard area, and would be required to comply with existing regulations, the proposed project would not expose people or structures to a significant loss, injury, or death involving wildland fires and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

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30 Santa Clara County Airport Land Use Commission, 2008. *Comprehensive Land Use Plan, Santa Clara County, Palo Alto Airport.* November 19.

31 City/County Association of Governments of San Mateo County, 2015. *Comprehensive Airport Land Use Compatibility Plan for the Environs of San Carlos Airport.* October 2015.

3.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i. Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. Impede or redirect flood flows?	☐	☐	☒	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

*a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? **(Less-Than-Significant Impact)***

As noted in the ConnectMenlo Final EIR, water quality in stormwater runoff is regulated locally by the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), which includes the C.3 provisions set by the Regional Water Board. Adherence to these regulations requires new development or redevelopment projects to incorporate treatment measures, an agreement to maintain them, and other appropriate source control and site design features that reduce pollutants in runoff to the maximum extent practicable. As the project site would include more than 1 acre of ground disturbance, a SWPPP would also be required. Many of the requirements consider Low Impact Development (LID) practices such as the use of on-site infiltration through landscaping and vegetated swales that reduce pollutant loading. Incorporation of these measures can even improve existing conditions.

In addition, all projects must comply with the requirements of the City's Municipal Code Chapter 7.42, Stormwater Management Program. The City of Menlo Park Public Works Department also requires development or redevelopment projects that replace or introduce more than 10,000 square feet of impervious surfaces to prepare a Hydrology Report that requires site design measures

to maximize pervious areas, source control measures to keep pollutants out of stormwater, use of construction Best Management Practices (BMPs), and post construction treatment measures. Additionally, as part of the Zoning Ordinance update, ConnectMenlo includes design standards for development in the Bayfront Area. These design standards require future development to provide on-site infiltration of stormwater runoff and implement sustainable stormwater features in open space areas.

Construction and demolition activities of the proposed project would involve disturbance, grading, and excavation of soil, which could result in temporary erosion and movement of sediments into the storm drain system, particularly during precipitation events. The potential for chemical releases is present at most construction sites due to the use of paints, solvents, fuels, lubricants, and other hazardous materials associated with heavy construction equipment. Once released, these hazardous materials could be transported to nearby surface waterways in stormwater runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. The release of sediments and other pollutants during construction and demolition could adversely affect water quality in receiving waters. In order to prevent pollution runoff during the construction period, BMPs from the SMCWPPP would be implemented. These BMPs include, but are not limited to, temporary erosion controls, performing clearing and earth moving activities only during dry weather, and storing, handling, and disposing of construction materials/wastes properly to prevent contact with stormwater.

As noted above, the proposed project would be required to comply with the City's Stormwater Management Program and would be required to prepare a Hydrology Report and a SWPPP. The proposed project would incorporate site design measures to reduce stormwater runoff during the operation period, including directing runoff onto vegetated areas, maximizing permeability by clustering development and preserving open space, and using micro-detention. In addition, the proposed project would also implement source controls to reduce pollution runoff during the operation period, including marking on-site inlets with the words "No Dumping! Flows to Bay," plumbing interior parking garage floor drains to the sanitary sewer and providing landscaping that is drought and/or disease resistant and minimizes runoff.

Compliance with existing stormwater control regulations, preparation of a SWPPP, and implementation of site design measures, source control measures, and BMPs would reduce potential construction and operation phase impacts on water quality to a less-than-significant level and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ***(Less-Than-Significant Impact)***

As noted in the ConnectMenlo Final EIR, the San Mateo Subbasin of the Santa Clara Valley Groundwater Basin underlies the City. Development throughout the City associated with implementation of ConnectMenlo could result in an overall decrease in groundwater recharge through the increase in impervious surfaces or dewatering during the construction phase.

The proposed project would result in a decrease of impervious surfaces on the project site from 197,749 square feet of existing impervious surface coverage to 186,387 square feet of impervious surface coverage. Additionally, the proposed project would include stormwater control features, as described above, that would enhance infiltration of stormwater to the subsurface and would therefore increase the amount of groundwater recharge compared to existing conditions.

The proposed project would connect to the MPMW water system and would not use groundwater at the site. Although no use of groundwater is proposed as part of the project, dewatering would likely be required during construction due to the depth of excavations performed and the shallow water table within the Bayfront Area. This dewatering would be temporary and would focus on the uppermost shallow groundwater zone (a zone that contains a relatively small amount of groundwater that is generally not utilized for water supply). Therefore, potential impacts related to depletion of groundwater supplies would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i. Result in substantial erosion or siltation on- or off-site; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv. Impede or redirect flood flows? ***(Less-Than-Significant Impact)***

The proposed project would not result in the alteration of the course of a stream or river, but would slightly alter the existing drainage pattern on the site with the introduction of new building footprints and surface pavements. However, the completed project would result in a decrease in impervious surface coverage compared to existing conditions and the project would reflect pre-project drainage conditions by directing runoff to the existing 18-inch storm drain main within Constitution Drive. Potential impacts associated with alteration of the existing drainage pattern are discussed below.

Erosion. As described above, the proposed project would reflect pre-project drainage conditions by directing runoff towards the corresponding City drainage facilities that currently serve the project site. As described in the ConnectMenlo Final EIR, all stormwater runoff from the project site would be treated in accordance with the City's Storm Water Management Program, ensuring that storm water is treated for sediments prior to discharge from the site, particularly during construction activities. Consequently, the potential of the proposed project to result in substantial erosion or siltation on- or off-site associated with altering the drainage pattern of the project site would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

On- or Off-Site Flooding. As noted above, the completed project would reflect pre-project drainage conditions and would result in no net increase in the rate or amount of stormwater runoff, and therefore would not result in on- or off-site flooding. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Stormwater Runoff. As described above and in the ConnectMenlo Final EIR, all stormwater runoff from the project site would be treated in accordance with the City's Storm Water Management Program, which also requires no net increase in the rate or amount of stormwater runoff. Therefore, the proposed project would not create or contribute runoff water exceeding the capacity of the storm drain system or provide an additional source of polluted runoff. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Flood Flows. As noted in Section 3.10.d, below, the project site is located within a flood zone. However, the ground floor of each building would be raised three to five feet above grade to accommodate flood plain design requirements and each building would generally occupy the same footprint as the existing structures on the site. Additionally, as discussed above in Section 3.10.a, although the proposed project would alter the existing drainage pattern on the site, the project would be required to comply with SMCWPPP requirements and implement on-site infiltration of stormwater runoff and sustainable stormwater features in open space areas, which would reduce the potential for on-site flooding to occur. Although the proposed project would alter the existing drainage pattern on the site through raising the base flood elevation, the proposed project would not impede flood flows or redirect flood flows in a manner which would result in on- or off-site flooding. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? ***(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that compliance with the City's existing stormwater regulations, described above, implementation of LID design guidelines, and engineering review of drainage calculations and development plans by the City's Public Works Department would ensure that there are no significant increases in peak flow rates or stormwater runoff volume.

The project site is located within a special flood zone, as mapped by FEMA, with a base flood elevation of 11 feet.[32] As noted in Section 1.0, Project Information, the grade of the project site would be raised three to five feet to meet FEMA requirements. Therefore, because the proposed project would be elevated out of the flood zone, comply with existing stormwater regulations, and implement site design measures, source control measures, a SWPPP, and SMCWPPP's construction BMPs, the proposed project would not risk release of pollutants due to project inundation. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

[32] Federal Emergency Management Agency, 2019. *National Flood Insurance Program, Flood Rate Insurance Map, San Mateo County, California.* Map No. 06081C0306F. April 5.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ***(Less-Than-Significant Impact)***

As noted above, the proposed project would be required to comply with the City's existing stormwater regulations, and would include implementation of site design measures, source control measures, a SWPPP, and SMCWPPP's construction BMPs. In addition, the proposed project would connect to the MPMW water system and would not use groundwater at the site, and would raise the grade of the site out of the flood zone. Therefore, the proposed project would not conflict or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☒	☐
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

*a. Would the project physically divide an established community? **(Less-Than-Significant Impact)***

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. The ConnectMenlo Final EIR concluded that implementation of ConnectMenlo would not include any new major roadways or other physical features through existing residential neighborhoods or other communities that would create new barriers in the City, but rather would implement measures to increase connectivity. Therefore, because the proposed project would be consistent with ConnectMenlo, as described below, and would not substantially alter any existing roadways or include any new barriers, this impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

*b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? **(Less-Than-Significant Impact)***

The project site is located within the R-MU-B zoning district. The intent of the R-MU-B district is to: 1) provide high density housing to complement nearby employment; 2) encourage mixed use development with a quality living environment and neighborhood-serving retail and services on the ground floor that are oriented to the public, and promote a live/work/play environment with pedestrian activity; and 3) blend with and complement existing neighborhoods through site regulations and design standards that minimize impacts to adjacent uses. The R-MU-B district allows for bonus level development along Jefferson Drive to be a maximum of 85 feet in height. Additionally, because the project site is located within a special flood zone, as noted in Section 3.10.d, an additional 10-foot increase in maximum building height is allowed, for a total maximum building height of 95 feet. As noted in Section 1.0, Project Information, the proposed project would be a maximum of 84 feet, 9 inches in height and an average of approximately 61 feet across the project site. The proposed project would be consistent with the mix and intensity of development contemplated by ConnectMenlo. The proposed project would be generally consistent with the applicable goals, policies, and programs included in ConnectMenlo, and therefore would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigation an environmental effect.

Because it is anticipated that the transportation analysis will be released while use of Level of Service (LOS) as the threshold of significance is still legally acceptable, it is anticipated that if any mitigation is necessary to achieve compliance with goals, policies or programs of the Circulation Element relative to LOS it would be done through the transportation analysis. However, if necessary, the focused EIR will consider compliance the Circulation Element and identify mitigation if appropriate. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.12 MINERAL RESOURCES

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

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? ***(No Impact)***

The ConnectMenlo Final EIR determined that future development associated with ConnectMenlo would not have an impact on mineral resources as there are no mineral resource recovery operations within the City. Therefore, the proposed project would have no impact related to the availability of a known mineral resource and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ***(No Impact)***

Refer to Section 3.12.a. The proposed project would have no impact related to locally-important mineral resource recovery sites and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

*a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? **(Potentially Significant Impact)***

Demolition, site preparation, and construction would require the use of heavy construction equipment including pile drivers, bulldozers, scrapers, loaders, excavators, cranes, and trucks could have a potentially significant noise impact. Demolition and site preparation phases are typically the loudest phases of construction due to the types of equipment used. There are sensitive receptors within 100 feet of the project site, which could be exposed to construction period noise. The ConnectMenlo Final EIR identified Mitigation Measure NOISE-1c, which is presented below, to ensure that construction-period noise impacts would be reduced to a less-than-significant level.

> **ConnectMenlo Final EIR Mitigation Measure NOISE-1c:** Project applicants for all development projects in the city shall minimize the exposure of nearby properties to excessive noise levels from construction-related activity through CEQA review, conditions of approval and/or enforcement of the City's Noise Ordinance. Prior to issuance of demolition, grading, and/or building permits for development projects, a note shall be provided on development plans indicating that during on-going grading, demolition, and construction, the property owner/developer shall be responsible for requiring contractors to implement the following measures to limit construction-related noise:
>
> - Construction activity is limited to the daytime hours between 8:00 a.m. to 6:00 p.m. on Monday through Friday, as prescribed in the City's municipal code.
>
> - All internal combustion engines on construction equipment and trucks are fitted with properly maintained mufflers, air intake silencers, and/or engine shrouds that are no less effective than as originally equipped by the manufacturer.

- Stationary equipment such as generators and air compressors shall be located as far as feasible from nearby noise-sensitive uses.
- Stockpiling is located as far as feasible from nearby noise-sensitive receptors.
- Limit unnecessary engine idling to the extent feasible.
- Limit the use of public address systems.
- Construction traffic shall be limited to the haul routes established by the City of Menlo Park.

The proposed project would be required to comply with this mitigation to reduce any potential impacts to a less-than-significant level.

Mitigation Measure NOISE-1a requires the preparation of an acoustical study for development of new noise-sensitive uses, which include residential uses. The ConnectMenlo Final EIR determined that transportation-related noise, including an increase in traffic level, would be less than significant with compliance with General Plan Policies N-1.6 and N-1.9 and Programs N-1.B and N-1.C. However, as noted in Section 3.17, a transportation evaluation for the proposed project will be prepared, which could result in new or more severe impacts related to transportation, and therefore transportation-related noise, than was previously analyzed in the ConnectMenlo Final EIR. The proposed project could result in an increase in ambient noise levels generated by mobile sources within and around the site, and could expose proposed and existing sensitive land uses in the surrounding neighborhood to unacceptable noise levels. Therefore, impacts related to operation-period noise would be potentially significant, and this topic will be included in the EIR. Mitigation measures for potential project specific impacts will be recommended, as necessary.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? ***(Less-Than-Significant with Mitigation Incorporated)***

The proposed project would generate vibration during the construction period. The ConnectMenlo Final EIR identified Mitigation Measure NOISE-2a, which is presented below, to ensure this impact would be reduced to a less-than-significant level. This mitigation measure would be applicable to the proposed project and would be required to ensure that potential impacts of the proposed project related to the generation of vibration would be less than significant.

ConnectMenlo Final EIR Mitigation Measure NOISE-2a: To prevent architectural damage citywide as a result of construction-generated vibration:

- Prior to issuance of a building permit for any development project requiring pile driving or blasting, the project applicant/developer shall prepare a noise and vibration analysis to assess and mitigate potential noise and vibration impacts related to these activities. The maximum levels shall not exceed 0.2 inch/second, which is the level that can cause architectural damage for typical residential construction. If maximum levels would exceed these thresholds, alternative methods such static rollers, non-explosive blasting, and drilling piles as opposed to pile driving shall be used.

To prevent vibration-induced annoyance as a result of construction-generated vibration:

- Individual projects that involve vibration-intensive construction activities, such as blasting, pile drivers, jack hammers, and vibratory rollers, within 200 feet of sensitive receptors shall be evaluated for potential vibration impacts. A vibration study shall be conducted for individual projects where vibration-intensive impacts may occur. The study shall be prepared by an acoustical or vibration engineer holding a degree in engineering, physics, or allied discipline and who is able to demonstrate a minimum of two years of experience in preparing technical assessments in acoustics and/or groundborne vibrations. The study is subject to review and approval of the Community Development Department.

Vibration impacts to nearby receptors shall not exceed the vibration annoyance levels (in RMS inches/second) as follows:

- Workshop = 0.126
- Office = 0.063
- Residential Daytime (7:00 AM – 10:00 PM) = 0.032
- Residential Nighttime (10:00 PM – 7:00 AM) = 0.016

If construction-related vibration is determined to be perceptible at vibration-sensitive uses, additional requirements, such as use of less-vibration-intensive equipment or construction techniques, shall be implemented during construction (e.g., nonexplosive blasting methods, drilled piles as opposed to pile driving, preclusion for using vibratory rollers, use of small- or medium-sized bulldozers, etc.). Vibration reduction measures shall be incorporated into the site development plan as a component of the project and applicable building plans, subject to the review and approval of the Community Development Department.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? ***(Less-Than-Significant Impact)***

Refer to Section 3.9.e. The project site is not located within the vicinity of a private airstrip or an airport land use plan, or within 2 miles of a public use airport. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☒	☐	☐	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? ***(Potentially Significant Impact)***

The proposed project would result in the removal of existing office and industrial uses and construction of new residential uses on the project site. Pursuant to a settlement agreement between the cities of East Palo Alto and Menlo Park, any project located in the City's R-MU zone that proposes to develop at the bonus level, like the proposed project, shall prepare an EIR with an analysis of transportation and housing impacts, at a minimum.[33] Therefore, this topic will be included in the EIR, and mitigation measures will be recommended, if necessary.

b. Displace substantial numbers of people or housing, necessitation the construction of replacement housing elsewhere? ***(Less-Than-Significant Impact)***

The proposed project is not anticipated to displace substantial numbers of people, as the project itself would provide additional housing opportunities within the city. Nevertheless, as discussed above under Section 3.14.a, pursuant to a settlement agreement between the cities of East Palo Alto and Menlo Park, this topic will be further discussed in the EIR.

[33] Menlo Park, City of, 2017. *Staff Report Number 17-305-CC*. December 5.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: i. Fire protection? ii. Police protection? iii. Schools? Iv. Parks? V. Other public facilities? ***(Less-Than-Significant Impact)***

The following section addresses the proposed project's potential effects on: fire service, police service, schools, parks, and other public facilities. Impacts to public services would occur if the propose project increases demand for services such that new or expanded facilities would be required, and these new facilities would themselves cause environmental impacts.

Fire Protection. The ConnectMenlo Final EIR states that future development throughout the City pursuant to ConnectMenlo would be required to comply with existing regulations, including General Plan policies and Zoning Ordinance regulations that have been prepared to minimize impacts related to fire protection services and the need for new facilities throughout the City. In particular, General Plan Policy S-1.30 requires coordination with the Menlo Park Fire Protection District (MPFPD), which provides fire protection services throughout the City, in the planning process and requires all development applications to be reviewed and approved by the MPFPD prior to approval.

Primary service to the project site would be provided by Station 77, which is located at 1467 Chilco Street. This station is located approximately 1.1 miles east of the project site. Station 77 houses one engine company and is continually staffed by three firefighting personnel.[34] As noted in the ConnectMenlo Final EIR, ConnectMenlo does not in and of itself require the expansion Station 77.

[34] Menlo Park, City of, 2019. Stations (map). Website: www.menlofire.org/maps/stations (accessed April 29, 2019).

The expansion of Station 77 was already planned and budgeted for prior to ConnectMenlo. Station 5 would also serve the project site and is located approximately 2 miles south of the project site. Station 5 also houses one engine company and is continually staffed by three firefighting personnel.

Consistent with the ConnectMenlo Final EIR, ongoing compliance with State and local laws, compliance with the MPFPD permitting process, and payment of applicable development fees would ensure that impacts of new development associated with the need for remodeled or expanded MPFPD facilities would be less than significant. Because the proposed project would comply with all applicable laws and would also be required to pay all applicable fees, the proposed project would not result in the need for remodeled of expanded MPFPD facilities. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Police Protection. The ConnectMenlo Final EIR states that future development pursuant to ConnectMenlo would be required to comply with existing regulations, including General Plan policies and Zoning Ordinance regulations that have been prepared to minimize impacts related to police protection services. The Menlo Park Police Department (MPPD) indicated that full buildout of ConnectMenlo would require an additional 17 police officers to maintain a staffing ratio of 1.29 officers per 1,000 residents. However, the MPPD confirmed that no expansion or addition of facilities would be required to accommodate the additional sworn officers or equipment. In addition, as part of the Zoning update, ConnectMenlo includes TDM standards for development in the Bayfront Area. These TDM standards require future development to reduce associated vehicle trips to at least 20 percent below standard generation rates. Each individual project sponsor will be required to prepare a TDM and provide an impact analysis to the satisfaction of the City's Transportation Manager. The reduction in trips would help to alleviate roadway congestion that could interfere with MPPD access and response times.

The MPPD has indicated that it can address maintaining adequate response times through staffing, rather than facility expansion, and therefore it was determined that implementation of ConnectMenlo would result in a less-than-significant impact related to the need for remodeled or expanded MPPD facilities. Therefore, because the proposed project is consistent with the type and intensity of development anticipated in the ConnectMenlo Final EIR, the proposed project would not result in the need for remodeled or expanded MPPD facilities. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Schools. The ConnectMenlo Final EIR determined that any development associated with ConnectMenlo would be subject to payment of development impact fees, which under Senate Bill 50 (SB 50) are deemed to be full and complete mitigation. In addition, future development would be required to comply with existing regulations, including General Plan policies and Zoning regulations that have been prepared to minimize impacts related to schools. Therefore, because the proposed project would comply with existing regulations prepared to minimize impacts related to schools and would be subject to the mandatory payment of developer impact fees pursuant to SB 50, the proposed project would have a less-than-significant impact related to the need for remodeled or expanded school facilities and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Parks. Refer to Section 3.16.a. The proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo and would include private and public open space, and therefore the proposed project would not result in substantial or accelerated physical deterioration of recreational facilities. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Other Public Facilities. The ConnectMenlo Final EIR determined that future development under the proposed project, as part of the City's project approval process, would be required to comply with existing regulations, including General Plan policies that have been prepared to minimize impacts related to public facilities. The City, throughout the 2040 buildout horizon, would implement the General Plan programs that require the adoption of development impact fees to address infrastructure and service needs in the community. Therefore, because the proposed project would be required to pay development impact fees, impacts related to the need for remodeled or expanded public facilities would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.16 RECREATION

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

*a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? **(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that the increase in residents associated with future development under ConnectMenlo would lead to an increase in the demand for recreational opportunities and facilities within the City. However, the demand would be distributed throughout the City. The City has an adopted goal of maintaining a ratio of 5 acres of developed parkland per 1,000 residents. At full buildout, with an estimated population of approximately 14,150 new residents, the ratio of parkland per 1,000 residents would be approximately 5.2.

In addition to the existing parkland within the City, the proposed project would include a total of 95,569 square feet of open space, which would include common courtyards, a roof terrace, a pool, landscaping, and a publicly-accessible pedestrian paseo, which would make up approximately 11.3 percent of the project site. Therefore, because the proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo and would include private and public open space, the proposed project would not result in substantial or accelerated physical deterioration of recreational facilities. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

*b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? **(No Impact)***

The proposed project would include redevelopment of the project site with residential uses. The proposed project does not include or require the construction or expansion of existing public recreational facilities. Therefore, development of the proposed project and associated recreational opportunities for use by project residents would not result in additional environmental effects beyond those described in this document and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐
b. Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	☒	☐	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
d. Result in inadequate emergency access?	☒	☐	☐	☐

a. through d. ***(Potentially Significant Impact)***

The ConnectMenlo Final EIR identified significant and unavoidable impacts related to increased delays of peak hour motor vehicle traffic at some study intersections and to routes of regional significance. Per Mitigation Measure TRANS-1b, new development would be required to contribute fair share contributions to the City's updated Transportation Impact Fee (TIF) program (once adopted) to guarantee funding for identified roadway and infrastructure improvements. Any project proposed prior to the adoption of an updated TIF is required to conduct a project-specific Transportation Impact Analysis (TIA) to determine the impacts and necessary transportation mitigations that are to be funded by that project. Regardless of whether the TIF has been updated, the settlement agreement, as noted in Section 1.0, requires a transportation analysis be completed.

A transportation evaluation will be prepared for the proposed project and will be included in the EIR. The EIR is currently anticipated to include an analysis of 29 intersections, as follows:

1. Marsh Road and Bayfront Expressway (State)
2. Marsh Road and US-101 NB Off-Ramp (State)
3. Marsh Road and US-101 SB Off-Ramp (State)
4. Marsh Road and Scott Drive (Menlo Park)
5. Marsh Road and Bay Road (Menlo Park)
6. Marsh Road and Middlefield Road (Atherton)
7. Chrysler Drive and Bayfront Expressway (State)
8. Chrysler Drive and Constitution Drive (Menlo Park)

9. Chrysler Drive and Jefferson Drive (Menlo Park)
10. Chrysler Drive and Independence Drive (Menlo Park)
11. Chilco Street and Bayfront Expressway (State)
12. Chilco Street and Constitution Drive (Menlo Park)
13. Willow Road and Bayfront Expressway (State)
14. Willow Road and Hamilton Avenue (State)
15. Willow Road and Ivy Drive (State)
16. Willow Road and O'Brien Drive (State)
17. Willow Road and Newbridge Street (State)
18. Willow Road and Bay Road (State)
19. Willow Road and Durham Street (Menlo Park)
20. Willow Road and Coleman Avenue (Menlo Park)
21. Willow Road and Gilbert Avenue (Menlo Park)
22. Willow Road and Middlefield Road (Menlo Park)
23. University and Bayfront Expressway (State)
24. Middlefield Road and Ravenswood Avenue (Menlo Park)
25. Middlefield Road and Ringwood Avenue (Menlo Park)
26. Marsh Road and Florence Street-Bohannon Drive (Menlo Park)
27. Willow Road and US-101 NB Ramps (State)
28. Willow Road and US-101 SB Ramps (State)
29. Bay Road and Ringwood Avenue (Menlo Park)

The analysis will also consider impacts related to vehicular, bicycle, pedestrian, and transit facilities and access. Mitigation measures will be recommended if necessary.

3.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	☒	☐	☐	☐
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. ***(Potentially Significant)***

As noted in the ConnectMenlo Final EIR, no tribal cultural resources have been identified in the Bayfront Area. However, as noted in Section 3.5, Cultural Resources, impacts from future development in the study area could impact unknown archeological resources including Native American artifacts and human remains. Impacts would be reduced to less-than-significant levels with implementation of Mitigation Measures CULT-2a and CULT-4 from the ConnectMenlo Final EIR.

AB 52 provides for consultation between lead agencies and Native American tribal organizations during the CEQA process. Prior to the release of an Environmental Impact Report or Negative Declaration/Mitigated Negative Declaration for public review, a lead agency must provide the opportunity to consult with local tribes.

A request form describing the proposed project was sent to the NAHC in West Sacramento requesting a list of tribes eligible to consult with the City, pursuant to Public Resources Code section 21080.3.1. On May 24, 2019, the NAHC responded in a letter with a list of tribal contacts. The City sent a letter providing the opportunity for consultation pursuant to AB 52 for the project to these individuals. No requests for consultation have been received to date. The consultation process and its conclusion will be further discussed in the EIR. Mitigation measures will be recommended if necessary.

3.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

*a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? **(Less-Than-Significant Impact)***

Domestic Water. As noted in the ConnectMenlo Final EIR, the MPMW receives 100 percent of its potable water from the San Francisco Public Utilities Commission (SFPUC). The City does not own or operate a water treatment plant (WTP). The water purchased from the SFPUC may be treated at one or more WTPs operated by SFPUC. SFPUC periodically makes improvements to its WTPs in order to improve system reliability and accommodate projected growth in its regional service areas. As noted above, the proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo. Therefore, the proposed project would not prompt a need to expand treatment facilities or regional water system conveyance and storage facilities. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

The proposed project would connect to existing water delivery systems within the vicinity of the project site. It is anticipated that these pipelines would have sufficient capacity to support delivery of water to the proposed project. However, as noted in Table 1.A, the project sponsor would be required to coordinate with the City and the MPFPD to assess water flow requirements, and ensure the existing water delivery infrastructure is sufficient to serve the proposed project.

Wastewater. As noted in the ConnectMenlo Final EIR, the SVCW WWTP treats raw wastewater from the City and discharges to the deep water channel of the Bay. The SVCW WWTP has an average dry weather design flow of 29 million gallons per day (MGD) and a peak wet weather flow of 71 MGD. In general, conveyance systems and treatment plants are designed and constructed to accommodate future capacity expansion including additional base flows due to approved growth plus estimated wet weather flows. The ConnectMenlo Final EIR determined that the increase in wastewater flows from implementation of ConnectMenlo would add to the capacity demands on the WWTP and its conveyance system, however, the effect is not substantial and would be integrated into the ongoing planning and budgeting processes to improve the conveyance system, treatment processes and capacity. As noted above, the proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo. Therefore, the proposed project would not prompt a need to expand the SVCW WWTP. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

The proposed project would connect to the existing sanitary sewer systems within the vicinity of the site. It is anticipated that these pipelines would have sufficient capacity to support the proposed project's wastewater flows. However, as noted in Table 1.A, the project sponsor would be required to coordinate with the West Bay Sanitary to assess wastewater flow requirements, and ensure the existing wastewater infrastructure is sufficient to serve the proposed project.

Stormwater Drainage. Refer to Section 3.10. The proposed project would include new connections and upgrades to the existing stormwater infrastructure within the vicinity of the site. Development of the proposed project would result in a decrease of impervious surfaces on the site from 197,749 square feet of existing impervious surface coverage to 186,387 square feet of impervious surface coverage. In addition, the proposed project would include stormwater control features, as described previously, that would reduce the total stormwater runoff from the project site. Runoff would be treated in accordance with the SMCWPPP before flowing to the City's storm drain system.

The proposed project would include the following elements to reduce the demand for and impacts to stormwater infrastructure; stormwater treatment systems within the pedestrian paseo and landscaped area of Building TH1; drought-tolerant landscaping; and energy-efficient appliances and efficient irrigation systems. Therefore, the proposed project would not require in the relocation or construction of new stormwater drainage facilities that are not already evaluated in this document. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Electricity, Natural Gas, and Telecommunications. As noted in the ConnectMenlo Final EIR, new development under ConnectMenlo would continue to be served by Pacific Gas & Electric (PG&E) or Peninsula Clean Energy (PCE) when it commences transmission of energy over PG&E facilities. Buildout of ConnectMenlo would not significantly increase energy demands within the service territory and would not require new energy supply facilities. As noted above, the proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo and the proposed buildings would be all electric.

Therefore, the proposed project would not prompt a need to expand electrical or natural gas facilities. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

Similar to electrical power services, the project site is already served with telecommunications infrastructure. Telecommunication service would continue to be provided to the project site with implementation of the proposed project. In addition, the proposed project would include undergrounding of existing utilities, and would be required to coordinate with the applicable telecommunications provider. Therefore, the proposed project would not require the relocation or construction of new telecommunications infrastructure beyond that which is already analyzed. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? ***(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that there would be an increase in water demand as a result of buildout of ConnectMenlo – average daily demand would be 343 million gallons per year (MGY), which represents 21 percent of the planning level water demand forecasted in the Urban Water Management Plan (UWMP). The ConnectMenlo Final EIR concluded that water supply is adequate to meet increased demands in normal years and would be sufficient to supply the additional demand generated by the increase in development associated with implementation of ConnectMenlo.

During single- and multiple-dry years by 2040, MPMW's total annual water demand, including development associated with ConnectMenlo, is estimated to exceed total annual supply by approximately 333 MGY and 506 MGY, respectively. However, with MPMW's Water Shortage Contingency Plan in place, the shortages in multiple dry years would be managed through demand reductions of up to 50 percent.

In addition, as part of the Zoning update, ConnectMenlo includes green and sustainable building standards in the Bayfront Area. These standards require all new buildings within the Bayfront Area to be maintained without the use of well water and include dual plumbing systems for the use of recycled water. Under the Zoning update, no potable water shall be used for decorative features, unless the water is recycled, and single pass cooling systems are prohibited. Also, future development with a gross floor area of 100,000 square feet or more must submit a proposed water budget for review by the City's Public Works Director prior to certification of occupancy. The ConnectMenlo Final EIR determined that implementation of MPMW's Water Shortage Contingency Plan and green and sustainable building standards would ensure this impact would be less than significant.

As noted above, the proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo. Therefore, there would be sufficient water supplies available to serve the proposed project and reasonably foreseeable future development during normal, single- and multiple-dry years.

This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ***(Less-Than-Significant Impact)***

As noted above, the SVCW WWTP has an average dry weather design flow of 29 MGD and a peak wet weather flow of 71 MGD. The SVCW WWTP has an average currently dry weather flow of 16 MGD. The ConnectMenlo Final EIR determined that full buildout of ConnectMenlo would result in an estimated net increased wastewater generation rate of 309 MGY, or 0.85 MGD, which would not be significant relative to currently available excess dry weather design capacity flow of 13 MGD.

The proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo. Therefore, there would be sufficient wastewater treatment capacity available to serve the proposed project's projected demand in addition to the provider's existing commitments. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? ***(Less-Than-Significant Impact)***

As noted in the ConnectMenlo Final EIR, the majority (approximately 74.4 percent or 21,658 tons) of solid waste from the City is transported to the Corinda Los Trancos Landfill (Ox Mountain Landfill). The three other landfills that received the second, third, and fourth most waste accounted for 20.5 percent (or 5,966 tons) combined. The ConnectMenlo Final EIR determined that the estimated additional solid waste generated by development associated with implementation of ConnectMenlo would be approximately 58.3 tons per day, which represents less than 1.5 percent of the daily capacity of the Ox Mountain Landfill, and less than 2 percent of the permitted daily capacity of the landfill with the smallest daily capacity that could receive waste as a result of implementation.

The ConnectMenlo Final EIR determined that the Ox Mountain Landfill is likely to reach its permitted maximum capacity prior to 2040 (the anticipated buildout horizon for implementation of ConnectMenlo). However, the other three landfills that serve the City are not estimated to close until 2048, 2077, and 2107. In addition, there are 15 other landfills that received waste from Menlo Park in 2014. If one or more of the four landfills were unavailable in the future, it is likely the City's solid waste volume would be increased at one or more of the other landfills that already serve the City.

As a part of the Zoning Update, ConnectMenlo includes green and sustainable building standards in the Bayfront Area that require all applicants to submit a zero-waste management plan to the City. The zero-waste management plan must clearly outline the applicant's plan to reduce, recycle, and compost waste from demolition, construction and occupancy phases of the building. Zero waste is defined as 90 percent overall diversion of non-hazardous waste from landfill and incineration.

The proposed project would be consistent with the type and intensity of development and population projections assumed for the project site in ConnectMenlo and would be required to comply with existing regulations related to solid waste. Therefore, there would be solid waste capacity available to serve the proposed project. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ***(Less-Than-Significant Impact)***

Refer to Section 3.19.d. The proposed project would comply with all federal, State, and local solid waste statutes and/or regulations related to solid waste. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

*a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? **(Less-Than-Significant Impact)***

The ConnectMenlo Final EIR determined that the Bayfront Area, which includes the project site, does not contain areas of moderate, high, or very high Fire Hazard Severity for the Local Responsibility area, nor does it contain any areas of moderate, high, or very high Fire Hazard Severity for the State Responsibility Area (SRA). In addition, as noted in Section 3.9.f, the proposed project would not impair the implementation of, or physically interfere with, and adopted emergency response plan. Therefore, this impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

*b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? **(No Impact)***

Refer to Section 3.20.a. Additionally, as noted in Section 1.0, Project Information, the project is generally level, and is bound by existing development on all sides. Therefore, the proposed project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? ***(No Impact)***

Refer to Section 3.20.a. The proposed project is not located within an SRA for fire service and is not within a very high fire hazard severity zone. Therefore, the proposed project would not require the installation or maintenance of associated infrastructure and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? ***(No Impact)***

Refer to Section 3.20.a and 3.20.b. The project site is generally level and is not located within an SRA for fire service or a very high fire hazard severity zone. Therefore, the proposed project would not expose people or structures to significant risks as a result of post-fire slope instability or drainage and runoff changes and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? ***(Less-Than-Significant Impact)***

The project site consists of an infill site in an urban area. The site does not support habitat for special-status plant or animal species. With mitigation, development of the proposed project would not: 1) degrade the quality of the environment; 2) substantially reduce the habitat of a fish or wildlife species; 3) cause a fish or wildlife species population to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. Therefore, this impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? ***(Potentially Significant Impact)***

As discussed in this Initial Study, potentially significant impacts related to air quality, greenhouse gas emissions, noise, transportation, and tribal cultural resources may result from the proposed project.

These impacts, as well as any cumulatively considerable impacts that may result from the proposed project related to these issues, will be evaluated in an EIR. In addition, the topic of population and housing will also be discussed.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(No Impact)***

The proposed project would not result in any environmental effects that would cause substantial direct or indirect adverse effects on human beings. This impact would be less than significant and no new or more severe impacts would occur beyond those examined in the ConnectMenlo Final EIR.

4.0 LIST OF PREPARERS

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APPENDIX A

CONNECTMENLO FINAL EIR:
MITIGATION MONITORING OR REPORTING PROGRAM

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Mitigation Monitoring or Reporting Program

This Mitigation Monitoring or Reporting Program (MMRP) has been prepared for the proposed Menlo Park General Plan (Land Use & Circulation Elements) and M-2 Area Zoning Update (proposed project). The purpose of the MMRP is to ensure the implementation of mitigation measures identified as part of the environmental review for the proposed project. The MMRP includes the following information:

- The full text of the mitigation measures;
- The party responsible for implementing the mitigation measures;
- The timing for implementation of the mitigation measure;
- The agency responsible for monitoring the implementation; and
- The monitoring action and frequency.

The mitigation measures in this MMRP shall be applied to all future development anywhere in the city unless otherwise specified in the specific mitigation measure. The City of Menlo Park must adopt this MMRP, or an equally effective program, if it approves the proposed project with the mitigation measures that were adopted or made conditions of project approval.

MITGATION MONITORING OR REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
Air Quality						
AQ-2a: Prior to issuance of a building permits, all development projects in the city that are subject to CEQA and exceed the screening sizes in the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines shall prepare and submit to the City's Planning Division a technical assessment evaluating potential project-related operational air quality impacts. The evaluation shall be prepared in conformance with the BAAQMD methodology for assessing air quality impacts. If operational-related criteria air pollutants are determined to have the potential to exceed the BAAQMD thresholds of significance, as identified in BAAQMD's CEQA Guidelines, the project applicant is required to incorporate mitigation measures into the development project to reduce air pollutant emissions during operation. The identified measures shall be incorporated into all appropriate construction documents, subject to the review and approval of the Planning Division prior to building permit issuance.	Project applicant	During the building permit and site development review process and prior to permit issuance	City of Menlo Park Planning Division	Plan review and approval	Once for the preparation of the technical assessment	Initials:_____ Date:_____
AQ-2b1: Prior to building permit issuance, the City shall require applicants for all development projects in the city to comply with the current Bay Area Air Quality Management District's (BAAQMD) basic control measures for reducing construction emissions of PM10 (Table 8-1, Basic Construction Mitigation Measures Recommended for All Proposed Projects, of the BAAQMD CEQA Guidelines).	Project applicant	During the building permit and site development review process and prior to permit issuance	City of Menlo Park Planning Division	Plan review and approval	Prior to approval and during scheduled site visits	Initials:_____ Date:_____
AQ-2b2: Prior to issuance of a building permit, development projects in the City that are subject to CEQA and exceed the screening sizes in the BAAQMD's CEQA Guidelines shall prepare and submit to the City of Menlo Park a technical assessment evaluating potential project construction-related air quality impacts. The evaluation shall be prepared in conformance with the BAAQMD methodology for assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the BAAQMD thresholds of significance, as	Project applicant	During the building permit and site development review process and prior to permit issuance	City of Menlo Park Planning Division	Plan review and approval	Once for the preparation of the technical assessment	Initials:_____ Date:_____

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
identified in the BAAQMD CEQA Guidelines, the project applicant is required to incorporate mitigation measures to reduce air pollutant emissions during construction activities to below these thresholds (e.g., Table 8-2, Additional Construction Mitigation Measures Recommended for projects with Construction Emissions Above the Threshold of the BAAQMD CEQA Guidelines, or applicable construction mitigation measures subsequently approved by BAAQMD). These identified measures shall be incorporated into all appropriate construction documents (e.g., construction management plans), subject to the review and approval of the Planning Division prior to building permit issuance.						
AQ-3a: As part of the discretionary review process for development applications, applicants for all non-residential projects within the City that: 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered TRUs, and 2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, nursing homes), as measured from the property line of a proposed project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the City's Planning Division. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment and the Bay Area Air Quality Management District. If the HRA shows that the incremental cancer risk exceeds 10 in one million (10E-06), PM2.5 concentrations exceed 0.3 µg/m3, or the appropriate noncancer hazard index exceeds 1.0, the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and noncancer risks to an acceptable level, including appropriate enforcement mechanisms. Mitigation measures may include but are not limited to: ▪ Restricting idling on-site beyond Air Toxic Control Measures idling restrictions, as feasible. ▪ Electrifying warehousing docks.	Project applicant	During the building permit and site development review process and prior to permit issuance	City of Menlo Park Planning Division	Plan review and approval	Once for the preparation of the HRA	Initials:_____ Date:_____

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
▪ Requiring use of newer equipment and/or vehicles. ▪ Restricting off-site truck travel through the creation of truck routes. Mitigation measures identified in the project-specific HRA shall be incorporated into the site development plan as a component of a proposed project, subject to the review and approval of the Community Development Department.						
AQ-3b: As part of the discretionary review process, applicants for all residential and other sensitive land use projects (e.g., hospitals, nursing homes, day care centers) anywhere in the City within 1,000 feet of a major sources of toxic air contaminants (TACs) (e.g., warehouses, industrial areas, freeways, and roadways with traffic volumes over 10,000 vehicle per day), as measured from the property line of the project to the property line of the source/edge of the nearest travel lane, shall submit a health risk assessment (HRA) to the City's Planning Division. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District. The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the incremental cancer risk exceeds ten in one million (10E-06), PM2.5 concentrations exceed 0.3 µg/m3, or the appropriate noncancer hazard index exceeds 1.0, the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks to an acceptable level (i.e., below ten in one million or a hazard index of 1.0), including appropriate enforcement mechanisms. Measures to reduce risk may include but are not limited to: ▪ Air intakes located away from high volume roadways and/or truck loading zones. ▪ Heating, ventilation, and air conditioning systems of the	Project applicant	During the building permit and site development review process and prior to permit issuance	City of Menlo Park Planning Division	Plan review and approval	Once for the preparation of the HRA	Initials:_____ Date:_____

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
buildings provided with appropriately sized maximum efficiency rating value (MERV) filters. Measures identified in the HRA shall be incorporated into the site development plan as a component of the proposed project subject to the review and approval of the Community Development Department. The air intake design and MERV filter requirements shall be noted and/or reflected on all building plans submitted to the City, subject to the review and approval of the Community Development Department.						
AQ-5: Implementation of Mitigation Measures AQ-2a through AQ-3b.						Initials:_____ Date:_____
Biological Resources						
BIO-1: As part of the discretionary review process for development projects, new construction and building additions regardless of size, in addition to appropriate CEQA review, the City shall require all project applicants to prepare and submit project-specific baseline biological resources assessments (BRA) if the project would occur on or adjacent to a parcel containing natural habitat with features such as mature and native trees, unused structures that could support special-status bat species, other sensitive biological resources, and/or active nests of common birds protected under the Migratory Bird Treaty Act (MBTA). Sensitive biological resources triggering the need for the baseline BRA shall include: wetlands, occurrences or suitable habitat for special-status species, sensitive natural communities, and important movement corridors for wildlife such as creek corridors and shorelines. The baseline BRA shall be prepared by a qualified biologist. The baseline BRA shall provide a determination on whether any sensitive biological resources are present on the site, including jurisdictional wetlands and waters, essential habitat for special-	Project applicant	During the building permit and site development review process and prior to permit issuance	A qualified biologist approved by the City of Menlo Park Planning Division	Plan review and approval	Once for the preparation of a biological assessment and again, if determined further assessment is required as specified in this mitigation measure	Initials:_____ Date:_____

MITGATION MONITORING OR REPORTING PROGRAM

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
status species, and sensitive natural communities. If jurisdictional wetlands and/or waters are suspected to be present on the site, a jurisdictional delineation confirmed by the U.S. Army Corps of Engineers (USACE) will be provided as part of the baseline BRA. The baseline BRA shall also include consideration of possible sensitive biological resources on any adjacent undeveloped lands that could be affected by the project, and lands of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge). The baseline BRA shall incorporate guidance from relevant regional conservation plans, including, but not limited to, the then current Don Edwards San Francisco Bay National Wildlife Refuge Comprehensive Conservation Plan, South Bay Salt Pond Restoration Project, Tidal Marsh Recovery Plan and the United States Fish and Wildlife Service (USFWS) Recovery Plan for the Pacific Coast Population of the Western Snowy Plover, for determining the potential presence or absence of sensitive biological resources; however, the presence or absence of sensitive biological resources will be determined by on-site surveys. If the adjacent property is the Refuge, Refuge staff shall be contacted regarding the presence or absence of sensitive biological resources. If sensitive biological resources are determined to be present on the site or may be present on any adjacent parcel containing natural habitat, coordination with the appropriate regulatory and resource agencies must occur. Appropriate measures, such as preconstruction surveys, establishing no-disturbance zones and restrictive time periods during construction, protective development setbacks and restrictions, and applying bird-safe building design practices and materials, shall be developed by the qualified biologist in consultation with the regulatory and resource agencies to provide adequate avoidance, or provide						

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
compensatory mitigation if avoidance is infeasible. With respect to fully protected species, if the BRA for any development project determines that any of the following Fully Protected Species are present, then neither take of such species will be permitted nor will mitigation measures including species collection or relocation. The Fully Protected Species include American Peregrine Falcon (*Falco peregrinus anatum*), California Black Rail (*Laterallus jamaicensis coturniculus),* California Clapper Rail - Ridgway's Rail (*Rallus longirostris obsoletus*) , California Least Tern (*Sterna albifrons browni*), White-tailed Kite (*Elanus leucurus*), Salt-marsh harvest mouse (*Reithrodontomys raviventris*), and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). The qualified biologist shall consult with the Refuge management and where appropriate, the Endangered Species Office of the USFWS, the National Marine Fisheries Service (NMFS), and California Department of Fish and Wildlife (CDFW) for determining the potential presence or absence of sensitive biological resources and appropriate avoidance or compensatory mitigation measures, if required. Where jurisdictional waters or federally and/or State-listed special-status species would be affected, appropriate authorizations (i.e., the USACE, San Francisco Bay Regional Water Quality Control Board (RWQCB), San Francisco Bay Conservation and Development Commission (BCDC), USFWS, NMFS, Refuge and CDFW), shall be obtained by the project applicant, and evidence of such authorization provided to the City prior to issuance of grading or other construction permits. For sites that are adjacent to undeveloped lands with federally and/or State-listed special status species, or sensitive habitats, or lands of the Refuge, the BRA shall include evaluation of the potential effects of:						

MITGATION MONITORING OR REPORTING PROGRAM

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
▪ additional light, ▪ glare, ▪ shading (i.e., shadow analysis), ▪ noise, ▪ urban runoff, ▪ water flow disruption, ▪ water quality degradation/sedimentation, ▪ attraction of nuisance species/predators (e.g., attraction to refuse) and their abatement (e.g., adverse impacts of rodenticides), ▪ and pesticides, generated by the project, as well as the possibility for increased activity from humans and/or domesticated pets and their effects on the nearby natural habitats. The BRA shall include proposed avoidance, minimization, and mitigation of these adverse impacts. The City of Menlo Park Planning Division may require an independent peer review of the adequacy of the baseline BRA as part of the review of the project to confirm its adequacy. Mitigation measures identified in the project-specific BRA shall be incorporated as a component of a proposed project and subsequent building permit, subject to the review and approval of the Community Development Department and the appropriate regulatory and resource agencies. The following zoning regulations enacted by ordinances (including but not limited to 16.43 O-Office District, 16.43.080 Corporate housing, 16.43.140 Green and sustainable building; 16.44 LS-Life Science District, 16.44.130 Green and sustainable building) to minimize impacts to biological resources are incorporated by reference into this mitigation measure and shall be a component of the project building permits:						

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
1. Setbacks (A) Minimum of two hundred (200) feet from the waterfront; waterfront is defined as the top of the levee.						
2. Waterfront and Environmental Considerations. The following provisions are applicable when the property is adjacent to the waterfront or other sensitive habitat.						
a. Non-emergency lighting shall be limited to the minimum necessary to meet safety requirements and shall provide shielding and reflectors to minimize light spill and glare and shall not directly illuminate sensitive habitat areas. Incorporate timing devices and sensors to ensure night lighting is used only when necessary.						
b. Landscaping and its maintenance shall not negatively impact the water quality, native habitats, or natural resources.						
c. Pets shall not be allowed within the corporate housing due to their impacts on water quality, native habitats, and natural resources.						
3. Bird-friendly design.						
a. No more than ten percent (10%) of façade surface area shall have non-bird- friendly glazing.						
b. Bird- friendly glazing includes, but is not limited to opaque glass, covering the outside surface of clear glass with patterns, paned glass with fenestration, frit or etching patterns, and external screens over nonreflective glass. Highly reflective glass is not permitted.						
c. Occupancy sensors or other switch control devices shall be installed on non-emergency lights and shall be programmed to shut off during non-work hours and between 10 PM and sunrise.						

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
d. Placement of buildings shall avoid the potential funneling of flight paths towards a building façade. e. Glass skyways or walkways, freestanding (see-through) glass walls and handrails, and transparent building corners shall not be allowed. f. Transparent glass shall not be allowed at the rooflines of buildings, including in conjunction with roof decks, patios and green roofs. g. Use of rodenticides shall not be allowed. If it is determined through the BRA or CEQA review that further assessment/monitoring/reporting is required by appropriate regulatory or resource agencies, it shall be the responsibility of the City to ensure all project requirements are implemented.						
Cultural Resources						
CULT-1: At the time that individual projects are proposed on any site citywide with a building more than 50 years old or any site adjoining a property with a building more than 50 years old, the City shall require the project applicant to prepare a site-specific evaluation to determine if the project is subject to completion of a site-specific historic resources study. If it is determined that a site-specific historic resources study is required, the study shall be prepared by a qualified architectural historian meeting the Secretary of the Interior's Standards for Architecture or Architectural History. At a minimum, the study shall consist of a records search of the California Historical Resources Information System, an intensive-level pedestrian field survey, an evaluation of significance using standard National Register Historic Preservation and California Register Historic Preservation evaluation criteria, and recordation of all identified historic buildings and structures on California Department of Parks and Recreation 523 Site Record forms. The study shall describe the historic context and setting, methods used in the investigation, results of the evaluation, and	Project applicant	During the building permit and site development review process and prior to permit issuance	Qualified archeologist approved by the City of Menlo Park Planning Division	Plan review and approval	Once at time of preliminary assessment and again, if determined further assessment is required as specified in this mitigation measure	Initials:_____ Date:_____

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
recommendations for management of identified resources. If applicable, the specific requirements for inventory areas and documentation format required by certain agencies, such as the Federal Highway Administration and California Department of Transportation (Caltrans), shall be adhered to. If the project site or adjacent properties are found to be eligible for listing on the California Register, the project shall be required to conform to the current *Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, and Restoring Historic Buildings,* which require the preservation of character defining features which convey a building's historical significance, and offers guidance about appropriate and compatible alterations to such structures.						
CULT-2a: If a potentially significant subsurface cultural resource is encountered during ground disturbing activities on any parcel in the city, all construction activities within a 100-foot radius of the find shall cease until a qualified archeologist determines whether the resource requires further study. All developers in the study area shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of the California Environmental Quality Act (CEQA) criteria by a qualified archeologist. If the resource is determined significant under CEQA, the qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant. The archaeologist shall also perform appropriate technical analyses; prepare a comprehensive report complete with methods, results, and recommendations; and provide for the permanent curation of the recovered resources. The report shall be submitted to the City of Menlo Park, Northwest Information Center (NWIC), and State Historic	Project applicant	During construction	Qualified archaeologist approved by the City of Menlo Park Planning Division	Initiated after a find is made during construction	During regularly scheduled site inspections that would be initiated after a find is made during construction	Initials:_____ Date:_____

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
Preservation Office (SHPO), if required.						
CULT-2b: As part of the City's application approval process and prior to project approval, the City shall consult with those Native American Tribes with ancestral ties to the Menlo Park city limits regarding General Plan Amendments in the city and land use policy changes. Upon receipt of an application for proposed project that requires a General Plan Amendment or a land use policy change, the City shall submit a request for a list of Native American Tribes to be contacted about the proposed project to the Native American Heritage Commission (NAHC). Upon receipt of the list of Native American Tribes from the NAHC, the City shall submit a letter to each Tribe on the provided list requesting consultation with the Native American Tribe about the proposed project via the via the City's preferred confirmation of receipt correspondence tracking method (e.g., Federal Express, United States Postal Service Certified Mail, etc.).	The City of Menlo Park	During the project approval process	The City of Menlo Park Planning Division in conjunction with Native American Tribes with ancestral ties to the Menlo Park city limits	Initiated once Native American Tribes request consultation	To be determined by consulting parties	Initials:_____ Date:_____
CULT-3: In the event that fossils or fossil bearing deposits are discovered during ground disturbing activities anywhere in the city, excavations within a 50-foot radius of the find shall be temporarily halted or diverted. Ground disturbance work shall cease until a City-approved qualified paleontologist determines whether the resource requires further study. The paleontologist shall document the discovery as needed (in accordance with Society of Vertebrate Paleontology standards [Society of Vertebrate Paleontology 1995]), evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction activities are allowed to resume at the location of the find. If avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of construction activities on the discovery. The excavation plan shall be submitted to the City of Menlo Park for review and	Project applicant	During construction	Qualified paleontologist approved by the City of Menlo Park Planning Division	Initiated after a find is made during construction	During regularly scheduled site inspections initiated after a find is made during construction	Initials:_____ Date:_____

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
approval prior to implementation, and all construction activity shall adhere to the recommendations in the excavation plan.						
CULT-4: Procedures of conduct following the discovery of human remains citywide have been mandated by Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98 and the California Code of Regulations Section 15064.5(e) (CEQA). According to the provisions in CEQA, if human remains are encountered at the site, all work in the immediate vicinity of the discovery shall cease and necessary steps to ensure the integrity of the immediate area shall be taken. The San Mateo County Coroner shall be notified immediately. The Coroner shall then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner shall notify the NAHC within 24 hours, who will, in turn, notify the person the NAHC identifies as the Most Likely Descendant (MLD) of any human remains. Further actions shall be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the MLD does not make recommendations within 48 hours, the owner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance. Alternatively, if the owner does not accept the MLD's recommendations, the owner or the descendent may request mediation by the NAHC.	Project applicant	During construction	The San Mateo County Coroner	Initiated after a find is made during construction	During regularly scheduled site inspections initiated after a find is made during construction	Initials:_____ Date:_____
Greenhouse Gas Emissions						
GHG-1: Prior to January 1, 2020, the City of Menlo Park shall update the Climate Action Plan (CAP) to address the GHG reduction goals of Executive Order B-30-15 and Executive Order S-03-05 for GHG sectors that the City has direct or indirect jurisdictional control over. The City shall identify a GHG emissions reduction target for year 2030 and 2040 that is consistent with the GHG reduction goals identified in Executive Order B-30-15 and	City of Menlo Park	Prior to January 1, 2020	City of Menlo Park Planning Division	Update the Climate Action Plan (CAP)	Once for update to the CAP	Initials:_____ Date:_____

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
Executive Order S-03-05. The CAP shall be updated to include measures to ensure that the City is on a trajectory that aligns with the state's 2030 GHG emissions reduction target.						
GHG-2: Implement of Mitigation Measure GHG-1.						
Hazards and Hazardous Materials						
HAZ-4a: Construction at the sites of any site in the City with known contamination, shall be conducted under a project-specific Environmental Site Management Plan (ESMP) that is prepared in consultation with the Regional Water Quality Control Board (RWQCB) or the Department of Toxic Substances Control (DTSC), as appropriate. The purpose of the ESMP is to protect construction workers, the general public, the environment, and future site occupants from subsurface hazardous materials previously identified at the site and to address the possibility of encountering unknown contamination or hazards in the subsurface. The ESMP shall summarize soil and groundwater analytical data collected on the project site during past investigations; identify management options for excavated soil and groundwater, if contaminated media are encountered during deep excavations; and identify monitoring, irrigation, or other wells requiring proper abandonment in compliance with local, State, and federal laws, policies, and regulations. The ESMP shall include measures for identifying, testing, and managing soil and groundwater suspected of or known to contain hazardous materials. The ESMP shall: 1) provide procedures for evaluating, handling, storing, testing, and disposing of soil and groundwater during project excavation and dewatering activities, respectively; 2) describe required worker health and safety provisions for all workers potentially exposed to hazardous materials in accordance with State and federal worker safety regulations; and 3) designate personnel responsible for implementation of the ESMP.	Project applicant	During the building permit and site development review process and prior to permit issuance	The appropriate "Oversight Agency" designated by the City of Menlo Park Planning Division	Plan review and approval	Prior to construction and during regularly scheduled site inspections	Initials:_____ Date:_____

MITIGATION MONITORING OR REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
HAZ-4b: For those sites throughout the city with potential residual contamination in soil, gas, or groundwater that are planned for redevelopment with an overlying occupied building, a vapor intrusion assessment shall be performed by a licensed environmental professional. If the results of the vapor intrusion assessment indicate the potential for significant vapor intrusion into an occupied building, project design shall include vapor controls or source removal, as appropriate, in accordance with regulatory agency requirements. Soil vapor mitigations or controls could include vapor barriers, passive venting, and/or active venting. The vapor intrusion assessment and associated vapor controls or source removal can be incorporated into the ESMP (Mitigation Measure HAZ-4a).	Project applicant	During the building permit and site development review process and prior to permit issuance	Licensed environmental professional in accordance with RWQCB, DTSC, and SMCEHD approved by the City of Menlo Park Planning Division	Plan review and approval	Prior to construction and during regularly scheduled site inspections	Initials:_____ Date:_____
Land Use Planning						
LU-2: As part of the discretionary review process for development projects, all proposed development anywhere in Menlo Park is required to demonstrate consistency with the applicable goals, policies, and programs in the General Plan and the supporting Zoning standards to the satisfaction of the City of Menlo Park's Community Development Department. A future project is consistent with the General Plan and Zoning standards if, considering all its aspects, it will further the goals, policies and programs of the General Plan and supporting Zoning standards and not obstruct their attainment.	Project applicant	During the building permit and site development review process and prior to permit issuance	City of Menlo Park Planning Division	Plan review and approval	Once prior to plan review and approval	Initials:_____ Date:_____
Noise						
NOISE-1a: To meet the requirements of Title 24 and General Plan Program N1.A, project applicants shall perform acoustical studies prior to issuance of building permits for citywide development of new noise-sensitive uses. New residential dwellings, hotels, motels, dormitories, and school classrooms must meet an interior noise limit of 45 dBA CNEL or L_{dn}. Developments in areas exposed to more than 60 dBA CNEL must demonstrate that the structure	Project applicant	Prior to the issuance of construction permits	City of Menlo Park Planning Division	Plan review and approval	Once for preparation of acoustical studies as outlined in the mitigation measure	Initials:_____ Date:_____

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
has been designed to limit interior noise in habitable rooms to acceptable noise levels. Where exterior noise levels are projected to exceed 60 dBA CNEL or L_{dn} at the façade of a building, a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the 45 dBA noise limit. Project applicants for all new multi-family residential projects subject to the review and approval of the Community Development Department, prior to building permit issuance, must perform acoustical studies within the projected Ldn 60 dB noise contours, so that noise mitigation measures can be incorporated into project design and site planning, subject to the review and approval of the Community Development Department.						
NOISE-1b: Stationary noise sources and landscaping and maintenance activities citywide shall comply with Chapter 8.06, Noise, of the Menlo Park Municipal Code.	Project applicant	Prior to the issuance of construction permits	City of Menlo Park Planning Division	Plan review and approval	During construction	Initials:_____ Date:_____
NOISE-1c: Project applicants for all development projects in the city shall minimize the exposure of nearby properties to excessive noise levels from construction-related activity through CEQA review, conditions of approval and/or enforcement of the City's Noise Ordinance. Prior to issuance of demolition, grading, and/or building permits for development projects, a note shall be provided on development plans indicating that during on-going grading, demolition, and construction, the property owner/developer shall be responsible for requiring contractors to implement the following measures to limit construction-related noise: ▪ Construction activity is limited to the daytime hours between 8:00 a.m. to 6:00 p.m. on Monday through Friday, as prescribed in the City's municipal code. ▪ All internal combustion engines on construction equipment and trucks are fitted with properly maintained mufflers, air intake silencers, and/or engine shrouds that are no less	Project applicant	Prior to the issuance of construction permits	City of Menlo Park Planning Division	Plan review and approval	During construction	Initials:_____ Date:_____

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
effective than as originally equipped by the manufacturer. ▪ Stationary equipment such as generators and air compressors shall be located as far as feasible from nearby noise-sensitive uses. ▪ Stockpiling is located as far as feasible from nearby noise-sensitive receptors. ▪ Limit unnecessary engine idling to the extent feasible. ▪ Limit the use of public address systems. ▪ Construction traffic shall be limited to the haul routes established by the City of Menlo Park.						
NOISE-2a: To prevent architectural damage citywide as a result of construction-generated vibration: ▪ Prior to issuance of a building permit for any development project requiring pile driving or blasting, the project applicant/developer shall prepare a noise and vibration analysis to assess and mitigate potential noise and vibration impacts related to these activities. The maximum levels shall not exceed 0.2 inch/second, which is the level that can cause architectural damage for typical residential construction. If maximum levels would exceed these thresholds, alternative methods such static rollers, non-explosive blasting, and drilling piles as opposed to pile driving shall be used To prevent vibration-induced annoyance as a result of construction-generated vibration: ▪ Individual projects that involve vibration-intensive construction activities, such as blasting, pile drivers, jack hammers, and vibratory rollers, within 200 feet of sensitive receptors shall be evaluated for potential vibration impacts. A vibration study shall be conducted for individual projects where vibration-intensive impacts may occur. The study shall be prepared by an acoustical or vibration engineer holding a degree in engineering, physics, or allied discipline and who is able to demonstrate a minimum of two years of experience in	Project applicant	Prior to the issuance of construction permits	City of Menlo Park Planning Division	Plan review and approval	During construction	Initials:_____ Date:_____

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
preparing technical assessments in acoustics and/or groundborne vibrations. The study is subject to review and approval of the Community Development Department. Vibration impacts to nearby receptors shall not exceed the vibration annoyance levels (in RMS inches/second) as follows: ▪ Workshop = 0.126 ▪ Office = 0.063 ▪ Residential Daytime (7AM–10PM)= 0.032 ▪ Residential Nighttime (10PM to 7 AM) = 0.016 If construction-related vibration is determined to be perceptible at vibration-sensitive uses, additional requirements, such as use of less-vibration-intensive equipment or construction techniques, shall be implemented during construction (e.g., nonexplosive blasting methods, drilled piles as opposed to pile driving, preclusion for using vibratory rollers, use of small- or medium-sized bulldozers, etc.). Vibration reduction measures shall be incorporated into the site development plan as a component of the project and applicable building plans, subject to the review and approval of the Community Development Department.						
NOISE-2b: To reduce long-term vibration impacts of future development citywide on existing or potential future sensitive uses: ▪ Locate sensitive uses away from vibration sources. ▪ Design industrial development to minimize vibration impacts on nearby uses. Where vibration impacts may occur, reduce impacts on residences and businesses through the use of setbacks and/or structural design features that reduce vibration to levels at or below the guidelines of the Federal Transit Administration near rail lines and industrial uses. ▪ Work with the railroad operators (e.g., Caltrain, Union Pacific, etc.) to reduce, to the extent possible, the contribution of railroad train noise and vibration to Menlo Park's noise environment.	Project applicant	Prior to the issuance of construction permits	City of Menlo Park Planning Division	Plan review and approval	Once prior to plan review and approval	Initials:_____ Date:_____

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
Transportation and Circulation						
TRANS-1a: Widen impacted roadway segments at appropriate locations throughout the city to add travel lanes and capacity to accommodate the increase in net daily trips.	City of Menlo Park	Ongoing	City of Menlo Park Transportation Division	Ongoing	Ongoing	Initials:_____ Date:_____
TRANS-1b: The City of Menlo Park shall update the existing Transportation Impact Fee (TIF) program to guarantee funding for citywide roadway and infrastructure improvements that are necessary to mitigate impacts from future projects based on the then current City standards. The fees shall be assessed when there is new construction, an increase in square footage in an existing building, or the conversion of existing square footage to a more intensive use. The fees collected shall be applied toward circulation improvements. The fees shall be calculated by multiplying the proposed square footage, dwelling unit, or hotel room by the appropriate rate. Transportation Impact fees shall be included with any other applicable fees payable at the time the building permit is issued. The City shall use the Transportation Impact Fees to fund construction (or to recoup fees advanced to fund construction) of the transportation improvements identified below, among other things that at the time of potential future development may be warranted to mitigate traffic impacts. It should be noted that any project proposed prior to the adoption of an updated TIF will be required to conduct a project-specific Transportation Impact Assessment to determine the impacts and necessary transportation mitigations that are to be funded by that project. As part of the update to the TIF program, the City shall also prepare a "nexus" study that will serve as the basis for requiring development impact fees under Assembly Bill (AB) 1600 legislation, as codified by California Code Government Section 66000 et seq., to support implementation of the proposed	City of Menlo Park	Ongoing	City of Menlo Park Transportation Division	Ongoing	Ongoing	Initials:_____ Date:_____

MITGATION MONITORING OR REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
project. The established procedures under AB 1600 require that a "reasonable relationship" or nexus exist between the improvements and facilities required to mitigate the impacts of new development pursuant to the proposed project. The following examples of improvements and facilities would reduce impacts to acceptable level of service standards and these, among other improvements, could be included in the TIF program impact fees nexus study: ▪ **Sand Hill Road (westbound) and I-280 Northbound On-ramp (#1)**: Modify the signal-timing plan during the PM peak hour to increase the maximum allocation of green time to the westbound approach during the PM peak hour. ▪ **Sand Hill Road (eastbound) and I-280 Northbound Off-ramp (#2)**: Add an additional northbound right-turn lane on the off-ramp to improve operations to acceptable LOS D during the AM peak hour. ▪ **El Camino Real and Ravenswood Avenue (#28):** One eastbound right-turn lane on Menlo Avenue to improve conditions. ▪ **Willow Road and Newbridge Street (#33):** Implement measures on Chilco Street south of Constitution Drive to reduce or prevent cut-through traffic through the Belle Haven neighborhood, such as peak-hour turn restrictions from Constitution Drive to southbound Chilco Street, and measures to enhance east/west circulation from Willow Road via O'Brien Drive and the proposed mixed-use collector street opposite Ivy Drive, extending east to University Avenue, to discourage use of Newbridge Street. ▪ **Willow Road and Hamilton Avenue (#36):** Provide primary access to potential future development sites east of Willow Road via O'Brien Drive and/or the proposed Mixed-Use Collector that would intersect Willow Road between Hamilton Avenue and O'Brien Drive. Implement measures on Chilco Street south of Constitution Drive to prevent cut-through						

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
traffic through the Belle Haven neighborhood, such as peak-hour turn restrictions from Constitution Drive to southbound Chilco Street. Although the provision of an eastbound left-turn lane on Hamilton Avenue where it approaches Willow Road would reduce the delay, this potential mitigation is not recommend because it would encourage cut-through traffic via Chilco Street and Hamilton Avenue, potentially affecting the Belle Haven neighborhood. Therefore, to avoid facilitating the use of Chilco Street and Hamilton Avenue as cut-through routes in the adjacent residential neighborhood, mitigating this traffic impact is not recommended at this time, consistent with City policies that discourage cut-through traffic in residential neighborhoods. The improvements should be incorporated into the updated fee program for ongoing consideration. ▪ **Bayfront Expressway and Willow Road (#37):** Evaluate the potential for grade separation to allow conflicting movements to occur simultaneously. The evaluation must consider traffic improvements, along with potential secondary impacts caused by potential right-of-way acquisition, impacts to adjacent wetlands and the Dumbarton Rail corridor, as well as potential impacts or benefits for multi-modal accommodation. If found feasible, the updated fee program should incorporate fair-share contributions from future development towards grade separation. ▪ **Bayfront Expressway and University Avenue (#38):** Evaluate the potential for grade separation to allow conflicting movements to occur simultaneously. The evaluation must consider traffic improvements, along with potential secondary impacts caused by potential right-of-way acquisition, impacts to adjacent wetlands and the Dumbarton Rail corridor, as well as potential impacts or benefits for multi-modal accommodation. If found feasible, the updated fee program should incorporate fair-share contributions from future development towards grade separation.						

MITGATION MONITORING OR REPORTING PROGRAM

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
▪ **Chilco Street and Constitution Drive (#45):** Install a traffic signal and signalized crosswalks at the intersection. Construct three southbound lanes on the one-block segment of Chilco Street, between Bayfront Expressway and Chilco Street, to include two southbound left-turn lanes to accommodate the volume of left-turning vehicles entering the project site. In addition, during the AM peak hour, provide a "split-phase" signal operation on Chilco Street. Construct a northbound left-turn lane on Chilco Street approaching Constitution Drive. Construct two outbound lanes on Chilco Street between Constitution Drive and Bayfront Expressway. If the Facebook Campus Expansion Project is approved, this mitigation measure would be required to be constructed as a requirement of that project.						
▪ **Chrysler Drive and Constitution Drive (#46):** Construct a southbound left-turn on Chrysler Drive, approaching Constitution Drive.						
▪ **University Avenue and Adams Drive (#47):** Install a traffic signal at this intersection.						
▪ **University Avenue and Bay Road (#51):** Realign the eastbound and westbound approaches to allow replacement of the east/west "split-phase" signal on Bay Street with standard protected signal phases in order to allow eastbound and westbound pedestrian crossings to occur simultaneously, which would allow for an increase in green time allocated to northbound/southbound movements on University Avenue and reduce peak-hour delay at this intersection. This intersection is located in the City of East Palo Alto and under the control of Caltrans. If this measure if found feasible by the City of East Palo Alto, the improvements should be incorporated into the City of Menlo Park's updated fee program to collect fair-share contributions from future development towards such improvements.						
▪ **University Avenue and Donohoe Street (#54):** Mitigating this						

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
impact would require providing additional westbound lane capacity on Donohoe Street, including an extended dual left-turn pocket, dedicated through lane, and dual right-turn lanes; providing a southbound right-turn lane on University Avenue and lengthening the northbound turn pockets. However, this mitigation is likely to be infeasible given right-of-way limitations, proximity to existing US 101 on- and off-ramps, and adjacent properties. In addition, this intersection is located in the City of East Palo Alto and under the control of Caltrans. If this measure if found feasible by the City of East Palo Alto, the improvements should be incorporated into the City of Menlo Park's updated fee program to collect fair-share contributions from future development towards such improvements. ▪ **University Avenue and US 101 Southbound Ramps (#56):** Mitigating this impact would require modifications to the US 101 Southbound On/Off Ramps and at this location This intersection is located in the City of East Palo Alto and under the control of Caltrans. If this measure if found feasible by the City of East Palo Alto, the improvements should be incorporated into the City of Menlo Park's updated fee program to collect fair-share contributions from future development towards such improvements. ▪ **Chilco Street and Hamilton Avenue (#60):** Installation of a traffic signal would mitigate this impact to less than significant levels, but would have the undesirable secondary effect of encouraging the use of Chilco Street as a cut-through route, which conflicts with City goals that aim to reduce cut-through traffic in residential neighborhoods. Therefore, to avoid facilitating cut-through traffic, mitigating this traffic impact by increasing capacity is not recommended at this time, but should be incorporated into the updated fee program for ongoing consideration.						
TRANS-6a: The City of Menlo Park shall update the Transportation Impact Fee (TIF) program to provide funding for citywide bicycle	City of Menlo Park	Ongoing	City of Menlo Park	Ongoing	Ongoing	Initials:_____ Date:_____

MITGATION MONITORING OR REPORTING PROGRAM

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
and pedestrian facilities that are necessary to mitigate impacts from future projects based on the then current City standards. The fees shall be assessed when there is new construction, an increase in square footage in an existing building, or the conversion of existing square footage to a more intensive use. The fees collected shall be applied toward improvements that will connect development sites within the area circulation system, including the elimination of gaps in the citywide pedestrian and bicycle network. The fees shall be calculated by multiplying the proposed square footage, dwelling unit, or hotel room by the appropriate rate. Transportation Impact fees shall be included with any other applicable fees payable at the time the building permit is issued. The City shall use the transportation Impact fees to fund construction (or to recoup fees advanced to fund construction) of the transportation improvements identified in this mitigation measure, among other things that at the time of potential future development may be warranted to mitigate traffic impacts. It should be noted that any project proposed prior to the adoption of an updated TIF will be required to conduct a project-specific Transportation Impact Assessment to determine the impacts and necessary pedestrian or bicycle facilities mitigations that are to be funded by that project. As part of the update to the TIF program, the City shall also prepare a "nexus" study that will serve as the basis for requiring development impact fees under Assembly Bill (AB) 1600 legislation, as codified by California Code Government Section 66000 et seq., to support implementation of the proposed project. The established procedures under AB 1600 require that a "reasonable relationship" or nexus exist between the bicycle and pedestrian improvements and facilities required to mitigate the traffic impacts of new development pursuant to the proposed project. The following examples of pedestrian and bicycle improvements would reduce impacts to acceptable standards,			Transportation Division			

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
and these, among others improvements, could be included in the updated TIF program, also described under TRANS-1: ▪ **US 101 Pedestrian & Bicycle Overcrossing at Marsh Road, and Marsh Road Corridor Pedestrian & Bicycle Improvements (Haven Avenue to Marsh Road/Bay Road):** Provide pedestrian and bicycle circulation between the Bayfront Area east of US 101 with the area circulation system west of US 101 along Marsh Road, including access to schools and commercial sites west of Marsh Road that are accessed via Bay Road and Florence Street. Improvements should facilitate pedestrian and bicycle circulation between Haven Avenue and across US 101 near Marsh Road. The recommended improvement would include a dedicated pedestrian and bicycle crossing adjacent to Marsh Road. Alternatively, the provision of continuous sidewalks with controlled pedestrian crossings and Class IV protected bicycle lanes on the Marsh Road overpass, if feasible, could mitigate this impact. ▪ **Ringwood Avenue Corridor Pedestrian & Bicycle Improvements (Belle Haven to Middlefield Road):** Eliminate pedestrian and bicycle facility gaps on primary access routes to the Ringwood Avenue bicycle/pedestrian overcrossing of US 101 (located near the terminus of Ringwood Avenue and Market Place). Improvements should include complete sidewalks on the north side of Pierce Road and bicycle facility improvements on the proposed Ringwood Avenue-Market Place-Hamilton Avenue bicycle boulevard (see Street Classification Map in Chapter 3, Project Description). These improvements would also enhance pedestrian and bicycle access to Menlo-Atherton High School. ▪ **University Avenue Pedestrian Improvements:** Eliminate gaps in the sidewalk network on those portions of University Avenue that are within the Menlo Park City limits. The TIF Program should also include a contribution towards elimination of sidewalk gaps outside the City limits (within the City of East Palo Alto) to ensure that continuous sidewalks are provided on						

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
the west University Avenue between Adams Drive and the Bay Trail, located north of Purdue Avenue. ▪ **Willow Road Bikeway Corridor (Bayfront Expressway to Alma Street):** Provide a continuous bikeway facility that eliminates bicycle lane gaps, provides Class IV bicycle lanes on the US 101 overpass and where Willow Road intersects US 101 northbound and southbound ramps, and upgrades existing Class II bicycle lanes to Class IV protected bicycle lanes where feasible, particularly where the speed limit exceeds 35 miles per hour (mph). ▪ **Willow Road Pedestrian Crossings (Bayfront Expressway to Newbridge Street):** Provide enhanced pedestrian crossings of Willow Road at Hamilton Avenue, Ivy Drive (including proposed new street connection opposite Ivy Drive), O'Brien Drive and Newbridge Street. Enhanced crossings should include straightened crosswalks provided on each leg, high visibility crosswalk striping, accessible pedestrian signals, and pedestrian head-start signal timing (leading pedestrian intervals) where feasible. These enhanced crossings would provide improved access between the Belle Haven neighborhood and potential future development between Willow Road and University Avenue. ▪ **Dumbarton Corridor Connections:** Through separate projects, Samtrans is currently considering the potential for a bicycle/pedestrian shared-use trail along the Dumbarton Corridor right-of-way between Redwood City and East Palo Alto, through Menlo Park. If found feasible, the City's TIF Program should incorporate walking and bicycling access and connections to the proposed trail, including a potential rail crossing between Kelly Park and Onetta Harris Community Center and Chilco Street and pedestrian and bicycle improvements on streets that connect to the Dumbarton Corridor: Marsh Road, Chilco Street, Willow Road, and University Avenue.						

MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
TRANS-6b: The City of Menlo Park shall update the existing Shuttle Fee program to guarantee funding for citywide operations of City-sponsored shuttle service that is necessary to mitigate impacts from future projects based on the then current City standards. The fees shall be assessed when there is new construction, an increase in square footage in an existing building, or the conversion of existing square footage to a more intensive use. The fees collected shall be applied toward circulation improvements and right-of-way acquisition. The fees shall be calculated by multiplying the proposed square footage, dwelling unit, or hotel room by the appropriate rate. Shuttle fees shall be included with any other applicable fees payable at the time the building permit is issued. The City shall use the Shuttle fees to fund operations of City-sponsored shuttle service to meet the increased demand. As part of the update to the Shuttle Fee program, the City shall also prepare a "nexus" study that will serve as the basis for requiring development impact fees under Assembly Bill (AB) 1600 legislation, as codified by California Code Government Section 66000 et seq., to support implementation of the proposed project. The established procedures under AB 1600 require that a "reasonable relationship" or nexus exist between the transit improvements and facilities required to mitigate the transit impacts of new development pursuant to the proposed project. The types of transit-related improvements and facilities that would reduce impacts to acceptable standards including increasing the fleet of City-sponsored Shuttles and adding additional transit stop facilities within one-quarter mile from residential and employment centers These, among other improvements, could be included in the Shuttle Fee program impact fees nexus study.	City of Menlo Park	Ongoing	City of Menlo Park Transportation Division	Ongoing	Ongoing	Initials:_____ Date:_____
TRANS-6c: The City should continue to support the Dumbarton Corridor Study, evaluating the feasibility of providing transit service to the existing rail corridor and/or operational	City of Menlo Park	Ongoing	City of Menlo Park Transportation	Ongoing	Ongoing	Initials:_____ Date:_____

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Mitigation Measures	Party Responsible for Implementation	Implementation Trigger/Timing	Agency Responsible for Monitoring	Monitoring Action	Monitoring Frequency	Verified Implementation
improvements to Bayfront Expressway, Marsh Road and Willow Road, such as a dedicated high-occupancy vehicle (HOV) lane, bus queue-jump lanes, or transit-signal priority that could reduce travel time for current bus operations.			Division			
Utilities and Service Systems						
UTIL-10: The City shall continue its reduction programs and diversion requirements in an effort to further reduce solid waste that is diverted to the landfill and lower its per capita disposal rate citywide. In addition, the City shall monitor solid waste generation volumes in relation to capacities at receiving landfill sites to ensure that sufficient capacity exists to accommodate future growth. The City shall ensure any waste management firm it contracts with has access to a new landfill site(s) to replace the Ox Mountain landfills, at such time that this landfill is closed.	City of Menlo Park	Ongoing	City of Menlo Park Planning Division	Ongoing	Ongoing	Initials:_____ Date:_____

APPENDIX B

CALEEMOD OUTPUT SHEETS

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141 Jefferson Drive Project - Energy Analysis

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	483.00	Dwelling Unit	2.79	469,869.00	1381
Strip Mall	2.00	1000sqft	0.00	2,000.00	0
Enclosed Parking with Elevator	512.00	Space	0.00	111,746.00	0
City Park	2.04	Acre	2.04	89,099.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E, 2015)

Land Use - The proposed project would develop three residential buildings totaling approximately 469,869 square feet of gross floor area with a total of 483 residential units, 2,000 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements.

Construction Phase - Construction of the proposed project is anticipated to last approximately 37 months, and is anticipated to be fully operational and occupied by late 2023.

Demolition - The project would demolish the existing buildings, totalling approximately 102,000 square feet

Vehicle Trips - Defaults

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	483,000.00	469,869.00
tblLandUse	LandUseSquareFeet	204,800.00	111,746.00
tblLandUse	LandUseSquareFeet	88,862.40	89,099.00
tblLandUse	LotAcreage	12.71	2.79
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	4.61	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0675	0.7021	0.4453	1.0500e-003	0.1395	0.0310	0.1704	0.0507	0.0287	0.0795	0.0000	94.9424	94.9424	0.0189	0.0000	95.4145
2021	3.7481	3.1628	3.3406	9.4300e-003	0.4532	0.1181	0.5714	0.1220	0.1110	0.2331	0.0000	853.7419	853.7419	0.0869	0.0000	855.9149
Maximum	**3.7481**	**3.1628**	**3.3406**	**9.4300e-003**	**0.4532**	**0.1181**	**0.5714**	**0.1220**	**0.1110**	**0.2331**	**0.0000**	**853.7419**	**853.7419**	**0.0869**	**0.0000**	**855.9149**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0675	0.7021	0.4453	1.0500e-003	0.1395	0.0310	0.1704	0.0507	0.0287	0.0795	0.0000	94.9423	94.9423	0.0189	0.0000	95.4145
2021	3.7481	3.1628	3.3406	9.4300e-003	0.4532	0.1181	0.5714	0.1220	0.1110	0.2331	0.0000	853.7415	853.7415	0.0869	0.0000	855.9146
Maximum	**3.7481**	**3.1628**	**3.3406**	**9.4300e-003**	**0.4532**	**0.1181**	**0.5714**	**0.1220**	**0.1110**	**0.2331**	**0.0000**	**853.7415**	**853.7415**	**0.0869**	**0.0000**	**855.9146**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	11-9-2020	2-8-2021	1.1741	1.1741
2	2-9-2021	5-8-2021	0.9789	0.9789
3	5-9-2021	8-8-2021	1.0050	1.0050
4	8-9-2021	9-30-2021	0.5790	0.5790
		Highest	1.1741	1.1741

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.4080	0.0670	5.1265	3.2400e-003		0.2393	0.2393		0.2393	0.2393	22.0198	14.9120	36.9319	0.0411	1.4400e-003	38.3884
Energy	0.0228	0.1948	0.0831	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	630.4355	630.4355	0.0400	0.0115	634.8704
Mobile	0.7304	3.2305	8.2697	0.0307	2.7450	0.0252	2.7701	0.7367	0.0235	0.7602	0.0000	2,821.3531	2,821.3531	0.0981	0.0000	2,823.8065
Waste						0.0000	0.0000		0.0000	0.0000	45.5634	0.0000	45.5634	2.6927	0.0000	112.8813
Water						0.0000	0.0000		0.0000	0.0000	10.0308	37.1877	47.2185	1.0335	0.0250	80.5085
Total	**4.1612**	**3.4923**	**13.4792**	**0.0352**	**2.7450**	**0.2802**	**3.0251**	**0.7367**	**0.2785**	**1.0152**	**77.6140**	**3,503.8883**	**3,581.5023**	**3.9055**	**0.0380**	**3,690.4550**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2955	0.0581	3.5990	3.0000e-004		0.0212	0.0212		0.0212	0.0212	0.0000	25.1626	25.1626	6.0300e-003	3.5000e-004	25.4187
Energy	0.0228	0.1948	0.0831	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	630.4355	630.4355	0.0400	0.0115	634.8704
Mobile	0.7000	3.0457	7.5564	0.0274	2.4210	0.0226	2.4436	0.6498	0.0211	0.6708	0.0000	2,513.6774	2,513.6774	0.0898	0.0000	2,515.9214
Waste						0.0000	0.0000		0.0000	0.0000	45.5634	0.0000	45.5634	2.6927	0.0000	112.8813
Water						0.0000	0.0000		0.0000	0.0000	10.0308	37.1877	47.2185	1.0335	0.0250	80.5085
Total	**3.0184**	**3.2985**	**11.2384**	**0.0289**	**2.4210**	**0.0595**	**2.4806**	**0.6498**	**0.0580**	**0.7078**	**55.5941**	**3,206.4632**	**3,262.0573**	**3.8621**	**0.0369**	**3,369.6003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**27.46**	**5.55**	**16.62**	**17.90**	**11.80**	**78.75**	**18.00**	**11.80**	**79.16**	**30.28**	**28.37**	**8.49**	**8.92**	**1.11**	**2.87**	**8.69**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/9/2020	12/4/2020	5	20	
2	Site Preparation	Site Preparation	12/5/2020	12/11/2020	5	5	
3	Grading	Grading	12/12/2020	12/23/2020	5	8	
4	Building Construction	Building Construction	12/24/2020	11/10/2021	5	230	
5	Paving	Paving	11/11/2021	12/6/2021	5	18	
6	Architectural Coating	Architectural Coating	12/7/2021	12/30/2021	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 951,485; Residential Outdoor: 317,162; Non-Residential Indoor: 3,000; Non-Residential Outdoor: 1,000; Striped Parking Area: 6,705 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	6.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	2	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	464.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	433.00	85.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	87.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0502	0.0000	0.0502	7.6000e-003	0.0000	7.6000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**	**0.0502**	**0.0166**	**0.0668**	**7.6000e-003**	**0.0154**	**0.0230**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2386**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9400e-003	0.0678	0.0136	1.8000e-004	3.9200e-003	2.2000e-004	4.1400e-003	1.0800e-003	2.1000e-004	1.2900e-003	0.0000	17.7799	17.7799	9.2000e-004	0.0000	17.8027
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**2.4400e-003**	**0.0682**	**0.0173**	**1.9000e-004**	**5.1100e-003**	**2.3000e-004**	**5.3300e-003**	**1.4000e-003**	**2.2000e-004**	**1.6100e-003**	**0.0000**	**18.8183**	**18.8183**	**9.5000e-004**	**0.0000**	**18.8418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0502	0.0000	0.0502	7.6000e-003	0.0000	7.6000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**	**0.0502**	**0.0166**	**0.0668**	**7.6000e-003**	**0.0154**	**0.0230**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2385**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9400e-003	0.0678	0.0136	1.8000e-004	3.9200e-003	2.2000e-004	4.1400e-003	1.0800e-003	2.1000e-004	1.2900e-003	0.0000	17.7799	17.7799	9.2000e-004	0.0000	17.8027
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**2.4400e-003**	**0.0682**	**0.0173**	**1.9000e-004**	**5.1100e-003**	**2.3000e-004**	**5.3300e-003**	**1.4000e-003**	**2.2000e-004**	**1.6100e-003**	**0.0000**	**18.8183**	**18.8183**	**9.5000e-004**	**0.0000**	**18.8418**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4253
Total	**0.0102**	**0.1060**	**0.0538**	**1.0000e-004**	**0.0452**	**5.4900e-003**	**0.0507**	**0.0248**	**5.0500e-003**	**0.0299**	**0.0000**	**8.3577**	**8.3577**	**2.7000e-003**	**0.0000**	**8.4253**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3115	0.3115	1.0000e-005	0.0000	0.3117
Total	**1.5000e-004**	**1.1000e-004**	**1.1100e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3115**	**0.3115**	**1.0000e-005**	**0.0000**	**0.3117**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1060	0.0538	1.0000e-004		5.4900e-003	5.4900e-003		5.0500e-003	5.0500e-003	0.0000	8.3577	8.3577	2.7000e-003	0.0000	8.4252
Total	**0.0102**	**0.1060**	**0.0538**	**1.0000e-004**	**0.0452**	**5.4900e-003**	**0.0507**	**0.0248**	**5.0500e-003**	**0.0299**	**0.0000**	**8.3577**	**8.3577**	**2.7000e-003**	**0.0000**	**8.4252**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-004	1.1000e-004	1.1100e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3115	0.3115	1.0000e-005	0.0000	0.3117
Total	**1.5000e-004**	**1.1000e-004**	**1.1100e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3115**	**0.3115**	**1.0000e-005**	**0.0000**	**0.3117**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1055	0.0642	1.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
Total	**9.7200e-003**	**0.1055**	**0.0642**	**1.2000e-004**	**0.0262**	**5.0900e-003**	**0.0313**	**0.0135**	**4.6900e-003**	**0.0182**	**0.0000**	**10.4235**	**10.4235**	**3.3700e-003**	**0.0000**	**10.5078**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.4700e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4154	0.4154	1.0000e-005	0.0000	0.4156
Total	**2.0000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4154**	**0.4154**	**1.0000e-005**	**0.0000**	**0.4156**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7200e-003	0.1055	0.0642	1.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	10.4235	10.4235	3.3700e-003	0.0000	10.5078
Total	**9.7200e-003**	**0.1055**	**0.0642**	**1.2000e-004**	**0.0262**	**5.0900e-003**	**0.0313**	**0.0135**	**4.6900e-003**	**0.0182**	**0.0000**	**10.4235**	**10.4235**	**3.3700e-003**	**0.0000**	**10.5078**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.4700e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4154	0.4154	1.0000e-005	0.0000	0.4156
Total	**2.0000e-004**	**1.4000e-004**	**1.4700e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4154**	**0.4154**	**1.0000e-005**	**0.0000**	**0.4156**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3600e-003	0.0576	0.0506	8.0000e-005		3.3500e-003	3.3500e-003		3.1500e-003	3.1500e-003	0.0000	6.9483	6.9483	1.7000e-003	0.0000	6.9907
Total	**6.3600e-003**	**0.0576**	**0.0506**	**8.0000e-005**		**3.3500e-003**	**3.3500e-003**		**3.1500e-003**	**3.1500e-003**	**0.0000**	**6.9483**	**6.9483**	**1.7000e-003**	**0.0000**	**6.9907**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9000e-004	0.0294	7.4000e-003	7.0000e-005	1.6700e-003	1.4000e-004	1.8200e-003	4.8000e-004	1.4000e-004	6.2000e-004	0.0000	6.6764	6.6764	3.4000e-004	0.0000	6.6850
Worker	4.3100e-003	3.0800e-003	0.0319	1.0000e-004	0.0103	7.0000e-005	0.0103	2.7300e-003	6.0000e-005	2.7900e-003	0.0000	8.9927	8.9927	2.2000e-004	0.0000	8.9982
Total	**5.3000e-003**	**0.0325**	**0.0393**	**1.7000e-004**	**0.0119**	**2.1000e-004**	**0.0122**	**3.2100e-003**	**2.0000e-004**	**3.4100e-003**	**0.0000**	**15.6691**	**15.6691**	**5.6000e-004**	**0.0000**	**15.6832**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3600e-003	0.0576	0.0506	8.0000e-005		3.3500e-003	3.3500e-003		3.1500e-003	3.1500e-003	0.0000	6.9483	6.9483	1.7000e-003	0.0000	6.9907
Total	**6.3600e-003**	**0.0576**	**0.0506**	**8.0000e-005**		**3.3500e-003**	**3.3500e-003**		**3.1500e-003**	**3.1500e-003**	**0.0000**	**6.9483**	**6.9483**	**1.7000e-003**	**0.0000**	**6.9907**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.9000e-004	0.0294	7.4000e-003	7.0000e-005	1.6700e-003	1.4000e-004	1.8200e-003	4.8000e-004	1.4000e-004	6.2000e-004	0.0000	6.6764	6.6764	3.4000e-004	0.0000	6.6850
Worker	4.3100e-003	3.0800e-003	0.0319	1.0000e-004	0.0103	7.0000e-005	0.0103	2.7300e-003	6.0000e-005	2.7900e-003	0.0000	8.9927	8.9927	2.2000e-004	0.0000	8.9982
Total	**5.3000e-003**	**0.0325**	**0.0393**	**1.7000e-004**	**0.0119**	**2.1000e-004**	**0.0122**	**3.2100e-003**	**2.0000e-004**	**3.4100e-003**	**0.0000**	**15.6691**	**15.6691**	**5.6000e-004**	**0.0000**	**15.6832**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2129	1.9524	1.8564	3.0200e-003		0.1074	0.1074		0.1009	0.1009	0.0000	259.4338	259.4338	0.0626	0.0000	260.9985
Total	**0.2129**	**1.9524**	**1.8564**	**3.0200e-003**		**0.1074**	**0.1074**		**0.1009**	**0.1009**	**0.0000**	**259.4338**	**259.4338**	**0.0626**	**0.0000**	**260.9985**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0302	0.9944	0.2482	2.5700e-003	0.0624	2.1600e-003	0.0646	0.0181	2.0700e-003	0.0201	0.0000	246.8954	246.8954	0.0121	0.0000	247.1989
Worker	0.1488	0.1027	1.0877	3.5800e-003	0.3832	2.5100e-003	0.3857	0.1019	2.3100e-003	0.1043	0.0000	323.9485	323.9485	7.2600e-003	0.0000	324.1300
Total	**0.1791**	**1.0971**	**1.3359**	**6.1500e-003**	**0.4456**	**4.6700e-003**	**0.4503**	**0.1200**	**4.3800e-003**	**0.1244**	**0.0000**	**570.8439**	**570.8439**	**0.0194**	**0.0000**	**571.3289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2129	1.9524	1.8564	3.0200e-003		0.1074	0.1074		0.1009	0.1009	0.0000	259.4334	259.4334	0.0626	0.0000	260.9982
Total	**0.2129**	**1.9524**	**1.8564**	**3.0200e-003**		**0.1074**	**0.1074**		**0.1009**	**0.1009**	**0.0000**	**259.4334**	**259.4334**	**0.0626**	**0.0000**	**260.9982**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0302	0.9944	0.2482	2.5700e-003	0.0624	2.1600e-003	0.0646	0.0181	2.0700e-003	0.0201	0.0000	246.8954	246.8954	0.0121	0.0000	247.1989
Worker	0.1488	0.1027	1.0877	3.5800e-003	0.3832	2.5100e-003	0.3857	0.1019	2.3100e-003	0.1043	0.0000	323.9485	323.9485	7.2600e-003	0.0000	324.1300
Total	**0.1791**	**1.0971**	**1.3359**	**6.1500e-003**	**0.4456**	**4.6700e-003**	**0.4503**	**0.1200**	**4.3800e-003**	**0.1244**	**0.0000**	**570.8439**	**570.8439**	**0.0194**	**0.0000**	**571.3289**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003	0.0000	14.7336	14.7336	4.6300e-003	0.0000	14.8493
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8500e-003**	**0.0976**	**0.1103**	**1.7000e-004**		**5.2100e-003**	**5.2100e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**14.7336**	**14.7336**	**4.6300e-003**	**0.0000**	**14.8493**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8500e-003	0.0976	0.1103	1.7000e-004		5.2100e-003	5.2100e-003		4.8100e-003	4.8100e-003	0.0000	14.7335	14.7335	4.6300e-003	0.0000	14.8493
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8500e-003**	**0.0976**	**0.1103**	**1.7000e-004**		**5.2100e-003**	**5.2100e-003**		**4.8100e-003**	**4.8100e-003**	**0.0000**	**14.7335**	**14.7335**	**4.6300e-003**	**0.0000**	**14.8493**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.3413					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
Total	**3.3433**	**0.0137**	**0.0164**	**3.0000e-005**		**8.5000e-004**	**8.5000e-004**		**8.5000e-004**	**8.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.6000e-004**	**0.0000**	**2.3019**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	1.6600e-003	0.0176	6.0000e-005	6.1900e-003	4.0000e-005	6.2300e-003	1.6500e-003	4.0000e-005	1.6800e-003	0.0000	5.2304	5.2304	1.2000e-004	0.0000	5.2333
Total	**2.4000e-003**	**1.6600e-003**	**0.0176**	**6.0000e-005**	**6.1900e-003**	**4.0000e-005**	**6.2300e-003**	**1.6500e-003**	**4.0000e-005**	**1.6800e-003**	**0.0000**	**5.2304**	**5.2304**	**1.2000e-004**	**0.0000**	**5.2333**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.3413					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9700e-003	0.0137	0.0164	3.0000e-005		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	2.2979	2.2979	1.6000e-004	0.0000	2.3019
Total	**3.3433**	**0.0137**	**0.0164**	**3.0000e-005**		**8.5000e-004**	**8.5000e-004**		**8.5000e-004**	**8.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.6000e-004**	**0.0000**	**2.3019**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	1.6600e-003	0.0176	6.0000e-005	6.1900e-003	4.0000e-005	6.2300e-003	1.6500e-003	4.0000e-005	1.6800e-003	0.0000	5.2304	5.2304	1.2000e-004	0.0000	5.2333
Total	**2.4000e-003**	**1.6600e-003**	**0.0176**	**6.0000e-005**	**6.1900e-003**	**4.0000e-005**	**6.2300e-003**	**1.6500e-003**	**4.0000e-005**	**1.6800e-003**	**0.0000**	**5.2304**	**5.2304**	**1.2000e-004**	**0.0000**	**5.2333**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7000	3.0457	7.5564	0.0274	2.4210	0.0226	2.4436	0.6498	0.0211	0.6708	0.0000	2,513.6774	2,513.6774	0.0898	0.0000	2,515.9214
Unmitigated	0.7304	3.2305	8.2697	0.0307	2.7450	0.0252	2.7701	0.7367	0.0235	0.7602	0.0000	2,821.3531	2,821.3531	0.0981	0.0000	2,823.8065

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	3,211.95	3,086.37	2830.38	7,251,012	6,395,393
City Park	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
Strip Mall	88.64	84.08	40.86	124,993	110,244
Total	3,300.59	3,170.45	2,871.24	7,376,006	6,505,637

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
City Park	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Enclosed Parking with Elevator	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Strip Mall	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	404.9202	404.9202	0.0357	7.3900e-003	408.0150
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	404.9202	404.9202	0.0357	7.3900e-003	408.0150
NaturalGas Mitigated	0.0228	0.1948	0.0831	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.5153	225.5153	4.3200e-003	4.1300e-003	226.8555
NaturalGas Unmitigated	0.0228	0.1948	0.0831	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.5153	225.5153	4.3200e-003	4.1300e-003	226.8555

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	4.2168e+006	0.0227	0.1943	0.0827	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.0244	225.0244	4.3100e-003	4.1300e-003	226.3616
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	9200	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4910	0.4910	1.0000e-005	1.0000e-005	0.4939
Total		**0.0228**	**0.1948**	**0.0831**	**1.2400e-003**		**0.0157**	**0.0157**		**0.0157**	**0.0157**	**0.0000**	**225.5153**	**225.5153**	**4.3200e-003**	**4.1400e-003**	**226.8555**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	4.2168e+006	0.0227	0.1943	0.0827	1.2400e-003		0.0157	0.0157		0.0157	0.0157	0.0000	225.0244	225.0244	4.3100e-003	4.1300e-003	226.3616
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	9200	5.0000e-005	4.5000e-004	3.8000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4910	0.4910	1.0000e-005	1.0000e-005	0.4939
Total		**0.0228**	**0.1948**	**0.0831**	**1.2400e-003**		**0.0157**	**0.0157**		**0.0157**	**0.0157**	**0.0000**	**225.5153**	**225.5153**	**4.3200e-003**	**4.1400e-003**	**226.8555**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.03922e+006	304.1318	0.0268	5.5500e-003	306.4563
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	654832	97.6624	8.6100e-003	1.7800e-003	98.4088
Strip Mall	20960	3.1260	2.8000e-004	6.0000e-005	3.1499
Total		**404.9202**	**0.0357**	**7.3900e-003**	**408.0150**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.03922e+006	304.1318	0.0268	5.5500e-003	306.4563
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	654832	97.6624	8.6100e-003	1.7800e-003	98.4088
Strip Mall	20960	3.1260	2.8000e-004	6.0000e-005	3.1499
Total		**404.9202**	**0.0357**	**7.3900e-003**	**408.0150**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.2955	0.0581	3.5990	3.0000e-004		0.0212	0.0212		0.0212	0.0212	0.0000	25.1626	25.1626	6.0300e-003	3.5000e-004	25.4187
Unmitigated	3.4080	0.0670	5.1265	3.2400e-003		0.2393	0.2393		0.2393	0.2393	22.0198	14.9120	36.9319	0.0411	1.4400e-003	38.3884

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3341					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8510					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1144	0.0257	1.5346	3.0500e-003		0.2194	0.2194		0.2194	0.2194	22.0198	9.0446	31.0644	0.0354	1.4400e-003	32.3795
Landscaping	0.1085	0.0414	3.5919	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6600e-003	0.0000	6.0089
Total	**3.4080**	**0.0670**	**5.1265**	**3.2400e-003**		**0.2393**	**0.2393**		**0.2393**	**0.2393**	**22.0198**	**14.9120**	**36.9319**	**0.0411**	**1.4400e-003**	**38.3884**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3341					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8510					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.9500e-003	0.0167	7.0900e-003	1.1000e-004		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	19.2952	19.2952	3.7000e-004	3.5000e-004	19.4098
Landscaping	0.1085	0.0414	3.5919	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6600e-003	0.0000	6.0089
Total	**2.2955**	**0.0581**	**3.5990**	**3.0000e-004**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**25.1626**	**25.1626**	**6.0300e-003**	**3.5000e-004**	**25.4187**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	47.2185	1.0335	0.0250	80.5085
Unmitigated	47.2185	1.0335	0.0250	80.5085

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	31.4694 / 19.8394	45.7357	1.0286	0.0249	78.8601
City Park	0 / 2.43062	1.2688	1.1000e-004	2.0000e-005	1.2785
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.148145 / 0.0907986	0.2140	4.8400e-003	1.2000e-004	0.3699
Total		**47.2185**	**1.0335**	**0.0250**	**80.5085**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	31.4694 / 19.8394	45.7357	1.0286	0.0249	78.8601
City Park	0 / 2.43062	1.2688	1.1000e-004	2.0000e-005	1.2785
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.148145 / 0.0907986	0.2140	4.8400e-003	1.2000e-004	0.3699
Total		**47.2185**	**1.0335**	**0.0250**	**80.5085**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	45.5634	2.6927	0.0000	112.8813
Unmitigated	45.5634	2.6927	0.0000	112.8813

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	222.18	45.1005	2.6654	0.0000	111.7347
City Park	0.18	0.0365	2.1600e-003	0.0000	0.0905
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	2.1	0.4263	0.0252	0.0000	1.0561
Total		**45.5634**	**2.6927**	**0.0000**	**112.8813**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	222.18	45.1005	2.6654	0.0000	111.7347
City Park	0.18	0.0365	2.1600e-003	0.0000	0.0905
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	2.1	0.4263	0.0252	0.0000	1.0561
Total		**45.5634**	**2.6927**	**0.0000**	**112.8813**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C

INITIAL STUDY ADDENDUM

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INITIAL STUDY ADDENDUM

Since publication of the Initial Study, which was circulated with the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) on November 25, 2019, staff have identified the following minor clarifications and revisions to the description of the project and analysis provided in the Initial Study. In no case do these revisions result in a change to the impact conclusions presented in the Initial Study. These updates are reflected in Chapter 3.0, Project Description of the EIR and are reflected in the EIR analysis, as appropriate.

- The existing building square footage for the 141 Jefferson Drive building was incorrectly identified as 60,344 square feet in Table 1.A of the Initial Study and total existing building square footage was thus incorrectly identified as 102,000 square feet. Existing building square footage is revised to 68,488 and 110,356 square feet for the 141 Jefferson Drive building and project total, respectively. This minor change does not alter the conclusions or analysis for any of the topical discussions in the Initial Study.

- The proposed square footages, residential unit mix, and other elements of the project have been refined since publication of the NOP and preparation of the Initial Study, and the EIR reflects these refinements. Project plans may be subject to continued refinement prior to consideration of project approval. The analysis in the Initial Study and EIR evaluates the maximum development potential for the proposed project.

- A 100kW generator (approximately 134 horsepower) would be installed within Buildings A and B, which was not considered in the Initial Study. The generators would be located indoors on the ground level of each building along the perimeter, and would only be used in the event of an emergency to provide electrical service to project residents. The generators would not be used under normal conditions, and therefore would not substantially change the proposed project's estimated energy use, as described in Section 3.6, Energy, of the Initial Study. In addition, installation and operation of each generator would occur in compliance with manufacturer and regulatory requirements, and would not pose a hazard to people living or working in the area, and impacts described in Section 3.9 of the Initial Study would continue to be less than significant.

- Energy estimates have been updated based on minor revisions to the project description and additional project-specific information. Based on the updated analysis, the estimated potential increased electricity demand associated with the proposed project is 2,176,932 kilowatt-hours (kWh) per year. In addition, the proposed project would result in approximately 5,535,346 vehicle miles traveled (VMT) per year, resulting in the consumption of approximately 251,607 gallons of gasoline per year. Impacts related to consumption of energy resources as discussed in Section 3.6, Energy would remain less than significant.

- The initiation of project construction and the project opening year have been revised to reflect the current project status throughout the EIR.

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APPENDIX D

HOUSING NEEDS ASSESSMENT

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KEYSER MARSTON ASSOCIATES

HOUSING NEEDS ASSESSMENT

MENLO UPTOWN PROJECT

Prepared for:
City of Menlo Park

Prepared by:
Keyser Marston Associates, Inc.

October 2020

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1.0 EXECUTIVE SUMMARY

This Housing Needs Assessment (HNA) provides an analysis of housing supply and housing demand impacts of the proposed Menlo Uptown Project (Project) in the City of Menlo Park (City) and evaluates the potential that the proposed Project could contribute to displacement of existing residents within the City of East Palo Alto and the Belle Haven neighborhood of Menlo Park, two proximate communities identified as having risk factors for displacement. The HNA is part of a range of analyses provided to assist in the decision-making and entitlement process for the proposed Project and accompanies the Environmental Impact Report (EIR). An HNA is, however, not a requirement of the California Environmental Quality Act (CEQA). Preparation of this HNA is required under the terms of a 2017 settlement agreement between the cities of Menlo Park and East Palo Alto[1].

The proposed Project is located on an approximately 4.83-acre site at 141 Jefferson Drive, 180 Constitution Drive and 186 Constitution Drive in Menlo Park. The proposed Project would include 483 new residential units consisting of 441 multifamily rental units and 42 for-sale townhomes along with approximately 2,029 square foot ground floor commercial space. The proposed Project replaces three existing buildings encompassing a combined 110,356 square feet of building area with a mix of office and industrial tenants. A summary of the proposed Project is provided in Table 1-1, below.

Table 1-1. Project Summary

	Residential Units	Building Area (1)
New Residential		
Multifamily Rental	441 Units	387,473 SF
For-sale Townhomes	42 Units	82,484 SF
Commercial		2,029 SF
Subtotal	483 Units	471,986 SF
Existing Office / Industrial Buildings *[to be Demolished]*		(110,356 SF)
Net Change with Project	483 Units	361,630 SF

(1) Parking structure is not included in building area totals.

[1] In 2016, the City updated its General Plan, specifically the land use and circulation elements (commonly referred to as ConnectMenlo). The City completed and certified a program level EIR for ConnectMenlo, which determined that there would be a less than significant impact on population and housing, except cumulative impacts projected to be reduced to less than significant following an update of ABAG regional forecasts. However, pursuant to the terms of the 2017 City of East Palo Alto v. City of Menlo Park Settlement Agreement, which settled the lawsuit regarding the ConnectMenlo EIR, preparation of this HNA is required.

1.1 Housing Availability

The term "housing availability" is used to refer to the combined net housing supply and housing demand impacts of the proposed Project taking into consideration:

a) Construction of new housing units, which adds to housing availability through additions to the housing supply;

b) Removal of existing jobs, which adds to housing availability by reducing demand for housing by employees; and

c) Addition of new jobs, which reduces housing availability by increasing demand for housing by employees.

Prior HNAs prepared for non-residential projects in Menlo Park have not used the term "housing availability" because these projects impact only the demand or need for housing. For purposes of a residential project, a new term is introduced to describe combined effects on supply and demand for housing.

1.2 Net Impact on Housing Availability

The proposed Project is estimated to increase the number of available housing units by 498 units as shown in Table 1-2 and Chart 1. This estimate reflects the combined effect of:

1. The 483 new residential units added to the housing supply by the proposed Project.

2. A 110-unit increase in housing availability from removal of existing on-site jobs, which reduces worker housing demand. Removal of the existing buildings removes an estimated 221 on-site jobs. Thirteen new on-site jobs are estimated to be added in the ground floor commercial space and in property management and maintenance for the residential units. This results in a net reduction of 208 jobs. Removal of 208 jobs translates to a net reduction in employee[2] housing demand of 110 units based on 1.90 workers per housing unit[3]. See Section 4 for supporting analysis.

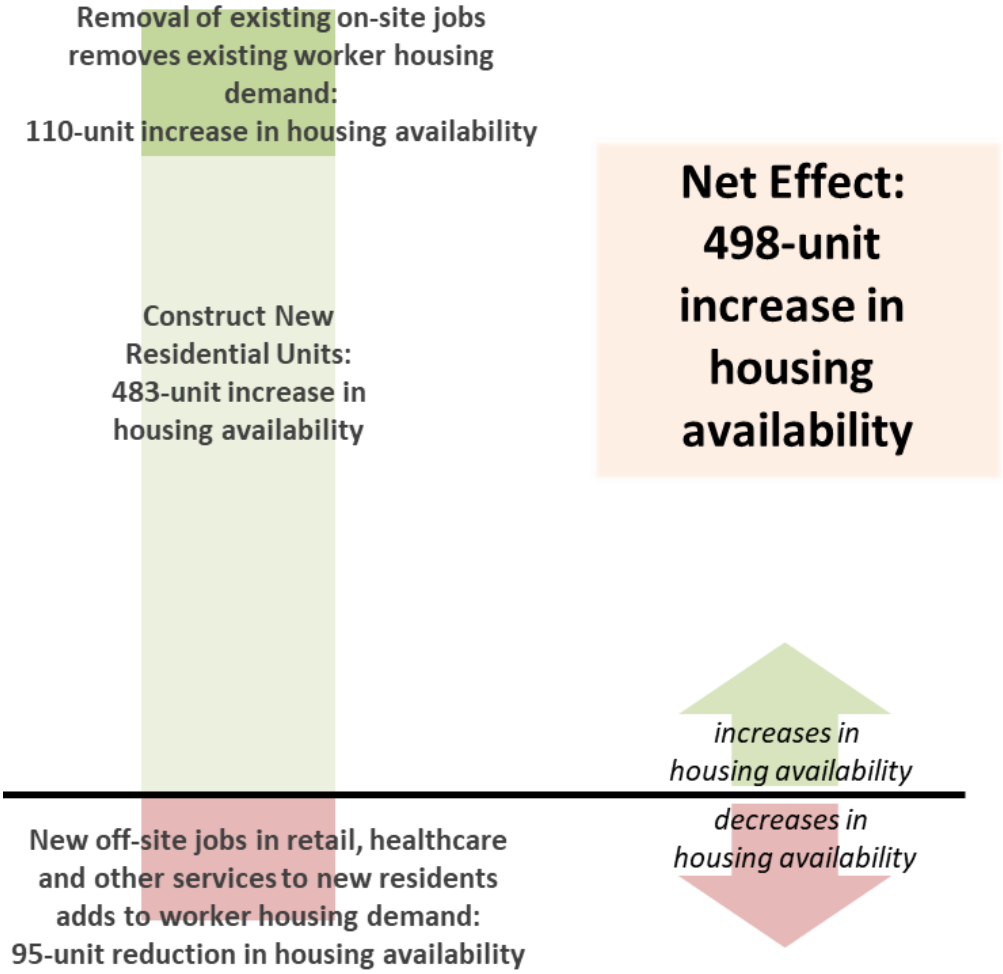
3. A 95-unit decrease in housing availability due to added housing demand by workers in off-site services to new residents such as restaurants, retail, education, medical care and others. This estimate reflects consideration of "multiplier effects" of household spending by residents of the new units consistent with the 2017 settlement agreement. Analysis supporting this estimate is provided in Section 5.

[2] The terms "worker" and "employee" are used interchangeably.

[3] This factor reflects the average number of workers per working household and is derived from U.S. Census data. See additional discussion under Step 2 on page 22.

Table 1-2. Estimated Net Impact of Project on Housing Availability		
1.	Increase in available housing from construction of new units	483 Units
2.	Increase in available housing from removal of existing on-site jobs, which reduces worker housing demand	110 Units
3.	Decrease in available housing due to increase in housing demand by off-site workers in services to new residents	(95 Units)
Net Increase in Available Housing		**498 Units**

Chart 1 - Net Impact on Housing Availability from Proposed Project



1.3 Net Impact on Housing Availability by Income Category

The net impact on housing availability is estimated for each of the following six affordability categories, each expressed in relation to local Area Median Income (AMI):

- Extremely Low Income – households up to 30% of AMI;
- Very Low Income – households over 30% up to 50% of AMI;
- Low Income – households over 50% up to 80% of AMI;
- Moderate Income – households over 80% up to 120% of AMI;
- Above Moderate Income – households over 120% up to 150% of AMI; and
- Over 150% of AMI – households above 150% of AMI.

According to the California Department of Housing and Community Development (HCD), the AMI for a family of four in San Mateo County, is $143,100 as of 2020. Section 2 provides income limits applicable to each of the identified income categories. The affordability categories from 0% through 120% AMI reflect those addressed by statewide housing programs such as the Regional Housing Needs Allocation (RHNA) process. In addition, the Above Moderate Income tier is included in the analysis for consistency with HNAs prepared for prior projects in Menlo Park and to provide decision makers with information regarding a broad spectrum of housing affordability levels. Above Moderate Income households also face affordable housing challenges in Menlo Park as well as in the broader Bay Area. In fact, due to the high cost of housing, housing affordability challenges also extend to households earning over 150% of AMI[4], particularly in the for-sale housing market. The Over 150% of AMI category captures households with incomes that exceed 150% AMI and includes all households not included within one of the other income categories.

Net Impact on Housing Availability by Income Level

The estimated net impacts on housing availability by income category are presented in Table 1-3. Findings represent the net result of:

1) 483 new housing units added to the housing supply including 363 market rate studio, one and two-bedroom rental units affordable to Above Moderate Income, 11 market rate three-bedroom rental units affordable to the Over 150% AMI category, 67 Below Market Rate (BMR) rental units affordable to Low Income, 36 market rate for-sale units estimated to be affordable to Over 150% AMI and six BMR for-sale units affordable to Moderate Income;

[4] An income of approximately 231% of AMI, is estimated to be needed to afford the median priced home in Menlo Park. The median priced home in Menlo Park is $2.2 million based on home sales from January 2019 through February 2020 from real estate data service provider CoreLogic. To afford a $2.2 million home, an income of 231% of AMI is estimated to be needed. Estimates assume a down payment of 26% based on the median down payment for home purchases with a mortgage in Menlo Park estimated from CoreLogic data, 35% of income spent on housing, and a mortgage interest rate of 3.7% based on the average 30-year fixed mortgage rate from April 2019 through April 2020 from Freddie Mac Primary Mortgage Market Survey.

2) 110 units of increased housing availability across a range of income levels from removal of existing on-site jobs and related worker housing demand; and

3) a 95-unit decrease in housing availability due to new housing demand by workers in services to new residents.

The analysis reflects the Project applicant's proposal for compliance with the City's BMR affordable housing requirement by providing Low Income on-site BMR units within the rental component of the Project and Moderate Income BMR units within the for-sale component.

The net result is a 498-unit increase in available housing comprised of two Very Low, 76 Low, 13 Moderate, 365 Above Moderate and 46 Over 150% AMI units, partially offset by a four-unit decrease in housing availability for Extremely Low Income. The calculations are shown in Table 1-3.

Table 1-3. Net Impacts on Housing Availability by Income Category

	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
1. Increase in Available Housing from Construction of New Units							
Rental Units	0	0	67	0	363	11	441
For-Sale Units	0	0	0	6	0	36	42
Total New Units	0	0	67	6	363	47	483
2. Increase in Available Housing from removal of Existing on-site jobs, which reduces worker housing demand	8	29	41	19	8	5	110
3. Decrease in available housing from increase in housing demand by off-site workers in services to new residents	(12)	(27)	(32)	(12)	(6)	(6)	(95)
Net Increase in Housing Availability (1)	**(4)**	**2**	**76**	**13**	**365**	**46**	**498**

(1) Negative figures represent an increase in housing demand that is not offset by added housing supply.

Findings represent the total estimated housing availability impacts throughout the region and include impacts both within Menlo Park as well as in other jurisdictions where workers who hold on-site or off-site jobs live. See Section 1.4 for an estimate of impacts within Menlo Park.

Following is a brief description of the approach used for each component of the analysis.

(1) *Residential units* – the affordability level of new residential units reflects the Project applicant's proposal for compliance with the City's BMR Program guidelines. For the market rate units, affordability level is based on estimated market rate rents and sales prices and the household income necessary to afford these rents and sales prices. See Section 3 for additional description.

(2) *Increase in available housing from removal of on-site jobs* – The net decrease in worker housing demand from removal of on-site jobs starts with an estimate of the net decrease in employment. Employment levels in the existing buildings were estimated based on a representative employment density for the existing office and industrial buildings. Jobs added by the proposed Project in the commercial space and in on-site property management were also estimated and are reflected in determining the net reduction in employment. Ratios derived from the U.S. Census are used to translate the net decrease in employment to a net decrease in worker housing demand. The net decrease in worker housing demand by income category is identified by comparing estimated household incomes of workers to household income limits for the six affordability categories addressed in the analysis. Household income estimates use publicly available data on worker compensations and reflect the mix of digital printing, design, and industrial tenants in the existing buildings. See Section 4 for additional description.

(3) *Decrease in available housing due to added off-site jobs in services to new residents* – The analysis estimates the income of households in the new residential units, their demand for goods and services such as groceries, restaurants, and healthcare, the off-site jobs created by the additional demand, and the housing needs by income level of workers who will hold these new jobs. See Section 5 for additional description.

1.4 Menlo Park Share of Net Impact on Housing Availability

This section provides an estimate of the share of the proposed Project's impacts on housing availability that occur in the City of Menlo Park. Findings of the prior section represent total estimated impacts regardless of the jurisdiction in which impacts occur. The portion of total housing availability impacts that occur in Menlo Park are estimated using the following approach:

(1) All 483 residential units added by the proposed Project are in the City of Menlo Park; therefore, all 483 units are identified as additional housing supply in Menlo Park.

(2) Seven of 110 total units of increased housing availability from removal of on-site jobs is estimated to be in Menlo Park based on the existing 6.3% share of Menlo Park workers who live in the City (commute share). The City Council has expressed an interest in improving the jobs housing balance and obtaining data to inform the goal of increasing the number of workers who live and work in Menlo Park. Therefore, for informational purposes, the report provides an upper estimate of housing units in Menlo Park based on a 20% commute share, which was a goal identified in the City's 2000 Commercial Linkage Fee Nexus Study. Using this upper estimate, 22 of the 110-unit increase in housing availability from removal of on-site jobs would be estimated to be within Menlo Park.

(3) Six of 95 total units of added regional housing demand generated from new off-site jobs is estimated to be within Menlo Park based on the existing 6.3% share of Menlo Park

workers who live in the City (commute share). The upper estimate using a 20% commute share would be 19 units of regional housing demand within Menlo Park.

The above approach results in a net increase of 484 units of housing availability in Menlo Park, assuming the current 6.3% commute share is maintained (484 units = 483 new units, plus seven units of added housing availability from removal of on-site jobs, minus six units of new off-site employee housing demand in Menlo park). The upper estimate provided for informational purposes with an increased commute share goal of 20% would result in a net increase in housing availability in Menlo Park of 486 units (486 units = 483 new units plus 22 units of added housing availability from removal of on-site jobs minus 19 units of new off-site employee housing demand in Menlo park). The difference between the current commute share and the increased commute share is a total of two units.

Table 1-4 identifies the breakout of the net impact on housing availability in Menlo Park by income category for the two commute share alternatives.

Table 1-4. Estimated Menlo Park Share of Net Impacts on Housing Availability

	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
Current Commute Share (6.3%)	-	-	68	6	363	47	484
Increased Commute Share (20%)	-	1	68	7	363	47	486

Assuming the current 6.3% commute share, the estimated 484-unit net increase in housing availability in Menlo Park consists of 68 Low, six Moderate, 363 Above Moderate and 47 Over 150% AMI units.

With the upper estimate using a 20% commute share assumption, the estimated 486-unit net increase in housing availability in Menlo Park consists of one Very Low, 68 Low, seven Moderate, 363 Above Moderate and 47 Over 150% AMI units. Application of the 20% commute share results in a one-unit net increase in estimated housing availability in each of the Very Low and Moderate Income categories compared to the current commute share assumption. Differences are driven by the greater share of both existing on-site and new off-site workers assumed to live in Menlo Park with a 20% commute share.

See Section 6.2 for the supporting analysis.

1.5 Displacement Analysis

Displacement occurs when housing or neighborhood conditions force existing residents to move or households feel like their move is involuntary. Displacement can be caused by a range of physical, economic and social factors including but not limited to foreclosure, condominium conversion, building deterioration or condemnation, increased taxes, natural disasters, eminent

domain and increases in housing costs[5, 6, 7]. The HNA is focused on economic drivers of displacement, specifically the potential for the proposed Project to affect the local housing market and contribute to increasing housing costs.

While displacement is not an impact for the purposes of the California Environmental Quality Act (CEQA), displacement has become an increasing regional concern in the Bay Area. A map produced by the Urban Displacement Project, a research and action initiative of UC Berkeley that aims to understand and describe the nature of gentrification and displacement, identifies numerous communities as undergoing displacement or at risk of displacement that extend from San Francisco down the Peninsula to many neighborhoods in San Jose and the East Bay.

The displacement analysis addresses the potential for the proposed Project to contribute to displacement of existing residents in two nearby communities, the City of East Palo Alto (East Palo Alto) and Menlo Park's Belle Haven neighborhood (Belle Haven). These communities have risk factors for displacement based on their relatively lower-income existing population that includes a high percentage of households who spend 35% or more of their income on housing. They are identified by the Urban Displacement Project[8] as experiencing on-going gentrification and/or displacement or being at risk of displacement. Another recent study of baseline housing conditions in the Belle Haven neighborhood, City of East Palo Alto, and North Fair Oaks neighborhood, prepared by the UC Berkeley Center for Community Innovation and its Y-PLAN initiative, identified similar conclusions[9].

Because the proposed Project adds to the supply of market rate and affordable housing and reduces the level of demand for housing by eliminating existing employment uses, the proposed Project is not anticipated to contribute to displacement in East Palo Alto or Belle Haven. Increasing the availability of market rate and affordable housing will tend to moderate or counteract displacement pressures to some degree by relieving market pressures on existing housing stock.

[5] Zuk, M. et. al. 2017. Gentrification, Displacement, and the Role of Public Investment. Journal of Planning Literature. Journal of Planning Literature 1-14.

[6] Center for Community Innovation (2020). Investment and Disinvestment as Neighbors, A Study of Baseline Housing Conditions in the Bay Area Peninsula.

[7] Bradshaw, K. (2019). Uneven Ground: How unequal land use harms communities in southern San Mateo County. Palo Alto Online. https://paloaltoonline.atavist.com/uneven-ground

[8] Zuk, M., & Chapple, K. (2019). Urban Displacement Project. http://www.urbandisplacement.org/

[9] Center for Community Innovation (2020). Investment and Disinvestment as Neighbors, A Study of Baseline Housing Conditions in the Bay Area Peninsula.

2.0 INTRODUCTION

This Housing Needs Assessment (HNA) provides an analysis of the proposed Project's impact on housing supply and housing demand and evaluates its potential to contribute to displacement of existing residents of the City of East Palo Alto (East Palo Alto) and the Belle Haven neighborhood of Menlo Park (Belle Haven), two proximate communities identified as having risk factors for displacement. The report has been prepared by Keyser Marston Associates (KMA) for the City of Menlo Park under a subcontract agreement with LSA Associates, prime consultant responsible for preparation of the Environmental Impact Report (EIR).

In 2016, the City updated its General Plan, specifically the land use and circulation elements, and its Zoning Ordinance (commonly referred to as ConnectMenlo). The City completed and certified a program level EIR for ConnectMenlo, which determined that there would be a less than significant impact on population and housing, except cumulative impacts projected to be reduced to less than significant following an update of ABAG regional forecasts. However, pursuant to the terms of the 2017 City of East Palo Alto v. City of Menlo Park Settlement Agreement, which settled the lawsuit regarding the ConnectMenlo EIR, preparation of this HNA is required. This HNA has been prepared consistent with the terms of that settlement agreement.

The following housing-related topics are addressed in this HNA:

1) Net impact on housing availability from the proposed Project, by income level, based on the combined effects of:
    a. Added residential units;
    b. Reduced worker housing need with removal of the existing office and industrial buildings; and
    c. Added housing needs for workers in off-site retail and other services to residents of the new residential units.

2) Share of housing availability impacts estimated to occur within the City of Menlo Park; and

3) Potential for the proposed Project to contribute to rising housing costs and displacement of existing residents in East Palo Alto and Belle Haven.

These housing-related impacts are not required to be analyzed under the California Environmental Quality Act (CEQA) since economic or social changes are not considered significant effects on the environment. Nevertheless, this information is required by the settlement agreement and may be of interest to decision-makers and/or the public in evaluating the merits of the proposed Project.

2.1 Project Description

Uptown Menlo Park Venture, LLC (Project Sponsor) is proposing construction of 483 new residential units including 441 multi-family apartments in two buildings and 42 new for-sale townhomes along with approximately 2,029 square feet of ground floor commercial space. The proposed Project is located on an approximately 4.83-acre site at 141 Jefferson Drive, 180 Constitution Drive, and 186 Constitution Drive in Menlo Park. The proposed Project replaces three existing office and industrial buildings on the Project site encompassing a combined 110,356 square feet of building area. Table 2-1 provides a summary of the proposed Project.

Table 2-1. Project Summary

	Residential Units	Building Area
New Residential		
Multifamily Rental	441 Units	387,473 SF
For-sale Townhomes	42 Units	82,484 SF
Commercial		2,029 SF
Subtotal	483 Units	471,986 SF
Existing Office and Industrial Buildings		
[to be Demolished]		
141 Jefferson		68,488 SF
180 Constitution		30,179 SF
186 Constitution		11,689 SF
Total		110,356 SF
Net Change with Project	483 Units	361,630 SF

(1) Parking structure is not included in building area totals.

2.2 Income Definitions

The income levels or tiers used in the analysis are expressed in relation to local Area Median Income (AMI). For example, Extremely Low Income is defined as households earning up to 30% of AMI. The AMI for each county or group of counties is issued annually by the U.S. Department of Housing and Urban Development (HUD), and released by the California Department of Housing and Community Development (HCD). Most housing programs and policies in California and its jurisdictions utilize these income definitions. The City of Menlo Park is covered by and utilizes the AMI information provided for San Mateo County.

Per HCD and statewide programs, the analysis includes households earning less than 120% AMI. In addition, an Above Moderate Income tier covering 120% to 150% AMI is presented in this analysis because this income tier also faces affordable housing challenges in Menlo Park and the greater Bay Area. In fact, due to the high cost of housing in Menlo Park, housing

affordability challenges even extend to households earning more than 150% of AMI[10], especially in the for-sale housing market. As with HNAs prepared for prior projects in Menlo Park, the Above Moderate Income tier was included to provide decision makers more information on the housing needs of a broad spectrum of housing affordability levels.

In summary, the income tiers used in the analysis are:

- Extremely Low Income – households up to 30% of AMI;
- Very Low Income – households over 30% up to 50% of AMI;
- Low Income – households over 50% up to 80% of AMI;
- Moderate Income – households over 80% up to 120% of AMI;
- Above Moderate Income – households over 120% up to 150% of AMI; and
- Over 150% of AMI – households above 150% of AMI.

The 2020 income limits by household size are presented below in Table 2-2.

Table 2-2. 2020 Household Income Limits

		Income Limit by Household Size					
Income Category	**Percent of AMI**	1-person	2-person	3-person	4-person	5-person	6-person
Extremely Low	30% of AMI	$36,550	$41,800	$47,000	$52,200	$56,400	$60,600
Very Low Income	50% of AMI	$60,900	$69,600	$78,300	$87,000	$94,000	$100,950
Low Income	80% of AMI	$97,600	$111,550	$125,500	$139,400	$150,600	$161,750
Moderate Income	120% of AMI	$120,200	$137,350	$154,550	$171,700	$185,450	$199,150
Above Moderate	150% of AMI	$150,250	$171,750	$193,200	$214,650	$231,850	$249,000
Median Income	100% of AMI	$100,150	$114,500	$128,800	$143,100	$154,550	$166,000

AMI = Area Median Income, San Mateo County 2020
Source: California Department of Housing and Community Development

2.3 Report Organization

This report is organized into seven sections and one appendix:

- Section 1.0 provides an Executive Summary;
- Section 2.0 provides an Introduction;
- Section 3.0 identifies the income categories applicable to the new residential units;
- Section 4.0 provides an analysis of reduced worker housing need from removal of on-site jobs;

[10] An income of approximately 231% of AMI, is estimated to be needed to afford the median priced home in Menlo Park. The median priced home in Menlo Park is $2.2 million based on home sales from January 2019 through February 2020 from real estate data service provider CoreLogic. To afford a $2.2 million home, an income of 231% of AMI is estimated to be needed. Estimates assume a down payment of 26% based on the median down payment for home purchases with a mortgage in Menlo Park estimated from CoreLogic data, 35% of income spent on housing, and a mortgage interest rate of 3.7% based on the average 30-year fixed mortgage rate from April 2019 through April 2020 from Freddie Mac Primary Mortgage Market Survey.

- Section 5.0 estimates housing demand by income for off-site workers in services to new residents such as restaurants, retail and health care;
- Section 6.0 combines the findings of Sections 3, 4 and 5 to estimate the net impact on housing availability and the share of net impacts occurring within the City of Menlo Park;
- Section 7.0 provides a discussion of the potential for the proposed Project to contribute to displacement of existing residents in East Palo Alto and Belle Haven; and
- Appendix A provides supporting tables on worker occupation and incomes.

2.4 Data Sources and Qualifications

The analysis in this report has been prepared using the best and most recent data available. Local data was used wherever possible. Other sources, such as the U.S. Census Bureau and U.S. Bureau of Labor Statistics were used extensively. While KMA believes all sources utilized are sufficiently accurate for the purposes of the analysis, KMA cannot guarantee their accuracy. Keyser Marston Associates, Inc. assumes no liability for information from these or other sources.

3.0 HOUSING UNITS ADDED BY THE PROJECT BY INCOME CATEGORY

This section estimates how the 483 new residential units added by the proposed Project will be distributed by income or affordability category.

3.1 Below Market Rate Housing Units Required

The City's Below Market Rate Housing Program codified in Chapter 16.96 of the City's Zoning Code requires residential development projects with twenty or more units to provide 15% BMR affordable units. The proposed Project includes 73 Below Market Rate (BMR) affordable units representing 15% of the 483 total units in the proposed Project in compliance with the requirement. Of the proposed BMR units, 67 are rental units and six are for-sale units. The proposed rental BMR units are at Low Income and the for-sale BMR units are at Moderate Income. Table 3-1 provides a summary.

Table 3-1. Market Rate and BMR Units

	Multi-family Rental	For-Sale Townhomes	Total Project
Market Rate Units	374	36	410
BMR Units (15%)			
Low	67	0	67
Moderate	0	6	6
Subtotal	67	6	73
Total	441	42	483

3.2 Affordability Level of Market Rate Units

The proposed Project will include 374 market rate rental units and 36 market rate for-sale units. Market rate rental units are estimated to be affordable to households in the Above Moderate Income category except for three-bedroom units, which are estimated to be affordable to households in the Over 150% AMI category. Market rate townhomes are estimated to be affordable to households in the Over 150% AMI category. Estimated affordability levels are based on estimated market rate rents and sales prices for the units. Market rate units will not be deed restricted; therefore, the affordability level could change over time as market conditions and the income criteria used to determine affordability level change.

Affordability Level Estimate for Market Rate Rentals

Market rents were estimated by KMA based on three newer rental properties in Menlo Park located on the north side of U.S. 101, the Anton Menlo at 3639 Haven (built 2017), the Elan Menlo at 3645 Haven (built 2017) and 777 Hamilton (built 2016). Data on rents for newer apartment properties in Menlo Park was supplemented with data for newly built apartments in Redwood City including the Encore at 849 Veterans Blvd (built 2019), Huxley at 1355 El Camino Real (built 2018), Indigo at 675 Bradford (built 2016) and Blu Harbor at 1 Blu Harbor Boulevard (built 2017).

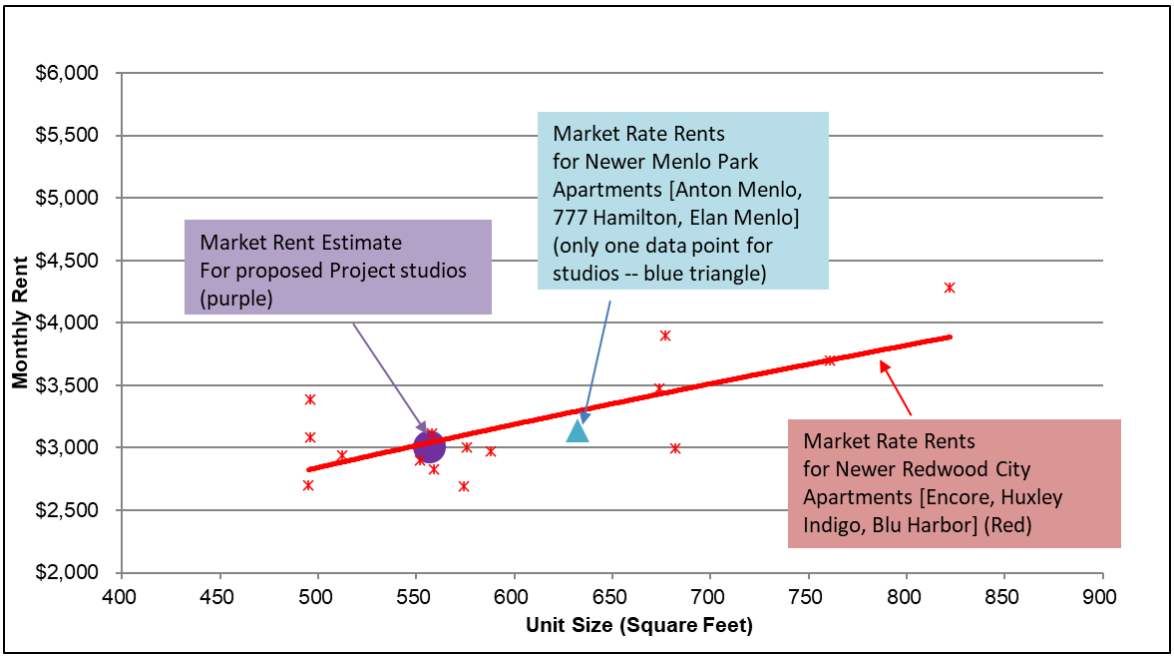
Average rental rates for the comparison properties by bedroom size are shown in Table 3-2 and Charts 1 through 4. Each data point in Charts 1 through 4 represents the average effective market rate rent for units of a specific square footage size. Separate trend lines are fit to actual rents for the Menlo Park comparison properties (blue) and the Redwood City comparison properties (red). Estimated rents for the proposed Project are identified by purple circles. Based on the market data and the unit sizes for the proposed Project, studios are estimated to rent for approximately $3,000 per month, junior one-bedrooms for $3,225 per month, standard one bedrooms for $3,425 per month, two bedrooms for $4,550 per month, and three bedrooms for $5,300 per month.

Table 3-2. Rents for Comparable Apartments and Estimate for Proposed Project

	Studios			1-Bedroom				2-Bedrooms			3-Bedrooms		
	Avg Size	Avg Rent	Avg Rent PSF		Avg Size	Avg Rent	Avg Rent PSF	Avg Size	Avg Rent	Avg Rent PSF	Avg Size	Avg Rent	Avg Rent PSF
Estimate for Project	557	$3,000	$5.39	1br	690	$3,425	$4.96	1,190	$4,550	$3.82	1,281	$5,300	$4.14
				jr1br	612	$3,225	$5.27						
Comparable Apartments													
Menlo Park North of US101													
Anton Menlo	632	$3,139	$4.97		757	$3,546	$4.69	1,096	$4,413	$4.03	1,554	$5,536	$3.56
777 Hamilton					741	$3,834	$5.17	1,051	$4,590	$4.37	1,391	$5,672	$4.08
Elan Menlo					763	$3,550	$4.65	1,017	$3,966	$3.90	1,249	$5,606	$4.49
Redwood City													
Encore	674	$3,478	$5.16		823	$3,769	$4.58	1,128	$4,747	$4.21	1,399	$5,561	$3.97
Huxley	646	$3,561	$5.51		782	$3,436	$4.39	1,159	$4,735	$4.09			
Indigo	547	$2,912	$5.32		759	$3,428	$4.52	1,174	$4,923	$4.19	1,481	$5,799	$3.92
Blu Harbor	588	$2,968	$5.05		836	$3,367	$4.03	1,265	$4,629	$3.66	1,547	$5,653	$3.65

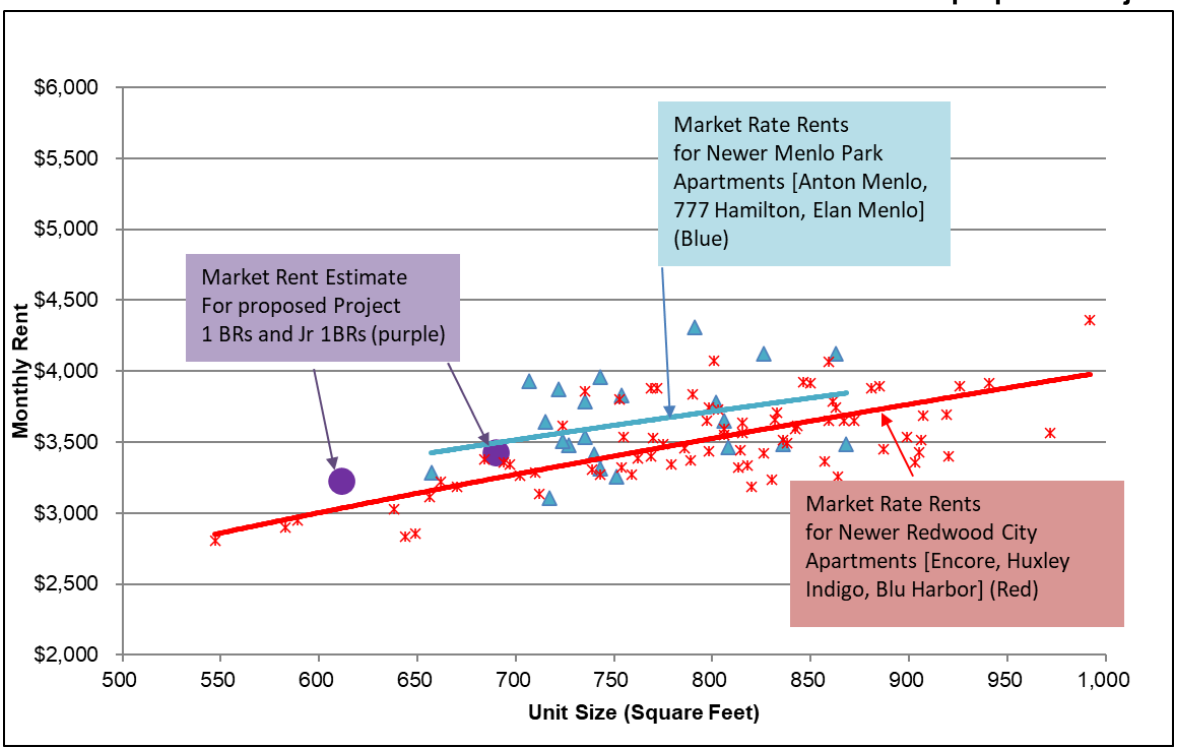
Source: Effective rents per CoStar, Estimate for proposed Project per KMA.

Chart 1 – Newer Studio Apartment Market Rate Rents and Estimated Rents for proposed Project



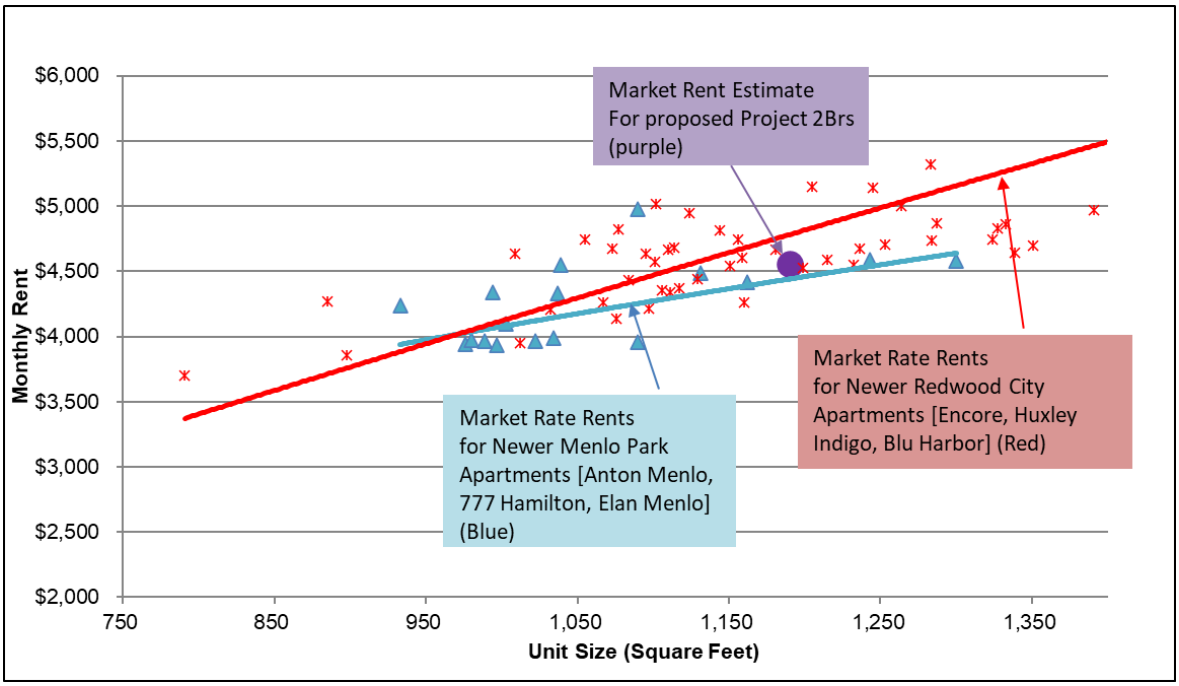
Source: CoStar and KMA

Chart 2 – Newer One-Bedroom Market Rate Rents and Estimated Rents for proposed Project



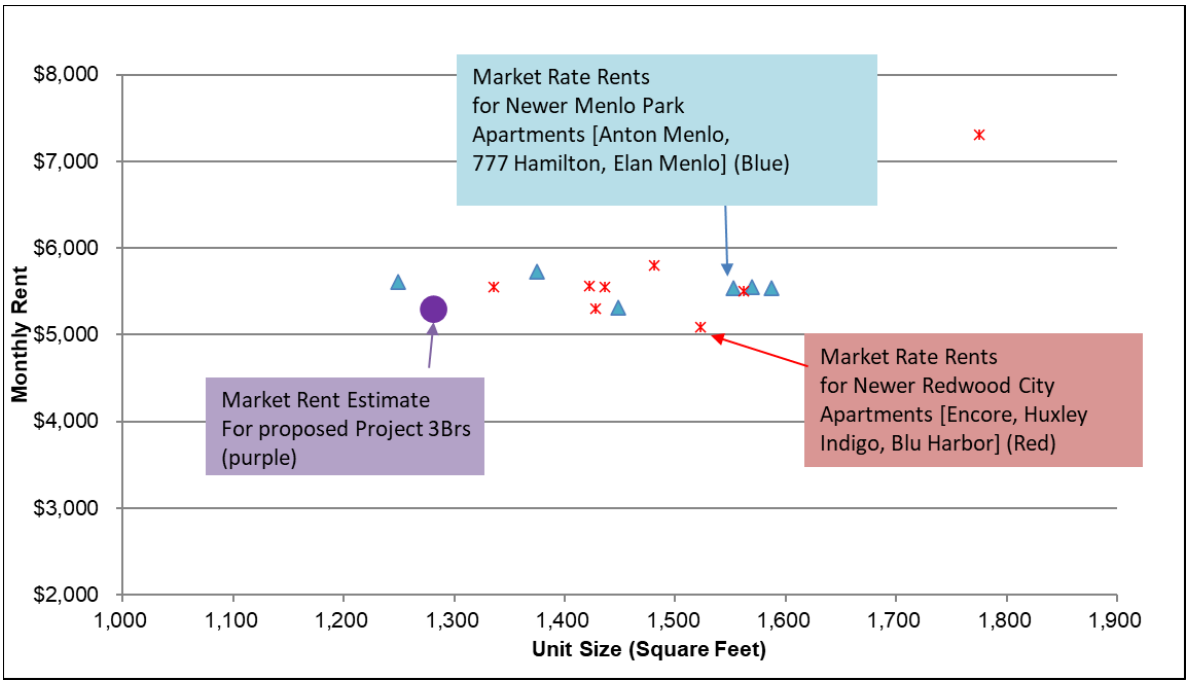
Source: CoStar and KMA

Chart 3 – Newer Two-Bedroom Market Rate Rents and Estimated Rents for proposed Project



Source: CoStar and KMA

Chart 4 – Newer Three-Bedroom Market Rate Rents and Estimated Rents for proposed Project



Source: CoStar and KMA. Note: trendlines not shown due to limited data for three-bedrooms.

Market rate rents were then used to estimate the affordability level. As shown in Table 3-3, the market rate units are estimated to be affordable to Above Moderate Income households.

Table 3-3. Estimated Affordability Level Applicable to Market Rate Units					
	Studio	**Junior 1-BR**	**1-BR**	**2-BR**	**3-BR**
Estimated Market Rate Monthly Rent (1)	$3,000	$3,225	$3,425	$4,550	$5,300
Utilities (2)	$108	$119	$119	$156	$199
Total Monthly Housing Cost (Rent + Utilities)	$3,108	$3,344	$3,544	$4,706	$5,499
Annual Housing Cost	$37,296	$40,128	$42,528	$56,472	$65,988
Percent of Income for Housing (3)	30%	30%	30%	30%	30%
Annual Household Income Required	$124,320	$133,760	$141,760	$188,240	$219,960
2020 Median Income (4)	$100,150	$100,150	$114,500	$128,800	$143,100
Household Income Required as % of AMI	124%	134%	124%	146%	154%
Affordability Level of Market Units	Above Moderate	Above Moderate	Above Moderate	Above Moderate	Over 150% AMI

(1) KMA estimate based on market rents for newer apartment properties in Menlo Park and Redwood City.

(2) Tenant paid utilities estimated based on 2019 County Housing Authority utility allowance schedule.

(3) Per California Health and Safety Code Section 50053.

(4) HCD Income Limits for applicable household size for 2020. The City has determined that the junior one-bedroom will technically be considered studios as they likely cannot have traditional enclosed bedrooms.

Affordability Level Estimate for Market Rate Townhomes

For the market rate for-sale townhomes, market prices were estimated by KMA based on recent sales and list prices for comparable units. While there are no comparable new townhome projects currently marketing in Menlo Park on the north side of U.S. 101, the following data was accessed to inform estimated sales prices:

(1) Resales of existing attached units in Menlo Park from January 2019 through February 2020. All resales were located on the south side of U.S. 101. No attached unit sales were identified on the north side of U.S. 101 where the proposed Project is located.

(2) Resales of existing single-family detached homes on the north side of U.S. 101.

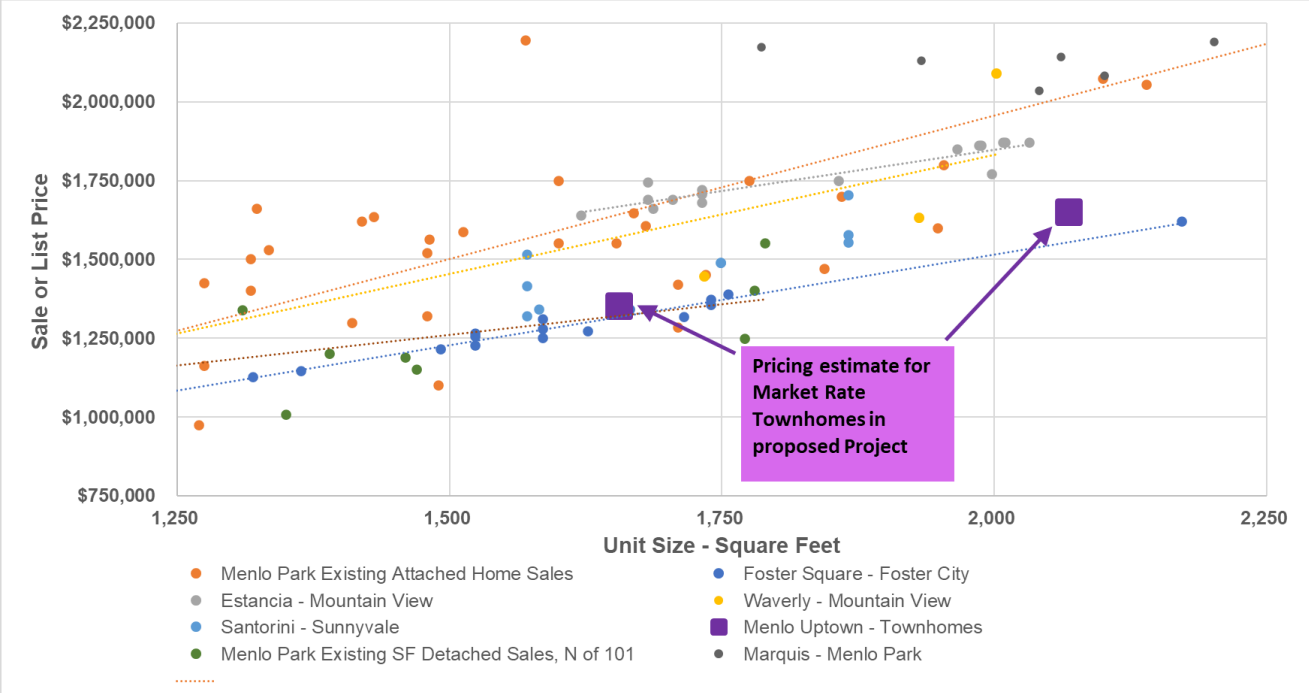
(3) List prices for new townhome projects currently marketing in nearby communities including Estancia in Mountain View, Santorini in Sunnyvale, Waverly in Mountain View and Foster Square in Foster City and recent sales for the Marquis[11] in Menlo Park.

Sales and list price comparisons are presented in Chart 5. Each data point represents the sale or list price for a unit of a specific square footage size. Separate trend lines are fit to each of the sales comparisons as indicated in the chart legend. Pricing estimates for the proposed Project are identified by purple squares. Based on the market data summarized in Chart 5 and the unit sizes for the proposed Project, three-bedroom market rate townhome units are estimated to sell

[11] Sales prices for the Marquis (built 2019) are inferred from assessed value as the data source accessed did not identify prices.

for approximately $1.35 million, or $815 per square foot of living area, and four-bedroom market rate units are estimated to sell for $1.65 million, or $797 per square foot of living area. Pricing estimates are slightly above pricing for new townhomes in Foster City, similar to recent prices for existing single family homes in Menlo Park on the north side of U.S. 101, and below sales prices for new townhomes currently marketing in Mountain View and existing and new attached homes in Menlo Park on the south side of U.S. 101.

Chart 5 –Market Rate Pricing for New Townhomes and Estimated Pricing for proposed Project



The affordability level of the market rate townhome units in the proposed Project is estimated based on the income required to afford the estimated purchase price. As shown in Table 3-4, an income of Over 150% AMI is estimated to be needed.

Table 3-4. Estimated Affordability Level Applicable to Market Rate Townhomes		
	3-BR Townhome	4-BR Townhome
Unit Size	1,656 SF	2,069 SF
Sales Price	$1,350,000	$1,650,000
Annual Housing Costs		
Mortgage Payment (Annual) (1)	$59,700	$72,900
Property Taxes (2)	$16,200	$19,800
HOA Dues (3)	$5,400	$5,700
Insurance (4)	$580	$710
Total Annual Housing Cost	$81,880	$99,110
% of Income Spent on Housing (5)	35%	35%
Annual Household Income Required	**$234,000**	**$283,000**
2020 Median Income (6)	$143,100	$154,550
Percent of AMI Needed to Afford Market Units	164%	183%
Affordability Level of Market Units	Over 150% AMI	Over 150% AMI

(1) Estimate reflects 20% down payment based on the median down payment for homes purchases in Menlo Park from January 2019 to February 2020 priced between $1.2 and $1.8 million and financed with a mortgage. Assumes a 30-year mortgage with a 3.7% interest rate based on the Freddie Mac Primary Mortgage Market Survey for April 2019 to April 2020.
(2) Property tax estimated based on average tax rate of approximately 1.2% inclusive of voter approved levies, parcel taxes, fixed charges and assessments.
(3) HOA dues estimated based on Redfin data identifying HOA dues for recently sold or listed units in Menlo Park.
(4) Estimated from quote obtained from Progressive Insurance for walls-in policy. Assumes structure covered through separate HOA insurance policy.
(5) Based on standard in California Health and Safety Code Section 50052.5.
(6) HCD Income Limits for applicable household size for 2020.

3.3 New Residential Units by Income Level

Table 3-5 provides a summary of the income level applicable to the new residential units, combining the findings of Section 3.1 and 3.2. As shown, the rental component of the Project is comprised of 67 Low Income BMR units, 363 market rate studio, one- and two-bedroom rental units estimated to be affordable to Above Moderate Income, and 11 market rate three-bedroom rental units estimated to be affordable to over 150% AMI. The townhome (for-sale) component of the proposed Project consists of six Moderate Income BMR units and 36 market rate for-sale units in the Over 150% AMI category.

Table 3-5. Estimated Affordability Level of New Residential Units						
	Rental			For-Sale		Total New Residential Units
	Low	Above Moderate	Over 150% AMI	Moderate	Over 150% AMI	
	BMR units	*Market Rate*	*Market Rate*	*BMR units*	*Market Rate*	
Studio	17	87	0	0	0	104
Junior 1-Bedroom	12	56	0	0	0	68
1-Bedroom	33	191	0	0	0	224
2-Bedroom	4	29	0	0	0	33
3-Bedroom	1	0	11	5	25	42
4-Bedroom	0	0	0	1	11	12
Total	67	363	11	6	36	483

4.0 REDUCTION IN HOUSING NEED FROM REMOVAL OF ON-SITE JOBS

This section provides an analysis of the net reduction in worker housing need by income level from removal of existing on-site jobs on the Project site. The analysis begins by quantifying the net reduction in the number of on-site jobs and then proceeds through a series of steps to estimate how this net reduction in jobs translates into a net reduction in worker housing need by income level.

4.1 Methodology

The analysis estimates the net reduction in on-site jobs from removal of the existing office and industrial buildings and construction of the new residential units. The estimated number of on-site jobs removed is then translated into an estimated net reduction in housing demand based on relationships between jobs and housing demand derived from the U.S. Census. Finally, the income level associated with the housing demand is estimated using a combination of data sources including the U.S. Bureau of Labor Statistics occupation and wage data and U.S. Census data on households.

Following is a description of each step in the analysis.

Analysis Step 1 – Estimate of Added Employment

The proposed Project results in a net reduction of 208 on-site jobs as summarized in Table 4-1.

Demolition of the existing office and industrial space removes an estimated 221 on-site jobs including an estimated 214 jobs with tenants and an estimated seven jobs in building services like janitorial and maintenance. The number of on-site jobs is estimated based on an average employment density factor of 500 square feet per employee, which is reflective of the existing uses and is consistent with the existing parking ratio for the site of two spaces per 1,000 square feet of building area[12]. The buildings are currently approximately 76% leased and 24% vacant. As the vacancy rate is likely affected by current development plans for the property, the analysis is conducted assuming existing buildings are occupied. The number of building services staff included within this total is estimated using staffing ratios derived from data reported by the International Facility Management Association (IFMA). Building services workers are evaluated separately because these services are typically provided by separate contract service providers.

The proposed Project is estimated to add 13 on-site jobs within the new residential building. Estimated jobs include on-site property management and maintenance as well as jobs in the ground floor commercial space. Nine jobs in residential property management and maintenance

[12] Data on the number of existing employees was requested from the applicant; however, the applicant indicated that this information is not available.

are estimated based on a ratio of 47 apartment units per employee derived from the National Apartment Association 2018 Survey of Operating Income and Expenses. The commercial space is estimated to add four additional workers for a total of 13 new on-site workers.

Table 4-1. Estimated Net Reduction in On-Site Employment

	Development	Basis for On-Site Employment Estimate	Estimated Net Change in On-Site Employment (1)	
Removal of Existing Office and Industrial Uses				
Existing Office / Industrial	110,356 SF		(214)	Employees
Building Services		1 per 16,670 SF[1]	(7)	Employees
Subtotal Existing		1 per 500 SF [3]	(221)	Employees
New Residential				
Rental Units	441 Units	1 per 47 units[2]	9	Employees
Commercial	2,029 SF	1 per 500 SF [4]	4	Employees
			13	Employees
Net Change in On-Site Employment			**(208)**	**Employees**

[1] Building services staff, which includes maintenance, janitorial, and security not expected to be directly employed by the tenant, was estimated by KMA based on a ratio of 1 employee per 16,670 square feet. Estimate was derived from International Facility Management Association (IFMA), Operations and Maintenance Benchmarks Research Report #33 and adjusted by KMA as a reflection of employment density.

[2] Based on National Apartment Association 2018 Survey of Operating Income and Expenses in Rental Apartment Communities, average number of units per employee for projects that are 400 to 499 units in size.

[3] Reflects representative employment density for industrial uses that includes some on-site office and is consistent with the existing parking available for the site of 221 total spaces. Applicant indicated that employment data for existing tenants is not available.

[4] KMA estimate. Exact nature of the commercial use is to be determined and may include retail, an eating establishment, personal services, private recreation uses, or other commercial uses.

The analysis assumes removal of employment space results in a decrease in employment. Although existing tenants may relocate to other nearby office and industrial space, in doing so they would occupy space that would otherwise be leased to a different tenant. Therefore, even if existing tenants relocate nearby, demolition of existing employment space still has the effect of reducing employment in the City of Menlo Park.

Step 2 – Adjustment from Employees to Employee Households

Step 2 converts the number of employees to the number of employee households. This step recognizes that there is, on average, more than one worker per household, and thus the number of housing units in demand must be reduced. The workers per worker household ratio eliminates from the equation all non-working households, such as households comprised of retired persons or students. The calculation is shown in Table 4-2.

KMA derived the worker per worker household figure from ACS data for 2014 to 2018. The ACS data provide estimates of the total number of workers in San Mateo County, and the total number of households with at least one working household member. The ratio of the two figures for San Mateo County is 1.90 workers per worker household. The San Mateo County figure is used in the analysis because workers will be more similar to the County as a whole than the smaller City of Menlo Park profile, which has an average of 1.71 workers per worker household. The workers per worker household ratio is used to translate the net decrease in on-site employment to a net decrease in employee households as shown in Table 4-2. The net decrease in employment of 208 jobs is divided by the 1.90 workers per worker household ratio to estimate the net decrease of 110 employee households. The result indicates a net decrease in the demand for 110 housing units from removal of the 208 jobs.

Table 4-2. Estimated Net Change in On-Site Employee Households

	Existing (to be removed)		New		
	Existing Office / Industrial	Building Services	Residential Property Management	Commercial	Net Change
Employment	(214)	(7)	9	4	(208)
Employee Households (at 1.90 workers per household) (1)	(113)	(4)	5	2	(110)

(1) Derived from 2014-2018 U.S. Census American Community Survey data for San Mateo County

Step 3 – Occupational Distribution

Occupational distribution for employees is based on data from a national survey by the Bureau of Labor Statistics (BLS). Occupation refers to job description, such as management, sales clerk, cashier, etc. The survey provides the occupational distribution for various employment "industries." National statistics are used because local data are not generally available, and for many industries, national data are a good reflection of the occupational distribution that can be expected locally.

KMA selected industry categories that reflect current and recent occupants of the existing office and industrial space as summarized in Table 4-3. Industry categories were weighted based upon the percentage of leasable area. Building and grounds cleaning and maintenance occupations were removed from the occupation profile of the tenants because these workers are separately accounted for.

Table 4-3. Summary of Tenants in Existing Office and Industrial Space and Applicable Industry Category

Tenant	Business type	Leasable Area SF	%	Applicable Industry Category and NAICS Code [3]	
InfoImage	Digital printing	68,488	67%	323100	Printing and Related Support Activities
Rudd Restoration	Classic car restoration	2,400	2%	811120	Automotive Body, Paint, Interior, and Glass Repair
California Design Works[1]	Furniture / interior design	10,250	10%	541400	Specialized Design Services
KR Surface Industries[1]	Surface treatment	6,650	7%	238300	Building Finishing Contractors
Artifact Puzzles[1]	Jigsaw puzzles / games	2,479	2%	321900	Other Wood Product Manufacturing
Automated Vending Services[1]	Food/beverage vending	2,400	2%	722300	Special Food Services
Jomar Machining[1]	Industrial / machining	3,600	4%	332710	Machine Shops
Landscaping business	Landscaping	2,500	2%	561730	Landscaping Services
General Radar	Technology / radar	3,200	3%	517000	Telecommunications
Subtotal		101,967	100%		
Not included for purposes of employee industry mix [2]		8,389			
Total		110,356			

(1) Indicates a prior tenant.
(2) One tenant space used for car storage, one tenant with an unknown business type and one vacant space for which no prior tenant was identified are not reflected for purposes of estimating the industry mix applicable to existing on-site employees.
(3) NAICS stands for North American Industrial Classification System.
Sources: Project applicant for tenants, business type and leasable area, KMA for identification of applicable industry category.

For building services workers, residential on-site property management and maintenance, and ground floor commercial space workers, KMA selected representative occupations from the BLS data as shown in Appendix A Tables 7, 8 and 9. While the specific tenant for the ground floor commercial space is not known at this time, a café is assumed for purposes of estimating employee occupations.

Table 4-4 provides a summary of worker occupations by major category. Appendix A, Tables 5 to 9 provide a further breakdown of worker occupations by Standard Occupational Classification (SOC) System codes.

Table 4-4. On-Site Employee Households - Occupation Categories								
	Existing Office/Industrial to be Demolished				New Residential			
Occupation Category	Tenants	Building Services	Total Existing	% of Total	Residential Property Mgmt	Commercial	Total New	% of Total
Management Occupations	(6.0)	0.0	(6.0)	5%	0.9	0.0	0.9	14%
Business and Financial	(4.0)	0.0	(4.0)	3%	0.0	0.0	0.0	0%
Computer and Mathematical	(2.0)	0.0	(2.0)	2%	0.0	0.0	0.0	0%
Architecture and Engineering	(1.1)	0.0	(1.1)	1%	0.0	0.0	0.0	0%
Life, Physical, and Social Science	(0.1)	0.0	(0.1)	0%	0.0	0.0	0.0	0%
Community and Social Services	0.0	0.0	0.0	0%	0.0	0.0	0.0	0%
Legal	(0.0)	0.0	(0.0)	0%	0.0	0.0	0.0	0%
Education, Training, and Library	(0.0)	0.0	(0.0)	0%	0.0	0.0	0.0	0%
Arts, Design, Entertainment,	(8.9)	0.0	(8.9)	8%	0.0	0.0	0.0	0%
Healthcare Practitioners	(0.0)	0.0	(0.0)	0%	0.0	0.0	0.0	0%
Healthcare Support	(0.0)	0.0	(0.0)	0%	0.0	0.0	0.0	0%
Protective Service	(0.0)	0.0	(0.0)	0%	0.0	0.0	0.0	0%
Food Preparation and Serving	(2.2)	0.0	(2.2)	2%	0.0	2.1	2.1	31%
Building and Grounds	0.0	(2.8)	(2.8)	2%	1.9	0.0	1.9	28%
Personal Care and Service	(0.0)	0.0	(0.0)	0%	0.0	0.0	0.0	0%
Sales and Related	(7.1)	0.0	(7.1)	6%	0.0	0.0	0.0	0%
Office and Administrative Support	(17.6)	0.0	(17.6)	15%	0.0	0.0	0.0	0%
Farming, Fishing, and Forestry	(0.0)	0.0	(0.0)	0%	0.0	0.0	0.0	0%
Construction and Extraction	(6.1)	0.0	(6.1)	5%	0.0	0.0	0.0	0%
Installation, Maint., and Repair	(4.5)	(0.9)	(5.5)	5%	1.9	0.0	1.9	28%
Production	(46.1)	0.0	(46.1)	39%	0.0	0.0	0.0	0%
Transportation & Material Moving	(7.0)	0.0	(7.0)	6%	0.0	0.0	0.0	0%
Totals	(113)	(4)	(117)	100%	5	2	7	100%

Notes: See Appendix A Tables 6, 7, 8, and 9 for more detailed breakdown of occupation categories.
Occupational distribution for existing tenants based on NAICS codes listed in Table 4-3. Occupational distribution for building services, residential property management and ground floor commercial space employees estimated by KMA as shown in Appendix A Tables 7, 8 and 9.

Step 4 – Estimate of Employee Wage and Salary Distribution

The employee wage and salary distribution is based on the occupational distribution from Step 3 in combination with 2019 wage and salary information for each occupation for the San Francisco-Oakland-Hayward metropolitan statistical area, which includes San Mateo County from the BLS Occupational Employment Survey (OES). In addition to the average compensation levels, the analysis also utilizes BLS data regarding the percentile distribution of wages within individual occupation categories in estimating the distribution of worker compensation levels. The data on employee wages and salaries utilized in the analysis is presented in Appendix A Tables 6, 7, 8, and 9.

Step 5 – Household Size Distribution

In this step, the household size distribution of workers is estimated using U.S. Census 2014-2018 ACS data for San Mateo County. Data for the County is used since workers are more representative of the larger area in which workers live (the County) than the City of Menlo Park. In addition to the distribution in household sizes, the data also accounts for a range in the

number of workers in households of various sizes. Table 4-5 indicates the percentage distribution utilized in the analysis.

Table 4-5. Percent of Households by Size and No. of Workers

No. of Persons in Household	No. of Workers in Household	Percent of Total Households
1	1	15.1%
2	1	13.5%
	2	16.8%
3	1	7.2%
	2	9.9%
	3+	3.8%
4	1	4.7%
	2	7.9%
	3+	5.7%
5	1	2.1%
	2	3.5%
	3+	2.5%
6	1	1.9%
	2	3.2%
	3+	2.3%
Total		100%

Source: 2014-2018 American Community Survey data for San Mateo County.

Step 6 – Estimate of Households that meet HCD Size and Income Criteria

This step in the analysis calculates the number of employee households that fall into each income category for each size household. This calculation is based on the employee wage and salary distribution (Step 4), the worker household distribution (Step 5) and the 2020 HCD income limits for San Mateo County, as described above.

Household incomes are estimated based upon ratios between individual employee income and household income derived from U.S. Census data shown in Table 4-6. The ratios adjust employee incomes upward even for households with only one worker in consideration of non-wage/salary income sources such as child support, disability, social security, investment income and others.

Table 4-6. Ratio of Household Income to Individual Worker Income

Individual Worker Income	One Worker Households	Two Worker Households	Three or More Workers
$25,000 to $50,000	1.30	2.74	3.32
$50,000 to $75,000	1.14	2.16	2.42
$75,000 to $100,000	1.08	1.89	2.04
$100,000 to $150,000	1.05	1.71	1.78
$150,000 to $200,000	1.04	1.56	1.57
$200,000 to $250,000	1.04	1.49	1.49
$250,000 to $300,000	1.02	1.44	1.44
$300,000 to $500,000	1.04	1.28	1.28
$500,000 and above	1.02	1.23	1.23

Source: KMA analysis of 2014 to 2018 American Community Survey PUMS data for San Francisco Bay Area.

Estimated household incomes are compared to HCD income criteria to determine the percentage that qualify within each income category. The comparison is made for each potential household size/number of workers combination. The result is multiplied by the percentage distribution of household sizes and number of workers per household from Step 5 to calculate the distribution of worker households by income.

Table 4-7 presents the estimated number of households in each income tier by worker occupation category. It represents the output of the analysis, after completing Step 4 (employee compensation levels), Step 5 (household size distribution of worker households), and Step 6 which uses this information to calculate the number of households that fall into each income category.

TABLE 4-7
EMPLOYEE HOUSEHOLDS BY OCCUPATION
AND INCOME (STEPS 4, 5, AND 6)
MENLO UPTOWN PROJECT
HOUSING NEEDS ASSESSMENT
MENLO PARK, CA

	Existing Office Space							Building Services						
	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
Step 4, 5, & 6 - Employee Households within Major Occupation Categories[1]														
Management	-	(0.11)	(0.76)	(0.76)	(1.09)	(3.31)	(6.03)	-	-	-	-	-	-	-
Business and Financial Operations	(0.00)	(0.34)	(1.21)	(1.04)	(0.97)	(0.47)	(4.03)	-	-	-	-	-	-	-
Computer and Mathematical	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Architecture and Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Life, Physical and Social Science	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Community and Social Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Legal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Education Training and Library	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arts, Design, Entertainment, Sports, & Media	(0.02)	(1.32)	(3.43)	(2.01)	(1.69)	(0.45)	(8.92)	-	-	-	-	-	-	-
Healthcare Practitioners and Technical	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Healthcare Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protective Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Preparation and Serving Related	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Building Grounds and Maintenance	-	-	-	-	-	-	-	(0.47)	(0.92)	(0.99)	(0.32)	(0.07)	-	(2.77)
Personal Care and Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales and Related	(0.28)	(1.35)	(2.54)	(1.52)	(1.09)	(0.26)	(7.05)	-	-	-	-	-	-	-
Office and Admin	(1.01)	(5.46)	(7.37)	(3.20)	(0.56)	(0.01)	(17.59)	-	-	-	-	-	-	-
Farm, Fishing, and Forestry	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction and Extraction	(0.06)	(1.14)	(2.45)	(1.21)	(0.99)	(0.22)	(6.08)	-	-	-	-	-	-	-
Installation Maintenance and Repair	(0.09)	(0.98)	(1.75)	(1.05)	(0.59)	(0.07)	(4.54)	(0.04)	(0.24)	(0.42)	(0.13)	(0.09)	-	(0.92)
Production	(4.03)	(15.79)	(18.70)	(6.42)	(0.92)	(0.24)	(46.10)	-	-	-	-	-	-	-
Transportation and Material Moving	(0.86)	(2.39)	(2.80)	(0.87)	(0.07)	-	(7.00)	-	-	-	-	-	-	-
Households: Major Occupations	(6.35)	(28.89)	(41.02)	(18.09)	(7.97)	(5.03)	(107.34)	(0.50)	(1.17)	(1.41)	(0.45)	(0.16)	-	(3.69)
Households: all other occupations[2]	(0.32)	(1.46)	(2.07)	(0.91)	(0.40)	(0.25)	(5.41)	-	-	-	-	0.00	-	0.00
Total Households	**(6.67)**	**(30.34)**	**(43.09)**	**(19.00)**	**(8.38)**	**(5.29)**	**(112.76)**	**(0.50)**	**(1.17)**	**(1.41)**	**(0.45)**	**(0.16)**	**-**	**(3.69)**
Total Households - Rounded	(7)	(30)	(43)	(19)	(9)	(5)	(113)	(1)	(1)	(1)	(1)	-	-	(4)

Notes:

[1] See Appendix A Tables 5 to 9 for additional information on Major Occupation Categories.

[2] Represents occupation categories which have a minor amount of employment and for which detailed compensation analysis was not completed. These worker households are assumed to have a similar income distribution to other employees in the same industry. See Appendix A Tables 5 to 9 for information on major and detailed occupation categories identified for detailed compensation analysis.

TABLE 4-7
EMPLOYEE HOUSEHOLDS BY OCCUPATION
AND INCOME (STEPS 4, 5, AND 6)
MENLO UPTOWN PROJECT
HOUSING NEEDS ASSESSMENT
MENLO PARK, CA

	Residential Property Management							Ground Floor Commercial (Bldg M1)						
	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
Step 4, 5, & 6 - Employee Households within Major Occupation Categories[1]														
Management	0.00	0.14	0.31	0.22	0.17	0.11	0.95	-	-	-	-	-	-	-
Business and Financial Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer and Mathematical	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Architecture and Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Life, Physical and Social Science	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Community and Social Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Legal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Education Training and Library	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arts, Design, Entertainment, Sports, & Medi	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Healthcare Practitioners and Technical	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Healthcare Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Protective Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Preparation and Serving Related	-	-	-	-	-	-	-	0.46	0.73	0.81	0.11	0.00	-	2.11
Building Grounds and Maintenance	0.06	0.50	0.83	0.35	0.15	-	1.90	-	-	-	-	-	-	-
Personal Care and Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales and Related	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Office and Admin	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm, Fishing, and Forestry	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction and Extraction	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Installation Maintenance and Repair	0.08	0.50	0.87	0.26	0.18	-	1.90	-	-	-	-	-	-	-
Production	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transportation and Material Moving	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Households: Major Occupations	0.15	1.14	2.01	0.83	0.50	0.11	4.74	0.46	0.73	0.81	0.11	0.00	-	2.11
Households: all other occupations[2]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Households	**0.15**	**1.14**	**2.01**	**0.83**	**0.50**	**0.11**	**4.74**	**0.46**	**0.73**	**0.81**	**0.11**	**0.00**	**-**	**2.11**
Total Households - Rounded	-	1	2	1	1	-	5	-	1	1	-	-	-	2

Notes:

(1) See Appendix A Tables 5 to 9 for additional information on Major Occupation Categories.

(2) Represents occupation categories which have a minor amount of employment and for which detailed compensation analysis was not completed. These worker households are assumed to have a similar income distribution to other employees in the same industry. See Appendix A Tables 5 to 9 for information on major and detailed occupation categories identified for detailed compensation analysis.

4.2 Summary by Income Level

Table 4-8 presents a summary of the net reduction in housing demand within commuting distance of Menlo Park by affordability level as a result of the net reduction in on-site jobs.

Table 4-8. Estimated Net Change in On-Site Employee Households by Income

	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
Remove Office/Industrial Buildings							
Tenants	(7)	(30)	(43)	(19)	(9)	(5)	(113)
Building Services	(1)	(1)	(1)	(1)	0	0	(4)
Total Existing	(8)	(31)	(44)	(20)	(9)	(5)	(117)
New Residential Building							
Residential Property Management	0	1	2	1	1	0	5
Commercial	0	1	1	0	0	0	2
Total New	0	2	3	1	1	0	7
Net Change: On-site Worker Households	**(8)**	**(29)**	**(41)**	**(19)**	**(8)**	**(5)**	**(110)**

The net reduction in on-site employment is estimated to result in a net reduction in housing demand for 110 housing units. This 110-unit net reduction in housing demand consists of an estimated eight Extremely Low, 29 Very Low Income, 41 Low Income, 19 Moderate Income, eight Above Moderate Income and five Over 150% AMI units.

5.0 HOUSING DEMANDS OF OFF-SITE WORKERS IN SERVICES TO NEW RESIDENTS

The following section provides an analysis of the linkages between development of the new residential units on the Project site, jobs generated in off-site services such as retail and restaurants, and the housing needs of the workers who hold these off-site jobs. Off-site jobs addressed in this section are incorporated into the analysis consistent with the terms of the 2017 settlement agreement which requires, to the extent possible, consideration of multiplier effects.

The analysis of housing demands for off-site workers starts with the estimated rental rate and sales prices for the new units and moves through a series of linkages from the estimated income of the household that rents or buys the unit, the portion of income available for expenditures on goods and services, jobs associated with the purchase and delivery of those services, the income of the workers doing those jobs and, ultimately, the affordability level of the housing needed by the workers.

The number of jobs by industry that are generated from the household spending of residents living in the proposed Project is estimated using the IMPLAN (IMpact Analysis for PLANning) model, a model widely used for the past 35 years to quantify the impacts of changes in a local economy. The number of jobs by industry is then used to estimate worker housing need by income level using the same approach as in Section 4.

5.1 Estimated Household Incomes of New Residents

The estimated household incomes of residents in the new residential units are drawn from the analysis provided in Section 3.2. For BMR units, household income is estimated based on the mid-point of the income range that would qualify for a BMR unit. Household income figures are then multiplied by the number of units to estimate the aggregate household income for all residents of the proposed Project as shown in Table 5-1. Aggregate household income is used to estimate household spending, the input to the IMPLAN model that is used to quantify the number of off-site jobs associated with household spending of new residents.

Table 5-1. Aggregate Household Income of New Residents					
	Estimated Household Income [1]		Number of Units		Aggregate Income
	BMR	Market Rate	BMR	Market Rate	
Rentals					
Studios	$79,250	$124,320	17	87	$12,163,090
Jr 1-Bedrooms	$79,250	$133,760	12	56	$8,441,560
1-Bedrooms	$90,575	$141,760	33	191	$30,065,135
2-Bedrooms	$101,900	$188,240	4	29	$5,866,560
3-Bedrooms	$113,200	$219,960	1	11	$2,532,760
Total			67	374	$59,069,105
Average Per Household					$133,944
Townhomes					
3-Bedrooms	$155,550	$234,000	5	25	$6,627,750
4-Bedrooms	$168,025	$283,000	1	11	$3,281,025
Total			6	36	$9,908,775
Average Per Household					$235,923
Total			73	410	$68,977,880
Average Per Household					$142,811

(1) For market rate units, see Tables 3-3 and 3-4. For BMR units, estimates are based on the mid-point of the applicable qualifying income range. The City has determined that the junior one-bedroom will technically be considered studios as they likely cannot have traditional enclosed bedrooms.

Income Available for Expenditures

The input into the IMPLAN model used in this analysis is the net income available for expenditures. To arrive at income available for expenditures, gross income must be adjusted for Federal and State income taxes, contributions to Social Security and Medicare, savings, and payments on household debt. Per KMA correspondence with the producers of the IMPLAN model (IMPLAN Group LLC), other taxes including sales tax and property tax are handled internally within the model as part of the analysis of expenditures. Payroll deduction for medical benefits and pre-tax medical expenditures are also handled internally within the model. Table 5-2 shows the calculation of the percentage of household income available for expenditures.

Table 5-2. Percent of Income Available for Expenditures [1]		
	Rentals	Townhomes
Gross Income	100%	100%
Less:		
Federal Income Taxes [2]	13.3%	18.8%
State Income Taxes [3]	4.0%	5.0%
FICA Tax Rate [4]	7.65%	7.65%
Savings & other deductions [5]	8%	8%
Subtotal deductions	33%	39%
Percent of Income Available for Expenditures[6]	***67%***	***61%***

(1) Calculated as gross income after deduction of taxes and savings. Income available for expenditures is the input to the IMPLAN model which is used to estimate the resulting employment impacts. Housing costs are not deducted as part of this adjustment step because they are addressed separately as expenditures within the IMPLAN model.

(2) Reflects average tax rates (as opposed to marginal) based on U.S. Internal Revenue Services, Tax Statistics, Tables 1.2 and 2.1 for 2017.Tax rates reflect averages for applicable income range. Rental estimate assumes standard deduction and townhome estimate assumes itemized deductions.

(3) Average tax rate estimated by KMA based on marginal rates per the California Franchise Tax Board and ratios of taxable income to gross income estimated based on U.S. Internal Revenue Service data.

(4) For Social Security and Medicare.

(5) Household savings including retirement accounts like 401k / IRA and other deductions such as interest costs on credit cards, auto loans, etc, necessary to determine the amount of income available for expenditures. The 8% rate used in the analysis is based on a 20 year average computed from U.S. Bureau of Economic Analysis data, specifically the National Income and Product Accounts, Table 2.1 "Personal Income and Its Disposition."

(6) Deductions from gross income to arrive at the income available for expenditures are consistent with the way the IMPLAN model and National Income and Product Accounts (NIPA) defines income available for personal consumption expenditures. Income taxes, contributions to Social Security and Medicare, and savings are deducted; however, property taxes and sales taxes are not. Housing costs are not deducted as part of the adjustment because they are addressed separately as expenditures within the IMPLAN model.

Income available for expenditures is estimated at approximately 67% of gross income for the rental units and 61% for the townhomes. Federal tax rates are estimated at 13.3% of gross income for the rental units and 18.8% for the townhomes based upon Internal Revenue Service data. State taxes are estimated to average 4% of gross income for the rental units and 5% of gross income for the townhomes based on tax rates per the California Franchise Tax Board. The employee share of FICA payroll taxes for Social Security and Medicare is 7.65% of gross income. A ceiling of $137,700 per employee applies to the 6.3% Social Security portion of this tax rate.

Savings and repayment of household debt represent another necessary adjustment to gross income. Savings includes various IRA and 401 K type programs as well as non-retirement household savings and investments. Debt repayment includes auto loans, credit cards, and all other non-mortgage debt. Savings and repayment of debt are estimated to represent a combined 8% of gross income based on the 20-year average derived from United States Bureau of Economic Analysis data.

The percentage of income available for expenditure for input into the IMPLAN model is prior to deducting housing costs. The reason is for consistency with the IMPLAN model which defines housing costs as expenditures. The IMPLAN model addresses the fact that expenditures on

housing do not generate employment to the degree other expenditures such as retail or restaurants do, but there is some maintenance and property management employment generated.

After deducting income taxes, Social Security, Medicare, savings, and repayment of debt, the estimated income available for expenditures is 67% of gross household income for households in new rental units and 61% of gross income for households in new townhome units.

Another adjustment made to spending is to account for standard operational vacancy in rental units of 5%, a level of vacancy considered average for rental units in a healthy market.

Table 5-3 presents the estimate of household income available for expenditures in the local economy after adjustments to income available for expenditures and vacancy:

Table 5-3. Income Available for Expenditures

	Rentals	Townhomes
Aggregate Annual Household Income, New Residents (Table 5-1)	$59,069,105	$9,908,775
Percent Available for Expenditure (Table 5-2)	67%	61%
Adjustment for 5% rental vacancy	95%	n/a
Aggregate Household Income Available	$37,597,000	$6,044,000

The estimated household income available for expenditure associated with the 483 new residential units is the input into the IMPLAN model.

5.2 The IMPLAN Model

Consumer spending by residents of new housing units will create jobs, particularly in sectors such as restaurants, health care, and retail, which are closely connected to the expenditures of residents. The widely used economic analysis tool, IMPLAN, was used to quantify these new jobs by industry sector.

5.2.1 IMPLAN Model Description

The IMPLAN model is an economic analysis software package now commercially available through the IMPLAN Group, LLC. IMPLAN was originally developed by the U.S. Forest Service, the Federal Emergency Management Agency, and the U.S. Department of the Interior Bureau of Land Management and has been in use since 1979 and refined over time. It has become a widely used tool for analyzing economic impacts for a broad range of applications from major construction projects to natural resource programs.

IMPLAN is based on an input-output accounting of commodity flows within an economy from producers to intermediate and final consumers. The model establishes a matrix of supply chain

relationships between industries and also between households and the producers of household goods and services. Assumptions about the portion of inputs or supplies for a given industry likely to be met by local suppliers, and the portion supplied from outside the region or study area are derived internally within the model using data on the industrial structure of the region.

The output or result of the model is generated by tracking changes in purchases for final use (final demand) as they filter through the supply chain. Industries that produce goods and services for final demand or consumption must purchase inputs from other producers, which in turn, purchase goods and services. The model tracks these relationships through the economy to the point where leakages from the region stop the cycle. This allows the user to identify how a change in demand for one industry will affect a list of over 500 other industry sectors. The projected response of an economy to a change in final demand can be viewed in terms of economic output, employment, or income.

Data sets are available for each county and state, so the model can be tailored to the specific economic conditions of the region being analyzed. This analysis utilizes the data set for San Mateo County. As will be discussed, much of the employment impact is in local-serving sectors, such as retail, eating and drinking establishments, and medical services. It is likely that many off-site employment impacts will occur in Menlo Park and other nearby jurisdictions; however, employment impacts will also extend throughout the county and beyond based on where residents of the proposed Project will shop, dine, seek medical care and other services. Consistent with the approach taken in most residential affordable housing nexus analyses, the analysis includes job impacts throughout the county.

The Covid-19 pandemic has modified consumer spending patterns due to shelter-in-place orders, business closures, and altered consumer preferences and shopping patterns in response to the virus. It is assumed that the pandemic is a temporary condition which is not representative of future conditions when the proposed Project would be completed and occupied. Spending may mostly revert to pre-pandemic patterns once the virus is contained. However, it is possible that some changes in response to the virus, such as an accelerated shift toward online retail, could endure to some degree post-pandemic. Since there is no data on post-pandemic spending patterns, the analysis uses the most recent IMPLAN data set available, which is representative of the pre-pandemic pattern.

5.2.2 Application of the IMPLAN Model to Estimate Job Growth

The IMPLAN model was applied to link income to household expenditures to job growth. The estimated annual household spending of the residents of the 483 new housing units is the input to the IMPLAN model. The IMPLAN model then distributes spending among various types of goods and services (industry sectors) based on data from the Consumer Expenditure Survey and the Bureau of Economic Analysis Benchmark input-output study, to estimate the number of off-site jobs.

Job creation, driven by increased demand for products and services, was projected for each of the industries that will serve the new households. A total of 180 off-site jobs are estimated to be generated by spending of the residents as summarized in Table 5-4. Estimates in Table 5-4 exclude on-site jobs in the ground floor commercial space and in property management and maintenance of the residential units which are already considered as part of the Section 4 analysis.

Table 5-4. Jobs Generated from Household Spending of 483 Residential Units

	Rentals	Townhomes	Total
Annual Household Expenditures	$37,597,000	$6,044,000	$43,641,000
Estimated Number of Off-site Jobs	154.3	25.5	179.8

As households added to the City by the proposed Project are new and these new households result in net new demand for products and services, the jobs associated with delivery of these products and services are also estimated to be net new jobs. While there may be an ability for existing retail, health care facilities, restaurants, schools and other services to absorb a share of new demand to some extent, existing establishments will still require additional employees in many cases. For example, individual health care providers are only able to see so many patients in a day. Waiters and cooks in restaurants can only serve so many customers. Grocery stores may need to add staff at check-out lanes in response to added demand, and so on. Employment in sectors that serve residents tends to expand with population. As indicated in Section 5.2.3, the ratio between employment in resident-serving sectors of the economy and the number of housing units is relatively consistent at the city and county geographic scales, indicating resident-serving jobs tend to be proportionate to the number of housing units and population.

Table 5-5 provides a detailed breakdown of the employment by industry sorted by projected employment. The Consumer Expenditure Survey published by the Bureau of Labor Statistics tracks expenditure patterns by income level. IMPLAN utilizes this data to reflect the pattern by income bracket. Estimated employment is shown for each IMPLAN industry sector representing 1% or more of total employment. The jobs that are generated are heavily retail jobs, jobs in restaurants and other eating establishments, and in services that are provided locally such as health care.

Table 5-5. Jobs Generated by Industry from Housing Spending [IMPLAN Output]				
Industry Category	**Rentals**	**Townhomes**	**Total**	**Percent**
Full-service restaurants	10.3	1.7	12.0	7%
Limited-service restaurants	8.7	1.1	9.7	5%
All other food and drinking places	2.0	0.3	2.3	1%
Subtotal Restaurant	20.9	3.1	24.1	13%
Retail - Building material and garden equipment stores	1.1	0.2	1.3	1%
Retail - Clothing and clothing accessories stores	3.2	0.4	3.6	2%
Retail - Electronics and appliance stores	1.4	0.2	1.6	1%
Retail - Food and beverage stores	5.7	0.8	6.4	4%
Retail - Furniture and home furnishings stores	1.4	0.2	1.5	1%
Retail - Gasoline stores	0.8	0.1	0.9	1%
Retail - General merchandise stores	4.0	0.5	4.6	3%
Retail - Health and personal care stores	2.7	0.4	3.0	2%
Retail - Miscellaneous store retailers	2.8	0.4	3.2	2%
Retail - Clothing and accessories	1.6	0.2	1.8	1%
Retail - Nonstore retailers	2.1	0.3	2.4	1%
Retail - Sporting goods, hobby, musical and book stores	1.3	0.2	1.5	1%
Personal care services	4.7	0.7	5.4	3%
Subtotal Retail and Service	32.9	4.5	37.4	21%
Offices of dentists	3.4	0.4	3.7	2%
Offices of other health practitioners	4.6	0.4	5.1	3%
Outpatient care centers	2.2	0.3	2.5	1%
Offices of physicians	4.0	0.6	4.6	3%
Other ambulatory health care services	0.7	0.1	0.7	0%
Home health care services	3.9	0.4	4.4	2%
Hospitals	4.5	1.0	5.5	3%
Subtotal Healthcare	23.3	3.2	26.5	15%
Elementary and secondary schools	1.8	0.8	2.7	1%
Junior colleges, colleges, universities	1.0	0.3	1.3	1%
Other educational services	1.5	0.3	1.8	1%
Subtotal Education	4.3	1.5	5.7	3%
Individual and family services	7.0	1.5	8.6	5%
Other personal services	4.9	0.9	5.7	3%
Automotive repair and maintenance	3.4	0.5	3.9	2%
Child day care services	3.3	0.8	4.1	2%
Other financial investment activities	3.3	1.1	4.4	2%
Automotive repair and maintenance	2.1	0.7	2.8	2%
Religious organizations	1.8	0.4	2.2	1%
Fitness and recreational sports centers	1.5	0.4	1.8	1%
Transit and ground passenger transportation	1.5	0.3	1.8	1%
All Other	44.1	6.7	50.8	28%
Total Number of Jobs Generated	**154.3**	**25.5**	**179.8**	**100%**

(1) Estimated employment generated by household expenditures of Project residents for Industries representing more than 1% of total employment. Employment estimates are based on the IMPLAN Group's economic model, IMPLAN, for San Mateo County (uses 2018 IMPLAN data set, the most recent available as of April 2020). Includes both full- and part-time jobs.

5.2.3 Cross-Check Based on Existing Number of Resident-Serving Jobs

As context for the estimated number of off-site jobs and a secondary cross-check for reasonableness, Table 5-6 provides comparisons to the existing ratio of resident-serving jobs in sectors such as health care, retail, food service and education and the number of residential units within Menlo Park and San Mateo County. In Menlo Park, there are 7,944 existing jobs in resident-serving sectors based on data from the U.S. Census and 14,082 residential units based on data from the California Department of Finance. These figures translate to a ratio of approximately 272 resident-serving jobs for every 483 residential units[13]. The ratio for San Mateo County is similar at 269 resident-serving jobs for every 483 residential units. Based on existing relationships between resident-serving jobs and residential units for both the City and the County, estimates for the proposed Project appear reasonable.

Estimates for the proposed Project reflect a lower ratio of resident serving jobs to housing units than overall averages based on the characteristics of the proposed Project which consists of 82% studio and one-bedroom units. Households occupying the proposed Project will be smaller[14] than the average household size for the City of 2.64 persons per household and 2.88 persons per household for the County per the California Department of Finance. Smaller household sizes will correspond to lower demand for services compared to overall averages, particularly for services like health care and education that are driven by population. In addition, the proposed Project includes BMR units. Residents of BMR units will have lower household incomes and will drive a lower level of demand for services, particularly in sectors like restaurants that are driven more by discretionary spending. Finally, the City and County averages include employment within the identified sectors associated with serving the business and visitor population as well as residents, resulting in higher ratios than would be the case for jobs associated with residents alone. Therefore, the ratio between the estimated number of resident-serving jobs and the number of residential units for the proposed Project is appropriately less than citywide or countywide averages.

[13] Calculated as 7,944 jobs divided by 14,082 residential units and multiplied by 483 units. This 483-unit figure is selected for ready comparison to the proposed Project.

[14] Based on the unit mix of the proposed Project of 22% studios, 14% junior one bedrooms, 46% one-bedrooms, 7% two-bedrooms, 9% three-bedrooms, 2% four-bedrooms and the HCD standard for relating number of bedrooms to household size of one plus the number of bedrooms, the proposed Project is estimated to correspond to an average household size of approximately 1.96 persons.

Table 5-6. Comparison to Existing City and County Relationships Between Number of Residential Units and Number of Jobs in Key Resident Serving Sectors.

	Existing Jobs (1)		Jobs Per 483 Residential Units		
	City of Menlo Park	San Mateo County	Actual: City of Menlo Park (4)	Actual: San Mateo County (4)	Estimate for Proposed Project
Key Resident-Serving Sectors					
Health Care	2,153	39,857	73.8	68.5	46.3
Retail Trade	1,602	34,260	54.9	58.9	31.9
Food Service	1,780	38,271	61.1	65.8	24.1
Education	1,160	22,149	39.8	38.1	5.7
Other Services(2)	993	15,587	34.1	26.8	25.9
Arts, Entertainment, and Recreation	256	6,534	8.8	11.2	5.0
Subtotal Resident-Serving	7,944	156,658	**272**	**269**	**139**
Other Sectors	33,943	242,366	1,164	417	41
Total All Sectors	41,887	399,024	1,437	686	180
Number of Residential Units(3)	14,082	280,879			

(1) U.S. Census Longitudinal Employer-Household Dynamics, 2017 data for workplace geography.

(2) Includes a broad range of services from auto repair, to dry cleaning, to religious organizations.

(3) Number of housing units as of January 1, 2020 per California Department of Finance Table E-5, Population and Housing Estimates for Cities, Counties, and the State, 2011-2020 with 2010 Census Benchmark.

(4) Calculated by dividing the total number of jobs by the number of residential units and multiplying by 483 units.

Note: The number of jobs by industry from the HNA have been aggregated by major industry category to allow ready comparison to actual existing jobs in the City of Menlo Park and in San Mateo County.

5.3 Analysis of Housing Need by Income

This section presents a summary of the analysis linking the number of off-site jobs associated with the new residential units to the estimated number of housing units required in each of six income categories. The analysis is based on the same methodology as Section 4 and consists of the following analysis steps.

Step 1 – Adjustment from Employees to Employee Households

This step (Table 5-7) converts the number of employees identified in Table 5-5 to the number of employee households, recognizing that there is, on average, more than one worker per household, and thus the number of housing units in demand for new workers is reduced. The workers-per-worker-household ratio eliminates from the equation all non-working households, such as retired persons and students. The San Mateo County average of 1.90 workers per worker household derived from the U. S. Census Bureau 2014-2018 American Community Survey is used for this step in the analysis, consistent with Section 4. The estimated 179.8 off-site jobs is divided by 1.90 to estimate the number of worker households of 94.7.

Table 5-7. Estimated Net Change in On-Site Employee Households	
Off-Site Jobs in Services to New Residents	179.8
Number Employee Households - Off-site workers (at 1.90 workers per household) (1)	94.7

(1) Derived from 2014-2018 U.S. Census American Community Survey data for San Mateo County

Step 2 – Occupational Distribution of Employees

The occupational breakdown of employees is the first step to arrive at income level. The output from the IMPLAN model provides the number of employees by industry sector, shown in Table 5-5. The IMPLAN output is then paired with data from the Department of Labor, Bureau of Labor Statistics May 2018 Occupational Employment Survey (OES) to estimate the occupational composition of employees for each industry sector. As shown in Table 5-8, new jobs will be distributed across a variety of occupational categories. The three largest occupational categories are sales and related (13.4%), office and administrative support (12.4%), and food preparation and serving (14.1%). Table 5-8 indicates the percentage and number of employee households by occupation for off-site workers.

Table 5-8. Worker Households by Occupation – Jobs in Off-Site Services to New Residential Units

Occupation Category	Number of Worker Households	% of Jobs
Management Occupations	3.9	4.1%
Business and Financial	4.2	4.5%
Computer and Mathematical	1.3	1.4%
Architecture and Engineering	0.2	0.2%
Sciences	0.3	0.4%
Community & Social Services	2.0	2.1%
Legal	0.6	0.7%
Education, and Library	3.3	3.5%
Arts, Design, Entertainment	1.4	1.5%
Healthcare Practitioners	7.6	8.1%
Healthcare Support	8.9	9.4%
Protective Service	0.6	0.7%
Food Prep and Serving	13.3	14.1%
Building and Grounds.	2.3	2.4%
Personal Care and Service	6.0	6.4%
Sales and Related	12.7	13.4%
Office and Admin Support	11.8	12.4%
Farming, Fishing, Forestry	0.1	0.1%
Construction and Extraction	0.7	0.8%
Installation, Maint. and Repair	3.2	3.4%
Production	1.4	1.5%
Transportation	8.6	9.1%
Totals	**94.7**	**100.0%**

See Appendix Tables 1 to 4 for additional detail.

Step 3 – Estimates of Employee Households by Income

In this step, occupations are translated to employee incomes based on recent wage and salary information for workers in San Mateo County from the BLS Occupational Employment Survey. The wage and salary information summarized in Appendix A Tables 2 and 4 provided the income inputs to the analysis.

For each occupational category shown in Table 5-8, the OES data provides a distribution of specific occupations within the category. For example, within the Food Preparation and Serving Category, there are Supervisors, Cooks, Bartenders, Waiters and Waitresses, Dishwashers, etc. In total, there are approximately 100 detailed occupation categories included in the analysis, as shown in the Appendix A Tables 2 and 4. Each of these occupation categories has a different distribution of wages, which was obtained from BLS and is specific to workers in the County as of 2019.

Household incomes are estimated from employee incomes using ratios between individual employee income and household income derived from 2014-2018 ACS data for the San Francisco Bay Area. Ratios used in this section are the same as those used in Section 4 and presented in Table 4-6.

Estimated household incomes are compared to the income criteria shown in Table 2-2 to determine the percentage that qualify within each income category for each potential household size/number of workers combination.

Step 4 – Distribution of Household Size and Number of Workers

In this step, we account for the distribution in household sizes and number of workers using local data obtained from the U.S. Census. 2014-2018 ACS data is used to develop a set of percentage factors representing the distribution of household sizes and number of workers within working households. The percentage factors are the same as used in Section 4 and presented in Table 4-5. Application of these percentage factors accounts for the following:

- Households have a range in size and a range in the number of workers.
- Large households generally have more workers than smaller households.

The result of this step is a distribution of working households by number of workers and household size.

Step 5 – Estimate of Number of Households that Meet Size and Income Criteria

Step 5 is the final step to calculate the number of worker households meeting the size and income criteria for the five affordability tiers. The calculation combines the results from Step 3 on percentage of worker households that would meet the income criteria at each potential household size / number of workers combination, with Step 4, the percentage of worker

household having a given household size / number of workers combination. The result is the percent of households that fall into each affordability tier. The percentages are then multiplied by the number of households from Step 1 to arrive at number of households in each affordability tier.

Tables 5-9 presents the resulting estimates of the number of households within each income category by worker occupation category.

Table 5-9. Employee Households by Occupation and Income (Steps 3, 4, and 5) for Workers in Off-Site Services To New Residents

Major Occupation Category [1]	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
Management	0.0	0.1	0.6	0.6	0.7	1.9	3.9
Business and Financial Operations	0.0	0.3	1.1	0.9	1.0	0.8	4.2
Computer and Mathematical	-	-	-	-	-	-	-
Architecture and Engineering	-	-	-	-	-	-	-
Life, Physical and Social Science	-	-	-	-	-	-	-
Community and Social Services	-	-	-	-	-	-	-
Legal	-	-	-	-	-	-	-
Education Training and Library	0.2	1.1	1.2	0.7	0.1	0.0	3.3
Arts, Design, Entertainment, Sports, & Media	-	-	-	-	-	-	-
Healthcare Practitioners and Technical	0.0	0.3	1.4	1.4	1.9	2.6	7.6
Healthcare Support	2.0	3.2	3.1	0.6	0.1	-	8.9
Protective Service	-	-	-	-	-	-	-
Food Preparation and Serving Related	3.1	4.8	4.9	0.5	0.0	-	13.3
Building Grounds and Maintenance	0.3	0.8	0.9	0.3	0.1	-	2.3
Personal Care and Service	1.2	2.1	2.2	0.4	0.1	0.0	6.0
Sales and Related	2.5	4.2	4.7	0.9	0.4	0.1	12.7
Office and Admin	0.5	3.6	4.6	2.7	0.4	-	11.8
Farm, Fishing, and Forestry	-	-	-	-	-	-	-
Construction and Extraction	-	-	-	-	-	-	-
Installation Maintenance and Repair	0.0	0.8	1.2	0.8	0.4	0.0	3.2
Production	-	-	-	-	-	-	-
Transportation and Material Moving	1.3	2.9	3.2	1.1	0.2	-	8.6
Households: Major Occupations	11.1	24.1	29.1	10.8	5.4	5.5	86.0
Households: all other occupations [2]	1.1	2.4	3.0	1.1	0.5	0.6	8.7
Total Households	**12.2**	**26.5**	**32.1**	**11.9**	**5.9**	**6.1**	**94.7**
Rounded	**12.0**	**27.0**	**32.0**	**12.0**	**6.0**	**6.0**	**95.0**

[1] See Appendix A Table 1 - 4 for additional information on Major Occupation Categories.

[2] Represents occupation categories which have a minor amount of employment and for which detailed compensation analysis was not completed. These worker households are assumed to have a similar income distribution to other employees. See Appendix A Tables 1 - 4 for information on major and detailed occupation categories identified for detailed compensation analysis.

5.4 Summary of Housing Need by Income, Off-site Workers

Table 5-10 summarizes the demand for housing by workers in off-site services to the 483 new residential units by income category.

Table 5-10. Estimated Off-Site Employee Households by Income							
	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
Worker Households by Income	12	27	32	12	6	6	95

As shown in Table 5-10, the 483 residential units are estimated to create a demand for an additional 95 housing units for off-site workers in services such as retail, restaurants and education. Housing demand for new off-site workers is distributed across the income tiers with the greatest number of households in the Very Low and Low Income categories. The finding that the jobs associated with consumer spending tend to be low-paying jobs where the workers will require housing affordable at the lower income levels is not surprising. As noted above, consumer spending results in employment that is concentrated in lower paid occupations including food preparation, administrative, and retail sales.

6.0 NET IMPACT ON HOUSING AVAILABILITY

This section combines the findings of the prior three sections to estimate the net impact on housing availability from the proposed Project by income. Net impacts on housing availability represent the combined housing supply and demand effects of the proposed Project including from:

- Added housing supply (Section 3);
- Reduced housing demand from the net reduction in on-site jobs (Section 4); and
- Added housing demand from jobs in off-site services to new residential units (Section 5).

Additions to housing supply are considered increases in housing availability. Reductions in housing demand are also considered to *increase* housing availability because this makes existing units available; conversely, increases in housing demand are considered as reducing housing availability.

Section 6.1 addresses total housing availability impacts regardless of location. Section 6.2 provides an estimate specific to impacts occurring within Menlo Park.

6.1 Net Impact on Housing Availability Regionally

The proposed Project is estimated to increase the number of available housing units by 498 units as shown in Table 6-1. This estimate reflects the combined effect of:

- Adding 483 new residential units to the housing supply.

- A 110-unit increase in housing availability from removal of existing on-site jobs, which removes existing worker housing demand.

- A 95-unit decrease in housing availability due to added housing demand by off-site workers who provide services to residents of the proposed Project.

Table 6-1. Estimated Net Impact of Project on Housing Availability

1.	Increase in available housing from construction of new units (Section 3)	483 Units
2.	Increase in available housing from removal of existing on-site jobs, which reduces worker housing demand (Section 4)	110 Units
3.	Decrease in available housing from increase in housing demand by off-site workers in services to new residents (Section 5)	(95 Units)
Net Increase in Available Housing		**498 Units**

Table 6-2 provides a breakout of the housing availability findings by income category. As shown, the 498-unit net increase in housing availability consists of two Very Low, 76 Low, 13 Moderate, 365 Above Moderate, and 46 Over 150% AMI units. Increased housing availability in the Very Low to Over 150% AMI categories is offset by a decrease within the Extremely Low Income category of four units as a result of added housing demand from off-site workers that exceeds added housing availability from removal of on-site jobs within this income category.

Table 6-2. Net Impacts on Housing Availability by Income Category

	Extremely Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
1. Increase in Available Housing from Construction of New Units							
Rental Units	0	0	67	0	363	11	441
For-Sale Units	0	0	0	6	0	36	42
Total	0	0	67	6	363	47	483
2. Increase in Available Housing from removal of existing on-site jobs, which reduces worker housing demand	8	29	41	19	8	5	110
3. Decrease in available housing from increase in housing demand by off-site workers in services to new residents	(12)	(27)	(32)	(12)	(6)	(6)	(95)
Net Increase in Housing Availability (1)	**(4)**	**2**	**76**	**13**	**365**	**46**	**498**

(1) Negative figures represent an increase in housing demand that is not offset by added housing supply.

6.2 Menlo Park Share of Impact on Housing Supply and Housing Demand

KMA estimated the share of impacts on housing supply and housing demand that would occur within the City of Menlo Park. Estimates represent an allocation of the total housing availability impacts presented in Table 6-2 based on where housing units included in the proposed Project will be constructed (in Menlo Park) and where workers will live (a share in Menlo Park and a share outside of Menlo Park). Two scenarios are presented regarding the share of workers who will seek and find housing within the City of Menlo Park:

A. **Current Commute Share (6.3%)** – the "Current Commute Share" scenario is based on the existing 6.3% share of Menlo Park workers who live in the City. Section 6.3 provides additional discussion of the existing commute share.

B. **Increased Commute Share (20%)** – the "Increased Commute Share" scenario assumes 20% of new workers are housed within the City consistent with an assumption

used in the City's 2000 commercial linkage fee nexus study[15] (2000 Nexus Study). The 20% commute share assumption from the 2000 Nexus Study reflects a goal of housing a larger share of the City's workforce. This scenario is included for informational purposes in response to interest expressed by the City Council in improving the jobs housing balance and obtaining data to inform the goal of increasing the number of workers who live and work in Menlo Park.

The analysis under these two scenarios is described below.

A. Current Commute Share Scenario

The analysis of housing availability impacts within Menlo Park under the Current Commute Share scenario reflects the following allocation of total regional impacts identified in Section 6.1:

(1) All residential units added by the proposed Project are in the City of Menlo Park; therefore, all 483 units are identified as additional housing supply in Menlo Park.

(2) With the Current Commute Share scenario, seven out of 110 total units of added housing availability from removal of on-site jobs is estimated to be within Menlo Park based on the existing 6.3% share of Menlo Park workers who live in the City. Applying the 6.3% factor to the findings by income level from Table 6-2 yields added housing availability in Menlo Park of one unit in the Extremely Low Income category, two Very Low, three Low and one Moderate Income unit.

(3) With the Current Commute Share scenario, six out of 95 total units of additional housing need for off-site workers is estimated to be within Menlo Park based on the existing 6.3% share of Menlo Park workers who live in the City. Applying the 6.3% factor to the findings by income level from Table 6-2 yields one unit of additional housing need in the Extremely Low category, two Very Low, two Low, and one unit in the Moderate Income category.

In summary, with the Current Commute Share scenario, the estimated net increase in housing availability in Menlo Park is 484 units based on the 483 new housing units constructed in Menlo Park, plus seven units of added housing availability from removal of on-site jobs, minus six units of new housing demand from off-site workers.

Table 6-3 presents the findings by income level. As shown, the estimated 484-unit net increase in housing availability in Menlo Park consists of 68 Low, six Moderate, 363 Above Moderate and 47 Over 150% AMI units.

[15] Commercial Linkage Fee Nexus Study prepared for the City of Menlo Park by Vernazza Wolfe Associates, Inc. dated September 2000.

Table 6-3. Estimated Menlo Park Share of Net Housing Availability Impacts with Current Commute Share								
	Basis for allocation to Menlo Park	**Extr. Low**	**Very Low**	**Low**	**Moderate**	**Above Moderate**	**Over 150% AMI**	**Total**
1. Increase in available housing from construction of new units	*all units are in Menlo Park*	-	-	67	6	363	47	483
2. Increase in available housing from removal of existing on-site jobs, which reduces worker housing demand	*Based on current 6.3% Menlo Park commute share*	1	2	3	1	-	-	7
3. Decrease in available housing from increase in housing demand by off-site workers in services to new residents	*Based on current 6.3% Menlo Park commute share*	(1)	(2)	(2)	(1)	-	-	(6)
Menlo Park Share of Net Increase in Housing Availability		-	-	68	6	363	47	484

B. Increased Commute Share Scenario

The Increased Commute Share scenario is based on the City's 2000 Nexus Study which incorporated a commute share assumption of 20%. This 20% commute share assumption reflects a goal to house a larger share of the City's workforce locally that was approximately double the 10% commute share for Menlo Park as of the time the Nexus Study was prepared[16]. As stated in the 2000 Nexus Study:

> *Using a relatively higher number provides a goal for the City to achieve. Although inflated housing prices in the 1990's have resulted in a decrease in the percentage of Menlo Park workers who can afford to live in Menlo Park, the City's goal is to encourage local workers to live in Menlo Park in order to achieve a better jobs/housing balance.*

This Increased Commute Share scenario provides additional information regarding how analysis findings would vary were the City to seek to house 20% of its workforce locally consistent with the goal identified in the 2000 Nexus Study.

[16] Per the 1990 Census, Menlo Park's commute share was 10% based on a total number working in Menlo Park of 26,048 of which 2,662 lived in Menlo Park. Figures do not include those who work out of their homes rather than commute to a separate workplace. The 1990 Census was the most recent data available at the time the 2000 Nexus Study was prepared as the 2000 Census data was not yet released. The 2000 Nexus Study references a separate factor of 23%, also as of 1990, which is not comparable to the 10% commute share in 1990. This 23% factor represents the share of Menlo Park *employed residents* (residents who are employed) who work in Menlo Park versus commute out of Menlo Park to a job located in another city.

With the Increased Commute Share scenario, application of the 20% goal-based commute share results in allocation of 22 of the 110 units of added housing availability from removal of on-site jobs and 19 of the 95 units of additional housing need for off-site workers to Menlo Park, rather than seven and six units, respectively, with the Current Commute Share scenario. In total, with the Increased Commute Share scenario, the estimated net increase in housing availability in Menlo Park is 486 units, consisting of 483 new housing units constructed in Menlo Park plus 22 units of added housing availability from removal of on-site jobs minus 19 units of new housing demand in Menlo Park for off-site workers.

Table 6-4 presents the findings by income level with the Increased Commute Share. As shown, the estimated 486-unit net increase in housing availability in Menlo Park with the Increased Commute Share consists of one Very Low, 68 Low, seven Moderate, 363 Above Moderate and 47 Over 150% AMI units.

Table 6-4. Estimated Menlo Park Share of Net Housing Availability Impacts with Increased Commute Share

	Basis for Allocation to Menlo Park	Extr. Low	Very Low	Low	Moderate	Above Moderate	Over 150% AMI	Total
1. Increase in available housing from construction of new units	*all units are in Menlo Park*	-	-	67	6	363	47	483
2. Increase in available housing from removal of existing on-site jobs, which reduces worker housing demand	*2000 Nexus Goal-Based Menlo Park commute share of 20%*	2	6	8	4	1	1	22
3. Decrease in available housing from increase in housing demand by off-site workers in services to new residents	*2000 Nexus Goal-Based Menlo Park commute share of 20%*	(2)	(5)	(7)	(3)	(1)	(1)	(19)
Menlo Park Share of Net Increase in Housing Availability		-	1	68	7	363	47	486

6.3 Additional Discussion of Commute Share

The share of off-site workers in restaurants, retail and other services to residents of the new residential units who will live in Menlo Park is estimated based on a commute share of 6.3% in the Current Commute Share scenario. This percentage is derived from the U.S. Census 2014-2018 American Community Survey and reflects the existing share of those working in Menlo Park who also live in Menlo Park, excluding those who work at home. The remaining 93.7% of the workforce commutes in from outside of the City.

Use of the existing commute share specific to the City of Menlo Park may overstate the share of off-site workers likely to live in Menlo Park as some jobs in off-site services to new residents such as retail, medical care, and restaurants may be in nearby cities rather than in Menlo Park. For those who work in nearby cities, the propensity to live in Menlo Park is expected to be less than the 6.3% commute share for Menlo Park workers[17].

The existing percentage of workers commuting from other jurisdictions to Menlo Park is attributable to a number of factors including the supply of housing relative to the number of jobs and the high cost of housing in Menlo Park. Although many factors influence housing decisions, because the number of workers that both live and work in Menlo Park is so low and the cost of housing is high, it is possible that the 6.3% does not reflect the proportion of workers who would live in Menlo Park if they could find housing and could afford it. The share of the workforce that lives in Menlo Park has also been declining over time from 10% in 1990 to 7% as of the 2000 Census to 6.3% per the 2014-2018 ACS. Workers most everywhere tend to commute more in recent years than in the past and, in addition, Menlo Park has become less affordable over time. The possibility that availability and affordability of housing have contributed to a downward trend in Menlo Park's commute share is the primary reason for including the separate goal-based Increased Commute Share scenario.

Construction of new housing can be expected to contribute toward increasing the number of workers that live locally by providing additional housing opportunities in Menlo Park. The 483-unit proposed Project represents an approximately 3.4% increase in the size of the City's existing housing stock of 14,082 units[18]. While the number of units added is small relative to the larger workforce of more than 40,000, the proposed Project can be expected to contribute incrementally to housing a greater number of workers locally.

[17] For example, around 3.9% of those who work in Palo Alto live in Menlo Park based on data from the American Community Survey, lower than the 6.3% share for Menlo Park workers.

[18] Number of housing units as of January 1, 2020 per California Department of Finance Table E-5, Population and Housing Estimates for Cities, Counties, and the State, 2011-2020 with 2010 Census Benchmark.

7.0 DISPLACEMENT ANALYSIS

This section provides a discussion of the potential for the proposed Project to contribute to displacement of existing residents and neighborhood change in two proximate communities known to be vulnerable to displacement, the City of East Palo Alto (East Palo Alto) and the Belle Haven neighborhood of Menlo Park (Belle Haven). Given the complex array of factors that influence housing markets and neighborhood change, precise estimates or projections of outcomes are not feasible; instead, a qualitative discussion of the potential for the proposed Project to impact displacement is provided.

Location of Proposed Project Relative to Belle Haven and East Palo Alto

The aerial image below shows the location of the proposed Project relative to Belle Haven and East Palo Alto. The proposed Project is located between Bayfront Expressway, Marsh Road and U.S. 101, near the Facebook campus. Belle Haven is a residential neighborhood located to the east of the Project site generally bounded by U.S. 101, Willow Road and a railroad right-of-way, outlined in red on the aerial image below. East Palo Alto is just to the east of Belle Haven across Willow Road.

Proposed Project, Belle Haven and East Palo Alto Location



Source: Google Maps

7.1 Displacement and Risk of Displacement in East Palo Alto and Belle Haven

Displacement occurs when housing or neighborhood conditions force existing residents to move or households feel like their move is involuntary. Displacement can be caused by a range of

physical, economic and social factors including but not limited to foreclosure, condominium conversion, building deterioration or condemnation, increased taxes, natural disasters, eminent domain, and increases in housing costs[19, 20, 21]. The HNA is focused on economic drivers of displacement, specifically the potential for the proposed Project to affect the local housing market and housing costs.

Lower income communities in the Bay Area have become increasingly vulnerable to displacement of existing residents. Employment growth, constrained housing production, and rising income inequality are among the factors that have contributed to increased displacement pressures, especially within lower income communities in locations accessible to employment centers where many households are housing-cost burdened.

East Palo Alto and Belle Haven both have existing risk factors for displacement. Both have a relatively lower-income existing population that includes a high percentage of households who spend 35% or more of their income on housing. East Palo Alto's rent control and just cause eviction ordinance provides significant protection to existing renters within multi-family buildings built prior to 1988 but does not preclude the potential for longer-term neighborhood change. The Urban Displacement Project,[22] an initiative of UC Berkeley "aimed at understanding the nature of gentrification and displacement in the Bay Area" has identified the Belle Haven census tract and census tracts within East Palo Alto as areas experiencing "ongoing gentrification and/or displacement" or "at risk of displacement." A separate analysis by the Urban Displacement Project[23] indicates that, despite risk factors for displacement, East Palo Alto had not experienced significant gentrification during the 2000 to 2013 period, potentially due to policies aimed at preventing displacement including rent control and just cause eviction protections.

A recent study by UC Berkeley's Center for Community Innovation and its Y-PLAN initiative, titled *Investment and Disinvestment as Neighbors: A Study of Baseline Housing Conditions in the Bay Area Peninsula*, provided an assessment of the baseline housing conditions in the Belle Haven neighborhood, City of East Palo Alto, and North Fair Oaks neighborhood (unincorporated San Mateo County). The study found indications of recent changes including increased population turnover, declining school age population, and an increase in homelessness. The study also identified a high incidence of rent burdened households and disproportionate

[19] Zuk, M. et. al. 2017. Gentrification, Displacement, and the Role of Public Investment. Journal of Planning Literature. Journal of Planning Literature 1-14.

[20] Center for Community Innovation (2020). Investment and Disinvestment as Neighbors, A Study of Baseline Housing Conditions in the Bay Area Peninsula.

[21] Bradshaw, K. (2019). Uneven Ground: How unequal land use harms communities in southern San Mateo County. Palo Alto Online. https://paloaltoonline.atavist.com/uneven-ground

[22] Zuk, M., & Chapple, K. (2019). Urban Displacement Project. http://www.urbandisplacement.org/

[23] Crispell, M, Harris L.R., and Cespedes S. March 2016. San Mateo County's East Palo Alto. Urban Displacement Project.

pressure on the local housing market compared to the rest of San Mateo County. The study found more signs of disinvestment in East Palo Alto and more indications of real estate speculation in Belle Haven[24].

7.2 Potential for Proposed Project to Contribute to Displacement

The following outlines factors considered in the evaluation of whether the proposed Project could have an influence on displacement in East Palo Alto and Belle Haven:

(1) The proposed Project adds 483 new units to the housing supply, including 73 below market rate units, which will make additional housing opportunities available in a very competitive housing market.

(2) The proposed Project is estimated to reduce worker housing demand by 15 units based on an estimated net reduction of 28 jobs. The net reduction of 28 jobs represents the net effect of removing 208 on-site jobs due to removal of the existing office and industrial space and addition of an estimated 180 off-site jobs in sectors like retail and restaurants that will serve new residents.

(3) The proposed Project is located in an area geographically separate from both Belle Haven and East Palo Alto and will not physically alter either community.

(4) The 483 new units in the proposed Project equate to an approximately 3.4% increase in the existing 14,082-unit Menlo Park housing stock[25] and a 0.2% increase in the 280,879-unit housing stock of San Mateo County.

(5) Two recent studies have found moderating effects of new rental housing on rents and displacement pressures at the local level. New residential developments were found to decrease rents in the area surrounding the new housing relative to market trend.[26]

In consideration of the above factors, the proposed Project is not anticipated to contribute to displacement in East Palo Alto or Belle Haven. The proposed Project adds to the supply of market rate and affordable housing and reduces demand for housing in the local area, both factors that will tend to moderate or counteract displacement pressures by relieving, to some extent, market pressures on the existing local housing stock.

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[24] Center for Community Innovation. (2020). Investment and Disinvestment as Neighbors, A Study of Baseline Housing Conditions in the Bay Area Peninsula.

[25] Number of housing units as of January 1, 2020 per California Department of Finance Table E-5, Population and Housing Estimates for Cities, Counties, and the State, 2011-2020 with 2010 Census Benchmark.

[26] Asquith, Brian J., Evan Mast, and Davin Reed. 2019. "Supply Shock Versus Demand Shock: The Local Effects of New Housing in Low-Income Areas." Upjohn Institute Working Paper 19-316. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research. https://doi.org/10.17848/wp19-316

Li, Xiaodi (2019). Do New Housing Units in Your Backyard Raise Your Rents? NYU Wagner and NYU Furman Center. https://72187189-93c1-48bc-b596-fc36f4606599.filesusr.com/ugd/7fc2bf_2fc84967cfb945a69a4df7baf8a4c387.pdf

APPENDIX A – WORKER OCCUPATIONS AND COMPENSATION LEVELS

APPENDIX A TABLE 1
WORKER OCCUPATION DISTRIBUTION, 2019
SERVICES TO HOUSEHOLDS EARNING $100 - $150K
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Major Occupations (2% or more)	Worker Occupation Distribution[1] Services to Households Earning $100,000 to $150,000
Management Occupations	*4.0%*
Business and Financial Operations Occupations	*4.2%*
Educational Instruction and Library Occupations	*3.0%*
Healthcare Practitioners and Technical Occupations	*8.0%*
Healthcare Support Occupations	*9.3%*
Food Preparation and Serving Related Occupations	*13.9%*
Building and Grounds Cleaning and Maintenance Occupations	*2.2%*
Personal Care and Service Occupations	*6.1%*
Sales and Related Occupations	*13.3%*
Office and Administrative Support Occupations	*12.1%*
Installation, Maintenance, and Repair Occupations	*3.3%*
Transportation and Material Moving Occupations	*8.9%*
All Other Worker Occupations - Services to Households Earning $100,000 to $150,000	*11.5%*
INDUSTRY TOTAL	100.0%

[1] Distribution of employment by industry is per the IMPLAN model and the distribution of occupational employment within those industries is based on the Bureau of Labor Statistics Occupational Employment Survey.

Source: Bureau of Labor Statistics, IMPLAN
Keyser Marston Associates, Inc.
\\SF-FS2\wp\15\15885\004\HNA - 141 Jefferson 9-15-2020.xlsm; 9/18/2020; dd

APPENDIX A TABLE 2
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $100,000 TO $150,000
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 1 of 4			
Management Occupations			
General and Operations Managers	$155,900	38.6%	1.5%
Sales Managers	$159,700	5.0%	0.2%
Administrative Services and Facilities Managers	$132,000	3.2%	0.1%
Computer and Information Systems Managers	$202,000	3.3%	0.1%
Financial Managers	$182,200	9.3%	0.4%
Food Service Managers	$63,500	5.8%	0.2%
Medical and Health Services Managers	$142,800	8.2%	0.3%
Social and Community Service Managers	$73,200	3.8%	0.2%
Personal Service Managers, All Other; Entertainment and Recreation Mar	$168,900	4.0%	0.2%
All other Management Occupations (Avg. All Categories)	$148,800	18.8%	0.7%
Weighted Mean Annual Wage	***$148,800***	**100.0%**	**4.0%**
Business and Financial Operations Occupations			
Human Resources Specialists	$89,800	5.8%	0.2%
Management Analysts	$113,800	5.4%	0.2%
Training and Development Specialists	$83,600	3.7%	0.2%
Market Research Analysts and Marketing Specialists	$91,400	8.0%	0.3%
Project Management Specialists and Business Operations Specialists, All	$93,000	10.3%	0.4%
Accountants and Auditors	$93,600	16.6%	0.7%
Personal Financial Advisors	$157,700	10.9%	0.5%
Loan Officers	$84,900	5.6%	0.2%
Financial and Investment Analysts, Financial Risk Specialists, and Financi	$119,100	10.6%	0.4%
All Other Business and Financial Operations Occupations (Avg. All Categ	$105,900	23.1%	1.0%
Weighted Mean Annual Wage	***$105,900***	**100.0%**	**4.2%**
Educational Instruction and Library Occupations			
Preschool Teachers, Except Special Education	$45,100	26.7%	0.8%
Elementary School Teachers, Except Special Education	$84,000	7.1%	0.2%
Secondary School Teachers, Except Special and Career/Technical Educa	$84,000	4.9%	0.1%
Self-Enrichment Teachers	$53,700	9.3%	0.3%
Substitute Teachers, Short-Term	$42,900	3.7%	0.1%
Tutors and Teachers and Instructors, All Other	$50,800	5.8%	0.2%
Teaching Assistants, Except Postsecondary	$39,700	18.7%	0.6%
All Other Educational Instruction and Library Occupations (Avg. All Categ	$51,300	23.7%	0.7%
Weighted Mean Annual Wage	***$51,300***	**100.0%**	**3.0%**

Sources: Bureau of Labor Statistics, IMPLAN
Keyser Marston Associates, Inc.
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APPENDIX A TABLE 2
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $100,000 TO $150,000
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 2 of 4			
Healthcare Practitioners and Technical Occupations			
Pharmacists	$148,400	4.8%	0.4%
Physical Therapists	$102,500	4.9%	0.4%
Registered Nurses	$138,000	24.8%	2.0%
Physicians, All Other; and Ophthalmologists, Except Pediatric	$174,000	3.5%	0.3%
Dental Hygienists	$113,900	6.0%	0.5%
Pharmacy Technicians	$51,100	6.9%	0.6%
Licensed Practical and Licensed Vocational Nurses	$69,500	8.9%	0.7%
All Other Healthcare Practitioners and Technical Occupations (Avg. All Ca	$115,400	40.2%	3.2%
Weighted Mean Annual Wage	***$115,400***	**100.0%**	**8.0%**
Healthcare Support Occupations			
Home Health and Personal Care Aides	$30,300	56.0%	5.2%
Nursing Assistants	$45,100	14.7%	1.4%
Massage Therapists	$50,600	3.7%	0.3%
Dental Assistants	$51,500	7.9%	0.7%
Medical Assistants	$48,900	8.2%	0.8%
All Other Healthcare Support Occupations (Avg. All Categories)	$37,100	9.3%	0.9%
Weighted Mean Annual Wage	***$37,100***	**100.0%**	**9.3%**
Food Preparation and Serving Related Occupations			
First-Line Supervisors of Food Preparation and Serving Workers	$44,600	7.5%	1.0%
Cooks, Fast Food	$27,100	4.3%	0.6%
Cooks, Restaurant	$38,400	10.6%	1.5%
Food Preparation Workers	$31,800	6.5%	0.9%
Bartenders	$37,300	4.7%	0.7%
Fast Food and Counter Workers	$31,600	30.3%	4.2%
Waiters and Waitresses	$37,800	19.3%	2.7%
Dining Room and Cafeteria Attendants and Bartender Helpers	$35,000	3.0%	0.4%
Dishwashers	$31,700	3.8%	0.5%
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	$34,500	3.3%	0.5%
All Other Food Preparation and Serving Related Occupations (Avg. All Ca	$35,000	6.8%	0.9%
Weighted Mean Annual Wage	***$35,000***	**100.0%**	**13.9%**

APPENDIX A TABLE 2
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $100,000 TO $150,000
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 3 of 4			
Building and Grounds Cleaning and Maintenance Occupations			
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	$38,900	51.3%	1.1%
Maids and Housekeeping Cleaners	$41,400	15.3%	0.3%
Pest Control Workers	$47,100	4.1%	0.1%
Landscaping and Groundskeeping Workers	$43,900	20.6%	0.4%
All Other Building and Grounds Cleaning and Maintenance Occupations (/	$40,800	8.7%	0.2%
Weighted Mean Annual Wage	***$40,800***	**100.0%**	**2.2%**
Personal Care and Service Occupations			
First-Line Supervisors of Personal Service and Entertainment and Recrea	$54,200	5.9%	0.4%
Animal Caretakers	$34,100	16.4%	1.0%
Amusement and Recreation Attendants	$29,700	3.0%	0.2%
Hairdressers, Hairstylists, and Cosmetologists	$35,400	23.0%	1.4%
Manicurists and Pedicurists	$29,500	7.5%	0.5%
Childcare Workers	$35,600	14.7%	0.9%
Exercise Trainers and Group Fitness Instructors	$59,300	9.1%	0.6%
Recreation Workers	$36,500	4.6%	0.3%
All Other Personal Care and Service Occupations (Avg. All Categories)	$38,400	15.8%	1.0%
Weighted Mean Annual Wage	***$38,400***	**100.0%**	**6.1%**
Sales and Related Occupations			
First-Line Supervisors of Retail Sales Workers	$47,000	9.8%	1.3%
Cashiers	$32,200	28.9%	3.8%
Retail Salespersons	$34,800	38.9%	5.2%
Securities, Commodities, and Financial Services Sales Agents	$101,800	4.4%	0.6%
Sales Representatives of Services, Except Advertising, Insurance, Financ	$81,300	5.0%	0.7%
Sales Representatives, Wholesale and Manufacturing, Except Technical a	$81,800	3.4%	0.4%
All Other Sales and Related Occupations (Avg. All Categories)	$42,900	9.6%	1.3%
Weighted Mean Annual Wage	***$42,900***	**100.0%**	**13.3%**
Office and Administrative Support Occupations			
First-Line Supervisors of Office and Administrative Support Workers	$71,200	7.5%	0.9%
Billing and Posting Clerks	$50,100	3.1%	0.4%
Bookkeeping, Accounting, and Auditing Clerks	$55,000	7.4%	0.9%
Customer Service Representatives	$49,200	14.6%	1.8%
Receptionists and Information Clerks	$40,000	12.0%	1.5%
Medical Secretaries and Administrative Assistants	$49,100	5.9%	0.7%
Secretaries and Administrative Assistants, Except Legal, Medical, and Exe	$51,200	9.6%	1.2%
All Other Office and Administrative Support Occupations (Avg. All Categor	$51,200	40.0%	4.9%
Weighted Mean Annual Wage	***$51,200***	**100.0%**	**12.1%**

Sources: Bureau of Labor Statistics, IMPLAN
Keyser Marston Associates, Inc.
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APPENDIX A TABLE 2
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $100,000 TO $150,000
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 4 of 4			
Installation, Maintenance, and Repair Occupations			
First-Line Supervisors of Mechanics, Installers, and Repairers	$89,700	7.8%	0.3%
Automotive Body and Related Repairers	$57,600	11.2%	0.4%
Automotive Service Technicians and Mechanics	$58,600	30.6%	1.0%
Bus and Truck Mechanics and Diesel Engine Specialists	$68,800	6.0%	0.2%
Maintenance and Repair Workers, General	$56,200	13.6%	0.5%
All Other Installation, Maintenance, and Repair Occupations (Avg. All Cate	$62,300	30.8%	1.0%
Weighted Mean Annual Wage	***$62,300***	**100.0%**	**3.3%**
Transportation and Material Moving Occupations			
First-Line Supervisors of Transportation and Material Moving Workers, Ex	$66,700	4.2%	0.4%
Driver/Sales Workers	$34,900	4.7%	0.4%
Heavy and Tractor-Trailer Truck Drivers	$51,400	9.7%	0.9%
Light Truck Drivers	$48,800	6.7%	0.6%
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	$40,600	9.3%	0.8%
Parking Attendants	$34,300	8.7%	0.8%
Cleaners of Vehicles and Equipment	$33,500	7.3%	0.7%
Laborers and Freight, Stock, and Material Movers, Hand	$39,900	12.4%	1.1%
Packers and Packagers, Hand	$33,000	3.1%	0.3%
Stockers and Order Fillers	$36,200	19.6%	1.8%
All Other Transportation and Material Moving Occupations (Avg. All Categ	$40,800	14.2%	1.3%
Weighted Mean Annual Wage	***$40,800***	**100.0%**	**8.9%**
			88.5%

[1] The methodology utilized by the Bureau of Labor Statistics (BLS) assumes hourly paid employees are employed full-time. Annual compensation is calculated by multiplying hourly wages by 40 hours per work week by 52 weeks.

[2] Occupation percentages are based on the 2019 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on Occupational Employment Survey data applicable to San Mateo County as of 2019.

[3] Including occupations representing 3% or more of the major occupation group

Sources: Bureau of Labor Statistics, IMPLAN
Keyser Marston Associates, Inc.
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APPENDIX A TABLE 3
WORKER OCCUPATION DISTRIBUTION, 2019
SERVICES TO HOUSEHOLDS EARNING $200K+
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Major Occupations (2% or more)	Worker Occupation Distribution[1] Services to Households Earning $200k+
Management Occupations	*4.3%*
Business and Financial Operations Occupations	*5.2%*
Educational Instruction and Library Occupations	*5.4%*
Healthcare Practitioners and Technical Occupations	*6.8%*
Healthcare Support Occupations	*8.2%*
Food Preparation and Serving Related Occupations	*12.7%*
Building and Grounds Cleaning and Maintenance Occupations	*3.4%*
Personal Care and Service Occupations	*6.6%*
Sales and Related Occupations	*11.8%*
Office and Administrative Support Occupations	*11.9%*
Installation, Maintenance, and Repair Occupations	*3.0%*
Transportation and Material Moving Occupations	*8.3%*
All Other Worker Occupations - Services to Households Earning $200k+	*12.4%*
INDUSTRY TOTAL	100.0%

[1] Distribution of employment by industry is per the IMPLAN model and the distribution of occupational employment within those industries is based on the Bureau of Labor Statistics Occupational Employment Survey.

Source: Bureau of Labor Statistics, IMPLAN
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APPENDIX A TABLE 4
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $200K+
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 1 of 4			
Management Occupations			
General and Operations Managers	$155,900	36.4%	1.6%
Sales Managers	$159,700	4.6%	0.2%
Administrative Services and Facilities Managers	$132,000	3.3%	0.1%
Computer and Information Systems Managers	$202,000	3.4%	0.1%
Financial Managers	$182,200	11.3%	0.5%
Food Service Managers	$63,500	4.9%	0.2%
Medical and Health Services Managers	$142,800	6.3%	0.3%
Property, Real Estate, and Community Association Managers	$92,900	0.7%	0.0%
Personal Service Managers, All Other; Entertainment and Recreation Mar	$168,900	4.2%	0.2%
All other Management Occupations (Avg. All Categories)	$154,100	25.0%	1.1%
Weighted Mean Annual Wage	***$154,100***	**100.0%**	**4.3%**
Business and Financial Operations Occupations			
Human Resources Specialists	$89,800	4.9%	0.3%
Management Analysts	$113,800	5.2%	0.3%
Training and Development Specialists	$83,600	3.1%	0.2%
Market Research Analysts and Marketing Specialists	$91,400	7.0%	0.4%
Project Management Specialists and Business Operations Specialists, All	$93,000	9.5%	0.5%
Accountants and Auditors	$93,600	15.6%	0.8%
Personal Financial Advisors	$157,700	16.1%	0.8%
Loan Officers	$84,900	5.1%	0.3%
Financial and Investment Analysts, Financial Risk Specialists, and Financi	$119,100	13.0%	0.7%
All Other Business and Financial Operations Occupations (Avg. All Categ	$110,700	20.6%	1.1%
Weighted Mean Annual Wage	***$110,700***	**100.0%**	**5.2%**
Educational Instruction and Library Occupations			
Career/Technical Education Teachers, Postsecondary	$88,000	1.5%	0.1%
Preschool Teachers, Except Special Education	$45,100	21.8%	1.2%
Elementary School Teachers, Except Special Education	$45,100	10.6%	0.6%
Secondary School Teachers, Except Special and Career/Technical Educa	$93,400	7.5%	0.4%
Self-Enrichment Teachers	$53,700	6.1%	0.3%
Substitute Teachers, Short-Term	$42,900	4.6%	0.2%
Tutors and Teachers and Instructors, All Other	$50,800	4.4%	0.2%
Teaching Assistants, Except Postsecondary	$39,700	18.7%	1.0%
All Other Educational Instruction and Library Occupations (Avg. All Categ	$50,400	24.8%	1.3%
Weighted Mean Annual Wage	***$50,400***	**100.0%**	**5.4%**

Sources: U.S. Bureau of Labor Statistics, IMPLAN
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APPENDIX A TABLE 4
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $200K+
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 2 of 4			
Healthcare Practitioners and Technical Occupations			
Pharmacists	$148,400	4.9%	0.3%
Physical Therapists	$102,500	3.6%	0.2%
Registered Nurses	$138,000	28.3%	1.9%
Physicians, All Other; and Ophthalmologists, Except Pediatric	$174,000	4.0%	0.3%
Dental Hygienists	$113,900	5.0%	0.3%
Pharmacy Technicians	$51,100	6.8%	0.5%
Veterinary Technologists and Technicians	$46,700	2.3%	0.2%
Licensed Practical and Licensed Vocational Nurses	$69,500	6.1%	0.4%
All Other Healthcare Practitioners and Technical Occupations (Avg. All Ca	$117,200	39.1%	2.7%
Weighted Mean Annual Wage	***$117,200***	**100.0%**	**6.8%**
Healthcare Support Occupations			
Home Health and Personal Care Aides	$30,300	65.0%	5.3%
Nursing Assistants	$45,100	8.9%	0.7%
Massage Therapists	$50,600	3.4%	0.3%
Dental Assistants	$51,500	6.4%	0.5%
Medical Assistants	$48,900	7.7%	0.6%
All Other Healthcare Support Occupations (Avg. All Categories)	$35,600	8.6%	0.7%
Weighted Mean Annual Wage	***$35,600***	**100.0%**	**8.2%**
Food Preparation and Serving Related Occupations			
First-Line Supervisors of Food Preparation and Serving Workers	$44,600	7.5%	0.9%
Cooks, Fast Food	$27,100	4.2%	0.5%
Cooks, Restaurant	$38,400	10.6%	1.3%
Food Preparation Workers	$31,800	6.3%	0.8%
Bartenders	$37,300	5.3%	0.7%
Fast Food and Counter Workers	$31,600	30.3%	3.8%
Waiters and Waitresses	$37,800	19.3%	2.4%
Dining Room and Cafeteria Attendants and Bartender Helpers	$35,000	3.1%	0.4%
Dishwashers	$31,700	3.8%	0.5%
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	$34,500	3.2%	0.4%
All Other Food Preparation and Serving Related Occupations (Avg. All Ca	$35,000	6.5%	0.8%
Weighted Mean Annual Wage	***$35,000***	**100.0%**	**12.7%**

Sources: U.S. Bureau of Labor Statistics, IMPLAN
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APPENDIX A TABLE 4
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $200K+
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 3 of 4			
Building and Grounds Cleaning and Maintenance Occupations			
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeepin	$68,600	2.8%	0.1%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	$38,900	52.6%	1.8%
Maids and Housekeeping Cleaners	$41,400	8.9%	0.3%
Pest Control Workers	$47,100	5.4%	0.2%
Landscaping and Groundskeeping Workers	$43,900	23.7%	0.8%
All Other Building and Grounds Cleaning and Maintenance Occupations (A	$41,800	6.6%	0.2%
Weighted Mean Annual Wage	***$41,800***	**100.0%**	**3.4%**
Personal Care and Service Occupations			
First-Line Supervisors of Personal Service and Entertainment and Recrea	$54,200	5.8%	0.4%
Animal Caretakers	$34,100	16.1%	1.1%
Amusement and Recreation Attendants	$29,700	4.0%	0.3%
Hairdressers, Hairstylists, and Cosmetologists	$35,400	18.9%	1.3%
Manicurists and Pedicurists	$29,500	6.2%	0.4%
Childcare Workers	$35,600	19.5%	1.3%
Exercise Trainers and Group Fitness Instructors	$59,300	11.1%	0.7%
Recreation Workers	$36,500	4.2%	0.3%
All Other Personal Care and Service Occupations (Avg. All Categories)	$38,900	14.3%	0.9%
Weighted Mean Annual Wage	***$38,900***	**100.0%**	**6.6%**
Sales and Related Occupations			
First-Line Supervisors of Retail Sales Workers	$47,000	9.1%	1.1%
Cashiers	$32,200	27.5%	3.2%
Counter and Rental Clerks	$40,300	2.8%	0.3%
Retail Salespersons	$34,800	36.0%	4.2%
Securities, Commodities, and Financial Services Sales Agents	$101,800	8.8%	1.0%
Sales Representatives of Services, Except Advertising, Insurance, Financ	$81,300	5.4%	0.6%
Sales Representatives, Wholesale and Manufacturing, Except Technical a	$81,800	3.2%	0.4%
All Other Sales and Related Occupations (Avg. All Categories)	$46,100	7.1%	0.8%
Weighted Mean Annual Wage	***$46,100***	**100.0%**	**11.8%**
Office and Administrative Support Occupations			
First-Line Supervisors of Office and Administrative Support Workers	$71,200	7.3%	0.9%
Bookkeeping, Accounting, and Auditing Clerks	$55,000	7.6%	0.9%
Customer Service Representatives	$49,200	13.8%	1.6%
Receptionists and Information Clerks	$40,000	10.8%	1.3%
Medical Secretaries and Administrative Assistants	$49,100	4.8%	0.6%
Secretaries and Administrative Assistants, Except Legal, Medical, and Exe	$51,200	11.0%	1.3%
Office Clerks, General	$46,900	16.0%	1.9%
All Other Office and Administrative Support Occupations (Avg. All Categor	$50,500	28.7%	3.4%
Weighted Mean Annual Wage	***$50,500***	**100.0%**	**11.9%**

Sources: U.S. Bureau of Labor Statistics, IMPLAN
Keyser Marston Associates, Inc.
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APPENDIX A TABLE 4
AVERAGE ANNUAL WORKER COMPENSATION, 2019
SERVICES TO HOUSEHOLDS EARNING $200K+
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total No. of Service Workers
Page 4 of 4			
Installation, Maintenance, and Repair Occupations			
First-Line Supervisors of Mechanics, Installers, and Repairers	$89,700	7.7%	0.2%
Automotive Body and Related Repairers	$57,600	10.3%	0.3%
Automotive Service Technicians and Mechanics	$58,600	28.1%	0.8%
Bus and Truck Mechanics and Diesel Engine Specialists	$68,800	6.0%	0.2%
Maintenance and Repair Workers, General	$56,200	15.8%	0.5%
All Other Installation, Maintenance, and Repair Occupations (Avg. All Cate	$62,300	32.1%	1.0%
Weighted Mean Annual Wage	***$62,300***	**100.0%**	**3.0%**
Transportation and Material Moving Occupations			
First-Line Supervisors of Transportation and Material Moving Workers, Ex	$66,700	4.3%	0.4%
Driver/Sales Workers	$34,900	4.5%	0.4%
Heavy and Tractor-Trailer Truck Drivers	$51,400	9.1%	0.8%
Light Truck Drivers	$48,800	6.3%	0.5%
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	$40,600	11.2%	0.9%
Parking Attendants	$34,300	9.9%	0.8%
Cleaners of Vehicles and Equipment	$33,500	6.6%	0.6%
Laborers and Freight, Stock, and Material Movers, Hand	$39,900	12.4%	1.0%
Stockers and Order Fillers	$36,200	17.4%	1.4%
All Other Transportation and Material Moving Occupations (Avg. All Categ	$41,100	18.2%	1.5%
Weighted Mean Annual Wage	***$41,100***	**100.0%**	**8.3%**
			87.6%

[1] The methodology utilized by the Bureau of Labor Statistics (BLS) assumes hourly paid employees are employed full-time. Annual compensation is calculated by multiplying hourly wages by 40 hours per work week by 52 weeks.

[2] Occupation percentages are based on the 2019 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on Occupational Employment Survey data applicable to San Mateo County as of 2019.

[3] Including occupations representing 3% or more of the major occupation group

Sources: U.S. Bureau of Labor Statistics, IMPLAN
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APPENDIX A TABLE 5
WORKER OCCUPATION DISTRIBUTION, 2019
EXISTING OFFICE / INDUSTRIAL SPACE
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

	Worker Occupation Distribution[1] Existing Office / Industrial Space
Management Occupations	*5.3%*
Business and Financial Operations Occupations	*3.6%*
Arts, Design, Entertainment, Sports, and Media Occupations	*7.9%*
Sales and Related Occupations	*6.3%*
Office and Administrative Support Occupations	*15.6%*
Construction and Extraction Occupations	*5.4%*
Installation, Maintenance, and Repair Occupations	*4.0%*
Production Occupations	*40.9%*
Transportation and Material Moving Occupations	*6.2%*
All Other Worker Occupations - Existing Office / Industrial Space	*4.8%*
INDUSTRY TOTAL	100.0%

[1] Distribution of employment by industry is per the IMPLAN model and the distribution of occupational employment within those industries is based on the Bureau of Labor Statistics Occupational Employment Survey.

Source: Bureau of Labor Statistics
Keyser Marston Associates, Inc.
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APPENDIX A TABLE 6
AVERAGE ANNUAL WORKER COMPENSATION, 2019
EXISTING OFFICE / INDUSTRIAL SPACE WORKERS
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total Office/Industrial Workers
Page 1 of 2			
Management Occupations			
Chief Executives	$236,100	3.1%	0.2%
General and Operations Managers	$155,900	54.9%	2.9%
Marketing Managers	$181,700	3.3%	0.2%
Sales Managers	$159,700	5.3%	0.3%
Computer and Information Systems Managers	$202,000	3.1%	0.2%
Financial Managers	$182,200	4.6%	0.2%
Industrial Production Managers	$140,900	11.5%	0.6%
Personal Service Managers, All Other; Entertainment and Recreation Man	$168,900	3.2%	0.2%
All other Management Occupations (Avg. All Categories)	$161,400	10.9%	0.6%
Weighted Mean Annual Wage	***$161,400***	**100.0%**	**5.3%**
Business and Financial Operations Occupations			
Buyers and Purchasing Agents	$79,000	10.2%	0.4%
Cost Estimators	$99,000	20.6%	0.7%
Human Resources Specialists	$89,800	8.0%	0.3%
Management Analysts	$113,800	3.1%	0.1%
Market Research Analysts and Marketing Specialists	$91,400	12.4%	0.4%
Project Management Specialists and Business Operations Specialists, All	$93,000	18.1%	0.6%
Accountants and Auditors	$93,600	18.5%	0.7%
All Other Business and Financial Operations Occupations (Avg. All Categ	$93,100	9.1%	0.3%
Weighted Mean Annual Wage	***$93,100***	**100.0%**	**3.6%**
Arts, Design, Entertainment, Sports, and Media Occupations			
Art Directors	$136,000	3.6%	0.3%
Commercial and Industrial Designers	$87,500	3.3%	0.3%
Graphic Designers	$77,100	65.3%	5.2%
Interior Designers	$72,200	19.2%	1.5%
All Other Arts, Design, Entertainment, Sports, and Media Occupations (Av	$78,800	8.5%	0.7%
Weighted Mean Annual Wage	***$78,800***	**100.0%**	**7.9%**
Sales and Related Occupations			
Retail Salespersons	$34,800	9.4%	0.6%
Sales Representatives of Services, Except Advertising, Insurance, Financ	$81,300	25.2%	1.6%
Sales Representatives, Wholesale and Manufacturing, Except Technical a	$81,800	54.5%	3.4%
All Other Sales and Related Occupations (Avg. All Categories)	$76,700	11.0%	0.7%
Weighted Mean Annual Wage	***$76,700***	**100.0%**	**6.3%**
Office and Administrative Support Occupations			
First-Line Supervisors of Office and Administrative Support Workers	$71,200	5.3%	0.8%
Bookkeeping, Accounting, and Auditing Clerks	$55,000	10.4%	1.6%
Customer Service Representatives	$49,200	26.0%	4.1%
Production, Planning, and Expediting Clerks	$63,200	5.0%	0.8%
Shipping, Receiving, and Inventory Clerks	$42,900	12.4%	1.9%
Secretaries and Administrative Assistants, Except Legal, Medical, and Exe	$51,200	8.0%	1.3%
Mail Clerks and Mail Machine Operators, Except Postal Service	$39,000	4.0%	0.6%
Office Clerks, General	$46,900	16.1%	2.5%
All Other Office and Administrative Support Occupations (Avg. All Categor	$50,400	12.8%	2.0%
Weighted Mean Annual Wage	***$50,400***	**100.0%**	**15.6%**

Source: U.S. Bureau of Labor Statistics
Keyser Marston Associates, Inc.
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APPENDIX A TABLE 6
AVERAGE ANNUAL WORKER COMPENSATION, 2019
EXISTING OFFICE / INDUSTRIAL SPACE WORKERS
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Occupation Group [2]	% of Total Office/Industrial Workers
Page 2 of 2			
Construction and Extraction Occupations			
First-Line Supervisors of Construction Trades and Extraction Workers	$99,600	6.4%	0.3%
Carpenters	$71,500	21.0%	1.1%
Tile and Stone Setters	$59,400	4.2%	0.2%
Construction Laborers	$56,000	7.7%	0.4%
Drywall and Ceiling Tile Installers	$70,700	12.4%	0.7%
Insulation Workers, Floor, Ceiling, and Wall	$66,700	3.5%	0.2%
Painters, Construction and Maintenance	$67,800	23.2%	1.3%
All Other Construction and Extraction Occupations (Avg. All Categories)	$70,200	21.6%	1.2%
Weighted Mean Annual Wage	***$40,300***	**100.0%**	**5.4%**
Installation, Maintenance, and Repair Occupations			
First-Line Supervisors of Mechanics, Installers, and Repairers	$89,700	7.2%	0.3%
Telecommunications Equipment Installers and Repairers, Except Line Inst	$69,100	15.4%	0.6%
Automotive Body and Related Repairers	$57,600	20.5%	0.8%
Automotive Glass Installers and Repairers	$33,500	3.8%	0.2%
Industrial Machinery Mechanics	$78,000	9.2%	0.4%
Maintenance Workers, Machinery	$63,100	3.1%	0.1%
Telecommunications Line Installers and Repairers	$64,400	8.0%	0.3%
Maintenance and Repair Workers, General	$56,200	16.4%	0.7%
Installation, Maintenance, and Repair Workers, All Other	$55,200	4.5%	0.2%
All Other Installation, Maintenance, and Repair Occupations (Avg. All Cate	$63,700	12.0%	0.5%
Weighted Mean Annual Wage	***$40,300***	**100.0%**	**4.0%**
Production Occupations			
First-Line Supervisors of Production and Operating Workers	$76,700	7.3%	3.0%
Prepress Technicians and Workers	$53,100	7.1%	2.9%
Printing Press Operators	$43,700	41.9%	17.1%
Print Binding and Finishing Workers	$39,100	14.6%	6.0%
Helpers--Production Workers	$34,400	4.2%	1.7%
All Other Production Occupations (Avg. All Categories)	$46,400	24.9%	10.2%
Weighted Mean Annual Wage	***$40,300***	**100.0%**	**40.9%**
Transportation and Material Moving Occupations			
Heavy and Tractor-Trailer Truck Drivers	$51,400	3.3%	0.2%
Light Truck Drivers	$48,800	10.4%	0.6%
Industrial Truck and Tractor Operators	$43,900	7.0%	0.4%
Laborers and Freight, Stock, and Material Movers, Hand	$39,900	29.3%	1.8%
Machine Feeders and Offbearers	$43,900	12.3%	0.8%
Packers and Packagers, Hand	$33,000	20.0%	1.2%
Stockers and Order Fillers	$36,200	10.0%	0.6%
All Other Transportation and Material Moving Occupations (Avg. All Categ	$40,300	7.8%	0.5%
Weighted Mean Annual Wage	***$40,300***	**100.0%**	**6.2%**
			95.2%

[1] The methodology utilized by the Bureau of Labor Statistics (BLS) assumes hourly paid employees are employed full-time. Annual compensation is calculated by multiplying hourly wages by 40 hours per work week by 52 weeks.

[2] Occupation percentages are based on the 2019 National Industry - Specific Occupational Employment survey compiled by the Bureau of Labor Statistics. Wages are based on Occupational Employment Survey data applicable to San Mateo County as of 2019.

[3] Including occupations representing 3% or more of the major occupation group

Source: U.S. Bureau of Labor Statistics
Keyser Marston Associates, Inc.
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APPENDIX A TABLE 7
AVERAGE ANNUAL WORKER COMPENSATION, 2019
BUILDING SERVICES
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Building Services Workers
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	$38,900	75.0%
Maintenance and Repair Workers, General	$56,200	25.0%
		100.0%

[1] The methodology utilized by the Bureau of Labor Statistics (BLS) assumes hourly paid employees are employed full-time. Annual compensation is calculated by multiplying hourly wages by 40 hours per work week by 52 weeks.

Source: Bureau of Labor Statistics
Keyser Marston Associates, Inc.
\\SF-FS2\wp\15\15885\004\HNA - 141 Jefferson 9-15-2020.xlsm; 9/18/2020; dd

APPENDIX A TABLE 8
AVERAGE ANNUAL WORKER COMPENSATION, 2019
APARTMENT PROPERTY MANAGEMENT
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Apartment Property Management Workers
Property, Real Estate, and Community Association Managers	$92,900	20.0%
Maintenance and Repair Workers, General	$56,200	40.0%
Grounds Maintenance Workers, All Other	$54,100	40.0%
		100.0%

[1] The methodology utilized by the Bureau of Labor Statistics (BLS) assumes hourly paid employees are employed full-time. Annual compensation is calculated by multiplying hourly wages by 40 hours per work week by 52 weeks.

Source: Bureau of Labor Statistics
Keyser Marston Associates, Inc.
\\SF-FS2\wp\15\15885\004\HNA - 141 Jefferson 9-15-2020.xlsm; 9/18/2020; dd

APPENDIX A TABLE 9
AVERAGE ANNUAL WORKER COMPENSATION, 2019
COMMERCIAL
HOUSING NEEDS ASSESSMENT - MENLO UPTOWN PROJECT
MENLO PARK, CA

Occupation [3]	2019 Avg. Compensation [1]	% of Total Commercial Workers
First-Line Supervisors of Food Preparation and Serving Worke	$44,600	25.0%
Food Preparation Workers	$31,800	50.0%
Food Servers, Nonrestaurant	$35,200	25.0%
		100.0%

[1] The methodology utilized by the Bureau of Labor Statistics (BLS) assumes hourly paid employees are employed full-time. Annual compensation is calculated by multiplying hourly wages by 40 hours per work week by 52 weeks.

Source: Bureau of Labor Statistics
Keyser Marston Associates, Inc.
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APPENDIX E

TRANSPORTATION IMPACT ANALYSIS

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Menlo Uptown – Transportation Impact Analysis

INTRODUCTION

This Transportation Impact Analysis (TIA) presents the analysis methodology and findings of the intersection and roadway segment level of service assessment conducted for the Menlo Uptown project located at 141 Jefferson Drive in Menlo Park, California.

For purposes of disclosing potential transportation impacts, projects in the City of Menlo Park use the City's current TIA Guidelines to ensure compliance with both State and local requirements.[1] Up until July 1, 2020, the City's TIA Guidelines used roadway congestion or level of service (LOS) as the primary study metric for planning and environmental review purposes. However, Senate Bill (SB) 743 required the Governor's Office of Planning and Research (OPR) to establish a new metric for identifying and mitigating transportation impacts under CEQA in an effort to meet the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation. CEQA Section 21099(b)(2) states that upon certification of the revised guidelines for determining transportation impacts pursuant to CEQA section 21099(b)(1), automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA. OPR identified vehicle miles traveled (VMT) as the required CEQA transportation metric for determining potentially significant environmental impacts.[2] In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the section implementing SB 743 (CEQA Guidelines Section 15064.3). OPR developed a *Technical Advisory on Evaluating Transportation Impacts in CEQA,* which contains OPR's technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures.[3] As of July 1, 2020, VMT (not LOS) is the only legally acceptable threshold for transportation-related environmental impacts pursuant to CEQA.

As stated above, LOS is no longer a CEQA threshold. However, the City's TIA Guidelines require that the TIA also analyzes LOS for local planning purposes. The LOS analysis would determine whether the project traffic would cause an intersection LOS to exceed the City's LOS thresholds or cause either the average delay or average critical delay to exceed the City's intersection delay thresholds under near term and cumulative conditions. The LOS and delay thresholds vary depending on the street classifications as well as whether the intersection is on a State route or not. The City's TIA Guidelines further require an analysis of the proposed project in relation to relevant policies of the Circulation Element and consideration of specific measures to address noncompliance with local policies which may occur as a result of the addition

[1] Menlo Park, City of. 2020a. *Transportation Impact Analysis Guidelines*. Website: www.menlopark.org/DocumentCenter/View/302/Transportation-Impact-Analysis-Guidelines?bidId= (accessed July 10, 2020). July.

[2] California Office of Planning and Research. 2016. *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing Senate Bill 743 (Steinberg, 2013)*. January 20.

[3] California Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA.* Website: opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (accessed February 7, 2019). December 18.

of project traffic. This analysis is prepared to determine if there are potential measures that could bring the proposed project into conformance with Circulation Policy 3.4 (strive to maintain LOS D at all City controlled intersections).

PROJECT DESCRIPTION

The proposed project would consist of 441 multi-family dwelling units in two apartment buildings at 141 Jefferson Drive and 42 townhome units at 180-186 Constitution Drive, as well as approximately 2,940 square feet of office uses integrated into the ground floor of one of the apartment buildings. A leasing office, bike storage rooms with 662 bicycle parking spaces, bike repair shop, and a fitness center would be provided on the ground floor of the apartment buildings. The townhouse complex would provide 63 long-term bicycle spaces. Two ground-level parking garages with a combined 484 vehicle parking spaces in automated stackers would be accessible from Constitution Drive and Jefferson Drive. Access to the two parking garages would be via two two-way entry points. One parking garage would be accessed by a two-way driveway located on Jefferson Drive and the other parking garage would be accessed by a two-way driveway located on Constitution Drive. Emergency vehicle access would be provided via a service fire lane to the south side of the project site and a fire apparatus access road that provides emergency vehicle access from Constitution Drive.

Pedestrian access to the proposed buildings would be provided from Jefferson Drive, from Constitution Drive, and within the site interior. The project includes dedication of easements along Jefferson Drive and Constitution Drive to construct a portion of public sidewalk within the site. Within the site, pedestrian walkways are incorporated around the apartment buildings and the townhouse complex and a 20-foot-wide paseo extending from Jefferson Drive to Constitution Drive would be constructed.

Transportation Demand Management Plan

The proposed project would implement TDM plan in an effort to reduce project-generated vehicle trips and encourage travel by other modes.[4] The TDM Plan includes the following measures:

- TDM Administration and Promotion
    - Assign a Transportation Coordinator to provide information regarding alternative modes of transportation to residents
    - Establish an online kiosk with transportation information including a summary of SamTrans, Caltrain, and nearby shuttle services, information about ride matching services and ridesharing services, local bikeway map and bicycling resources, and links to other resources in the Bay Area
    - Provide transportation information packets to new residents
- Bicycle and Pedestrian Amenities
    - Provide long-term bicycle parking spaces in secured bike storage rooms

[4] Hexagon Transportation Consultants, Inc. 2019. *Menlo Uptown Housing Development in Menlo Park TDM Plan*.

  - Provide short-term bicycle parking spaces outdoors
  - Add new sidewalks with street trees along the project's Constitution Drive and Jefferson Drive frontages
  - Provide 20-foot-wide, well-lit, accessible paseo and complete sidewalks around the apartment buildings and the townhouse complex

- On-site Amenities
  - Include electric vehicle charging stations
  - Provide high-bandwidth internet connections to facilitate telecommunications
  - Include refrigerated mail areas to facilitate the delivery of groceries

- Carpool and Vanpool Programs
  - Provide a carpool/vanpool matching application to all residents as part of the welcome packets
  - Promote 511 RideMatch service and Scoop services

- Unbundle parking costs from each living unit.

Project Trip Generation

The vehicle trip generation estimates for the proposed residential and commercial space and the existing office building were calculated using the trip generation rates from the most recent ITE Trip Generation Manual (10th Edition, 2018)[5]. The land use categories for General Office Building (ITE Code 710), General Light Industrial (ITE Code 110), Multi-Family Housing Mid-Rise (ITE Code 221), and Coffee/Donut Shop with Drive-Through Window (ITE Code 936), were applied to this analysis.

The specific land use, tenant, and square footage of the proposed ground-floor commercial space is uncertain at this time. In order to provide a conservative (i.e., high) estimate of the potential travel demand associated with this use, the Coffee/Donut Shop rate was used. For reference, the currently proposed 2,940 square foot office space would generate a total of 3 trips during the AM peak hour and 3 trips during the PM peak hour. As shown in Table 1, a 2,100 square foot café would generate 100 trips during the AM peak hour and 35 trips during the PM peak hour, or 300 percent and 11 percent more trips, respectively. As such, the transportation analysis can be considered conservative and allow for flexibility for selecting the future tenant of the commercial space.

Consistent with the Menlo Park TIA Guidelines,[6] vehicle trip reductions were taken into account for pass-by/walk-in trips, internalized trips, the TDM Plan,[7] and existing uses.

[5] Institute of Transportation Engineers. 2018. *Trip Generation Manual, 10th Edition*.

[6] Menlo Park, City of. 2020a, op. cit.

[7] Hexagon Transportation Consultants, Inc. 2019, op. cit.

The trip subtotal for the commercial space includes a 10 percent internalization reduction for the trips made onsite and not utilizing external streets, and a 43 percent pass-by/walk-in reduction to account for stops made at the commercial space, therefore not generating new trips. A 20 percent reduction was applied to account for the proposed TDM Plan which would comply with City Ordinance 1026[8] and achieve the required minimum of 20 percent reduction of daily and peak hour vehicle trips. Additionally, because the site is occupied by existing active office and industrial buildings, trip credits were applied to account for the removal of the existing 110,356 square feet of office and industrial space.

As shown in Table 1, application of the vehicle trip generation rates, internalization and pass-by/walk-in assumptions, and trip reductions associated with the proposed TDM Plan would result in a net project-generated increase in the number of daily and AM and PM peak hour vehicle trips. The proposed project would generate 2,772 net new daily vehicle trips, 114 net new AM peak hour vehicle trips (-13 inbound trips and 127 outbound trips) and 96 net new PM peak hour vehicle trips (103 inbound trips and -7 outbound trips). As described in the project description, a 2,940 square foot office space is currently proposed. An office space of this size would generate fewer trips than the 2,100 square foot café that is analyzed as the commercial use. The transportation analysis evaluates a project with higher trip generation potential and can therefore be considered conservative while also allowing flexibility in selecting the future tenant of the commercial space. The vehicle trip generation estimates used in this analysis have been approved by the City of Menlo Park.

Table 1 Vehicle Trip Generation Estimates

Land Use (ITE Code)	Size	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Existing Uses								
Office Building (ITE Code 710)	72,033 sf	(702)	(72)	(12)	(84)	(13)	(70)	(83)
Industrial Building (ITE Code 110)	30,179 sf	(150)	(18)	(3)	(21)	(2)	(17)	(19)
Proposed Uses								
Residential (ITE Code 221)	483 du	2,628	45	129	174	130	83	213
Coffee/Donut Shop (ITE Code 936)[1]	2,100 sf[1]	2,120	108	104	212	38	38	76
Internalization: 5%	-	(212)	(11)	(10)	(21)	(4)	(4)	(8)
Pass-By/Walk-in: 43%	-	(912)	(46)	(45)	(91)	(17)	(16)	(33)
Coffee/Donut Shop Subtotal	-	996	51	49	100	617	18	35
PROPOSED USES SUBTOTAL		3,624	96	178	274	147	101	248
TDM Plan: 20%		-	(19)	(36)	(55)	(29)	(21)	(50)
PROPOSED USES TOTAL		3,624	77	142	219	118	80	198
NET NEW PROJECT VEHICLE TRIPS		**2,772**	**-13**	**127**	**114**	**103**	**-7**	**96**

Source: *ITE Trip Generation Manual, 10th Edition* (2018).
du = dwelling units
sf = square feet
[1] The specific land use, tenant, and square footage of the proposed ground-floor commercial space is uncertain at this time. In order to provide a conservative (i.e., high) estimate of the potential travel demand associated with this use, the rate for the Coffee/Donut Shop was used. For reference, a 2,940 square foot office would generate a total of 3 trips during the AM peak hour and 3 trips during the PM peak hour. As currently analyzed, the 2,100 square foot Coffee/Donut Shop would generate 100 trips during the AM peak hour and 35 trips during the PM peak hour, or 300 percent and 11 percent more trips, respectively.

[8] Menlo Park, City of. Ordinance No. 1026. Available online at: www.menlopark.org/DocumentCenter/View/12605/1026---GP-MU-District?bidId= (accessed September 28, 2020).

Project Trip Distribution

Project-generated vehicle traffic was distributed to the surrounding roadway network based on travel surveys and existing traffic patterns. Project-added traffic volumes at the study intersections are included in Attachment 1.

SCOPE OF ANALYSIS AND METHODOLOGY

The analysis scope and methodology, data collection methods, and study locations are described in this section. The analysis scope presented in this chapter and all methodologies herein were reviewed and approved by the City of Menlo Park.

Analysis Scenarios

Transportation conditions were evaluated in this study for the following five scenarios:

- **Existing Conditions** – This scenario represents the current transportation network and traffic conditions. Existing turning movement counts collected in March 2019 were obtained from City staff and grown by one percent to represent growth from 2019 to 2020 when the analysis was conducted.[9] Signal timing information was obtained from the City.

- **Near Term (2022) Conditions** – This scenario represents the transportation network and traffic conditions at the time of expected occupancy of the proposed project but does not include the proposed project. This scenario includes transportation network changes, background traffic, and traffic generated from approved development projects in the area.

- **Near Term (2022) Plus Project Conditions** – This scenario represents Near Term (2022) Conditions with the addition of project-generated traffic[10].

- **Cumulative (2040) Conditions** – This scenario represents the transportation network and traffic conditions over a longer-term horizon to account for the cumulative effects of transportation network changes as well as background growth and land use development within the project area. This scenario assumes Conditions (2040) Conditions plus traffic generated from additional approved and reasonably foreseeable development projects in the area. This scenario does not include the proposed project. Volumes used for this scenario were estimated using the citywide traffic model and adjusted to reflect cumulative growth and development in the area.

[9] The analysis relies on historical data with application of growth factors to estimate traffic volumes representing existing conditions because collection of new data was not recommended during the public health crisis, COVID-19. The COVID-19 pandemic has resulted in shelter-in-place orders across the Bay Area and travel demand is significantly reduced across all modes. Travel behaviors and travel patterns have also changed substantially as a result of multiple factors such as school closures, restrictions on business operations, and an increased amount of telecommuting.

[10] The specific land use, tenant, and square footage of the proposed ground-floor commercial space is uncertain at this time. In order to provide a conservative (i.e., high) estimate of the potential travel demand associated with this use, the Coffee/Donut Shop rate was used. As such, the transportation analysis can be considered conservative and allow for flexibility for selecting the future tenant of the commercial space.

- **Cumulative (2040) Plus Project Conditions** – This scenario represents Cumulative (2040) Conditions with the addition of project-generated traffic.

Level of Service Analysis

Although the law required the transition to vehicle miles traveled (VMT) as the metric for significance in environmental analysis, level of service (LOS) can still be considered for planning purposes and modifications to address deficiencies in compliance with the City's General Plan LOS standard may be achieved through conditions of approval. With the adoption of the updated transportation impact analysis (TIA) Guidelines the City Council indicated continued concern over roadway congestion and the TIA Guidelines continue to require analysis of LOS alongside VMT. Consistent with the City's TIA Guidelines, a level of service analysis was conducted to evaluate compliance with local policies.

Intersection Level of Service

Level of service describes the operating conditions experienced by motorists. LOS is a qualitative measure of the effect of several 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 2.

Signalized Intersections

Signalized intersection analysis was conducted using the operational methodology outlined in the Highway Capacity Manual (HCM) (Transportation Research Board, Washington, D.C., 2016), as operationalized by Vistro 2020[11]. The HCM 6th Edition procedure calculates a weighted average stop delay in seconds per vehicle at an intersection and assigns a level of service designation based on the delay. Table 3 presents the relationship of average delay to level of service at signalized intersections.

Unsignalized Intersections

Unsignalized intersection analysis was also conducted using the operational methodology outlined in the HCM, as operationalized by Vistro 2020. Table 4 presents the relationship of average delay to level of service for unsignalized intersections.

[11] Vistro is a traffic engineering software allows creation of a transportation network model and applies industry standard methodologies to evaluate signalized and unsignalized intersections.

Table 2: General Level of Service Definitions

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

Table 3: Signalized Intersection Level of Service Definitions

Average Delay per Vehicle (Seconds)	Level of Service	Description of Traffic Conditions
≤10.0	A	Free flowing. Most vehicles do not have to stop.
>10.0 and ≤20.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.
≤80.0	F	Excessive delays. Intersection is jammed. Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into "up-stream" intersections.

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

Table 4: Unsignalized Intersection Level of Service Definitions

Average Delay per Vehicle (Seconds)	Level of Service	Description of Traffic Conditions
≤10.0	A	Free flowing. Most vehicles do not have to stop.
>10.0 and ≤15.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.
>15.0 and ≤25.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.
>25.0 and ≤35.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Queues begin to form, often on more than one approach.
>35.0 and ≤50.0	E	Significant delays. Long queues form, sometimes on several approaches.
>50.0	F	Excessive delays. Intersection is jammed. Many cars have to wait more than 60 seconds. Traffic may back up into "up-stream" intersections.

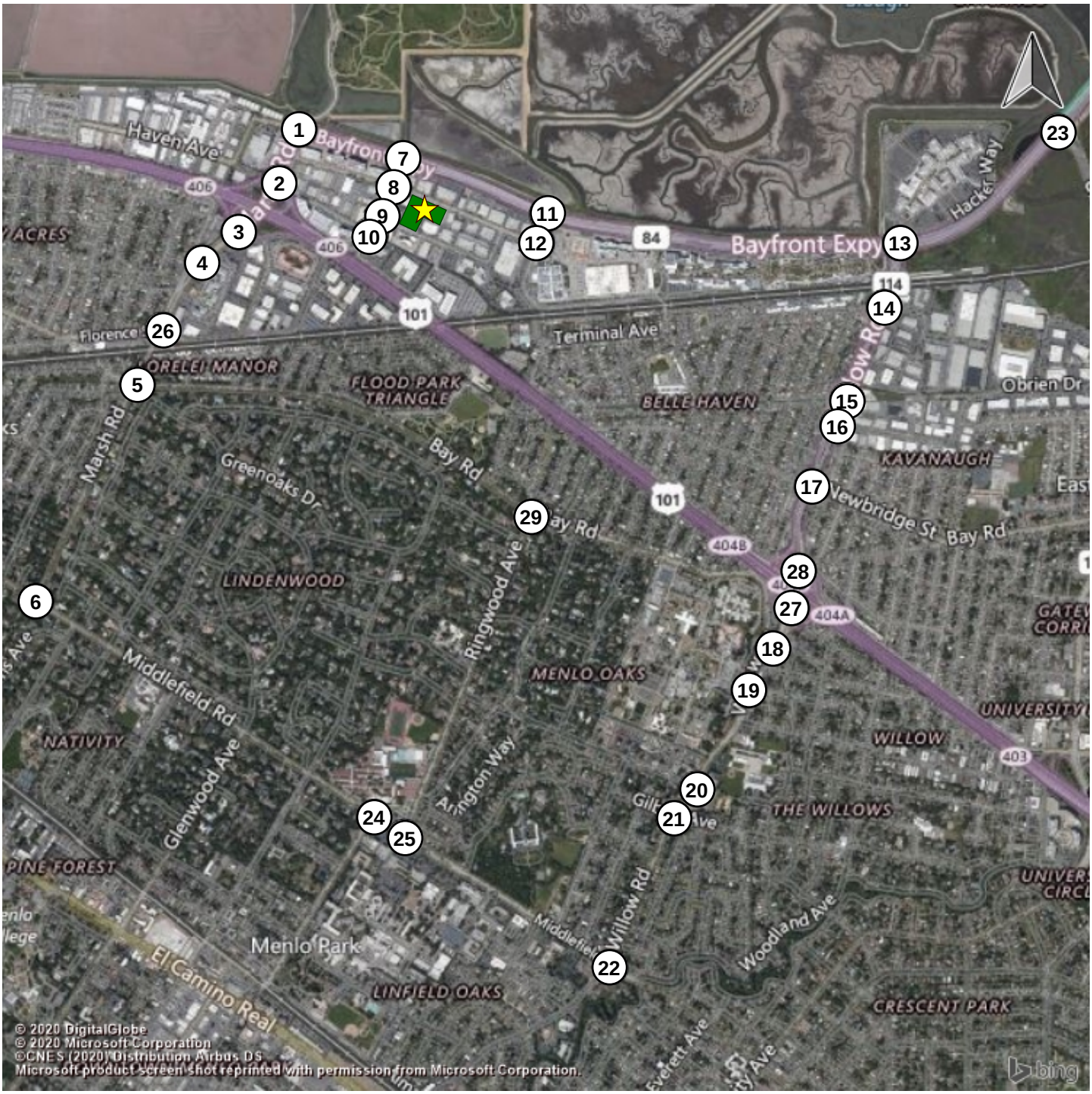
Source: *Highway Capacity Manual*, Transportation Research Board, Washington, D.C., 2016.

Study Intersections

Level of service was analyzed[12] at 29 study intersections. The study locations are presented in Figure 1. The City of Menlo Park conducted traffic counts for the two peak periods, 7 AM to 9 AM and 4 PM to 6 PM, in March 2019. The peak hours at each location were identified in these counts and used in the operations analysis.

[12] Intersection operations are not a CEQA topic but are analyzed as a local requirement in compliance with the General Plan Circulation Element.

Study Intersections



The study intersections and associated jurisdiction are listed below.

1. Marsh Road and Bayfront Expressway/Haven Avenue (Local Approaches to State)
2. Marsh Road and US-101 NB Off-Ramp (State)
3. Marsh Road and US-101 SB Off-Ramp (State)
4. Marsh Road and Scott Drive (Menlo Park)
5. Marsh Road and Bay Road (Menlo Park)
6. Marsh Road and Middlefield Road (Atherton)
7. Chrysler Drive and Bayfront Expressway (Local Approaches to State)
8. Chrysler Drive and Constitution Drive (Menlo Park)
9. Drive and Jefferson Drive (Menlo Park)
10. Chrysler Drive and Independence Drive (Menlo Park)
11. Chilco Street and Bayfront Expressway (Local Approaches to State)
12. Chilco Street and Constitution Drive (Menlo Park)
13. Willow Road and Bayfront Expressway (State)
14. Willow Road and Hamilton Avenue (Local Approaches to State)
15. Willow Road and Ivy Drive (Local Approaches to State)
16. Willow Road and O'Brien Drive (Local Approaches to State)
17. Willow Road and Newbridge Street (Local Approaches to State)
18. Willow Road and Bay Road (Local Approaches to State)
19. Willow Road and Durham Street (Menlo Park)
20. Willow Road and Coleman Avenue (Menlo Park)
21. Willow Road and Gilbert Avenue (Menlo Park)
22. Willow Road and Middlefield Road (Menlo Park)
23. University and Bayfront Expressway (State)
24. Middlefield Road and Ravenswood Avenue (Menlo Park)
25. Middlefield Road and Ringwood Avenue (Menlo Park)
26. Marsh Road and Florence Street-Bohannon Drive (Menlo Park)
27. Willow Road and US-101 SB Ramps (State)
28. Willow Road and US-101 NB Ramps (State)
29. Bay Road and Ringwood Avenue (Menlo Park)

Roadway Segment Level of Service

C/CAG has adopted guidelines to evaluate the impacts of net new vehicle trips generated by new developments on the CMP network. These guidelines apply to all developments that generate 100 or more net new peak period vehicular trips on the CMP network and are subject to CEQA review. The proposed project would generate more than 100 net new peak period vehicular trips. Therefore, roadway segment level of service analysis is required.

The study segments consist of freeways and arterials that are included in the San Mateo County Congestion Management Program (CMP). The CMP roadway system consists of four types of segments including freeways, multilane highways, two-lane highways, and arterials. The descriptions of the levels of service for freeways and arterials are shown in Table 5.

Table 5: LOS Descriptions for CMP Freeways and Arterials

Level of Service	CMP Roadway Type	
	Freeways	**Arterials**
A	Highest quality of service with free-flow condition and a high level of maneuverability.	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.
B	Free-flow condition, but with presence of other vehicles. Minor disruptions easily aborted.	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.
C	Stable operations, but minor disruptions cause significant local congestion.	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.
D	Borders on unstable flow with ability to maneuver severely restricted due to congestion	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.
E	Unstable operations at or near capacity. Disruptions cannot be dissipated and form bottlenecks.	Operations with significant intersection approach delays and low average speeds.
F	Forced or breakdown flow with bottlenecks forming at locations where demand exceeds capacity. Speeds may drop to zero.	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.

Source: Adapted from San Mateo County Congestion Management Program 2019 and Highway Capacity Manual, Special Report 209.

CMP legislation requires use of LOS to measure roadway performance while the recently adopted CEQA guidelines require VMT as the primary metric. The level of service evaluation for the CMP segments are based on volume-to-capacity (v/c) ratios for each direction of travel as recommended by C/CAG to analyze their CMP roadway system (Appendix B, San Mateo County Congestion Management Program 2019). The traffic volume for each segment is divided by the capacity of the segment. For freeway segments, the capacity is estimated as the number of lanes multiplied by 2,200 vehicles per hour per lane for 4-lane freeway segments and 2,300 vehicles per hour per lane for segments with 6 or more lanes. For arterials, the capacity is estimated based on a saturation flow rate of 1,900 vehicles per hour per lane and the assumption that the arterials would receive 60 percent of the green time, which the arterial capacity becomes 1,100 vehicles per hour per lane. The v/c for freeways and arterials is correlated to LOS based on the information in Table 6 and Table 7, respectively.

Table 6: CMP LOS Criteria for Freeways based on v/c Ratios

Level of Service	Maximum Volume-to-Capacity (v/c) Ratio	
	4-Lane Freeways (FFS = 65 mph)	**6-Lane and 8-Lane Freeways (FFS = 65 mph)**
A	0.295	0.283
B	0.473	0.457
C	0.704	0.673
D	0.887	0.849
E	1.000	1.000
F	Variable	Variable

Source: Adapted from Highway Capacity Manual, Special Report 209.
Note: FFS = Free-Flow Speed. Mph = miles per hour.

Table 7: CMP LOS Criteria for Arterials based on v/c Ratios

Level of Service	Volume-to-Capacity (v/c) Ratio
A	< 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

Source: Adapted from Highway Capacity Manual, Special Report 209.

Study Roadway Segments

Traffic operations for the study CMP segments were conducted by C/CAG through the CMP monitoring program. C/CAG performed a study for all CMP roadways for the two peak periods, 7 AM to 9 AM and 4 PM to 7 PM, in Spring of 2019. C/CAG calculated LOS for each peak period based on the methodologies in the Highway Capacity Manual (HCM) 1994 (Appendix F, San Mateo County Congestion Management Program 2019). The study CMP segments include 5 arterials and 4 freeway segments as listed below:

Arterials

1. Bayfront Expressway (SR 84): Bayshore Freeway (US 101) to Willow Road (SR 114)
2. Bayfront Expressway (SR 84): Willow Road (SR 114) to University Avenue (SR 109)
3. Bayfront Expressway (SR 84): University Avenue (SR 109) to San Mateo County Line
4. University Avenue (SR 109): Bayshore Freeway (US 101) to Bayfront Expressway (SR 84)
5. Willow Road (SR 114): Bayshore Freeway (US 101) to Bayfront Expressway (SR 84)

Freeways

6. Bayshore Freeway (US 101): north of Marsh Road
7. Bayshore Freeway (US 101): Marsh Road to Willow Road (SR 114)
8. Bayshore Freeway (US 101): Willow Road (SR 114) to University Avenue (SR 109)
9. Bayshore Freeway (US 101): south of University Avenue (SR 109)

EXISTING CONDITIONS

Intersection Level of Service

The turning movement volumes for the 29 study intersections were acquired from the City's database, which reflects the 2019 counts. The turning movement volumes for the study intersection are provided in Attachment 1 and the existing lane configurations are provided in Attachment 2. The level of service results for the study intersections during the existing AM and PM peak hours are shown in Table 8. The Vistro analysis outputs are provided in Attachment 3.

The intersections listed below operate at LOS not meeting the City's LOS Standard during one or both peak hours. All other study intersections operate in compliance with the LOS standard under Existing Conditions.

- Intersection #1, Marsh Road and Bayfront Expressway/Haven Avenue (Local Approaches to State): AM
- Intersection #10, Chrysler Drive and Independence Drive (Menlo Park): AM
- Intersection #12, Chilco Street and Constitution Drive (Menlo Park): AM and PM
- Intersection #13, Willow Road and Bayfront Expressway (State): AM and PM
- Intersection #14, Willow Road and Hamilton Avenue (Local Approaches to State): PM
- Intersection #17, Willow Road and Newbridge Street (Local Approaches to State): AM and PM
- Intersection #18, Willow Road and Bay Road (Local Approaches to State): AM and PM
- Intersection #19, Willow Road and Durham Street (Menlo Park): AM
- Intersection #20, Willow Road and Coleman Avenue (Menlo Park): AM and PM
- Intersection #21, Willow Road and Gilbert Avenue (Menlo Park): AM
- Intersection #22, Willow Road and Middlefield Road (Menlo Park): AM
- Intersection #23, University and Bayfront Expressway (State): PM
- Intersection #27, Willow Road and US-101 SB Ramps (State): AM
- Intersection #28, Willow Road and US-101 NB Ramps (State): AM and PM
- Intersection #29, Bay Road and Ringwood Avenue (Menlo Park): PM

Manual on Uniform Traffic Control Devices (MUTCD) peak hour signal warrant analysis was conducted at the unsignalized intersections. Two of the study intersections including the intersection of Chilco Street and Constitution Drive (Intersection #12) and the intersection of Bay Road and Ringwood Avenue (Intersection #29), which operate with all-way stop control under Existing Conditions, met the peak hour signal warrant during both the AM and PM peak hours. No other study unsignalized intersections met the peak hour signal warrant during either peak hour.

Table 8: Existing Conditions Level of Service

No.	Intersection	Control	Peak Hour	Existing		Meet General Plan Standard?
				Delay	LOS	
1	Marsh Road & Bayfront Expressway/Haven Avenue (Local Approaches to State)	Signal	AM	**56.9**	**E**	**No**
			PM	36.5	D	Yes
2	Marsh Road & US-101 NB Off-Ramp (State)	Signal	AM	15.8	B	N/A
			PM	13.3	B	N/A
3	Marsh Road & US-101 SB Off-Ramp (State)	Signal	AM	18.1	B	N/A
			PM	17.0	B	N/A
4	Marsh Road & Scott Drive (Menlo Park)	Signal	AM	18.5	B	Yes
			PM	15.3	B	Yes
5	Marsh Road & Bay Road (Menlo Park)	Signal	AM	19.7	B	Yes
			PM	18.6	B	Yes
6	Marsh Road & Middlefield Road (Atherton)	Signal	AM	35.0	D	N/A
			PM	37.9	D	N/A
7	Chrysler Drive & Bayfront Expressway (Local Approaches to State)	Signal	AM	8.4	A	Yes
			PM	13.1	B	Yes
8	Chrysler Drive & Constitution Drive (Menlo Park)	Signal	AM	50.6	D	Yes
			PM	28.0	C	Yes
9	Chrysler Drive & Jefferson Drive (Menlo Park)	TWSC[1]	AM	18.6	C	Yes
			PM	19.0	C	Yes
10	Chrysler Drive & Independence Drive (Menlo Park)	TWSC[2]	AM	**44.0**	**E**	**No**
			PM	17.9	C	Yes
11	Chilco Street & Bayfront Expressway (Local Approaches to State)	Signal	AM	12.7	B	Yes
			PM	16.0	B	Yes
12	Chilco Street & Constitution Drive (Menlo Park)	AWSC[3]	AM	**32.1**	**D**	**No**
			PM	**32.5**	**D**	**No**
13	Willow Road & Bayfront Expressway (State)	Signal	AM	**106.0**	**F**	**N/A**
			PM	**168.1**	**F**	**N/A**
14	Willow Road & Hamilton Avenue (Local Approaches to State)	Signal	AM	35.6	D	Yes
			PM	**144.9**	**F**	**No**
15	Willow Road & Ivy Drive (Local Approaches to State)	Signal	AM	43.9	D	Yes
			PM	41.2	D	Yes
16	Willow Road & O'Brien Drive (Local Approaches to State)	Signal	AM	54.5	D	Yes
			PM	38.8	D	Yes
17	Willow Road & Newbridge Street (Local Approaches to State)	Signal	AM	**169.1**	**F**	**No**
			PM	**168.6**	**F**	**No**
18	Willow Road & Bay Road (Local Approaches to State)	Signal	AM	**115.5**	**F**	**No**
			PM	**120.1**	**F**	**No**
19	Willow Road & Durham Street (Menlo Park)	Signal	AM	**190.6**	**F**	**No**
			PM	36.3	D	Yes
20	Willow Road & Coleman Avenue (Menlo Park)	Signal	AM	**83.9**	**F**	**No**

Table 8: Existing Conditions Level of Service

No.	Intersection	Control	Peak Hour	Existing		Meet General Plan Standard?
				Delay	LOS	
			PM	**55.1**	**E**	**No**
21	Willow Road & Gilbert Avenue (Menlo Park)	Signal	AM	**83.4**	**F**	**No**
			PM	54.3	D	Yes
22	Willow Road & Middlefield Road (Menlo Park)	Signal	AM	**67.1**	**E**	**No**
			PM	35.9	D	Yes
23	University & Bayfront Expressway (State)	Signal	AM	11.4	B	N/A
			PM	**94.1**	**F**	**N/A**
24	Middlefield Road & Ravenswood Avenue (Menlo Park)	Signal	AM	48.7	D	Yes
			PM	16.1	B	Yes
25	Middlefield Road & Ringwood Avenue (Menlo Park)	Signal	AM	12.5	B	Yes
			PM	13.7	B	Yes
26	Marsh Road & Florence Street-Bohannon Drive (Menlo Park)	Signal	AM	35.3	D	Yes
			PM	34.6	C	Yes
27	Willow Road & US-101 SB Ramps (State)	Signal	AM	**103.1**	**F**	**N/A**
			PM	20.7	C	N/A
28	Willow Road & US-101 NB Ramps (State)	Signal	AM	**161.5**	**F**	**N/A**
			PM	**180.2**	**F**	**N/A**
29	Bay Road & Ringwood Avenue (Menlo Park)	AWSC[4]	AM	**29.3**	**D**	**No**
			PM	**59.9**	**F**	**No**

Notes:
TWSC - Two-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
AWSC = All-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
Bold text - Indicates intersections operate at LOS not meeting LOS standard.
N/A = Not applicable. The "General Plan Standard" information is only relevant where the City's LOS policy standards apply.
[1] This intersection does not meet signal warrant criteria under Existing Conditions during both peak hours.
[2] This intersection does not meet signal warrant criteria under Existing Conditions during both peak hours.
[3] This intersection meets signal warrant criteria under Existing Conditions during both peak hours.
[4] This intersection meets signal warrant criteria under Existing Conditions during both peak hours.

Roadway Segment Level of Service

The level of service results during the AM and PM peak hours for the study CMP segments shown in Table 9, were obtained from the 2019 Congestion Management Program for San Mateo County, which provides performance monitoring results for the CMP roadway system on a biennial basis. The average daily traffic (ADT) for the study segments were obtained from Caltrans's traffic data, which was available up to the year 2018 at the time of this study. Roadway segment level of service is provided in Attachment 4.

As shown in Table 9, the following segments are operating at level of service not compliant with the adopted LOS standards under Existing Conditions.

- Segment #2, Bayfront Expressway (SR 84): Willow Road (SR 114) – University Avenue (SR 109).
- Segment #4, University Avenue (SR 109): Bayshore Freeway (US 101) – Bayfront Expressway (SR 84).

Table 9: Existing LOS for Study Roadway Segments

No.	Route	Segment	Level of Service Standard[1]	Directional Capacity (vph)[2]	ADT[3]	Existing Level of Service[4]	Existing v/c[5]
1	Bayfront Expressway (SR 84)	Bayshore Freeway (US 101) - Willow Road (SR 114)	D	3,300	46,000	C	0.8
2	Bayfront Expressway (SR 84)	Willow Road (SR 114) - University Avenue (SR 109)	E	3,300	72,000	**F**	**>1**
3	Bayfront Expressway (SR 84)	University Avenue (SR 109) - San Mateo County Line	F	3,300	74,000	F	>1
4	University Avenue (SR 109)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	E	2,200	30,400	**F**	**>1**
5	Willow Road (SR 114)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	E	2,200	51,000	C	0.8
6	Bayshore Freeway (US 101)	North of Marsh Road	F	9,200	221,700	F	>1
7	Bayshore Freeway (US 101)	Marsh Road - Willow Road (SR 114)	F	9,200	202,200	F	>1
8	Bayshore Freeway (US 101)	Willow Road (SR 114) - University Avenue (SR 109)	F	9,200	215,600	F	>1
9	Bayshore Freeway (US 101)	South of University Avenue (SR 109)	F	9,200	219,700	F	>1

Source: San Mateo County Congestion Management Program 2019.
Notes:
[1]See details in Section "General Plan Level of Service Standards".
[2]Capacity is shown by direction. Freeway capacity = 2,300 vphpl for 6-lane segments, 2,200 vphpl for 4-lane segments. Arterial capacity is based on 60 percent green time of 1,900 vphpl or about 1,100 vphpl (Appendix B, San Mateo County Congestion Management Program 2019).
[3]2018 Caltrans's ADT data, https://dot.ca.gov/programs/traffic-operations/census.
[4]San Mateo County Congestion Management Program 2019. The worse LOS is shown.
[5]Based on the worse v/c corresponding to the LOS as shown in in CMP legislation requires use of LOS to measure roadway performance while the recently adopted CEQA guidelines require VMT as the primary metric. The level of service evaluation for the CMP segments are based on volume-to-capacity (v/c) ratios for each direction of travel as recommended by C/CAG to analyze their CMP roadway system (Appendix B, San Mateo County Congestion Management Program 2019). The traffic volume for each segment is divided by the capacity of the segment. For freeway segments, the capacity is estimated as the number of lanes multiplied by 2,200 vehicles per hour per lane for 4-lane freeway segments and 2,300 vehicles per hour per lane for segments with 6 or more lanes. For arterials, the capacity is estimated based on a saturation flow rate of 1,900 vehicles per hour per lane and the assumption that the arterials would receive 60 percent of the green time, which the arterial capacity becomes 1,100 vehicles per hour per lane. The v/c for freeways and arterials is correlated to LOS based on the information in Table 6 and Table 7, respectively.
vph – Vehicles per Hour.
ADT – Average Daily Traffic.
v/c – Volume-to-Capacity ratio.
Bold text – Indicates segments operate exceeds LOS standard.

NEAR TERM (2022) CONDITIONS

Near Term (2022) Conditions represent the transportation network and traffic conditions at the time of expected occupancy of the proposed project. This scenario includes transportation network changes, land use changes, and traffic generated from approved development projects in the area.

Programmed/Planned Transportation Facility Improvements

At the direction of the City of Menlo Park, the following programmed and planned improvements to study facilities were included in the Near Term (2022) Conditions analysis:

- **Chilco Street & Constitution Drive** was analyzed with a shared left-through-right lane in the northbound direction, a shared left-thru lane and right-turn lane in the southbound direction, a left turn lane and shared through-right lane in the eastbound direction, and with a left turn lane and shared through-right lane in the westbound direction. This intersection was evaluated with a signal in all future analysis scenarios.

The lane configurations under Near Term (2022) Conditions are provided in Attachment 2.

Additionally, Caltrain's Modernization Program is currently upgrading the Caltrain signal system for improved safety and performance and replacing diesel-powered trains with electric multiple-unit trains. Improvements are expected to finish prior to 2022 and result in improved frequency and speed of trains and increased ridership.

Development Projects

Approved development projects included in the Near Term (2022) Conditions analysis are detailed in Table 10. The Near Term scenario includes traffic that would be generated by these projects. The traffic volumes from approved projects were included in the Vistro analysis network. Additionally, a growth rate of one percent per year was applied to account for growth in regional traffic until the horizon year of 2022. The turning movement volumes under Near Term (2022) Conditions are provided in Attachment 1.

Table 10: Near Term (2022) Conditions Approved Projects

Project	Land Use	Size
Greenheart 1300 El Camino Real	Residential	183 units
	Office	203,000 square feet
	Retail/Personal Service	18,600 square feet
Menlo Gateway Constitution 100-155 Constitution Drive	Office	487,244 square feet
	Restaurant	7,420 square feet
Facebook Expansion Project 301-309 Constitution Drive	Office	450,400 square feet
	Hotel	200 rooms
Stanford 500 El Camino Real	Residential	215 units
	Office	143,900 square feet
	Retail	10,000 square feet
New Magnet High School 150 Jefferson Drive	High School	400 students
1275 El Camino Real	Residential	3 units
	Office	9,334 square feet
	Retail	589 square feet
1430 O'Brien Drive	Research & Development	46,608 square feet
	Fitness	10,223 square feet
	Cafe	7,652 square feet
1345 Willow Road	Residential	140 units

Source: City of Menlo Park, 2020.

Intersection Level of Service

Table 11 provides LOS results for the study intersections during the AM and PM peak hours under Near Term (2022) Conditions. The Vistro analysis outputs are provided in Attachment 3.

The intersections listed below would operate at LOS exceeding the City's LOS standard during one or both peak hours. All other study intersections would operate in compliance with the LOS standard under Near Term (2022) Conditions.

- Intersection #1, Marsh Road and Bayfront Expressway/Haven Avenue (Local Approaches to State): AM
- Intersection #6, Marsh Road and Middlefield Road (Atherton): AM
- Intersection #8, Chrysler Drive and Constitution Drive (Menlo Park): AM
- Intersection #10, Chrysler Drive and Independence Drive (Menlo Park): AM
- Intersection #13, Willow Road and Bayfront Expressway (State): AM and PM
- Intersection #14, Willow Road and Hamilton Avenue (Local Approaches to State): AM and PM
- Intersection #15, Willow Road and Ivy Drive (Local Approaches to State): AM and PM
- Intersection #16, Willow Road and O'Brien Drive (Local Approaches to State): AM and PM
- Intersection #17, Willow Road and Newbridge Street (Local Approaches to State): AM and PM

- Intersection #18, Willow Road and Bay Road (Local Approaches to State): AM and PM
- Intersection #19, Willow Road and Durham Street (Menlo Park): AM
- Intersection #20, Willow Road and Coleman Avenue (Menlo Park): AM and PM
- Intersection #21, Willow Road and Gilbert Avenue (Menlo Park): AM and PM
- Intersection #22, Willow Road and Middlefield Road (Menlo Park): AM
- Intersection #23, University and Bayfront Expressway (State): PM
- Intersection #24, Middlefield Road and Ravenswood Avenue (Menlo Park): AM
- Intersection #27, Willow Road and US-101 SB Ramps (State): AM
- Intersection #28, Willow Road and US-101 NB Ramps (State): AM and PM
- Intersection #29, Bay Road and Ringwood Avenue (Menlo Park): AM and PM

The intersection of Bay Road and Ringwood Avenue (Intersection #29), which operates with all-way stop control under Near Term (2022) Conditions, met the peak hour signal warrant during both the AM and PM peak hours. No other study unsignalized intersections met the peak hour signal warrant during either peak hour.

Table 11: Near Term (2022) Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Meet General Plan Standard?
					Delay	LOS	
1	Marsh Road & Bayfront Expressway/Haven Avenue (Local Approaches to State)	Signal	AM	N/A	**59.7**	**E**	**No**
				EB	**114.1**	**F**	
				WB	36.5	D	
			PM	N/A	37.4	D	Yes
2	Marsh Road & US-101 NB Off-Ramp (State)	Signal	AM	N/A	25.3	C	N/A
			PM	N/A	13.3	B	N/A
3	Marsh Road & US-101 SB Off-Ramp (State)	Signal	AM	N/A	22.9	C	N/A
			PM	N/A	17.7	B	N/A
4	Marsh Road & Scott Drive (Menlo Park)	Signal	AM	N/A	20.0	B	Yes
			PM	N/A	15.1	B	Yes
5	Marsh Road & Bay Road (Menlo Park)	Signal	AM	N/A	22.7	C	Yes
			PM	N/A	18.4	B	Yes
6	Marsh Road & Middlefield Road (Atherton)	Signal	AM	N/A	**73.8**	**E**	**N/A**
			PM	N/A	44.2	D	N/A
7	Chrysler Drive & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	9.5	A	Yes
			PM	N/A	20.1	C	Yes
8	Chrysler Drive & Constitution Drive (Menlo Park)	Signal	AM	N/A	**111.1**	**F**	**No**
			PM	N/A	39.8	D	Yes
9	Chrysler Drive & Jefferson Drive (Menlo Park)	TWSC[1]	AM	N/A	23.2	C	Yes
			PM	N/A	20.1	C	Yes
10	Chrysler Drive & Independence Drive (Menlo Park)	TWSC[2]	AM	N/A	**69.3**	**F**	**No**
			PM	N/A	18.3	C	Yes
11	Chilco Street & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	21.9	C	Yes
			PM	N/A	25.3	C	Yes
12	Chilco Street & Constitution Drive (Menlo Park)	Signal	AM	N/A	33.8	C	Yes
			PM	N/A	50.0	D	Yes
13	Willow Road & Bayfront Expressway (State)	Signal	AM	N/A	**193.1**	**F**	**N/A**
			PM	N/A	**180.9**	**F**	**N/A**
14	Willow Road & Hamilton Avenue (Local Approaches to State)	Signal	AM	N/A	**125.6**	**F**	**No**
				NB	**187.6**	**F**	**No**
			PM	N/A	**174.6**	**F**	**No**
				NB	**248.0**	**F**	**No**
15	Willow Road & Ivy Drive (Local Approaches to State)	Signal	AM	N/A	**134.4**	**F**	**No**
				NB	**182.9**	**F**	**No**
			PM	N/A	**114.8**	**F**	**No**
				SB	**166.9**	**F**	**No**
16	Willow Road & O'Brien Drive (Local Approaches to State)	Signal	AM	N/A	**147.0**	**F**	**No**
				NB	**222.7**	**F**	**No**
			PM	N/A	**76.1**	**E**	**No**

Table 11: Near Term (2022) Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Meet General Plan Standard?
					Delay	LOS	
				SB	**82.5**	**F**	**No**
17	Willow Road & Newbridge Street (Local Approaches to State)	Signal	AM	N/A	**272.2**	**F**	**No**
				NB	**389.7**	**F**	**No**
			PM	N/A	**213.8**	**F**	**No**
				NB	**275.6**	**F**	**No**
18	Willow Road & Bay Road (Local Approaches to State)	Signal	AM	N/A	**154.1**	**F**	**No**
				SB	**238.2**	**F**	**No**
			PM	N/A	**150.8**	**F**	**No**
				SB	**266.1**	**F**	**No**
19	Willow Road & Durham Street (Menlo Park)	Signal	AM	N/A	**228.3**	**F**	**No**
				NB	25.9	C	
				SB	**438.4**	**F**	
				EB	55.0	D	
				WB	**58.1**	**E**	
			PM	N/A	49.1	D	Yes
20	Willow Road & Coleman Avenue (Menlo Park)	Signal	AM	N/A	**113.3**	**F**	**No**
				NB	**239.0**	**F**	
				SB	17.3	B	
				EB	**70.1**	**E**	
				WB	50.5	D	
			PM	N/A	**68.2**	**E**	**No**
				NB	**141.3**	**F**	
				SB	7.8	A	
				EB	41.2	D	
				WB	37.5	D	
21	Willow Road & Gilbert Avenue (Menlo Park)	Signal	AM	N/A	**110.1**	**F**	**No**
				NB	**237.3**	**F**	
				SB	26.1	C	
				EB	**57.9**	**E**	
				WB	**65.8**	**E**	
			PM	N/A	**72.8**	**E**	**No**
				NB	**139.5**	**F**	
				SB	15.5	B	
				EB	41.2	D	
				WB	43.8	D	
22	Willow Road & Middlefield Road (Menlo Park)	Signal	AM	N/A	**70.3**	**E**	**No**
				NB	**81.1**	**F**	
				SB	40.3	D	
				EB	**77.8**	**E**	

Table 11: Near Term (2022) Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Meet General Plan Standard?
					Delay	LOS	
				WB	**80.7**	**F**	
			PM	N/A	39.8	D	Yes
23	University & Bayfront Expressway (State)	Signal	AM	N/A	12.7	B	N/A
			PM	N/A	**113.1**	**F**	**N/A**
24	Middlefield Road & Ravenswood Avenue (Menlo Park)	Signal	AM	N/A	**66.5**	**E**	**No**
				NB	52.4	D	
				EB	21.1	C	
				WB	**93.3**	**F**	
			PM	N/A	16.6	B	Yes
25	Middlefield Road & Ringwood Avenue (Menlo Park)	Signal	AM	N/A	12.4	B	Yes
			PM	N/A	13.6	B	Yes
26	Marsh Road & Florence Street-Bohannon Drive (Menlo Park)	Signal	AM	N/A	38.3	D	Yes
			PM	N/A	37.0	D	Yes
27	Willow Road & US-101 SB Ramps (State)	Signal	AM	N/A	**109.3**	**F**	**N/A**
			PM	N/A	22.6	C	N/A
28	Willow Road & US-101 NB Ramps (State)	Signal	AM	N/A	**281.2**	**F**	**N/A**
			PM	N/A	**243.5**	**F**	**N/A**
29	Bay Road & Ringwood Avenue (Menlo Park)	AWSC[3]	AM	N/A	**29.3**	**D**	**No**
			PM	N/A	**59.9**	**F**	**No**

Notes:
TWSC - Two-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
AWSC = All-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
Bold text - Indicates intersections operate at LOS not meeting LOS standard.
N/A = Not applicable. The "Critical Approach" information is only relevant where the proposed project would increase delay per the LOS policy standards. The "General Plan Standard" information is only relevant where the City's LOS policy standards apply.
[1] This intersection does not meet signal warrant criteria under Near Term Conditions during both peak hours.
[2] This intersection does not meet signal warrant criteria under Near Term Conditions during both peak hours.
[3] This intersection meets signal warrant criteria under Near Term Conditions during both peak hours.

Roadway Segment Level of Service

For Near Term (2022) Conditions, average daily traffic volumes for the study CMP segments were estimated using a linear forecast based on Caltrans's historical traffic data between 2013 and 2018. For purposes of this analysis, the volume-to-capacity increase from 2018 to 2022 was estimated using Caltrans's peak hour volumes data and the segment capacity provided in Table 9. The 2022 volumes were based on a linear forecast using Caltrans's historical peak hour volumes while the 2018 volumes were based on the most recent published data at the time of this study. Caltrans's peak hour volumes represent both travel directions, thus, the peak travel direction could be identified using Caltrans's directional (D) factor data. The directional (D) factor was selected from the AM peak hour, which is considered the higher peak traffic volume for all of the study segments. Roadway segment level of service is provided in Attachment 4.

Table 12 shows the resulting v/c increase and LOS for the study CMP segments under Near Term (2022) Conditions. The LOS for Near Term (2022) Conditions were estimated by applying the v/c increment to the equivalent v/c for the Existing Conditions LOS in Table 9.

The study CMP segments listed below would operate at level of service not compliant with the LOS standards under Near Term (2022) Conditions. All other study CMP segments would operate in compliance with the LOS standard under Near Term (2022) Conditions.

- Segment #1, Bayfront Expressway (SR 84): Willow Road (SR 114) – University Avenue (SR 109).
- Segment #2, University Avenue (SR 109): Bayshore Freeway (US 101) – Bayfront Expressway (SR 84).
- Segment #4, University Avenue (SR 109): Bayshore Freeway (US 101) – Bayfront Expressway (SR 84).
- Segment #5, Willow Road (SR 114): Bayshore Freeway (US 101) – Bayfront Expressway (SR 84).

Table 12: Near Term (2022) Conditions for Study Roadway Segments

No.	Route	Segment	Level of Service Standard[1]	Near Term (2022) ADT[2]	Existing v/c	v/c Increase[3]	Level of Service[4]
1	Bayfront Expressway (SR 84)	Bayshore Freeway (US 101) - Willow Road (SR 114)	D	63,321	0.8	0.29	**F**
2	Bayfront Expressway (SR 84)	Willow Road (SR 114) - University Avenue (SR 109)	E	92,124	>1	0.29	**F**
3	Bayfront Expressway (SR 84)	University Avenue (SR 109) - San Mateo County Line	F	88,434	>1	0.16	F
4	University Avenue (SR 109)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	E	34,860	>1	0.20	**F**
5	Willow Road (SR 114)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	E	64,071	0.8	0.32	**F**
6	Bayshore Freeway (US 101)	North of Marsh Road	F	233,009	>1	0.03	F
7	Bayshore Freeway (US 101)	Marsh Road - Willow Road (SR 114)	F	210,804	>1	0.02	F
8	Bayshore Freeway (US 101)	Willow Road (SR 114) - University Avenue (SR 109)	F	225,920	>1	0.02	F
9	Bayshore Freeway (US 101)	South of University Avenue (SR 109)	F	227,422	>1	0.01	F

Note: v/c – Volume-to-Capacity ratio. **Bold** text – Indicates segments operate exceeds LOS standard.
[1]See details in Section "General Plan Level of Service Standards".
[2]Near Term (2022) ADT is based on a linear forecast using Caltrans's ADT data between 2013-2018, https://dot.ca.gov/programs/traffic-operations/census.

[3]v/c increase is based on 2018 v/c and 2022 v/c. The 2018 v/c was calculated using 2018 peak hour volume and directional (D) factor data from Caltrans while 2022 v/c was calculated using a linear forecast for 2022 peak hour volume and D factor data from Caltrans.
[4]Estimated by applying the v/c increment to equivalent v/c for the Existing LOS from San Mateo County Congestion Management Program 2019. The worst LOS is shown.

CUMULATIVE (2040) CONDITIONS

Cumulative (2040) Conditions represent the transportation network and traffic conditions over a longer-term horizon to account for the cumulative effects of transportation network changes as well as background growth and land use development within the project area. Intersection geometry and signal changes are incorporated into this scenario and described in the Programmed/Planned Transportation Facility Improvements section. Development projects included in the Cumulative (2040) Conditions analysis are detailed in the Development Projects section.

Programmed/Planned Transportation Facility Improvements

The programmed/planned transportation facility improvements affecting the study intersections are the same as those identified under Near Term (2022) Conditions. The lane configurations for Cumulative (2040) Conditions are provided in Attachment E2.

The following bicycle network improvements were identified in the Comprehensive Bicycle Development Plan[13] for streets near the project site and are anticipated to be completed prior to 2040:

- Class II bike lanes are recommended on Marsh Road, which would connect to the existing bike path next to Bayfront Expressway. These proposed bike lanes would allow bicyclists to cross US 101 safely and access the bikeway network on the west side of the freeway.

- A Class I Connector Path is recommended on Independence Drive, which would connect the planned Class II bike lanes on Marsh Road and the existing Class II bike lanes on Constitution Drive. Because Independence Drive is one-way in the southbound direction off Marsh Road, a Class I off-street connection would allow bicyclists to travel counter-flow to traffic on this short one-way roadway segment. This bike path would provide bicyclists from the project site with safer access to the proposed bike lanes on Marsh Road.

- A new bicycle and pedestrian bridge over the Atherton Channel is recommended to extend the bike lanes and sidewalks on Haven Avenue to Marsh Road.

The Marsh Road bike lanes and Independence Drive Connector Path are identified as long-term projects. The Marsh Road bike lanes are also identified as proposed improvements in the San Mateo County Comprehensive Bicycle and Pedestrian Plan. The implementation timeline of these proposed improvements is unknown.

The following improvements for walking and biking are identified in the Transportation Master Plan [14]:

[13] Menlo Park Comprehensive Bicycle Development Plan (2005). Accessed online on July 30, 2020.

[14] City of Menlo Park. 2017. City of Menlo Park Transportation Master Plan.

https://menloparktmp.participate.online/project-map. Accessed on July 31, 2020.

- The Haven Avenue Streetscape Project includes pedestrian crossing improvements to the Marsh Road-Haven Avenue-Bayfront Expressway intersection. Although this project is not in the immediate vicinity of the project site, it will improve the overall pedestrian network in the area east of US 101. The improvements include widened sidewalks, replacement of curb ramps to comply with Americans with Disabilities Act (ADA) standards, realigning with the existing crosswalk on the northwest (Haven Avenue) leg of the intersection, and improving the existing median to provide a crossing refuge island. Additionally, as adjacent land parcels are redeveloped, new sidewalks will be constructed on the street frontages, which will improve pedestrian facilities in the general vicinity of the project.

- Improvements to bicycle safety on Marsh Road from Bay Road to Scott Drive and from Independence Drive to Scott Drive include adding bike lanes and constructing a bicycle and pedestrian bridge over US 101. Class II Bike Lanes are proposed along both sections of Marsh Road.

- Improvements to pedestrian safety on Constitution Drive from Chrysler Drive to Chilco Street and on Jefferson Drive from Chrysler Drive to Constitution Drive include construction of sidewalks on both sides of the roadways.

- Enhancements to pedestrian and bicycle crossing along Bayfront Expressway, including high visibility pedestrian crossings along Bayfront Expressway at Chrysler Drive, Chilco Street, and Willow Road. Construction of a bicycle and pedestrian bridge is proposed over Bayfront Expressway between Chilco Street and Willow Road.

- Proposed multiuse pathways on Willow Road from Dumbarton Rail Corridor to Hamilton Avenue and at Facebook from Chilco Street to the proposed bicycle and pedestrian bridge over Bayfront Expressway.

- A new bicycle and pedestrian bridge over Bayfront Expressway, east of Chilco Street.

The following improvements to transit within the study area are identified in the Transportation Master Plan[15] and are anticipated to be completed prior to 2040:

- Allow buses to use existing right turn lane on Willow Road and O'Brien Drive for queue jump with transit signal priority (TSP) and implement peak hour left-turn restrictions at Willow Road and O'Brien Drive.

- Increase mobility along the Dumbarton Corridor by supporting the reactivation of the Dumbarton rail service between the East Bay and Peninsula.

- Install shoulder-running peak hour bus lane on Bayfront Expressway and install TSP at signalized intersections.

- Increase the number of people traveling on Bayfront Expressway by removing traffic signals and converting a travel lane to a managed (toll) lane for carpools and buses. Implement the corridor

[15] City of Menlo Park Transportation Master Plan (2017), https://menloparktmp.participate.online/project-map, Accessed July 31, 2020.

with improved mixed flow and managed lane connections, including grade separations with revised access at University Avenue, Willow Road, Chilco Street, Marsh Road, and Chrysler Drive.

Caltrain's Modernization Program and related infrastructure improvements on the Caltrain corridor will also accommodate the California High-Speed Rail service as early as 2025[16].

SamTrans completed the El Camino Corridor Bus Rapid Transit Phasing Study in 2014 and is evaluating options to improve transit service along El Camino Real[17]. Recommendations include consolidating existing bus service along El Camino Real to improve reliability and frequency of routes. SamTrans will continue to work from this study to evaluate long-term transit vision for El Camino Real. Although the project is not in the immediate vicinity of the project site, it will improve transit service in the transportation network south of the project.

The implementation timeline of these proposed improvements is unknown. However, these are anticipated to be completed by 2040 and are therefore assumed in the Cumulative (2040) Conditions analysis.

Development Projects

The Cumulative scenario includes all approved projects incorporated into the Near-Term Conditions analysis, plus the cumulative development identified in Table 4.A of the EIR. The Cumulative (2040) Conditions traffic volumes includes traffic from these development projects and a growth rate of one percent per year was applied to account for growth in regional traffic until the horizon year of 2040. The turning movement volumes under Cumulative (2040) Conditions are provided in Attachment 1.

Intersection Level of Service

Table 13 provides LOS results for the study intersections during the AM and PM peak hours under Cumulative (2040) Conditions. Vistro output sheets are included in Attachment 3.

The intersections listed below would operate at LOS exceeding the City's LOS standard during one or both peak hours. All other study intersections would operate in compliance with the LOS standard under Cumulative (2040) Conditions.

- Intersection #1, Marsh Road and Bayfront Expressway/Haven Avenue (Local Approaches to State): AM
- Intersection #2, Marsh Road and US-101 NB Off-Ramp (State): AM
- Intersection #3, Marsh Road and US-101 SB Off-Ramp (State): AM and PM
- Intersection #6, Marsh Road and Middlefield Road (Atherton): AM

[16] Caltrain, Accessed Online July 31, 2020
https://www.caltrain.com/projectsplans/CaltrainModernization/BlendedSystem.html

[17] SamTrans El Camino Real Bus Rapid Transit Phasing Study, 2014; Accessed July 31, 2020
https://www.samtrans.com/Assets/_Planning/BRT/SamTrans+ECR+BRT+Phasing+Study.pdf

- Intersection #7, Chrysler Drive and Bayfront Expressway (Local Approaches to State): PM
- Intersection #8, Chrysler Drive and Constitution Drive (Menlo Park): AM and PM
- Intersection #9, Chrysler Drive and Jefferson Drive (Menlo Park): AM and PM
- Intersection #10, Chrysler Drive and Independence Drive (Menlo Park): AM
- Intersection #11, Chilco Street and Bayfront Expressway (Local Approaches to State): AM and PM
- Intersection #12, Chilco Street and Constitution Drive (Menlo Park): AM and PM
- Intersection #13, Willow Road and Bayfront Expressway (State): AM and PM
- Intersection #14, Willow Road and Hamilton Avenue (Local Approaches to State): AM and PM
- Intersection #15, Willow Road and Ivy Drive (Local Approaches to State): AM and PM
- Intersection #16, Willow Road and O'Brien Drive (Local Approaches to State): AM and PM
- Intersection #17, Willow Road and Newbridge Street (Local Approaches to State): AM and PM
- Intersection #18, Willow Road and Bay Road (Local Approaches to State): AM and PM
- Intersection #19, Willow Road and Durham Street (Menlo Park): AM and PM
- Intersection #20, Willow Road and Coleman Avenue (Menlo Park): AM and PM
- Intersection #21, Willow Road and Gilbert Avenue (Menlo Park): AM and PM
- Intersection #22, Willow Road and Middlefield Road (Menlo Park): AM
- Intersection #23, University and Bayfront Expressway (State): AM and PM
- Intersection #24, Middlefield Road and Ravenswood Avenue (Menlo Park): AM
- Intersection #27, Willow Road and US-101 SB Ramps (State): AM and PM
- Intersection #28, Willow Road and US-101 NB Ramps (State): AM and PM
- Intersection #29, Bay Road and Ringwood Avenue (Menlo Park): AM and PM

Manual on Uniform Traffic Control Devices peak hour signal warrant analysis was conducted at the three unsignalized intersections. The intersection of Chrysler Drive and Jefferson Drive (Intersection #9) would meet the peak hour warrant during the PM peak hour while the intersection of Chrysler Drive and Independence Drive (Intersection #10) would meet the peak hour warrant during the AM peak hour. The intersection of Bay Road and Ringwood Avenue (Intersection #29) would meet the peak hour warrant during both the AM and PM peak hours.

Table 13: Cumulative (2040) Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Meet General Plan Standard?
					Delay	LOS	
1	Marsh Road & Bayfront Expressway/Haven Avenue (Local Approaches to State)	Signal	AM	N/A	**96.8**	**F**	**No**
				EB	**169.0**	**F**	
				WB	**75.1**	**E**	
			PM	N/A	36.2	D	Yes
2	Marsh Road & US-101 NB Off-Ramp (State)	Signal	AM	N/A	**35.1**	**D**	**N/A**
			PM	N/A	16.1	B	N/A
3	Marsh Road & US-101 SB Off-Ramp (State)	Signal	AM	N/A	**36.5**	**D**	**N/A**
			PM	N/A	**37.6**	**D**	**N/A**
4	Marsh Road & Scott Drive (Menlo Park)	Signal	AM	N/A	32.8	C	Yes
			PM	N/A	22.9	C	Yes
5	Marsh Road & Bay Road (Menlo Park)	Signal	AM	N/A	28.7	C	Yes
			PM	N/A	19.8	B	Yes
6	Marsh Road & Middlefield Road (Atherton)	Signal	AM	N/A	**81.4**	**F**	**N/A**
			PM	N/A	52.7	D	N/A
7	Chrysler Drive & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	10.2	B	Yes
			PM	N/A	**59.4**	**E**	**No**
				NB	**200.3**	**F**	
8	Chrysler Drive & Constitution Drive (Menlo Park)	Signal	AM	N/A	**298.2**	**F**	**No**
			PM	N/A	**228.1**	**F**	**No**
				SB	**795.0**	**F**	
				EB	**91.7**	**F**	
				WB	**401.4**	**F**	
9	Chrysler Drive & Jefferson Drive (Menlo Park)	TWSC[1]	AM	N/A	**45.9**	**E**	**No**
			PM	N/A	**126.4**	**F**	**No**
10	Chrysler Drive & Independence Drive (Menlo Park)	TWSC[2]	AM	N/A	**368.5**	**F**	**No**
			PM	N/A	22.6	C	Yes
11	Chilco Street & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	**57.6**	**E**	**No**
				NB	**115.2**	**F**	
			PM	N/A	**65.1**	**E**	**No**
				NB	**258.1**	**F**	
12	Chilco Street & Constitution Drive (Menlo Park)	Signal	AM	N/A	**77.0**	**E**	**No**
				NB	**77.6**	**E**	
				SB	**85.3**	**F**	
				EB	32.9	C	
				WB	47.2	D	
			PM	N/A	**246.0**	**F**	**No**
				NB	**98.6**	**F**	
				SB	**177.4**	**F**	
				EB	**523.0**	**F**	

Table 13: Cumulative (2040) Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Meet General Plan Standard?
					Delay	LOS	
				WB	**113.7**	**F**	
13	Willow Road & Bayfront Expressway (State)	Signal	AM	N/A	**327.4**	**F**	**N/A**
			PM	N/A	**370.7**	**F**	**N/A**
14	Willow Road & Hamilton Avenue (Local Approaches to State)	Signal	AM	N/A	**331.3**	**F**	**No**
				SB	**210.2**	**F**	
			PM	N/A	**426.5**	**F**	**No**
				SB	**489.6**	**F**	
15	Willow Road & Ivy Drive (Local Approaches to State)	Signal	AM	N/A	**244.6**	**F**	**No**
				NB	**325.4**	**F**	
			PM	N/A	**420.8**	**F**	**No**
				SB	**624.3**	**F**	
16	Willow Road & O'Brien Drive (Local Approaches to State)	Signal	AM	N/A	**250.0**	**F**	**No**
				NB	**379.4**	**F**	
			PM	N/A	**328.5**	**F**	**No**
				SB	**480.6**	**F**	
17	Willow Road & Newbridge Street (Local Approaches to State)	Signal	AM	N/A	**391.1**	**F**	**No**
				SB	**255.9**	**F**	
			PM	N/A	**432.3**	**F**	**No**
				SB	**585.9**	**F**	
18	Willow Road & Bay Road (Local Approaches to State)	Signal	AM	N/A	**184.5**	**F**	**No**
				SB	**243.2**	**F**	
			PM	N/A	**133.7**	**F**	**No**
				NB	**275.4**	**F**	
19	Willow Road & Durham Street (Menlo Park)	Signal	AM	N/A	**282.0**	**F**	**No**
				NB	**97.3**	**F**	
				SB	**529.0**	**F**	
				EB	**56.1**	**E**	
				WB	**58.6**	**E**	
			PM	N/A	**242.7**	**F**	**No**
				NB	**80.8**	**F**	
				SB	**456.2**	**F**	
				EB	**84.2**	**F**	
				WB	**66.2**	**E**	
20	Willow Road & Coleman Avenue (Menlo Park)	Signal	AM	N/A	**157.7**	**F**	**No**
				NB	**331.8**	**F**	
				SB	24.3	C	
				EB	**72.1**	**E**	
				WB	46.3	D	
			PM	N/A	**72.5**	**E**	**No**

Table 13: Cumulative (2040) Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Meet General Plan Standard?
					Delay	LOS	
				NB	**151.4**	**F**	
				SB	7.7	A	
				EB	44.3	D	
				WB	38.3	D	
21	Willow Road & Gilbert Avenue (Menlo Park)	Signal	AM	N/A	**122.3**	**F**	**No**
				NB	**274.0**	**F**	
				SB	28.8	C	
				EB	**63.0**	**E**	
				WB	**67.3**	**E**	
			PM	N/A	**98.1**	**F**	**No**
				NB	**207.1**	**F**	
				SB	18.8	B	
				EB	38.4	D	
				WB	39.5	D	
22	Willow Road & Middlefield Road (Menlo Park)	Signal	AM	N/A	**73.1**	**E**	**No**
				NB	**78.5**	**E**	
				SB	46.1	D	
				EB	**79.2**	**E**	
				WB	**86.6**	**F**	
			PM	N/A	41.6	D	Yes
23	University & Bayfront Expressway (State)	Signal	AM	N/A	**101.4**	**F**	**N/A**
			PM	N/A	**215.7**	**F**	**N/A**
24	Middlefield Road & Ravenswood Avenue (Menlo Park)	Signal	AM	N/A	**66.5**	**E**	**No**
				NB	52.5	D	
				EB	21.4	C	
				WB	**93.3**	**F**	
			PM	N/A	24.6	C	Yes
25	Middlefield Road & Ringwood Avenue (Menlo Park)	Signal	AM	N/A	13.1	B	Yes
			PM	N/A	26.3	C	Yes
26	Marsh Road & Florence Street-Bohannon Drive (Menlo Park)	Signal	AM	N/A	39.8	D	Yes
			PM	N/A	46.0	D	Yes
27	Willow Road & US-101 SB Ramps (State)	Signal	AM	N/A	**157.6**	**F**	**N/A**
			PM	N/A	**111.8**	**F**	**N/A**
28	Willow Road & US-101 NB Ramps (State)	Signal	AM	N/A	**263.1**	**F**	**N/A**
			PM	N/A	**367.8**	**F**	**N/A**
29	Bay Road & Ringwood Avenue (Menlo Park)	AWSC[3]	AM	N/A	**80.7**	**F**	**No**
			PM	N/A	**66.1**	**F**	**No**

Notes:
TWSC - Two-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
AWSC = All-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
Bold text - Indicates intersections operate at LOS not meeting LOS standard.
N/A = Not applicable. The "Critical Approach" information is only relevant where the proposed project would increase delay per the LOS policy standards. The "General Plan Standard" information is only relevant where the City's LOS policy standards apply.
[1] This intersection meets signal warrant criteria under Cumulative Conditions during the PM peak hour.
[2] This intersection meets signal warrant criteria under Cumulative Conditions during the AM peak hour.
[3] This intersection meets signal warrant criteria under Cumulative Conditions during both peak hours.

Roadway Segment Level of Service

For Cumulative (2040) Conditions, average daily traffic volumes for the study CMP segments were estimated using a linear forecast based on Caltrans's historical traffic data between 2013 and 2018. For purposes of this analysis, the volume-to-capacity increase from 2018 to 2040 was estimated using Caltrans's peak hour volumes data and the segment capacity provided in Table 9. The 2040 volumes were based on a linear forecast using Caltrans's historical peak hour volumes while the 2018 volumes were based on the most recent published data at the time of this study. Caltrans's peak hour volumes represent both travel directions, thus, the peak travel direction could be identified using Caltrans's directional (D) factor data. The directional (D) factor was selected from the AM peak hour, which is considered the higher peak traffic volume for all of the study segments.

Table 14 shows the resulting v/c increase and LOS for the study CMP segments under Cumulative (2040) Conditions. Roadway segment level of service is provided in Attachment 4. The LOS for Cumulative (2040) Conditions were estimated by applying the v/c increment to the equivalent v/c for the Existing Conditions LOS in Table 9. The equivalent v/c ratios are based on the v/c-LOS criteria in Table 6 for freeways and Table 7 for arterials.

The study CMP segments listed below would operate at level of service not compliant with the LOS standards. All other study CMP segments would operate in compliance with the LOS standard under Cumulative (2040) Conditions.

- Segment #1, Bayfront Expressway (SR 84) between Willow Road (SR 114) and University Avenue (SR 109).
- Segment #2, University Avenue (SR 109) between Bayshore Freeway (US 101) and Bayfront Expressway (SR 84).
- Segment #4, University Avenue (SR 109) between Bayshore Freeway (US 101) and Bayfront Expressway (SR 84).
- Segment #5, Willow Road (SR 114) between Bayshore Freeway (US 101) and Bayfront Expressway (SR 84).

Table 14: Cumulative (2040) Conditions for Study Roadway Segments

No.	Route	Segment	Level of Service Standard[1]	Cumulative (2040) ADT[2]	Existing v/c	v/c Increase[3]	Level of Service[4]
1	Bayfront Expressway (SR 84)	Bayshore Freeway (US 101) - Willow Road (SR 114)	D	126,887	0.8	1.38	**F**
2	Bayfront Expressway (SR 84)	Willow Road (SR 114) - University Avenue (SR 109)	E	167,467	>1	1.44	**F**
3	Bayfront Expressway (SR 84)	University Avenue (SR 109) - San Mateo County Line	F	143,360	>1	0.82	F
4	University Avenue (SR 109)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	E	66,180	>1	1.58	**F**
5	Willow Road (SR 114)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	E	115,500	0.8	1.57	**F**
6	Bayshore Freeway (US 101)	North of Marsh Road	F	270,140	>1	0.11	F
7	Bayshore Freeway (US 101)	Marsh Road - Willow Road (SR 114)	F	237,907	>1	0.06	F
8	Bayshore Freeway (US 101)	Willow Road (SR 114) - University Avenue (SR 109)	F	259,760	>1	0.06	F
9	Bayshore Freeway (US 101)	South of University Avenue (SR 109)	F	250,513	>1	0.01	F

Notes: v/c – Volume-to-Capacity ratio. **Bold** text – Indicates segments operate exceeds LOS standard.
[1]See details in Section "General Plan Level of Service Standards".
[2]Cumulative (2040) ADT is based on a linear forecast using Caltrans's ADT data between 2013-2018, https://dot.ca.gov/programs/traffic-operations/census.
[3]v/c increase is based on 2018 v/c and 2040 v/c. The 2018 v/c was calculated using 2018 peak hour volume and directional (D) factor data from Caltrans while 2040 v/c was calculated using a linear forecast for 2040 peak hour volume and D factor data from Caltrans.
[4]Estimated by applying the v/c increase to equivalent v/c for the Existing LOS from San Mateo County Congestion Management Program 2019. The worst LOS is shown.

GENERAL PLAN LEVEL OF SERVICE POLICY STANDARDS

The following plans, ordinances, or policies are applicable to determine planning consistency and whether decision makers can make the necessary findings to issue entitlements, but are not a CEQA impact:

City of Menlo Park Level of Service Policy

Menlo Park General Plan requires that all City-controlled signalized intersections shall be maintained at level of service D or better during peak hours, except at the intersection of Ravenswood Avenue and Middlefield Road and the intersections along Willow Road from Middlefield Road to US101.

Town of Atherton Level of Service Policy

The circulation element of the Town of Atherton General Plan 2019 provides minimum acceptable level of service standards for the Town facilities by roadway type. that the Town facilities shall be maintained by roadway type, LOS D for highways, LOS D for minor arterials, and LOS C for local roads.

One of the study intersections, Marsh Road and Middlefield Road, is located within the Town limit. Marsh Road and Middlefield Road are classified as part of the minor arterial system connecting between residential areas and other transportation facilities and serving as emergency and evacuation routes. The intersection of Marsh Road and Middlefield Road was analyzed based on the Town standard for minor arterial facility.

Caltrans Level of Service Policy

Caltrans establishes level of service standards at the transition between LOS C and LOS D on State facilities. For purposes of this study and a consistency with past studies in Menlo Park, the City's LOS standard is also applied to State-controlled intersections while Caltrans LOS standard still applies to ramp intersections.

Table 15 shows the jurisdiction and corresponding LOS standard applied for each study intersection.

Table 15: Level of Service Standard for the Study Intersections

No.	Intersection	Traffic Control	Jurisdiction	Level of Service Standard
1	Marsh Road & Bayfront Expressway/Haven Avenue	Signal	State (local approach)	D
2	Marsh Road & US-101 NB Off-Ramp	Signal	State	C
3	Marsh Road & US-101 SB Off-Ramp	Signal	State	C
4	Marsh Road & Scott Drive	Signal	Menlo Park	D
5	Marsh Road & Bay Road	Signal	Menlo Park	D
6	Marsh Road & Middlefield Road	Signal	Atherton	D
7	Chrysler Drive & Bayfront Expressway	Signal	State (local approach)	D
8	Chrysler Drive & Constitution Drive	Signal	Menlo Park	D
9	Chrysler Drive & Jefferson Drive	TWSC	Menlo Park	C
10	Chrysler Drive & Independence Drive	TWSC	Menlo Park	C
11	Chilco Street & Bayfront Expressway	Signal	State (local approach)	D
12	Chilco Street & Constitution Drive	Signal[1]	Menlo Park	D
13	Willow Road & Bayfront Expressway	Signal	State	D
14	Willow Road & Hamilton Avenue	Signal	State (local approach)	D
15	Willow Road & Ivy Drive	Signal	State (local approach)	D
16	Willow Road & O'Brien Drive	Signal	State (local approach)	D
17	Willow Road & Newbridge Street	Signal	State (local approach)	D
18	Willow Road & Bay Road	Signal	State (local approach)	D
19	Willow Road & Durham Street	Signal	Menlo Park	D
20	Willow Road & Coleman Avenue	Signal	Menlo Park	D
21	Willow Road & Gilbert Avenue	Signal	Menlo Park	D
22	Willow Road & Middlefield Road	Signal	Menlo Park	D
23	University & Bayfront Expressway	Signal	State	D
24	Middlefield Road & Ravenswood Avenue	Signal	Menlo Park	D
25	Middlefield Road & Ringwood Avenue	Signal	Menlo Park	D

Table 15: Level of Service Standard for the Study Intersections

No.	Intersection	Traffic Control	Jurisdiction	Level of Service Standard
26	Marsh Road & Florence Street-Bohannon Drive	Signal	Menlo Park	D
27	Willow Road & US-101 SB Ramps	Signal	State	C
28	Willow Road & US-101 NB Ramps	Signal	State	C
29	Bay Road & Ringwood Avenue	AWSC	Menlo Park	C

Sources:
Menlo Park General Plan, 2016.
Town of Atherton General Plan, 2019.
C/CAG of San Mateo County Transportation Congestion Management Program, 2019.
Caltrans' Guide for the Preparation of Traffic Impact Studies, 2002.
Note:
TWSC - Two-way stop-controlled.
[1] Intersection was analyzed with all-way stop-controlled under Existing Conditions.
[2] City LOS standard is applied to State-controlled intersections except for ramp intersections for consistency with the prior studies in Menlo Park.

City/County Association of Governments (C/CAG) Level of Service Policy

The LOS standards established by C/CAG vary based on geographic differences to prevent the Congestion Management Program (CMP) facilities to operate at level of service worse than currently anticipated in San Mateo County CMP 2019. The CMP intersection level of service standards were set based on the following considerations:

- LOS F for the intersections operating at LOS F
- LOS E for the remaining intersections

Although C/CAG monitors three of the study intersections for compliance with the CMP LOS standards, these intersections are also under Caltrans' jurisdiction. Given that City or Caltrans' standards are more stringent than the C/CAG's CMP standards, the analysis based on City or Caltrans' level of service standards would be more conservative.

The LOS standards for the study CMP segments are shown in Table 16 (San Mateo County Congestion Management Program 2019). The study roadway segments are part of the routes of regional significant, which have been monitored for their operational performance by C/CAG. The LOS standards adopted by C/CAG vary by roadway segment based on geographic differences.

Table 16: Level of Service Policy for the Study Roadway Segments

No.	Route	Segment	Roadway/ Facility Type	Level of Service Standard
1	Bayfront Expressway (SR 84)	Bayshore Freeway (US 101) - Willow Road (SR 114)	Arterial	D
2	Bayfront Expressway (SR 84)	Willow Road (SR 114) - University Avenue (SR 109)	Arterial	E
3	Bayfront Expressway (SR 84)	University Avenue (SR 109) - San Mateo County Line	Arterial	F
4	University Avenue (SR 109)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	Arterial	E
5	Willow Road (SR 114)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	Arterial	E
6	Bayshore Freeway (US 101)	North of Marsh Road	Freeway	F
7	Bayshore Freeway (US 101)	Marsh Road - Willow Road (SR 114)	Freeway	F
8	Bayshore Freeway (US 101)	Willow Road (SR 114) - University Avenue (SR 109)	Freeway	F
9	Bayshore Freeway (US 101)	South of University Avenue (SR 109)	Freeway	F

Source: San Mateo County Congestion Management Program 2019.

NEAR TERM (2022) PLUS PROJECT CONDITIONS

Intersection Level of Service

The following analysis is based on the City's TIA Guidelines for intersection level of service under Near Term (2022) Plus Project Conditions. The turning movement volumes under Near Term (2022) Plus Project Conditions are provided in Attachment 1 and the lane configurations are provided in Attachment 2. Table 17 provides LOS results for the study intersections during the AM and PM peak hours under Near Term (2022) Plus Project Conditions. The Vistro outputs are provided in Attachment 3.

The study intersections listed below would operate at LOS exceeding the City's LOS standard during one or both peak hours. All other study intersections would operate in compliance with the LOS standard under Near Term (2022) Plus Project Conditions.

- Intersection #1, Marsh Road and Bayfront Expressway/Haven Avenue (Local Approaches to State): AM
- Intersection #6, Marsh Road and Middlefield Road (Atherton): AM
- Intersection #8, Chrysler Drive and Constitution Drive (Menlo Park): AM
- Intersection #10, Chrysler Drive and Independence Drive (Menlo Park): AM
- Intersection #12, Chilco Street and Constitution Drive (Menlo Park): PM
- Intersection #13, Willow Road and Bayfront Expressway (State): AM and PM
- Intersection #14, Willow Road and Hamilton Avenue (Local Approaches to State): AM and PM

- Intersection #15, Willow Road and Ivy Drive (Local Approaches to State): AM and PM
- Intersection #16, Willow Road and O'Brien Drive (Local Approaches to State): AM and PM
- Intersection #17, Willow Road and Newbridge Street (Local Approaches to State): AM and PM
- Intersection #18, Willow Road and Bay Road (Local Approaches to State): AM and PM
- Intersection #19, Willow Road and Durham Street (Menlo Park): AM
- Intersection #20, Willow Road and Coleman Avenue (Menlo Park): AM and PM
- Intersection #21, Willow Road and Gilbert Avenue (Menlo Park): AM and PM
- Intersection #22, Willow Road and Middlefield Road (Menlo Park): AM
- Intersection #23, University and Bayfront Expressway (State): PM
- Intersection #24, Middlefield Road and Ravenswood Avenue (Menlo Park): AM
- Intersection #27, Willow Road and US-101 SB Ramps (State): AM
- Intersection #28, Willow Road and US-101 NB Ramps (State): AM and PM
- Intersection #29, Bay Road and Ringwood Avenue (Menlo Park): AM and PM

The intersection of Bay Road and Ringwood Avenue (Intersection #29) would meet the MUTCD peak hour signal warrant during both the AM and PM peak hours under Near Term (2022) Plus Project Conditions. All other study unsignalized intersections would not meet peak hour signal warrant during either peak hour.

Table 17: Near Term (2022) Plus Project Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Near Term Plus Project		Meet General Plan Standard?	Non-Compliant with TIA Guidelines?
					Delay	LOS	Delay	LOS		
1	Marsh Road & Bayfront Expressway/Haven Avenue (Local Approaches to State)	Signal	AM	N/A	**59.7**	**E**	**60.1**	**E**	No	Yes
				EB	**114.1**	**F**	**114.2**	**F**		
				WB	36.5	D	38.0	D		
			PM	N/A	37.4	D	38.2	D	Yes	No
2	Marsh Road & US-101 NB Off-Ramp (State)	Signal	AM	N/A	25.3	C	25.0	C	N/A	No
			PM	N/A	13.3	B	13.7	B	N/A	No
3	Marsh Road & US-101 SB Off-Ramp (State)	Signal	AM	N/A	22.9	C	22.8	C	N/A	No
			PM	N/A	17.7	B	18.0	B	N/A	No
4	Marsh Road & Scott Drive (Menlo Park)	Signal	AM	N/A	20.0	B	20.0	C	Yes	No
			PM	N/A	15.1	B	15.1	B	Yes	No
5	Marsh Road & Bay Road (Menlo Park)	Signal	AM	N/A	22.7	C	22.7	C	Yes	No
			PM	N/A	18.4	B	18.5	B	Yes	No
6	Marsh Road & Middlefield Road (Atherton)	Signal	AM	N/A	**73.8**	**E**	**73.8**	**E**	N/A	No
			PM	N/A	44.2	D	44.6	D	N/A	No
7	Chrysler Drive & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	9.5	A	10.3	B	Yes	No
			PM	N/A	20.1	C	20.0	B	Yes	No
8	Chrysler Drive & Constitution Drive (Menlo Park)	Signal	AM	N/A	**111.1**	**F**	**142.4**	**F**	No	Yes
			PM	N/A	39.8	D	40.8	D	Yes	No
9	Chrysler Drive & Jefferson Drive (Menlo Park)	TWSC[1]	AM	N/A	23.2	C	23.6	C	Yes	No
			PM	N/A	20.1	C	22.9	C	Yes	No
10	Chrysler Drive & Independence Drive (Menlo Park)	TWSC[2]	AM	N/A	**69.3**	**F**	**70.0**	**F**	No	No
			PM	N/A	18.3	C	18.5	C	Yes	No
11	Chilco Street & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	21.9	C	24.4	C	Yes	No
			PM	N/A	25.3	C	28.4	C	Yes	No
12	Chilco Street & Constitution Drive (Menlo Park)	Signal	AM	N/A	33.8	C	38.2	D	Yes	No
			PM	N/A	50.0	D	**58.6**	**E**	No	Yes
13	Willow Road & Bayfront Expressway (State)	Signal	AM	N/A	**193.1**	**F**	**191.6**	**F**	N/A	No
			PM	N/A	**180.9**	**F**	**180.3**	**F**	N/A	No
14	Willow Road & Hamilton Avenue (Local Approaches to State)	Signal	AM	N/A	**125.6**	**F**	**127.2**	**F**	No	Yes
				NB	**187.6**	**F**	**189.2**	**F**		
			PM	N/A	**174.6**	**F**	**176.1**	**F**	No	Yes
				NB	**248.0**	**F**	**250.1**	**F**		
15	Willow Road & Ivy Drive (Local Approaches to State)	Signal	AM	N/A	**134.4**	**F**	**135.1**	**F**	No	No
				NB	**182.9**	**F**	**182.3**	**F**		
			PM	N/A	**114.8**	**F**	**115.2**	**F**	No	No
				SB	**166.9**	**F**	**166.9**	**F**		
16	Willow Road & O'Brien Drive (Local Approaches to State)	Signal	AM	N/A	**147.0**	**F**	**147.2**	**F**	No	No
				NB	**222.7**	**F**	**222.4**	**F**		
			PM	N/A	**76.1**	**E**	**76.7**	**E**	No	No
				SB	**82.5**	**F**	**82.5**	**F**		
17		Signal	AM	N/A	**272.2**	**F**	**272.9**	**F**	No	No
				NB	**389.7**	**F**	**389.4**	**F**		

Table 17: Near Term (2022) Plus Project Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Near Term Plus Project		Meet General Plan Standard?	Non-Compliant with TIA Guidelines?
					Delay	LOS	Delay	LOS		
	Willow Road & Newbridge Street (Local Approaches to State)		PM	N/A	**213.8**	**F**	**215.0**	**F**	No	Yes
				NB	**275.6**	**F**	**277.0**	**F**		
18	Willow Road & Bay Road (Local Approaches to State)	Signal	AM	N/A	**154.1**	**F**	**156.6**	**F**	No	Yes
				SB	**238.2**	**F**	**243.2**	**F**		
			PM	N/A	**150.8**	**F**	**151.6**	**F**	No	No
				SB	**266.1**	**F**	**266.1**	**F**		
19	Willow Road & Durham Street (Menlo Park)	Signal	AM	N/A	**228.3**	**F**	**232.6**	**F**	No	Yes
				NB	25.9	C	25.9	C		
				SB	**438.4**	**F**	**445.6**	**F**		
				EB	55.0	D	55.0	D		
				WB	**58.1**	**E**	**58.1**	**E**		
			PM	N/A	49.1	D	49.6	D	Yes	No
20	Willow Road & Coleman Avenue (Menlo Park)	Signal	AM	N/A	**113.3**	**F**	**112.7**	**F**	No	No
				NB	**239.0**	**F**	**238.3**	**F**		
				SB	17.3	B	17.8	B		
				EB	**70.1**	**E**	**70.1**	**E**		
				WB	50.5	D	50.5	D		
			PM	N/A	**68.2**	**E**	**69.5**	**E**	No	Yes
				NB	**141.3**	**F**	**143.9**	**F**		
				SB	7.8	A	7.8	A		
				EB	41.2	D	41.2	D		
				WB	37.5	D	37.5	D		
21	Willow Road & Gilbert Avenue (Menlo Park)	Signal	AM	N/A	**110.1**	**F**	**109.5**	**F**	No	No
				NB	**237.3**	**F**	**236.6**	**F**		
				SB	26.1	C	26.2	C		
				EB	**57.9**	**E**	**57.9**	**E**		
				WB	**65.8**	**E**	**65.8**	**E**		
			PM	N/A	**72.8**	**E**	**74.1**	**E**	No	Yes
				NB	**139.5**	**F**	**142.1**	**F**		
				SB	15.5	B	15.5	B		
				EB	41.2	D	41.2	D		
				WB	43.8	D	43.8	D		
22	Willow Road & Middlefield Road (Menlo Park)	Signal	AM	N/A	**70.3**	**E**	**70.2**	**E**	No	No
				NB	**81.1**	**F**	**80.9**	**F**		
				SB	40.3	D	40.4	D		
				EB	**77.8**	**E**	**77.8**	**E**		
				WB	**80.7**	**F**	**80.7**	**F**		
			PM	N/A	39.8	D	40.0	D	Yes	No
23	University Avenue & Bayfront Expressway (State)	Signal	AM	N/A	12.7	B	12.9	B	N/A	No
			PM	N/A	**113.1**	**F**	**112.8**	**F**	N/A	No
24	Middlefield Road & Ravenswood Avenue (Menlo Park)	Signal	AM	N/A	**66.5**	**E**	**66.5**	**E**	No	No
				NB	52.4	D	52.4	D		
				EB	21.1	C	21.1	C		
				WB	**93.3**	**F**	**93.3**	**F**		

Table 17: Near Term (2022) Plus Project Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Near Term Plus Project		Meet General Plan Standard?	Non-Compliant with TIA Guidelines?
					Delay	LOS	Delay	LOS		
			PM	N/A	16.6	B	16.6	B	Yes	No
25	Middlefield Road & Ringwood Avenue (Menlo Park)	Signal	AM	N/A	12.4	B	12.4	B	Yes	No
			PM	N/A	13.6	B	13.6	B	Yes	No
26	Marsh Road & Florence Street-Bohannon Drive (Menlo Park)	Signal	AM	N/A	38.3	D	38.5	D	Yes	No
			PM	N/A	37.0	D	37.0	D	Yes	No
27	Willow Road & US-101 SB Ramps (State)	Signal	AM	N/A	**109.3**	**F**	**109.2**	**F**	N/A	No
			PM	N/A	22.6	C	22.6	C	N/A	No
28	Willow Road & US-101 NB Ramps (State)	Signal	AM	N/A	**281.2**	**F**	**282.5**	**F**	N/A	No
			PM	N/A	**243.5**	**F**	**244.0**	**F**	N/A	No
29	Bay Road & Ringwood Avenue (Menlo Park)	AWSC[3]	AM	N/A	**29.3**	**D**	**29.3**	**D**	No	No
			PM	N/A	**59.9**	**F**	**59.9**	**F**	No	No

Notes:
TWSC - Two-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
AWSC = All-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
Bold text - Indicates intersections operate at LOS not meeting LOS standard.
N/A = Not applicable. The "Critical Approach" information is only relevant where the proposed project would increase delay per the LOS policy standards. The "General Plan Standard" information is only relevant where the City's LOS policy standards apply.
[1] This intersection does not meet signal warrant criteria under Near Term or Near Term Plus Project Conditions during both peak hours.
[2] This intersection does not meet signal warrant criteria under Near Term or Near Term Plus Project Conditions during both peak hours.
[3] This intersection meets signal warrant criteria under Near Term and Near Term Plus Project Conditions during both peak hours.

The proposed project would increase the average critical movement delay by 0.8 seconds or more during at least one peak hour and cause nine of the study intersections to be non-compliant with the TIA Guidelines under Near Term (2022) Plus Project Conditions. Followings are the recommended conditions of approval to improve intersection operations to pre-project conditions, or better. The implementation of the recommended conditions of approval would not result in any changes to VMT associated with the proposed project and would not result in secondary effects or contribute to impacts under CEQA.

Marsh Road and Bayfront Expressway/Haven Avenue (Intersection #1)

Implementation of the proposed project would cause the Marsh Road and Bayfront Expressway intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions is to restripe the through lane on Haven Avenue to a shared through/right lane. The lane configuration on Haven Avenue would have one shared left/through lane, one shared through/right lane, and one right-turn lane. No widening or additional right of way would be required. This improvement is in the City's TIF program and the project is required to pay traffic impact fees according to the City's current TIF schedule. Therefore, payment of the TIF program would address the changes in intersection delay as a result of project traffic.

With implementation of this intersection modification, the intersection would operate better than Near Term (2022) Conditions without the proposed project by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during the AM peak hour.

Chrysler Drive and Constitution Drive (Intersection #8)

Implementation of the proposed project would cause the Chrysler Drive and Constitution Drive intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this City-controlled intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions and in compliance with the TIA Guidelines is to install one left-turn lane on westbound Chrysler Drive and convert the shared left/through/right lane to shared through/right lane resulting in having one left-turn lane and one shared through/right lane in this direction. The excessive delay on southbound Constitution Drive would require installation of a right-turn lane and conversion of the shared through/right lane to through lane resulting in having one left-turn lane, one through lane, and one right-turn lane in this direction. The recommended modifications would require a widening to accommodate the lane modifications on westbound Chrysler Drive and on southbound Constitution Drive and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. While the improvements to the westbound approach are included in the City's TIF program, the improvements on the other approaches are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Chilco Street and Constitution Drive (Intersection #12)

Implementation of the proposed project would cause the Chilco Street and Constitution Drive intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this City-controlled intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the PM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install one right-turn lane on westbound Chilco Street and convert the shared through/right lane to through lane. The lane configuration in this direction would be two left-turn lanes, one through lane, and one right-turn lane. The recommended modifications would require a widening on westbound Chilco Street to accommodate the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Willow Road and Hamilton Avenue (Intersection #14)

Implementation of the proposed project would cause the Willow Road and Hamilton Avenue intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during both AM and PM peak hours.

The recommended modification for this location to bring this intersection back to pre-project conditions is to install one right-turn lane on eastbound Willow Road and convert the shared through/right lane to through lane. The lane configuration in this direction would be one left-turn lanes, two through lanes, and one right-turn lane. The recommended modifications would require a widening on eastbound Willow Road to accommodate the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Near Term (2022) Conditions without the proposed project by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during both AM and PM peak hours.

Willow Road and Newbridge Street (Intersection #17)

Implementation of the proposed project would cause the Willow Road and Newbridge Street intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the PM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions is to modify the signal timing to a protected left-turn phasing operation on Newbridge Street, provide a leading left-turn phase on southbound Newbridge Street and a lagging left-turn phase on northbound Newbridge Street, and optimize signal timing. The signal modification would be consistent with the recommended Willow Road Corridor Improvement Project in the City's Transportation Master Plan. No widening or additional right of way would be required. This improvement is in the City's TIF program and the project is required to pay traffic impact fees according to the City's current TIF schedule. Therefore, payment of the TIF program would address the changes in intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Near Term (2022) Conditions without the proposed project by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during the PM peak hour.

Willow Road and Bay Road (Intersection #18)

Implementation of the proposed project would cause the Willow Road and Bay Road intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions is to install one left-turn on southbound Bay Road resulting in having two left-turn lanes and one right-turn lane in this direction. The recommended modification would require narrowing the existing median on Bay Road to accommodate the additional lane. The modification would be consistent with the recommended Willow Road Corridor Improvement Project in the City's Transportation Master Plan. No widening or additional right of way would be required. This improvement is in the City's TIF program and the project is required to pay traffic impact fees according to the City's current TIF schedule. Therefore, payment of the TIF program would address the changes in intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Near Term (2022) Conditions without the proposed project by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during the AM peak hour.

Willow Road and Durham Street (Intersection #19)

Implementation of the proposed project would cause the Willow Road and Durham Street intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install one right-turn lane on westbound Willow Road and restripe the shared through/right lane to through lane. The lane configuration in this direction would be one left-turn lane, one through lane, and one right-turn lane. The recommended modification would require a widening on westbound Willow Road for the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements on the other approaches are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Willow Road and Coleman Avenue (Intersection #20)

Implementation of the proposed project would cause the Willow Road and Coleman Avenue intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the PM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install one right-turn lane on eastbound Willow Road and restripe the shared through/right lane to through lane. The lane configuration in this direction would be one left-turn lane, one through lane, and one right-turn lane. The recommended modification would require a widening on eastbound Willow Road for the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements on are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Willow Road and Gilbert Avenue (Intersection #21)

Implementation of the proposed project would cause the Willow Road and Gilbert Avenue intersection to operate in non-compliance with the TIA Guidelines under Near Term (2022) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the PM peak hour.

The recommended modification for this location to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install one right-turn lane on eastbound Willow Road and restripe the shared through/right lane to through lane. The lane configuration in this direction would be one left-turn lane, one through lane, and one right-turn lane. The recommended modification would require a widening on eastbound Willow Road for the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Table 18 provides results for the intersection LOS operations with the improvements during the AM and PM peak hours under Near Term (2022) Plus Project Conditions. The Vistro outputs are provided in Attachment 3.

Table 18: Near Term (2022) Plus Project Conditions with Improvements Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Near Term Plus Project		Near Term Plus Project with Improvements		Meet General Plan Standard?[1]
					Delay	LOS	Delay	LOS	Delay	LOS	
1	Marsh Road & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	**59.7**	**E**	**60.1**	**E**	42.0	D	Yes
				EB	**114.1**	**F**	**114.2**	**F**	**84.5**	**F**	
				WB	36.5	D	38.0	D	38.1	D	
			PM	N/A	37.4	D	38.2	D	39.1	D	Yes
8	Chrysler Drive & Constitution Drive (Menlo Park)	Signal	AM	N/A	**111.1**	**F**	**142.4**	**F**	37.5	D	Yes
			PM	N/A	39.8	D	40.8	D	32.9	C	Yes
12	Chilco Street & Constitution Drive (Menlo Park)	Signal	AM	N/A	33.8	C	38.2	D	29.5	C	Yes
			PM	N/A	50.0	D	**58.6**	**E**	44.6	D	Yes
14	Willow Road & Hamilton Avenue (Local Approaches to State)	Signal	AM	N/A	**125.6**	**F**	**127.2**	**F**	39.1	D	Yes
				NB	**187.6**	**F**	**189.2**	**F**	11.5	B	
			PM	N/A	**174.6**	**F**	**176.1**	**F**	**64.3**	**E**	No
				NB	**248.0**	**F**	**250.1**	**F**	13.4	B	
17	Willow Road & Newbridge Street (Local Approaches to State)	Signal	AM	N/A	**272.2**	**F**	**272.9**	**F**	**240.1**	**F**	No
				NB	**389.7**	**F**	**389.4**	**F**	**373.8**	**F**	
			PM	N/A	**213.8**	**F**	**215.0**	**F**	**162.7**	**F**	No
				NB	**275.6**	**F**	**277.0**	**F**	**191.5**	**F**	
18	Willow Road & Bay Road (Local Approaches to State)	Signal	AM	N/A	**154.1**	**F**	**156.6**	**F**	**101.0**	**F**	No
				SB	**238.2**	**F**	**243.2**	**F**	**170.5**	**F**	
			PM	N/A	**150.8**	**F**	**151.6**	**F**	51.5	D	Yes
				SB	**266.1**	**F**	**266.1**	**F**	5.2	A	
19	Willow Road & Durham Street (Menlo Park)	Signal	AM	N/A	**228.3**	**F**	**232.6**	**F**	23.2	C	Yes
				NB	25.9	C	25.9	C	29.1	C	
				SB	**438.4**	**F**	**445.6**	**F**	15.1	B	
				EB	55.0	D	55.0	D	36.9	D	
				WB	**58.1**	**E**	**58.1**	**E**	39.0	D	
			PM	N/A	49.1	D	49.6	D	30.4	C	Yes
20	Willow Road & Coleman Avenue (Menlo Park)	Signal	AM	N/A	**113.3**	**F**	**112.7**	**F**	20.5	C	Yes
				NB	**239.0**	**F**	**238.3**	**F**	11.6	B	
				SB	17.3	B	17.8	B	17.6	B	
				EB	**70.1**	**E**	**70.1**	**E**	**70.1**	**E**	
				WB	50.5	D	50.5	D	50.5	D	
			PM	N/A	**68.2**	**E**	**69.5**	**E**	9.6	A	Yes
				NB	**141.3**	**F**	**143.9**	**F**	6.2	A	
				SB	7.8	A	7.8	A	7.7	A	
				EB	41.2	D	41.2	D	41.2	D	
				WB	37.5	D	37.5	D	37.5	D	
21	Willow Road & Gilbert Avenue (Menlo Park)	Signal	AM	N/A	**110.1**	**F**	**109.5**	**F**	20.8	C	Yes
				NB	**237.3**	**F**	**236.6**	**F**	8.7	A	
				SB	26.1	C	26.2	C	13.7	B	
				EB	**57.9**	**E**	**57.9**	**E**	**57.9**	**E**	
				WB	**65.8**	**E**	**65.8**	**E**	**65.8**	**E**	
			PM	N/A	**72.8**	**E**	**74.1**	**E**	10.1	B	Yes
				NB	**139.5**	**F**	**142.1**	**F**	4.7	A	

Table 18: Near Term (2022) Plus Project Conditions with Improvements Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Near Term		Near Term Plus Project		Near Term Plus Project with Improvements		Meet General Plan Standard?[1]
					Delay	LOS	Delay	LOS	Delay	LOS	
				SB	15.5	B	15.5	B	5.3	A	
				EB	41.2	D	41.2	D	41.2	D	
				WB	43.8	D	43.8	D	43.8	D	

Notes:
Bold text - Indicates intersections operate at LOS not meeting LOS standard.
N/A = Not applicable. The "Critical Approach" information is only relevant where the proposed project would increase delay per the LOS policy standards.
[1] Indicates the General Plan compliance for the intersection LOS operations under Near Term (2022) Plus Project Conditions with improvements.

Roadway Segment Level of Service

For Near Term (2022) Plus Project Conditions, the project vehicle trips for the study CMP segments were identified from the project trip distribution assigned to each route. A difference of the turning movement volumes at the adjacent intersections between Near Term (2022) and Near Term (2022) Plus Project Conditions indicates the amount of net-new vehicle traffic that the proposed project would add to the study CMP segments.

Table 19 shows the project trips estimated in percent of the segment capacity that would be added to each of the study CMP segments.

The study CMP segments listed below would continue to operate at level of service not compliant with the CMP LOS standards with addition of the project trips. All other study CMP segments would operate in compliance with the CMP LOS standards under Near Term (2022) Plus Project Conditions.

- Segment #1, Bayfront Expressway (SR 84) between Bayshore Freeway (US 101) and Willow Road (SR 114).
- Segment #2, Bayfront Expressway (SR 84) between Willow Road (SR 114) and University Avenue (SR 109).
- Segment #4, University Avenue (SR 109) between Bayshore Freeway (US 101) and Bayfront Expressway (SR 84).
- Segment #5, Willow Road (SR 114) between Bayshore Freeway (US 101) and Bayfront Expressway (SR 84).

Table 19: Near Term (2022) Plus Project Conditions for Study Roadway Segments

No.	Route	Segment	Near Term (2022) Level of Service	Net-New Project Vehicle Trips[1]	Percent of Capacity
1	Bayfront Expressway (SR 84)	Bayshore Freeway (US 101) - Willow Road (SR 114)	**F**	**81**	**2.5%**
2	Bayfront Expressway (SR 84)	Willow Road (SR 114) - University Avenue (SR 109)	**F**	26	0.8%
3	Bayfront Expressway (SR 84)	University Avenue (SR 109) - San Mateo County Line	F	22	0.7%
4	University Avenue (SR 109)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	**F**	4	0.2%
5	Willow Road (SR 114)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	**F**	13	0.6%
6	Bayshore Freeway (US 101)	North of Marsh Road	F	34	0.4%
7	Bayshore Freeway (US 101)	Marsh Road - Willow Road (SR 114)	F	24	0.3%
8	Bayshore Freeway (US 101)	Willow Road (SR 114) - University Avenue (SR 109)	F	24	0.3%
9	Bayshore Freeway (US 101)	South of University Avenue (SR 109)	F	24	0.3%

Note:
[1]Peak direction for either the AM or PM peak hour.
Bold text – Indicates segments operate exceeds LOS standard or the new project trips are more than one percent of the segment capacity.

The proposed project would increase traffic volume by one or more than one percent of the roadway capacity and cause one study CMP segment to exceed CMP LOS Standards under Near Term (2022) Plus Project Conditions.

Bayfront Expressway (SR 84) segment between Bayshore Freeway (US 101) and Willow Road (SR 114) (Segment #1)

The proposed project would cause this segment to experience an increase in traffic volume by one or more than one percent of the roadway capacity.

The roadway segment level of service operations could be improved by providing additional travel lanes, e.g. from 6 lanes to 8 lanes, to increase its capacity for serving the additional trips. This would improve the level of service of the segment to the conditions similar to or better than without project conditions. However, a roadway widening measure could cause induced travel demand following higher roadway capacity, air quality degradation, increases in noise from additional traffic, and reductions in transit use. In addition, the routes of regional significance are not under the jurisdiction of the City and a widening of State roadway facilities would require regional scale planning and funding. Rather than increasing the roadway capacity, using measures to reduce traffic demand would be more sustainable in the long term. In order for the roadway segment to operate better than Near Term (2022) Conditions without the proposed project, measures that would reduce peak traffic demand for the amount higher than the net-new project vehicle trips (e.g. 81 vehicles per hour) should be considered.

With implementation of travel lane modifications and/or measures to reduce travel demand by one or more than one percent of the capacity, the segment would operate at or better than Near Term (2022) Conditions.

CUMULATIVE (2040) PLUS PROJECT CONDITIONS

Intersection Level of Service

The following analysis is based on the City's TIA Guidelines for intersection level of service under Cumulative (2040) Plus Project Conditions.

The turning movement volumes under Cumulative (2040) Plus Project Conditions are provided in Attachment 1 and the lane configurations are provided in Attachment 2.

Table 20 provides LOS results for the study intersections during the AM and PM peak hours under Cumulative (2040) Plus Project Conditions. The Vistro outputs are included in Attachment 3.

The study intersections listed below would operate at LOS exceeding the City's LOS standard during one or both peak hours. All other study intersections would operate in compliance with the LOS standard under Cumulative (2040) Plus Project Conditions.

- Intersection #1, Marsh Road and Bayfront Expressway/Haven Avenue (Local Approaches to State): AM
- Intersection #3, Marsh Road and US-101 SB Off-Ramp (State): AM and PM
- Intersection #6, Marsh Road and Middlefield Road (Atherton): AM
- Intersection #7, Chrysler Drive and Bayfront Expressway (Local Approaches to State): PM
- Intersection #8, Chrysler Drive and Constitution Drive (Menlo Park): AM and PM
- Intersection #9, Chrysler Drive and Jefferson Drive (Menlo Park): AM and PM
- Intersection #10, Chrysler Drive and Independence Drive (Menlo Park): AM
- Intersection #11, Chilco Street and Bayfront Expressway (Local Approaches to State): AM and PM
- Intersection #12, Chilco Street and Constitution Drive (Menlo Park): AM and PM
- Intersection #13, Willow Road and Bayfront Expressway (State): AM and PM
- Intersection #14, Willow Road and Hamilton Avenue (Local Approaches to State): AM and PM
- Intersection #15, Willow Road and Ivy Drive (Local Approaches to State): AM and PM
- Intersection #16, Willow Road and O'Brien Drive (Local Approaches to State): AM and PM
- Intersection #17, Willow Road and Newbridge Street (Local Approaches to State): AM and PM

- Intersection #18, Willow Road and Bay Road (Local Approaches to State): AM and PM
- Intersection #19, Willow Road and Durham Street (Menlo Park): AM and PM
- Intersection #20, Willow Road and Coleman Avenue (Menlo Park): AM and PM
- Intersection #21, Willow Road and Gilbert Avenue (Menlo Park): AM and PM
- Intersection #22, Willow Road and Middlefield Road (Menlo Park): AM
- Intersection #23, University and Bayfront Expressway (State): AM and PM
- Intersection #24, Middlefield Road and Ravenswood Avenue (Menlo Park): AM
- Intersection #27, Willow Road and US-101 SB Ramps (State): AM and PM
- Intersection #28, Willow Road and US-101 NB Ramps (State): AM and PM
- Intersection #29, Bay Road and Ringwood Avenue (Menlo Park): AM and PM

For the MUTCD peak hour signal warrant analysis, the intersection of Chrysler Drive and Jefferson Drive (Intersection #9) would meet the peak hour warrant during the PM peak hour and the intersection of Chrysler Drive and Independence Drive (Intersection #10) would meet the peak hour warrant during the AM peak hour. The intersection of Bay Road and Ringwood Avenue (Intersection #29) would meet the peak hour warrant during both AM and PM peak hours.

Table 20: Cumulative (2040) Plus Project Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Cumulative Plus Project		Meet General Plan Standard?	Non-Compliant with TIA Guidelines?
					Delay	LOS	Delay	LOS		
1	Marsh Road & Bayfront Expressway/Haven Avenue (Local Approaches to State)	Signal	AM	N/A	**96.8**	**F**	**101.8**	**F**	No	Yes
				EB	**169.0**	**F**	**169.2**	**F**		
				WB	**75.1**	**E**	**85.1**	**F**		
			PM	N/A	36.2	D	36.9	D	Yes	No
2	Marsh Road & US-101 NB Off-Ramp (State)	Signal	AM	N/A	35.1	D	34.5	C	N/A	No
			PM	N/A	16.1	B	17.5	B	N/A	No
3	Marsh Road & US-101 SB Off-Ramp (State)	Signal	AM	N/A	**36.5**	**D**	**36.7**	**D**	N/A	No
			PM	N/A	**37.6**	**D**	**41.1**	**D**	N/A	No
4	Marsh Road & Scott Drive (Menlo Park)	Signal	AM	N/A	32.8	C	32.9	C	Yes	No
			PM	N/A	22.9	C	22.9	C	Yes	No
5	Marsh Road & Bay Road (Menlo Park)	Signal	AM	N/A	28.7	C	28.6	C	Yes	No
			PM	N/A	19.8	B	19.9	B	Yes	No
6	Marsh Road & Middlefield Road (Atherton)	Signal	AM	N/A	**81.4**	**F**	**81.2**	**F**	N/A	No
			PM	N/A	52.7	D	53.4	D	N/A	No
7	Chrysler Drive & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	10.2	B	11.9	B	Yes	No
			PM	N/A	**59.4**	**E**	**58.4**	**E**	No	No
				NB	**200.3**	**F**	**197.0**	**F**		
8		Signal	AM	N/A	**298.2**	**F**	**360.5**	**F**	No	Yes

Table 20: Cumulative (2040) Plus Project Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Cumulative Plus Project		Meet General Plan Standard?	Non-Compliant with TIA Guidelines?
					Delay	LOS	Delay	LOS		
	Chrysler Drive & Constitution Drive (Menlo Park)		PM	N/A	**228.1**	**F**	**233.2**	**F**	No	Yes
				SB	**795.0**	**F**	**808.2**	**F**		
				EB	**91.7**	**F**	**104.1**	**F**		
				WB	**401.4**	**F**	**398.9**	**F**		
9	Chrysler Drive & Jefferson Drive (Menlo Park)	TWSC[1]	AM	N/A	**45.9**	**E**	**46.6**	**E**	No	No
			PM	N/A	**126.4**	**F**	**140.5**	**F**	No	Yes
10	Chrysler Drive & Independence Drive (Menlo Park)	TWSC[2]	AM	N/A	**368.5**	**F**	**372.4**	**F**	No	Yes
			PM	N/A	22.6	C	22.9	C	Yes	No
11	Chilco Street & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	**57.6**	**E**	**61.6**	**E**	No	Yes
				NB	**115.2**	**F**	**164.5**	**F**		
			PM	N/A	**65.1**	**E**	**67.2**	**E**	No	No
				NB	**258.1**	**F**	**257.2**	**F**		
12	Chilco Street & Constitution Drive (Menlo Park)	Signal	AM	N/A	**77.0**	**E**	**85.3**	**F**	No	Yes
				NB	**77.6**	**E**	**92.2**	**F**		
				SB	**85.3**	**F**	**94.0**	**F**		
				EB	32.9	C	35.8	D		
				WB	47.2	D	50.1	D		
			PM	N/A	**246.0**	**F**	**252.2**	**F**	No	Yes
				NB	**98.6**	**F**	**98.6**	**F**		
				SB	**177.4**	**F**	**211.6**	**F**		
				EB	**523.0**	**F**	**521.3**	**F**		
				WB	**113.7**	**F**	**113.7**	**F**		
13	Willow Road & Bayfront Expressway (State)	Signal	AM	N/A	**327.4**	**F**	**325.5**	**F**	N/A	No
			PM	N/A	**370.7**	**F**	**372.4**	**F**	N/A	No
14	Willow Road & Hamilton Avenue (Local Approaches to State)	Signal	AM	N/A	**331.3**	**F**	**332.7**	**F**	No	Yes
				SB	**210.2**	**F**	**215.6**	**F**		
			PM	N/A	**426.5**	**F**	**427.5**	**F**	No	No
				SB	**489.6**	**F**	**489.6**	**F**		
15	Willow Road & Ivy Drive (Local Approaches to State)	Signal	AM	N/A	**244.6**	**F**	**245.5**	**F**	No	No
				NB	**325.4**	**F**	**325.0**	**F**		
			PM	N/A	**420.8**	**F**	**421.1**	**F**	No	No
				SB	**624.3**	**F**	**624.3**	**F**		
16	Willow Road & O'Brien Drive (Local Approaches to State)	Signal	AM	N/A	**250.0**	**F**	**250.0**	**F**	No	No
				NB	**379.4**	**F**	**379.0**	**F**		
			PM	N/A	**328.5**	**F**	**328.8**	**F**	No	No
				SB	**480.6**	**F**	**480.6**	**F**		
17	Willow Road & Newbridge Street (Local Approaches to State)	Signal	AM	N/A	**391.1**	**F**	**391.8**	**F**	No	Yes
				SB	**255.9**	**F**	**260.5**	**F**		
			PM	N/A	**432.3**	**F**	**433.2**	**F**	No	No
				SB	**585.9**	**F**	**585.9**	**F**		
18	Willow Road & Bay Road (Local Approaches to State)	Signal	AM	N/A	**184.5**	**F**	**186.8**	**F**	No	Yes
				SB	**243.2**	**F**	**248.2**	**F**		
			PM	N/A	**133.7**	**F**	**134.9**	**F**	No	Yes
				NB	**275.4**	**F**	**277.5**	**F**		
19		Signal	AM	N/A	**282.0**	**F**	**286.1**	**F**	No	Yes

Table 20: Cumulative (2040) Plus Project Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Cumulative Plus Project		Meet General Plan Standard?	Non-Compliant with TIA Guidelines?
					Delay	LOS	Delay	LOS		
	Willow Road & Durham Street (Menlo Park)			NB	**97.3**	**F**	**97.0**	**F**		
				SB	**529.0**	**F**	**536.6**	**F**		
				EB	**56.1**	**E**	**56.1**	**E**		
				WB	**58.6**	**E**	**58.6**	**E**		
			PM	N/A	**242.7**	**F**	**243.1**	**F**	No	Yes
				NB	**80.8**	**F**	**82.2**	**F**		
				SB	**456.2**	**F**	**456.2**	**F**		
				EB	**84.2**	**F**	**84.2**	**F**		
				WB	**66.2**	**E**	**66.2**	**E**		
20	Willow Road & Coleman Avenue (Menlo Park)	Signal	AM	N/A	**157.7**	**F**	**157.1**	**F**	No	Yes
				NB	**331.8**	**F**	**331.1**	**F**		
				SB	24.3	C	25.1	C		
				EB	**72.1**	**E**	**72.1**	**E**		
				WB	46.3	D	46.3	D		
			PM	N/A	**72.5**	**E**	**74.0**	**E**	No	Yes
				NB	**151.4**	**F**	**154.7**	**F**		
				SB	7.7	A	7.7	A		
				EB	44.3	D	44.3	D		
				WB	38.3	D	38.3	D		
21	Willow Road & Gilbert Avenue (Menlo Park)	Signal	AM	N/A	**122.3**	**F**	**121.7**	**F**	No	No
				NB	**274.0**	**F**	**273.3**	**F**		
				SB	28.8	C	29.1	C		
				EB	**63.0**	**E**	**63.0**	**E**		
				WB	**67.3**	**E**	**67.3**	**E**		
			PM	N/A	**98.1**	**F**	**99.4**	**F**	No	Yes
				NB	**207.1**	**F**	**209.9**	**F**		
				SB	18.8	B	18.8	B		
				EB	38.4	D	38.4	D		
				WB	39.5	D	39.5	D		
22	Willow Road & Middlefield Road (Menlo Park)	Signal	AM	N/A	**73.1**	**E**	**73.0**	**E**	No	No
				NB	**78.5**	**E**	**78.3**	**E**		
				SB	46.1	D	46.3	D		
				EB	**79.2**	**E**	**79.1**	**E**		
				WB	**86.6**	**F**	**86.6**	**F**		
			PM	N/A	41.6	D	41.7	D	Yes	No
23	University Avenue & Bayfront Expressway (State)	Signal	AM	N/A	**101.4**	**F**	**101.0**	**F**	N/A	No
			PM	N/A	**215.7**	**F**	**215.2**	**F**	N/A	No
24	Middlefield Road & Ravenswood Avenue (Menlo Park)	Signal	AM	N/A	**66.5**	**E**	**66.5**	**E**	No	No
				NB	52.5	D	52.5	D		
				EB	21.4	C	21.4	C		
				WB	**93.3**	**F**	**93.3**	**F**		
			PM	N/A	24.6	C	24.6	C	Yes	No
25	Middlefield Road & Ringwood Avenue (Menlo Park)	Signal	AM	N/A	13.1	B	13.1	B	Yes	No
			PM	N/A	26.3	C	26.3	C	Yes	No
26		Signal	AM	N/A	39.8	D	40.0	D	Yes	No

Table 20: Cumulative (2040) Plus Project Conditions Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Cumulative Plus Project		Meet General Plan Standard?	Non-Compliant with TIA Guidelines?
					Delay	LOS	Delay	LOS		
	Marsh Road & Florence Street-Bohannon Drive (Menlo Park)		PM	N/A	46.0	D	46.1	D	Yes	No
27	Willow Road & US-101 SB Ramps (State)	Signal	AM	N/A	**157.6**	**F**	**157.4**	**F**	N/A	No
			PM	N/A	**111.8**	**F**	**112.3**	**F**	N/A	No
28	Willow Road & US-101 NB Ramps (State)	Signal	AM	N/A	**263.1**	**F**	**264.3**	**F**	N/A	No
			PM	N/A	**367.8**	**F**	**368.2**	**F**	N/A	No
29	Bay Road & Ringwood Avenue (Menlo Park)	AWSC[3]	AM	N/A	**80.7**	**F**	**80.7**	**F**	No	No
			PM	N/A	**66.1**	**F**	**66.1**	**F**	No	No

Notes:
TWSC - Two-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
AWSC = All-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
Bold text - Indicates intersections operate at LOS not meeting LOS standard.
N/A = Not applicable. The "Critical Approach" information is only relevant where the proposed project would increase delay per the LOS policy standards. The "General Plan Standard" information is only relevant where the City's LOS policy standards apply.
[1] This intersection meets signal warrant criteria under Cumulative and Cumulative Plus Project Conditions during the PM peak hour.
[2] This intersection meets signal warrant criteria under Cumulative and Cumulative Plus Project Conditions during the AM peak hour.
[3] This intersection meets signal warrant criteria under Cumulative and Cumulative Plus Project Conditions during both peak hours.

The proposed project would increase average critical movement delay by 0.8 seconds or more during at least one peak hour and cause nine of the study intersections to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. Followings are recommended conditions of approval to improve intersection operations to pre-project conditions, or better. The implementation of the recommended conditions of approval would not result in any changes to VMT associated with the proposed project and would not result in secondary effects or contribute to impacts under CEQA.

Marsh Road and Bayfront Expressway/Haven Avenue (Intersection #1)

Implementation of the proposed project would cause the Marsh Road and Bayfront Expressway/Haven Avenue intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification to bring this intersection back to pre-project conditions is to restripe the through lane on Haven Avenue to a shared through/right lane resulting in having one shared left/through lane, one shared through/right lane, and one right-turn lane. No widening or additional right of way would be required. This improvement is in the City's TIF program and the project is required to pay traffic impact fees according to the City's current TIF schedule. Therefore, payment of the TIF program would address the changes in intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Cumulative (2040) Conditions and would be in compliance with the TIA Guidelines by reducing the

increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during the AM peak hour.

Chrysler Drive and Constitution Drive (Intersection #8)

Implementation of the proposed project would cause the Chrysler Drive and Constitution Drive intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this City-controlled intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM and PM peak hour.

The recommended modification to bring this intersection back to pre-project conditions is to install left-turn lane on westbound Chrysler Drive and convert the shared left/through/right to a shared through/right lane resulting in having one left-turn lane and one shared through/right lane in this direction. The excessive delays on southbound Constitution Drive would require an installation of right-turn lane and a conversion of the shared through/right lane to through lane resulting in having one left-turn lane, one through lane, and one right-turn lane. The northbound Constitution Drive would require an installation of right-turn lane and a conversion of the shared left/through/right lane to shared left/through lane resulting in having one shared left/through lane and one right-turn lane. The recommended modification to lane configurations would require a widening of westbound Chrysler Drive and a widening of Constitution Drive on both sides of the intersection and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. While the improvements to the westbound approach are included in the City's TIF program, the improvements on the other approaches are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Cumulative (2040) Conditions and would be in compliance with the TIA Guidelines by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during the AM and PM peak hours.

Chrysler Drive and Jefferson Drive (Intersection #9)

Implementation of the proposed project would cause the Chrysler Drive and Jefferson Drive intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this City-controlled intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the PM peak hour.

The recommended modification to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install a traffic signal and convert the shared left/right lane to one left-turn lane and one right-turn lane on northbound Jefferson Drive to operate at level of service compliance with the LOS standard.

The installation of a traffic signal is consistent with the City's Transportation Master Plan, which identifies traffic signal installation as a future improvement at the intersection of Chrysler Drive and Jefferson Drive. No widening or additional right of way would be required. This improvement is in the City's TIF program and the project is required to pay traffic impact fees according to the City's current

TIF schedule. Therefore, payment of the TIF program would address the changes in intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Chrysler Drive and Independence Drive (Intersection #10)

Implementation of the proposed project would cause the Chrysler Drive and Independence Drive intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this City-controlled intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install a traffic signal, consistent with the City's Transportation Master Plan, which identifies traffic signal installation as a future improvement at the intersection of Chrysler Drive and Independence Drive. No widening or additional right of way would be required. This improvement is in the City's TIF program and the project is required to pay traffic impact fees according to the City's current TIF schedule. Therefore, payment of the TIF program would address the changes in intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Chilco Street and Bayfront Expressway (Intersection #11)

Implementation of the proposed project would cause the Chilco Street and Bayfront Expressway intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to modify the center left-turn lane to a shared left/right lane on Chilco Street and re-design the existing shared bike lane. The lane configuration in this direction would be one left-turn lane, one shared left/right lane, and one right-turn lane. The recommended improvements are subject to Caltrans's s approval since the intersection is located within their jurisdiction.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Chilco Street and Constitution Drive (Intersection #12)

Implementation of the proposed project would cause the Chilco Street and Constitution Drive intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this City-controlled intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during both AM and PM peak hours.

The recommended modification to bring this intersection back to pre-project conditions is to install one right-turn lane on westbound Chilco Street and convert the shared through/right lane to through lane. The lane configuration in this direction would be two left-turn lanes, one through lane, and one right-turn lane. The excessive delay on southbound Constitution Drive would require an installation of one left-turn lane and a conversion of the shared left/through lane into through lane resulting in having one left-turn lane, one through lane, and one right-turn lane in this direction. The recommended modifications would require a widening on westbound Chilco Street and southbound Constitution Drive to accommodate the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Cumulative (2040) Conditions and would be in compliance with the TIA Guidelines by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during both AM and PM peak hours.

Willow Road and Hamilton Avenue (Intersection #14)

Implementation of the proposed project would cause the Willow Road and Hamilton Avenue intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification to bring this intersection back to pre-project conditions is to install one right-turn lane on both eastbound and westbound Willow Road and convert the shared through/right lane to through lane for both directions. The lane configuration for both eastbound and westbound Willow Road would be one left-turn lane, two through lanes, and one right-turn lane. The recommended modification would require a widening on both directions of Willow Road to accommodate the additional lanes and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Cumulative (2040) Conditions without the proposed project and would be in compliance with the TIA Guidelines by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during the AM peak hour.

Willow Road and Newbridge Street (Intersection #17)

Implementation of the proposed project would cause the Willow Road and Newbridge Street intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the AM peak hour.

The recommended modification to bring this intersection back to pre-project conditions is to modify the signal timing to a protected left-turn phasing operation on Newbridge Street, provide a leading left-turn phase on southbound Newbridge Street and a lagging left-turn phase on northbound Newbridge Street, and optimize signal timing. The signal modification would be consistent with the recommended Willow Road Corridor Improvement Project in the City's Transportation Master Plan. In addition, the excessive delay on westbound Willow Road would require an installation of one right-turn lane and a conversion of the shared through/right lane to through lane resulting in having one left-turn lane, three through lanes, and one right-turn lane in this direction. The recommended improvements would require a curb expansion for westbound Willow Road and would be subject to Caltrans's approval. Since this improvement is subject to Caltrans' approval its implementation cannot be guaranteed. Additionally, it would potentially require acquisition of additional right-of-way and may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. However, the improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic

With implementation of these intersection modifications, the intersection would operate better than Cumulative (2040) Conditions without the proposed project and would be in compliance with the TIA Guidelines by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during the AM peak hour.

Willow Road and Bay Road (Intersection #18)

Implementation of the proposed project would cause the Willow Road and Bay Road intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during both AM and PM peak hours.

The recommended modification to bring this intersection back to pre-project conditions is to install additional left-turn lane on southbound Bay Road resulting in having two left-turn lanes and one right-turn lane in this direction. The recommended modifications would require a narrowing of the existing median on Bay Road to accommodate the additional lane. The modification would be consistent with the recommended Willow Road Corridor Improvement Project in the City's Transportation Master Plan. No widening or additional right of way would be required. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Cumulative (2040) Conditions without the proposed project and would be in compliance with the TIA Guidelines by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during both AM and PM peak hours.

Willow Road and Durham Street (Intersection #19)

Implementation of the proposed project would cause the Willow Road and Durham Street intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during both AM and PM peak hours.

The recommended modification to bring this intersection back to pre-project conditions is to install one right-turn lane on westbound Willow Road and restripe the shared through/right lane to through lane. The lane configuration in this direction would be one left-turn lane, one through lane, and one right-turn lane. The recommended modifications would require a widening on westbound Willow Road for the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would operate better than Cumulative (2040) Conditions without the proposed project and would be in compliance with the TIA Guidelines by reducing the increase in the average critical movement critical delay at the intersection by such that the increase becomes less than 0.8 seconds during both AM and PM peak hours.

Willow Road and Coleman Avenue (Intersection #20)

Implementation of the proposed project would cause the Willow Road and Coleman Avenue intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during both AM and PM peak hours.

The recommended modification to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install one right-turn lane on eastbound Willow Road and restripe the shared through/right lane to through lane. The lane configuration in this direction would be one left-turn lane, one through lane, and one right-turn lane. The recommended modifications would require a widening on eastbound Willow Road for the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Willow Road and Gilbert Avenue (Intersection #21)

Implementation of the proposed project would cause the Willow Road and Gilbert Avenue intersection to operate in non-compliance with the TIA Guidelines under Cumulative (2040) Plus Project Conditions. The proposed project would cause this intersection to experience an increase in average critical movement delay of 0.8 seconds or greater during the PM peak hour.

The recommended modification to bring this intersection back to pre-project conditions and operate in compliance with the TIA Guidelines is to install one right-turn lane on eastbound Willow Road and restripe the shared through/right lane to through lane. The lane configuration in this direction would be one left-turn lane, one through lane, and one right-turn lane. The recommended modifications would require a widening on eastbound Willow Road for the additional lane and would potentially require acquisition of additional right-of-way. This may require traffic signal modification if traffic signal poles need to be replaced due to the widening. The project is required to pay TIF according to

the current TIF schedule. The improvements are beyond those in the TIF program and payment of the TIF would not entirely address the change to intersection delay as a result of project traffic.

With implementation of these intersection modifications, the intersection would be in compliance with LOS standard and address the project's share of the non-compliant operation.

Table 21 provides results for the intersection LOS operations with the improvements during the AM and PM peak hours under Cumulative (2040) Plus Project Conditions. The Vistro outputs are provided in Attachment 3.

Table 21: Cumulative (2040) Plus Project Conditions with Improvements Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Cumulative Plus Project		Cumulative Plus Project with Improvements		Meet General Plan Standard?[3]
					Delay	LOS	Delay	LOS	Delay	LOS	
1	Marsh Road & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	**96.8**	**F**	**101.8**	**F**	**78.2**	**E**	No
				EB	**169.0**	**F**	**169.2**	**F**	**84.1**	**F**	
				WB	**75.1**	**E**	**85.1**	**F**	**84.8**	**F**	
			PM	N/A	36.2	D	36.9	D	38.0	D	Yes
8	Chrysler Drive & Constitution Drive (Menlo Park)	Signal	AM	N/A	**298.2**	**F**	**360.5**	**F**	45.7	D	Yes
			PM	N/A	**228.1**	**F**	**233.2**	**F**	**121.1**	**F**	No
				SB	**795.0**	**F**	**808.2**	**F**	**421.7**	**F**	
				EB	**91.7**	**F**	**104.1**	**F**	**83.1**	**F**	
				WB	**401.4**	**F**	**398.9**	**F**	**81.1**	**F**	
9	Chrysler Drive & Jefferson Drive (Menlo Park)	TWSC[1]	AM	N/A	**45.9**	**E**	**46.6**	**E**	24.6	C	Yes
			PM	N/A	**126.4**	**F**	**140.5**	**F**	48.1	D	Yes
10	Chrysler Drive & Independence Drive (Menlo Park)	TWSC[2]	AM	N/A	**368.5**	**F**	**372.4**	**F**	13.7	B	Yes
			PM	N/A	22.6	C	22.9	C	6.1	A	Yes
11	Chilco Street & Bayfront Expressway (Local Approaches to State)	Signal	AM	N/A	**57.6**	**E**	**61.6**	**E**	52.4	D	Yes
				NB	**115.2**	**F**	**164.5**	**F**	54.9	D	
			PM	N/A	**65.1**	**E**	**67.2**	**E**	35.8	D	Yes
				NB	**258.1**	**F**	**257.2**	**F**	40.9	D	
12	Chilco Street & Constitution Drive (Menlo Park)	Signal	AM	N/A	**77.0**	**E**	**85.3**	**F**	49.7	D	Yes
				NB	**77.6**	**E**	**92.2**	**F**	**85.2**	**F**	
				SB	**85.3**	**F**	**94.0**	**F**	40.0	D	
				EB	32.9	C	35.8	D	34.1	C	
				WB	47.2	D	50.1	D	49.0	D	
			PM	N/A	**246.0**	**F**	**252.2**	**F**	**124.0**	**F**	No
				NB	**98.6**	**F**	**98.6**	**F**	**98.6**	**F**	
				SB	**177.4**	**F**	**211.6**	**F**	**75.3**	**E**	
				EB	**523.0**	**F**	**521.3**	**F**	**185.6**	**F**	
				WB	**113.7**	**F**	**113.7**	**F**	**113.7**	**F**	
14	Willow Road & Hamilton Avenue (Local Approaches to State)	Signal	AM	N/A	**331.3**	**F**	**332.7**	**F**	35.5	D	Yes
				SB	**210.2**	**F**	**215.6**	**F**	41.0	D	
			PM	N/A	**426.5**	**F**	**427.5**	**F**	**80.6**	**F**	No
				SB	**489.6**	**F**	**489.6**	**F**	37.3	D	

Table 21: Cumulative (2040) Plus Project Conditions with Improvements Level of Service

No.	Intersection	Control	Peak Hour	Critical Approach	Cumulative		Cumulative Plus Project		Cumulative Plus Project with Improvements		Meet General Plan Standard?[3]
					Delay	LOS	Delay	LOS	Delay	LOS	
17	Willow Road & Newbridge Street (Local Approaches to State)	Signal	AM	N/A	**391.1**	**F**	**391.8**	**F**	**74.7**	**E**	No
				SB	**255.9**	**F**	**260.5**	**F**	37.4	D	
			PM	N/A	**432.3**	**F**	**433.2**	**F**	**87.9**	**F**	No
				SB	**585.9**	**F**	**585.9**	**F**	**120.8**	**F**	
18	Willow Road & Bay Road (Local Approaches to State)	Signal	AM	N/A	**184.5**	**F**	**186.8**	**F**	**124.1**	**F**	No
				SB	**243.2**	**F**	**248.2**	**F**	**172.0**	**F**	
			PM	N/A	**133.7**	**F**	**134.9**	**F**	**80.3**	**F**	No
				NB	**275.4**	**F**	**277.5**	**F**	**162.3**	**F**	
19	Willow Road & Durham Street (Menlo Park)	Signal	AM	N/A	**282.0**	**F**	**286.1**	**F**	**60.4**	**E**	No
				NB	**97.3**	**F**	**97.0**	**F**	**96.5**	**F**	
				SB	**529.0**	**F**	**536.6**	**F**	23.7	C	
				EB	**56.1**	**E**	**56.1**	**E**	**56.1**	**E**	
				WB	**58.6**	**E**	**58.6**	**E**	**58.6**	**E**	
			PM	N/A	**242.7**	**F**	**243.1**	**F**	**56.1**	**E**	No
				NB	**80.8**	**F**	**82.2**	**F**	**81.9**	**F**	
				SB	**456.2**	**F**	**456.2**	**F**	25.1	C	
				EB	**84.2**	**F**	**84.2**	**F**	**84.1**	**F**	
				WB	**66.2**	**E**	**66.2**	**E**	**66.2**	**E**	
20	Willow Road & Coleman Avenue (Menlo Park)	Signal	AM	N/A	**157.7**	**F**	**157.1**	**F**	27.2	C	Yes
				NB	**331.8**	**F**	**331.1**	**F**	17.1	B	
				SB	24.3	C	25.1	C	24.9	C	
				EB	**72.1**	**E**	**72.1**	**E**	**72.1**	**E**	
				WB	46.3	D	46.3	D	46.3	D	
			PM	N/A	**72.5**	**E**	**74.0**	**E**	10.3	B	Yes
				NB	**151.4**	**F**	**154.7**	**F**	6.0	A	
				SB	7.7	A	7.7	A	7.5	A	
				EB	44.3	D	44.3	D	44.3	D	
				WB	38.3	D	38.3	D	38.3	D	
21	Willow Road & Gilbert Avenue (Menlo Park)	Signal	AM	N/A	**122.3**	**F**	**121.7**	**F**	26.0	C	Yes
				NB	**274.0**	**F**	**273.3**	**F**	10.9	B	
				SB	28.8	C	29.1	C	17.2	B	
				EB	**63.0**	**E**	**63.0**	**E**	**63.0**	**E**	
				WB	**67.3**	**E**	**67.3**	**E**	**67.3**	**E**	
			PM	N/A	**98.1**	**F**	**99.4**	**F**	15.4	B	Yes
				NB	**207.1**	**F**	**209.9**	**F**	8.8	A	
				SB	18.8	B	18.8	B	10.1	B	
				EB	38.4	D	38.4	D	38.4	D	
				WB	39.5	D	39.5	D	39.5	D	

Notes:
TWSC - Two-way stop-controlled. Delay and LOS for the worst movement is reported for unsignalized intersections.
Bold text - Indicates intersections operate at LOS not meeting LOS standard.
N/A = Not applicable. The "Critical Approach" information is only relevant where the proposed project would increase delay per the LOS policy standards.

[1] This intersection meets signal warrant criteria under Cumulative and Cumulative Plus Project Conditions during the PM peak hour. The intersection is signalized with improvements.
[2] This intersection meets signal warrant criteria under Cumulative and Cumulative Plus Project Conditions during the AM peak hour. The intersection is signalized with improvements.
[3] Indicates the General Plan compliance for the intersection LOS operations under Cumulative (2040) Plus Project Conditions with improvements.

Roadway Segment Level of Service

For Cumulative Plus Project (2040) Conditions, the project vehicle trips for the study CMP segments were identified from the project trip distribution assigned to each route. A difference of the turning movement volumes at the adjacent intersections between Cumulative (2040) and Cumulative (2040) Plus Project Conditions indicates the amount of net-new vehicle traffic that the proposed project would add to the study CMP segments. Table 22 shows the net new project vehicle trips estimated in percent of the segment capacity that would be added to each of the study segments.

The study CMP segments listed below would continue to operate at level of service not compliant with the LOS standards with addition of the project trips. All other study CMP segments would operate in compliance with the LOS standards under Cumulative (2040) Plus Project Conditions.

- Segment #1, Bayfront Expressway (SR 84) between Bayshore Freeway (US 101) and Willow Road (SR 114).
- Segment #2, Bayfront Expressway (SR 84) between Willow Road (SR 114) and University Avenue (SR 109).
- Segment #4, University Avenue (SR 109) between Bayshore Freeway (US 101) and Bayfront Expressway (SR 84).

  Segment #5, Willow Road (SR 114) between Bayshore Freeway (US 101) and Bayfront Expressway (SR 84).

Table 22: Cumulative (2040) Plus Project Conditions for Study Roadway Segments

No.	Route	Segment	Cumulative (2040) Level of Service	Net-New Project Vehicle Trips[1]	Percent of Capacity
1	Bayfront Expressway (SR 84)	Bayshore Freeway (US 101) - Willow Road (SR 114)	**F**	**81**	**2.5%**
2	Bayfront Expressway (SR 84)	Willow Road (SR 114) - University Avenue (SR 109)	**F**	26	0.8%
3	Bayfront Expressway (SR 84)	University Avenue (SR 109) - San Mateo County Line	F	22	0.7%
4	University Avenue (SR 109)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	**F**	4	0.2%
5	Willow Road (SR 114)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	**F**	13	0.6%
6	Bayshore Freeway (US 101)	North of Marsh Road	F	34	0.4%
7	Bayshore Freeway (US 101)	Marsh Road - Willow Road (SR 114)	F	24	0.3%

Table 22: Cumulative (2040) Plus Project Conditions for Study Roadway Segments

No.	Route	Segment	Cumulative (2040) Level of Service	Net-New Project Vehicle Trips[1]	Percent of Capacity
8	Bayshore Freeway (US 101)	Willow Road (SR 114) - University Avenue (SR 109)	F	24	0.3%
9	Bayshore Freeway (US 101)	South of University Avenue (SR 109)	F	24	0.3%

Note:
[1]Peak direction for either the AM or PM peak hour.
Bold text – Indicates segments operate exceeds LOS standard or the new project trips are more than one percent of the segment capacity.

The proposed project would increase traffic volume by one or more than one percent of the roadway capacity and cause one roadway segment to exceed CMP LOS Standards under Cumulative (2040) Plus Project Conditions.

Bayfront Expressway (SR 84) segment between Bayshore Freeway (US 101) and Willow Road (SR 114) (Segment #1)

The proposed project would cause this segment to experience an increase in traffic volume by one or more than one percent of the roadway capacity.

The roadway segment level of service operations could be improved by providing additional travel lanes, e.g. from 6 lanes to 8 lanes, to increase its capacity for serving the additional trips. This would improve the level of service of the segment to the conditions similar to or better than without project conditions. However, a roadway widening measure could cause induced travel demand following higher roadway capacity, air quality degradation, increases in noise from additional traffic, and reductions in transit use. In addition, the routes of regional significance are not under the jurisdiction of the City and a widening of State roadway facilities would require a regional scale planning and funding. Rather than increasing the roadway capacity, using measures to reduce traffic demand would be more sustainable in a long term. In order for the roadway segment to operate better than Cumulative (2040) Conditions without the proposed project, measures that would reduce peak traffic demand for the amount higher than the net-new project vehicle trips (e.g. 81 vehicles per hour) should be considered.

With implementation of travel lane modifications and/or measures to reduce travel demand by one or more than one percent of the capacity, the segment would operate at or better than Cumulative (2040) Conditions.

TRANSPORTATION IMPACT ANALYSIS ATTACHMENTS

Attachment 1. Turning Movement Volumes

Attachment 2. Intersection Lane Configurations

Attachment 3. Intersection Level of Service Results

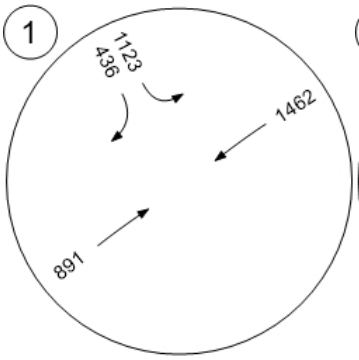
Attachment 4. Roadway Segment Level of Service Results

Attachment 1. Turning Movement Volumes – All Scenarios

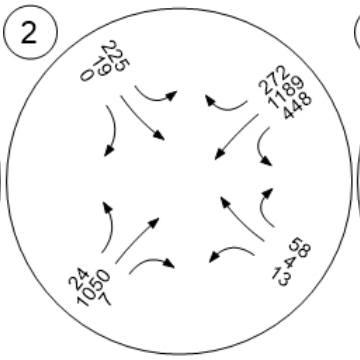
Traffic Volume - Future Total Volume



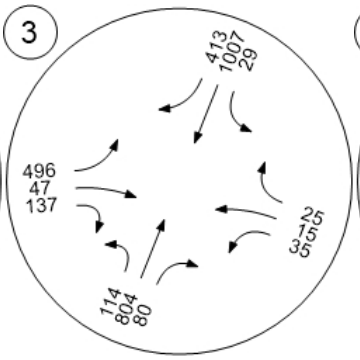
Marsh Rd (SR 84)/US 101 S



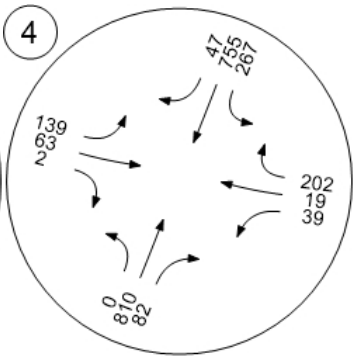
Marsh Rd/Rolison Rd-Scott D



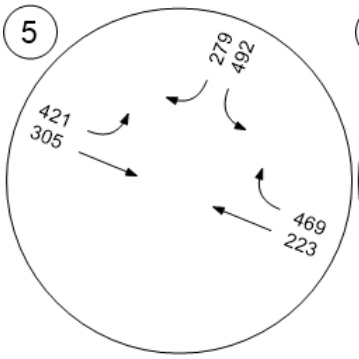
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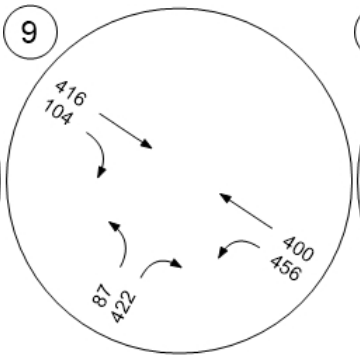
Marsh Rd/Bay Rd



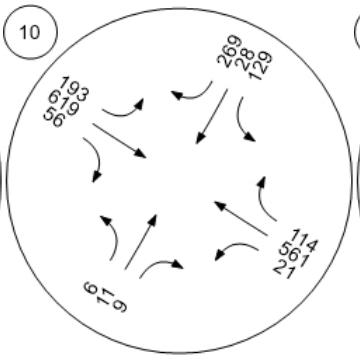
Middlefield Rd/Marsh Rd



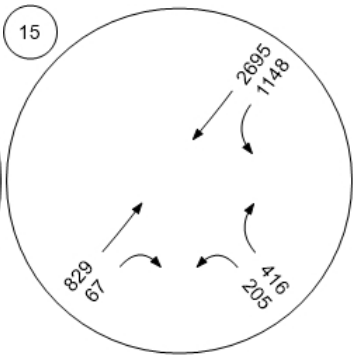
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



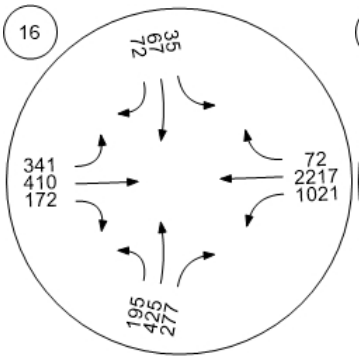
Bayfront Expy (SR 84)/Univer



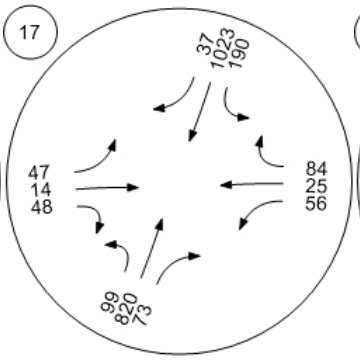
Traffic Volume - Future Total Volume



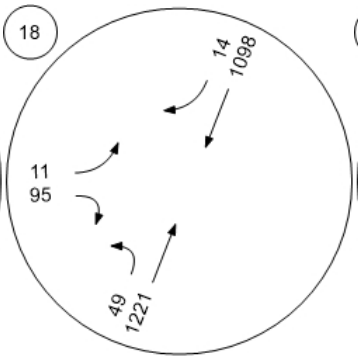
Bayfront Expy (SR 84)/Willow



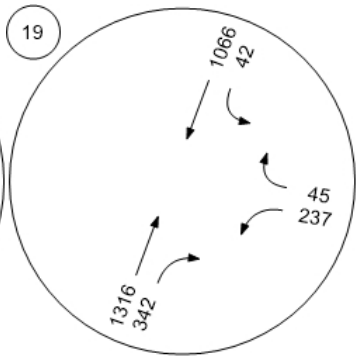
Willow Rd (SR 114)/Hamilton



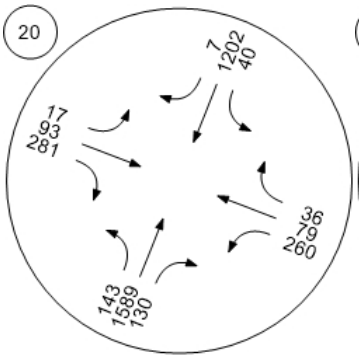
Willow Rd (SR 114)/Ivy Dr



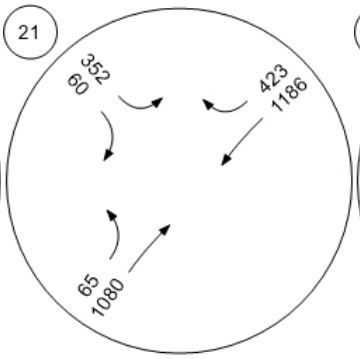
Willow Rd (SR 114)/O'Brien



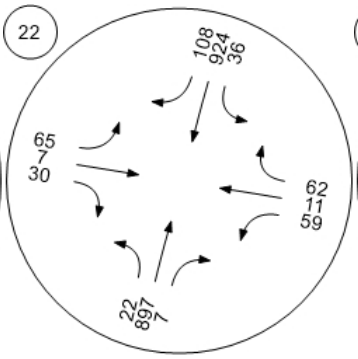
Willow Rd (SR 114)/Newbrid



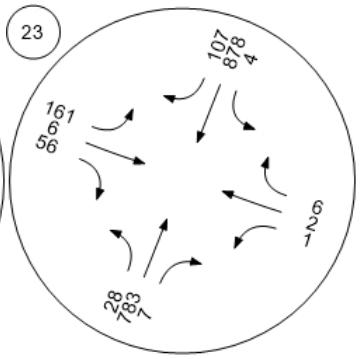
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



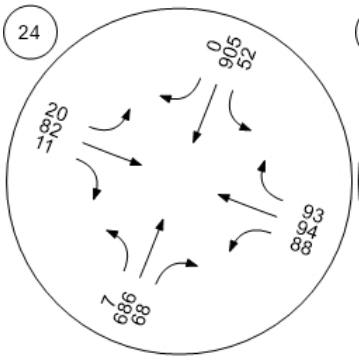
Willow Rd/Coleman Ave



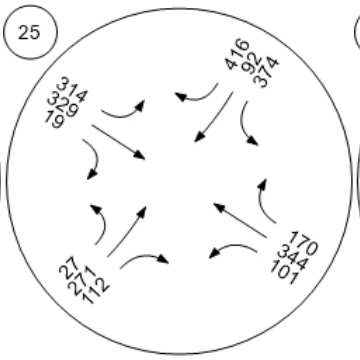
Traffic Volume - Future Total Volume



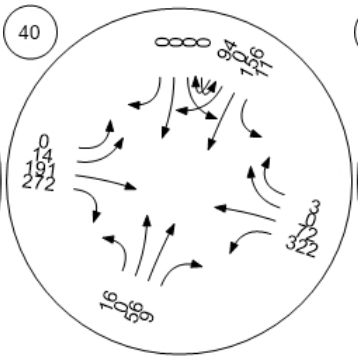
Willow Rd/Gilbert Ave



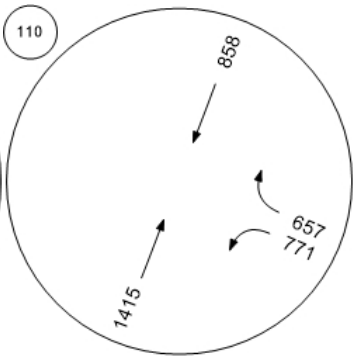
Middlefield Rd-Willow Rd



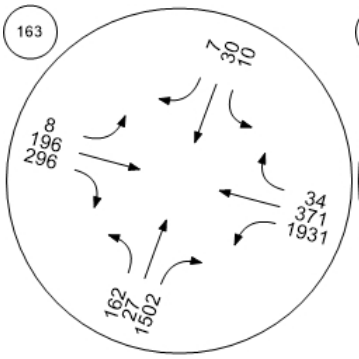
Bay Rd/Ringwood Ave/Sono



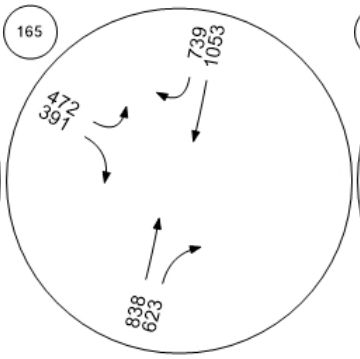
Marsh Road and US 101 NB



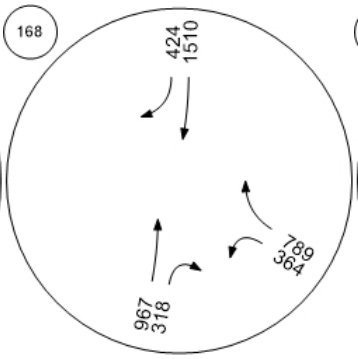
Bayfront Expy/Marsh Rd



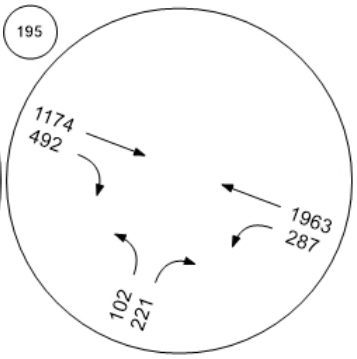
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



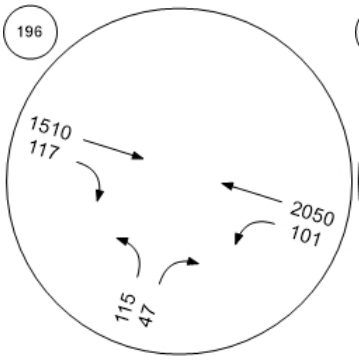
Bayfront Expy/Chilco St



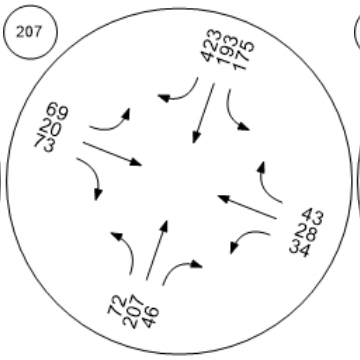
Traffic Volume - Future Total Volume



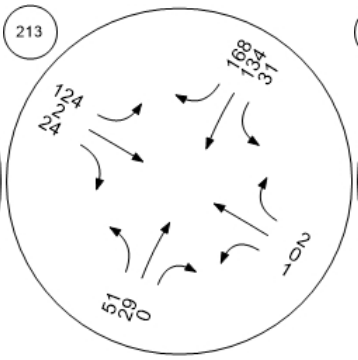
Bayfront Expy/Chrysler Drive



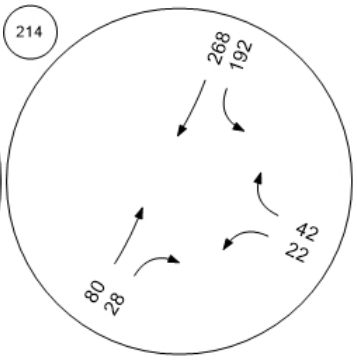
Chilco St/Constitution Dr



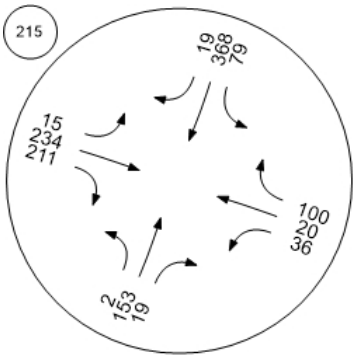
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



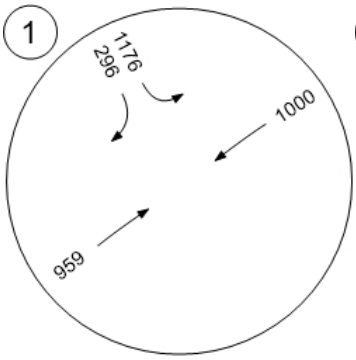
Chrysler Dr/Constitution Dr



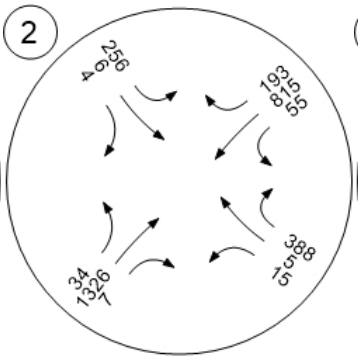
Traffic Volume - Future Total Volume



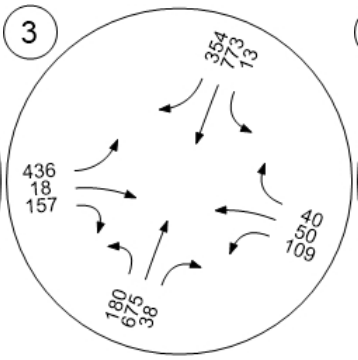
Marsh Rd (SR 84)/US 101 S



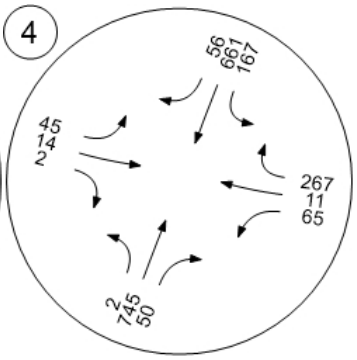
Marsh Rd/Rolison Rd-Scott D



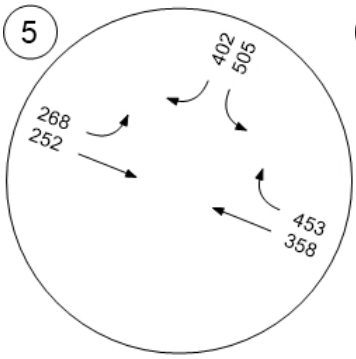
Marsh Rd/Florence St-Bohan



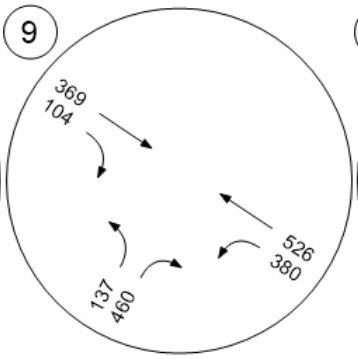
Marsh Rd/Bay Rd



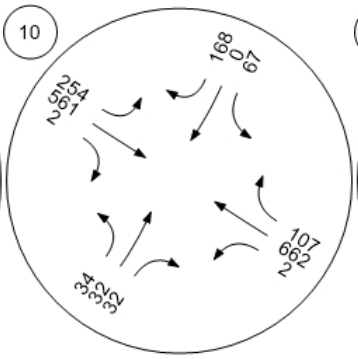
Middlefield Rd/Marsh Rd



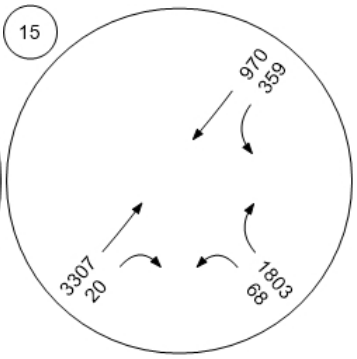
Middlefield Rd/Ravenswood



Middlefield Rd/Ringwood Ave



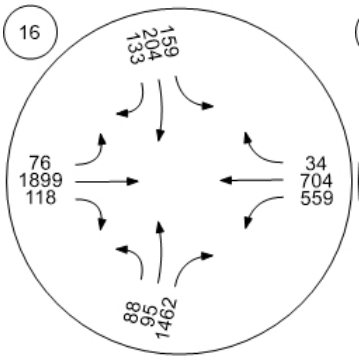
Bayfront Expy (SR 84)/Univer



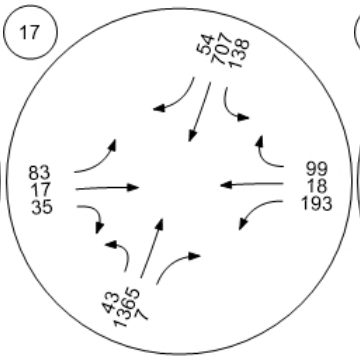
Traffic Volume - Future Total Volume



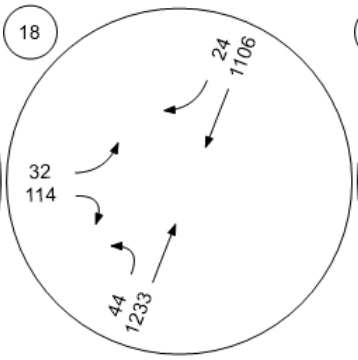
Bayfront Expy (SR 84)/Willow



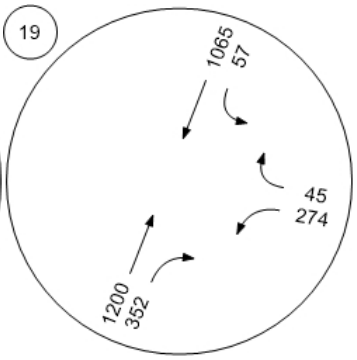
Willow Rd (SR 114)/Hamilton



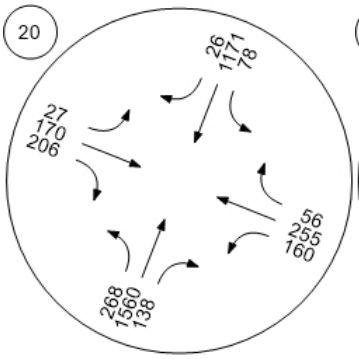
Willow Rd (SR 114)/Ivy Dr



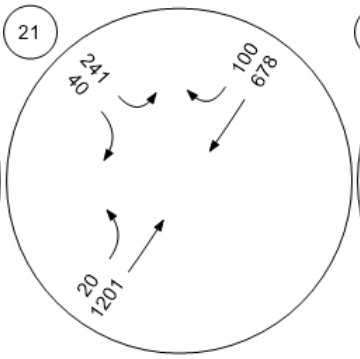
Willow Rd (SR 114)/O'Brien



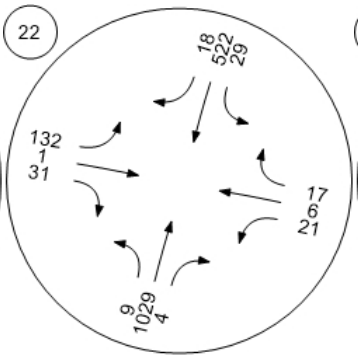
Willow Rd (SR 114)/Newbrid



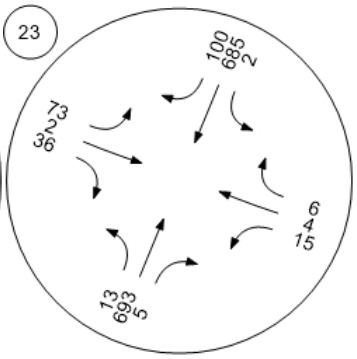
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



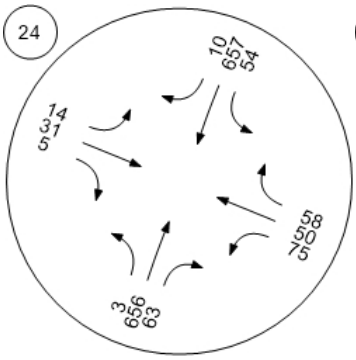
Willow Rd/Coleman Ave



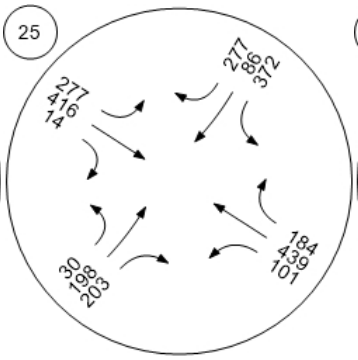
Traffic Volume - Future Total Volume



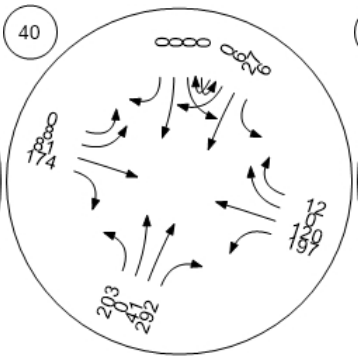
Willow Rd/Gilbert Ave



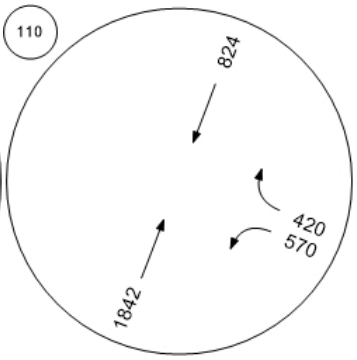
Middlefield Rd-Willow Rd



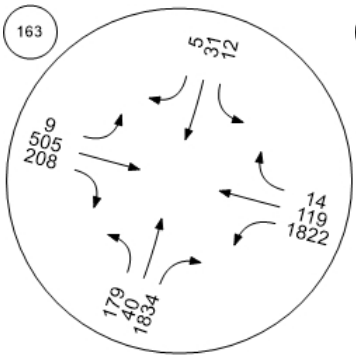
Bay Rd/Ringwood Ave/Sono



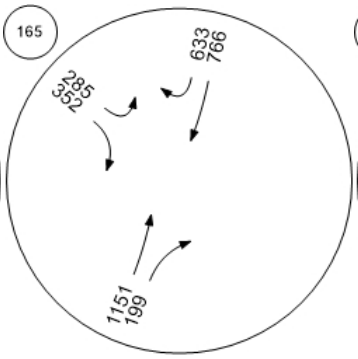
Marsh Road/101 NB Ramps



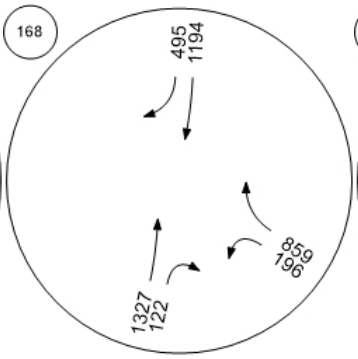
Bayfront Expy/Marsh Rd



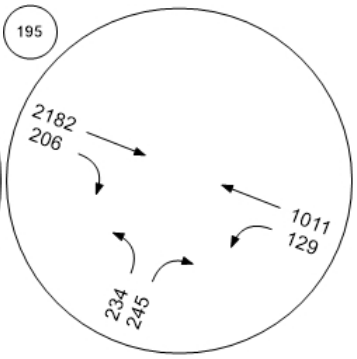
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



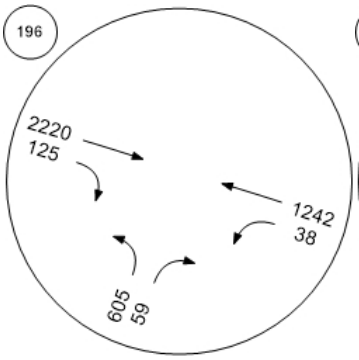
Bayfront Expy/Chilco St



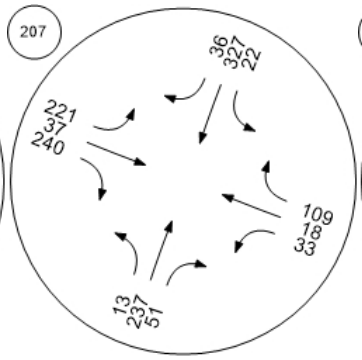
Traffic Volume - Future Total Volume



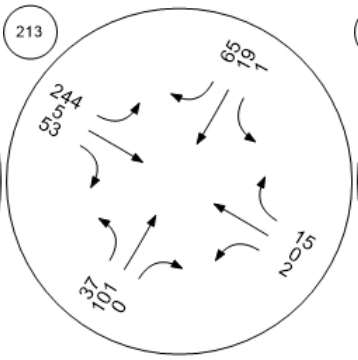
Bayfront Expy/Chrysler Drive



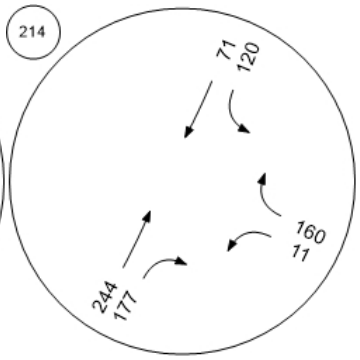
Chilco St/Constitution Dr



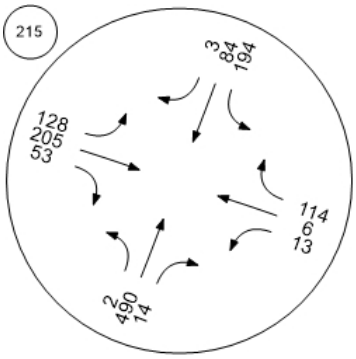
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



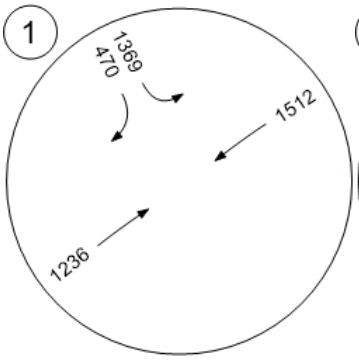
Chrysler Dr/Constitution Dr



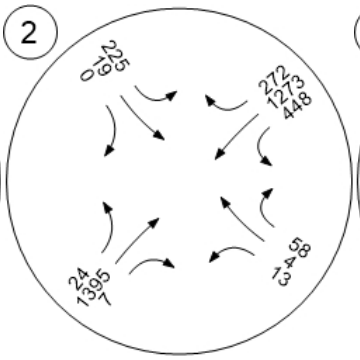
Traffic Volume - Future Total Volume



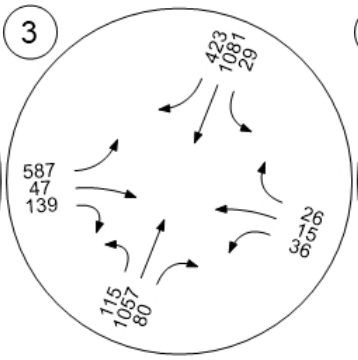
Marsh Rd (SR 84)/US 101 S



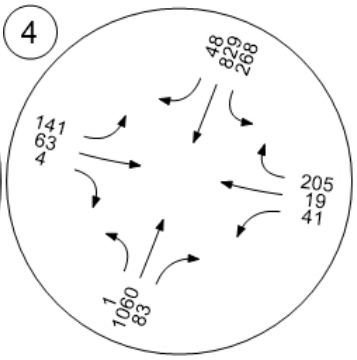
Marsh Rd/Rolison Rd-Scott D



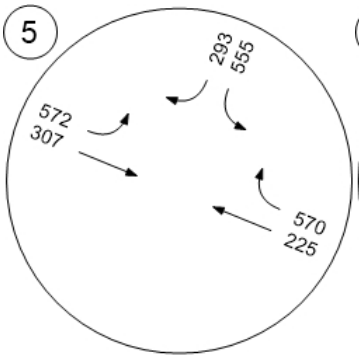
Marsh Rd/Florence St-Bohan



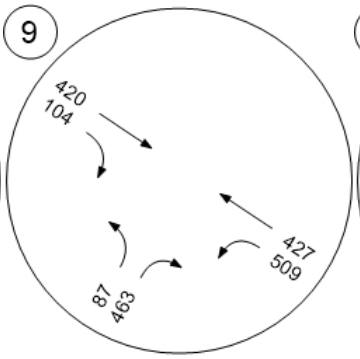
Marsh Rd/Bay Rd



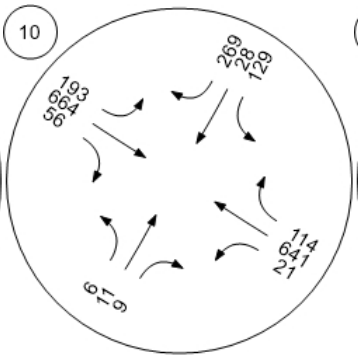
Middlefield Rd/Marsh Rd



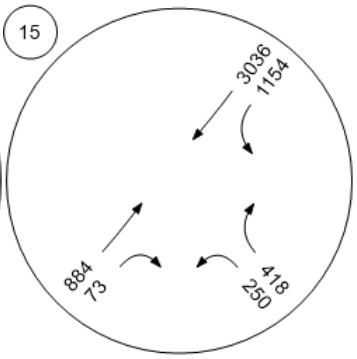
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



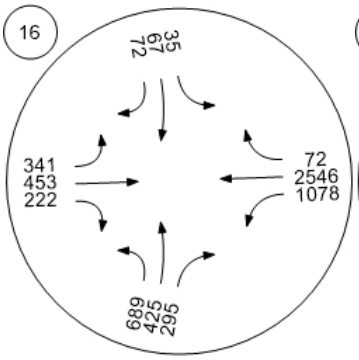
Bayfront Expy (SR 84)/Univer



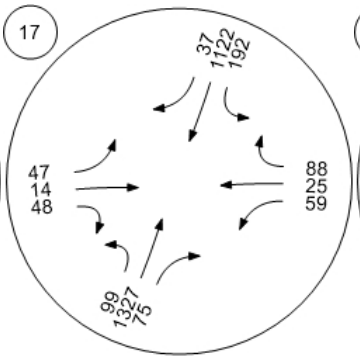
Traffic Volume - Future Total Volume



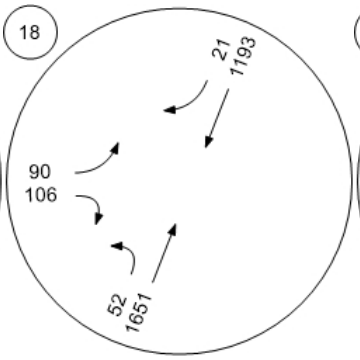
Bayfront Expy (SR 84)/Willow



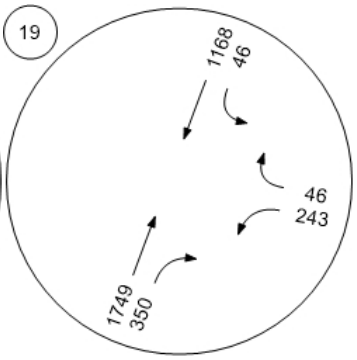
Willow Rd (SR 114)/Hamilton



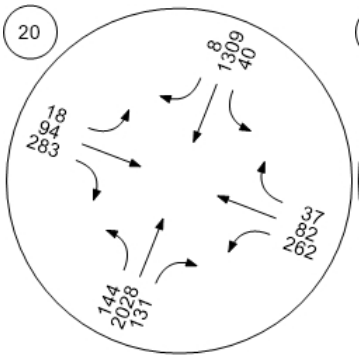
Willow Rd (SR 114)/Ivy Dr



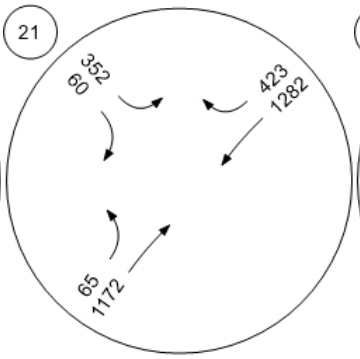
Willow Rd (SR 114)/O'Brien



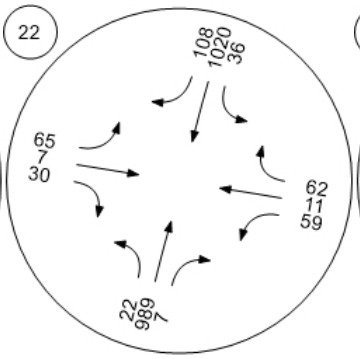
Willow Rd (SR 114)/Newbrid



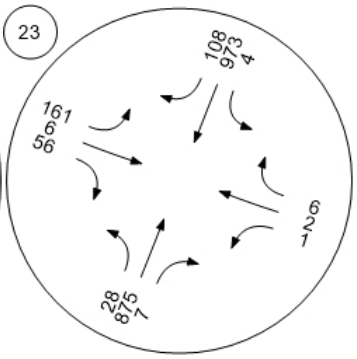
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



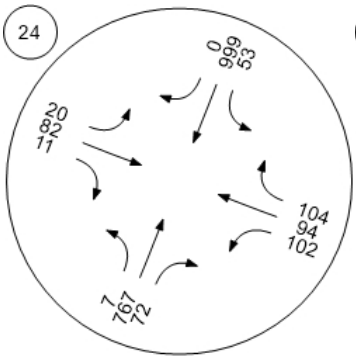
Willow Rd/Coleman Ave



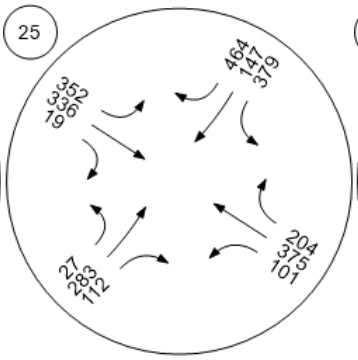
Traffic Volume - Future Total Volume



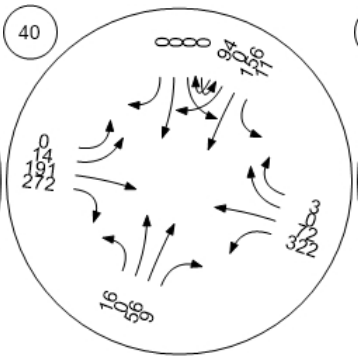
Willow Rd/Gilbert Ave



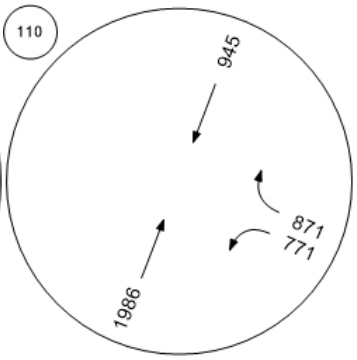
Middlefield Rd-Willow Rd



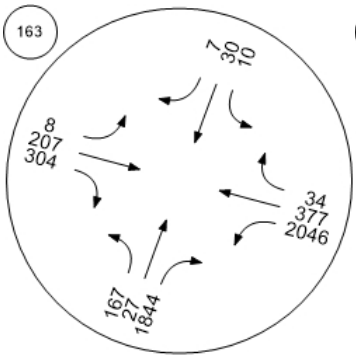
Bay Rd/Ringwood Ave/Sono



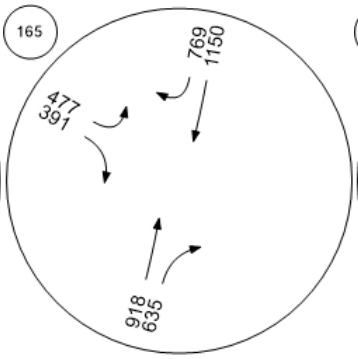
Marsh Road and US 101 NB



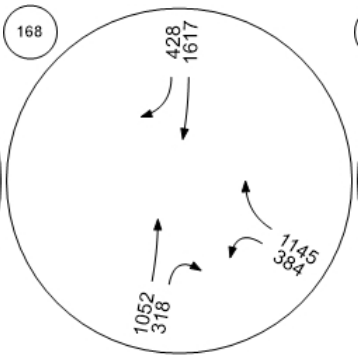
Bayfront Expy/Marsh Rd



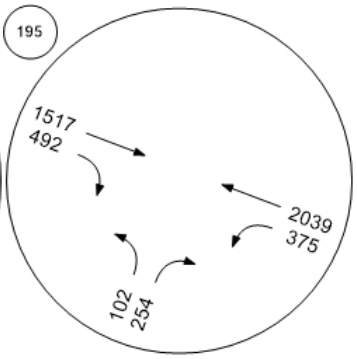
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



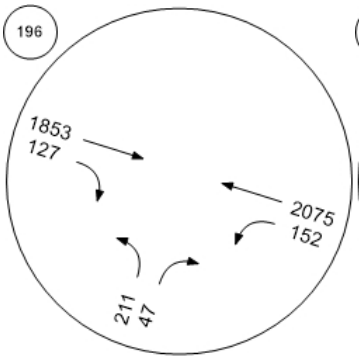
Bayfront Expy/Chilco St



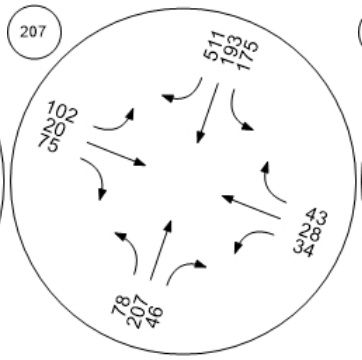
Traffic Volume - Future Total Volume



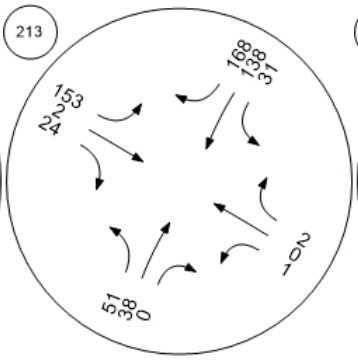
Bayfront Expy/Chrysler Drive



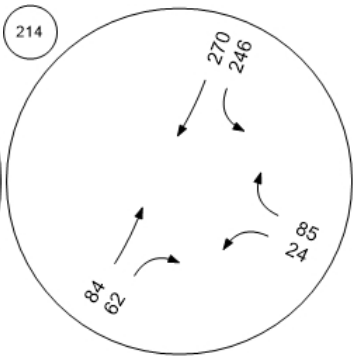
Chilco St/Constitution Dr



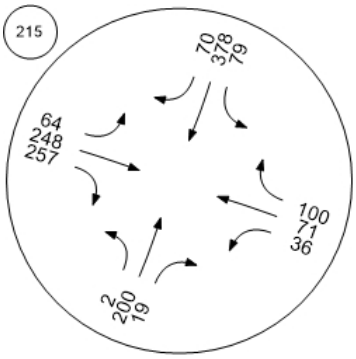
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



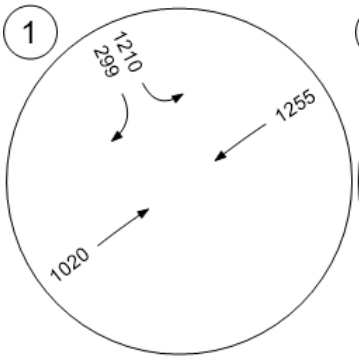
Chrysler Dr/Constitution Dr



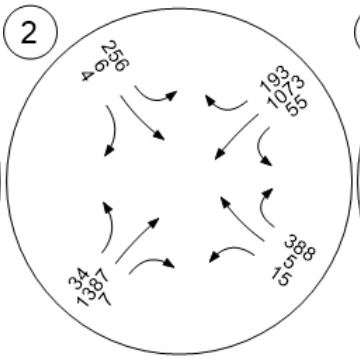
Traffic Volume - Future Total Volume



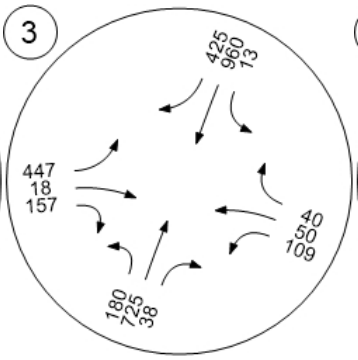
Marsh Rd (SR 84)/US 101 S



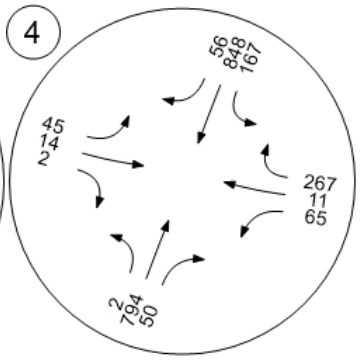
Marsh Rd/Rolison Rd-Scott D



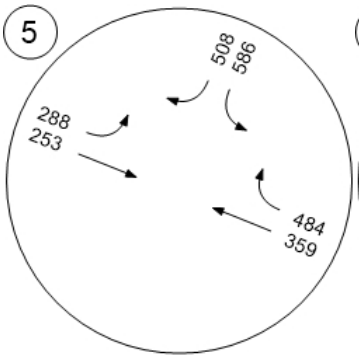
Marsh Rd/Florence St-Bohan



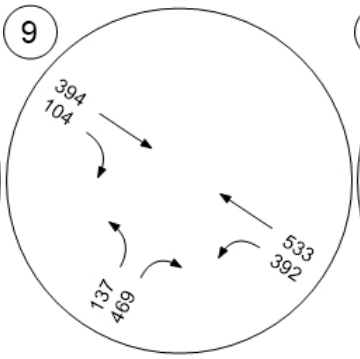
Marsh Rd/Bay Rd



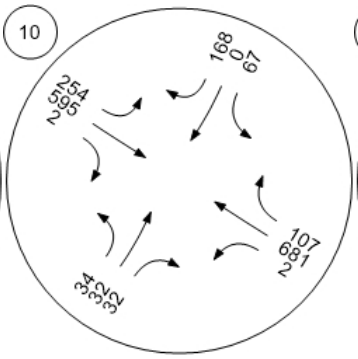
Middlefield Rd/Marsh Rd



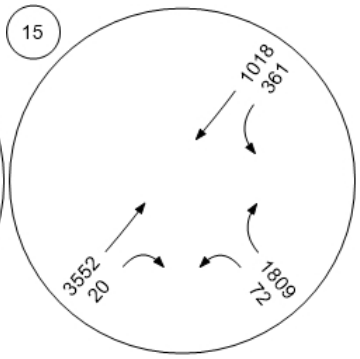
Middlefield Rd/Ravenswood



Middlefield Rd/Ringwood Ave



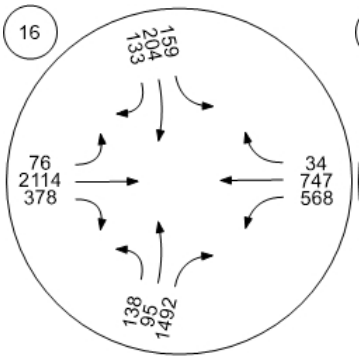
Bayfront Expy (SR 84)/Univer



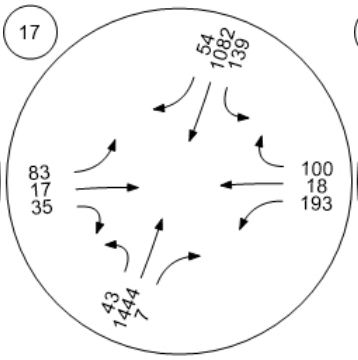
Traffic Volume - Future Total Volume



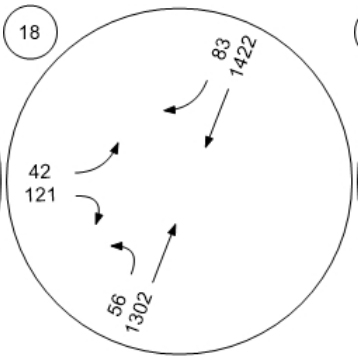
Bayfront Expy (SR 84)/Willow



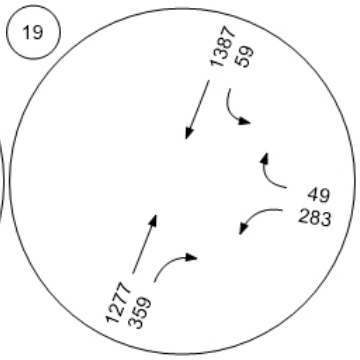
Willow Rd (SR 114)/Hamilton



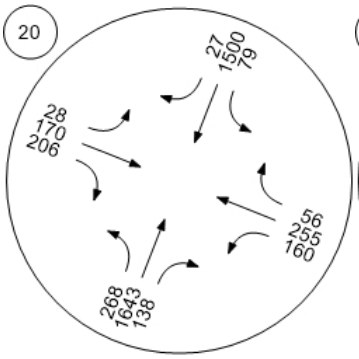
Willow Rd (SR 114)/Ivy Dr



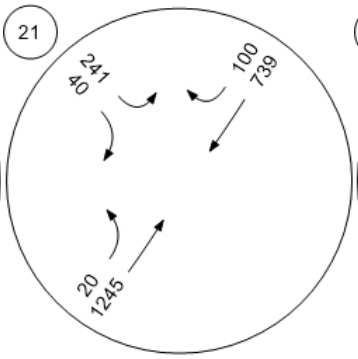
Willow Rd (SR 114)/O'Brien



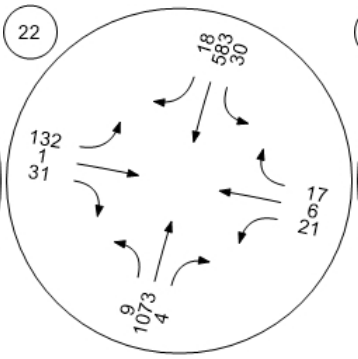
Willow Rd (SR 114)/Newbrid



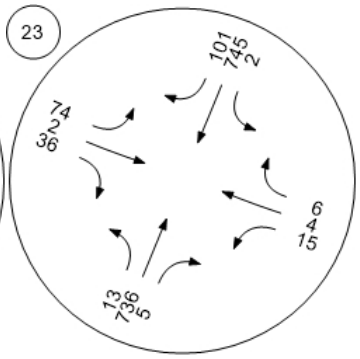
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



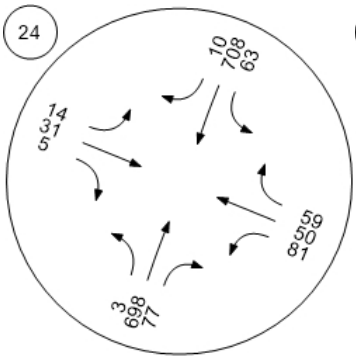
Willow Rd/Coleman Ave



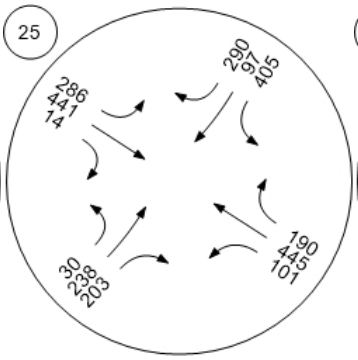
Traffic Volume - Future Total Volume



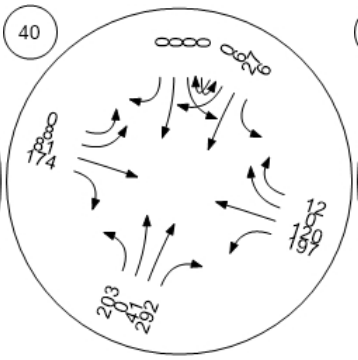
Willow Rd/Gilbert Ave



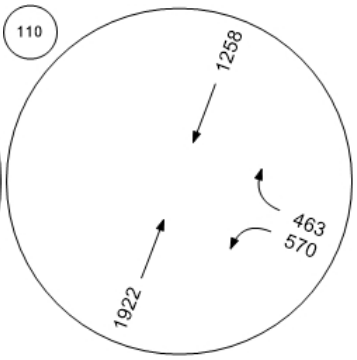
Middlefield Rd-Willow Rd



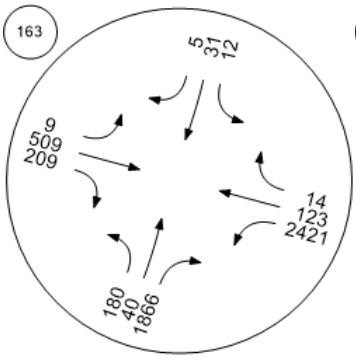
Bay Rd/Ringwood Ave/Sono



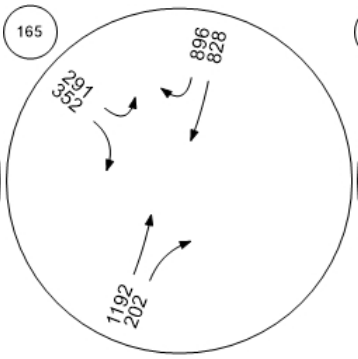
Marsh Road/101 NB Ramps



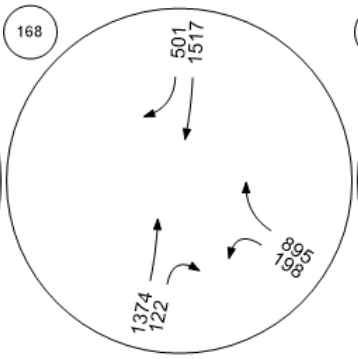
Bayfront Expy/Marsh Rd



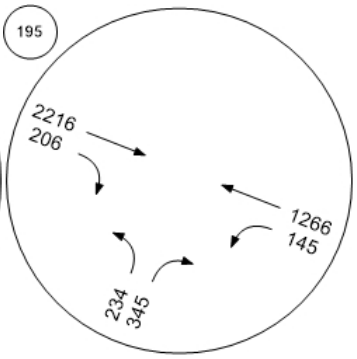
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



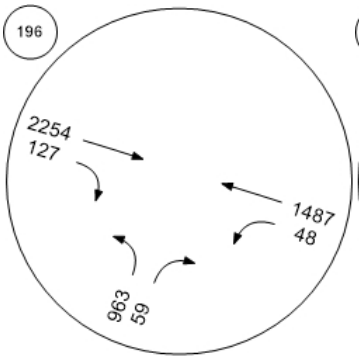
Bayfront Expy/Chilco St



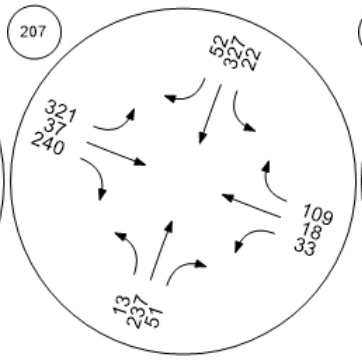
Traffic Volume - Future Total Volume



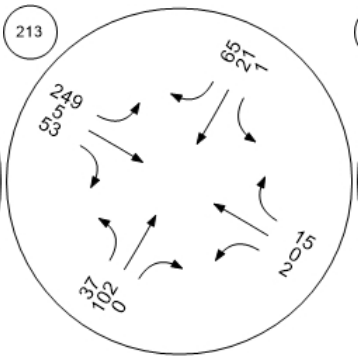
Bayfront Expy/Chrysler Drive



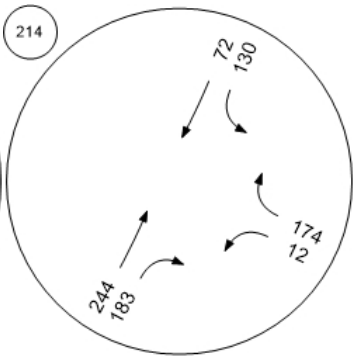
Chilco St/Constitution Dr



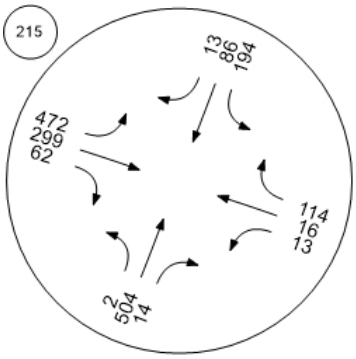
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



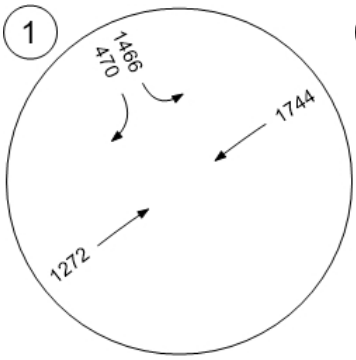
Chrysler Dr/Constitution Dr



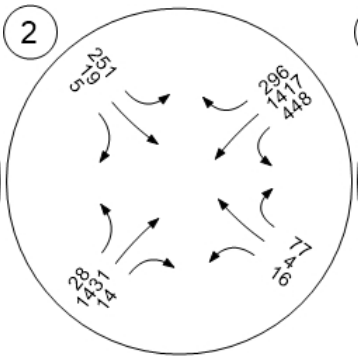
Traffic Volume - Future Total Volume



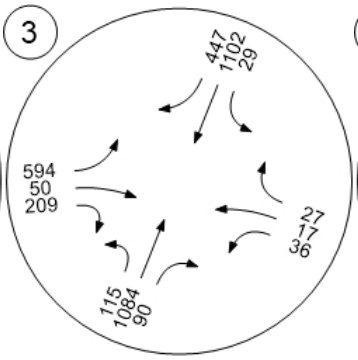
Marsh Rd (SR 84)/US 101 S



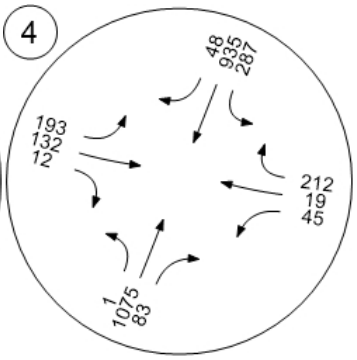
Marsh Rd/Rolison Rd-Scott D



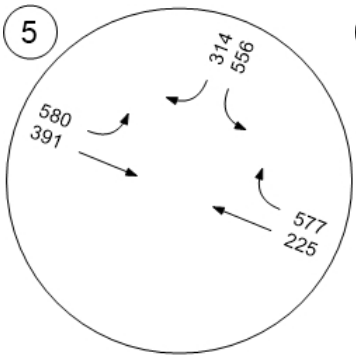
Marsh Rd/Florence St-Bohan



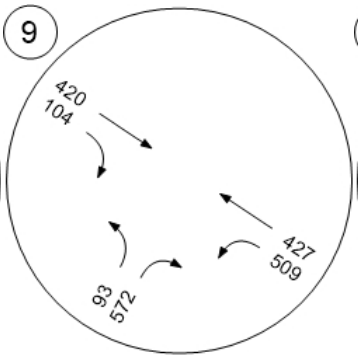
Marsh Rd/Bay Rd



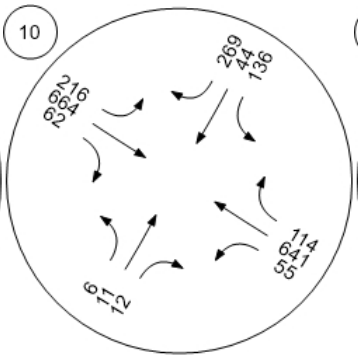
Middlefield Rd/Marsh Rd



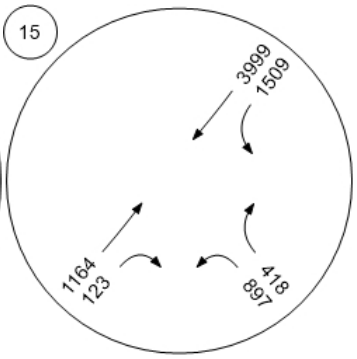
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



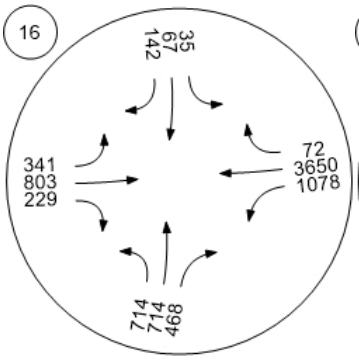
Bayfront Expy (SR 84)/Univer



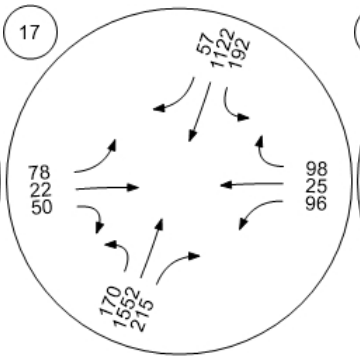
Traffic Volume - Future Total Volume



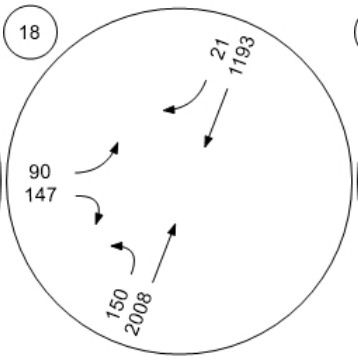
Bayfront Expy (SR 84)/Willow



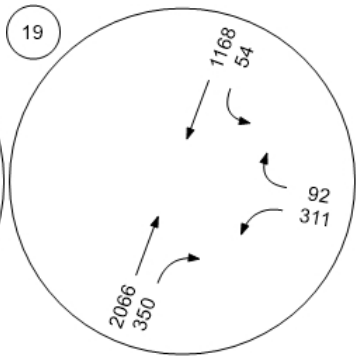
Willow Rd (SR 114)/Hamilton



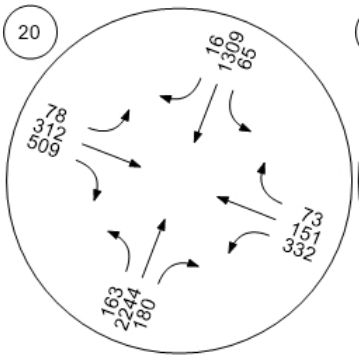
Willow Rd (SR 114)/Ivy Dr



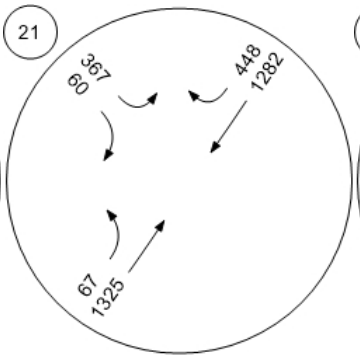
Willow Rd (SR 114)/O'Brien



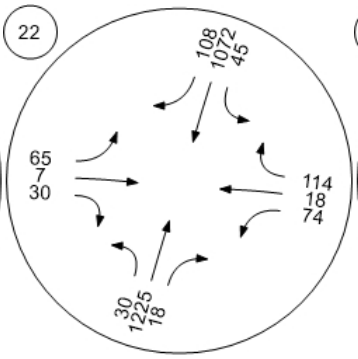
Willow Rd (SR 114)/Newbrid



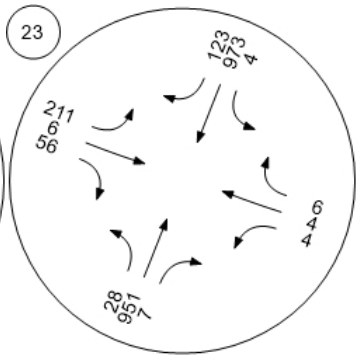
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



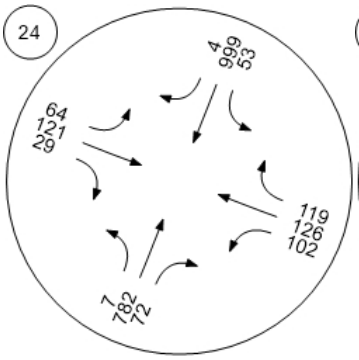
Willow Rd/Coleman Ave



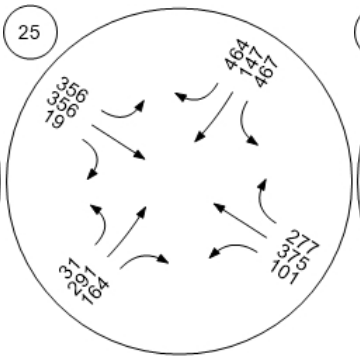
Traffic Volume - Future Total Volume



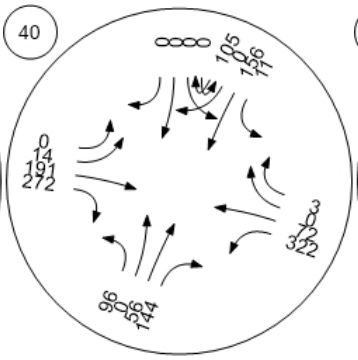
Willow Rd/Gilbert Ave



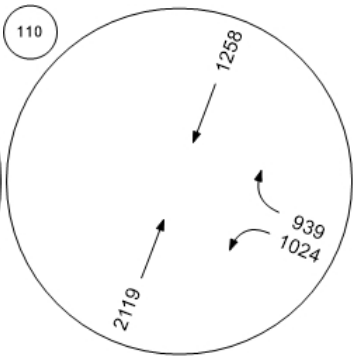
Middlefield Rd-Willow Rd



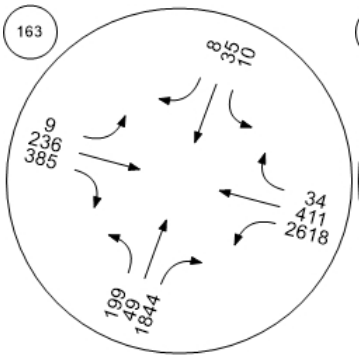
Bay Rd/Ringwood Ave/Sono



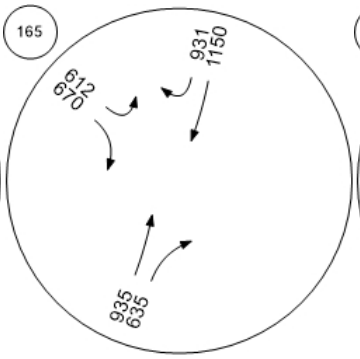
Marsh Road and US 101 NB



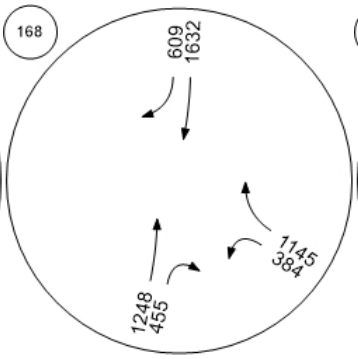
Bayfront Expy/Marsh Rd



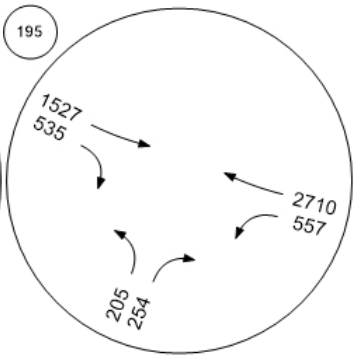
Willow & 101 SB Ramps



Willow & 101 NB Ramps



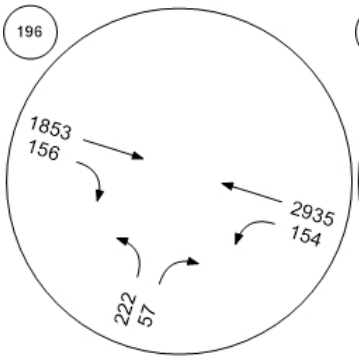
Bayfront Expy/Chilco St



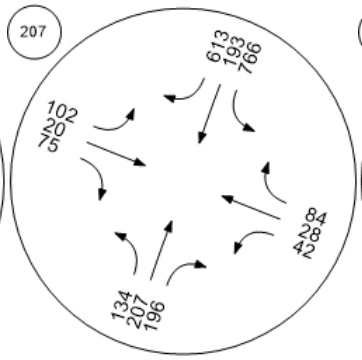
Traffic Volume - Future Total Volume



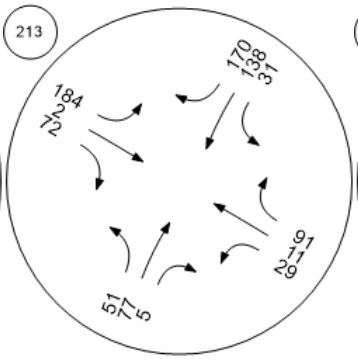
Bayfront Expy/Chrysler Drive



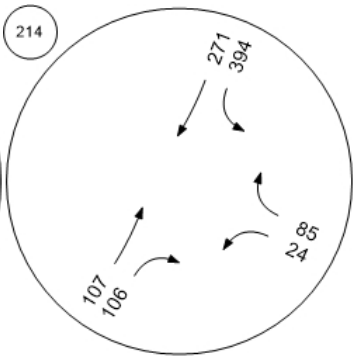
Chilco St/Constitution Dr



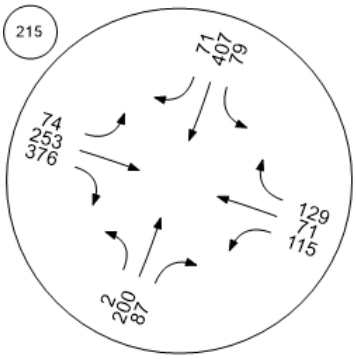
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



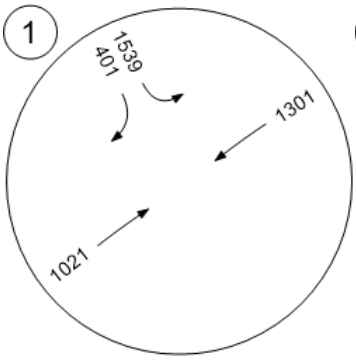
Chrysler Dr/Constitution Dr



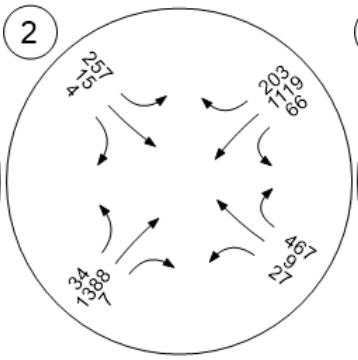
Traffic Volume - Future Total Volume



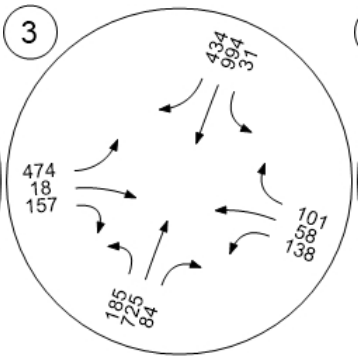
Marsh Rd (SR 84)/US 101 S



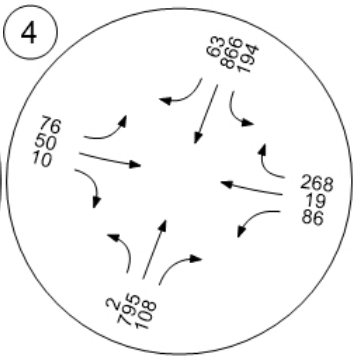
Marsh Rd/Rolison Rd-Scott D



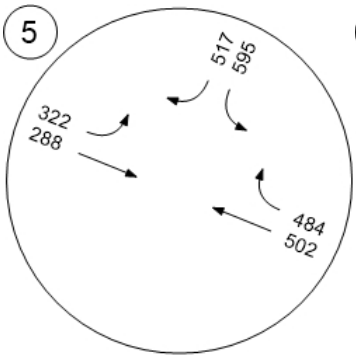
Marsh Rd/Florence St-Bohan



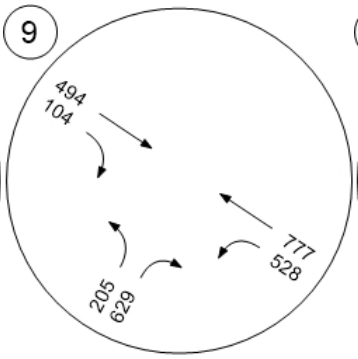
Marsh Rd/Bay Rd



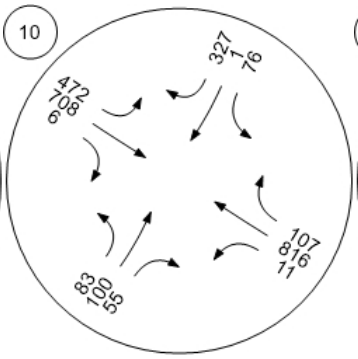
Middlefield Rd/Marsh Rd



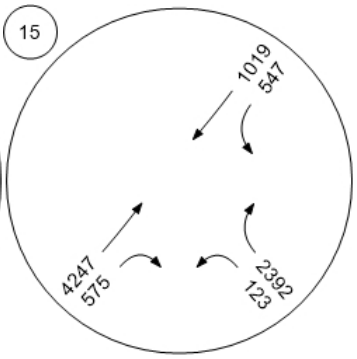
Middlefield Rd/Ravenswood



Middlefield Rd/Ringwood Ave



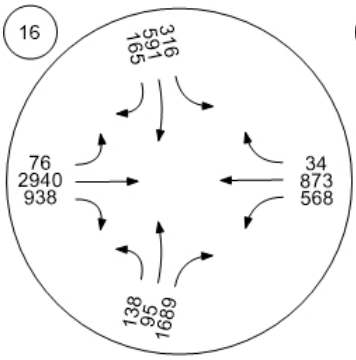
Bayfront Expy (SR 84)/Univer



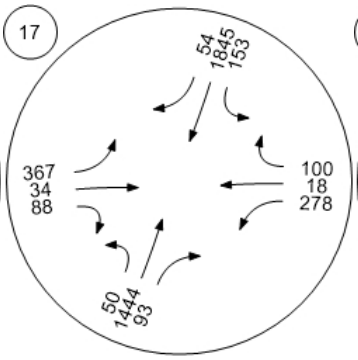
Traffic Volume - Future Total Volume



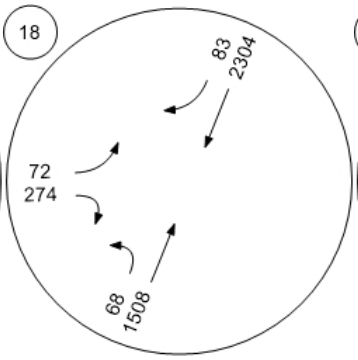
Bayfront Expy (SR 84)/Willow



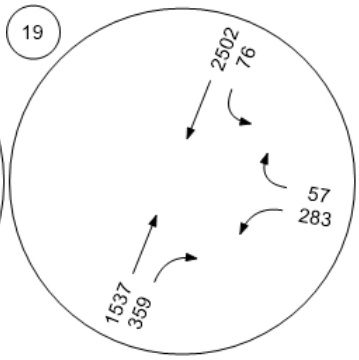
Willow Rd (SR 114)/Hamilton



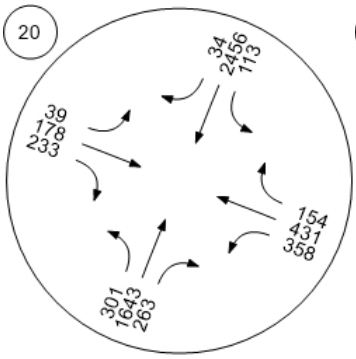
Willow Rd (SR 114)/Ivy Dr



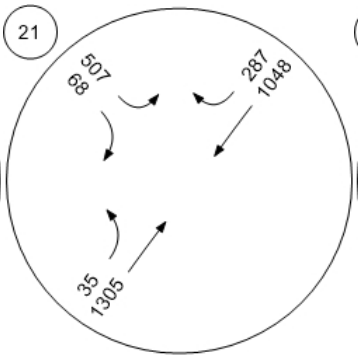
Willow Rd (SR 114)/O'Brien



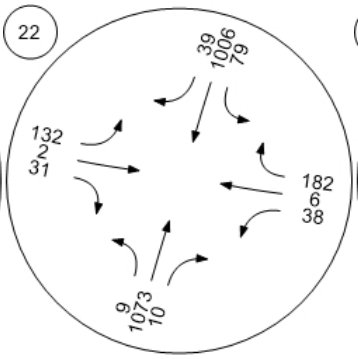
Willow Rd (SR 114)/Newbrid



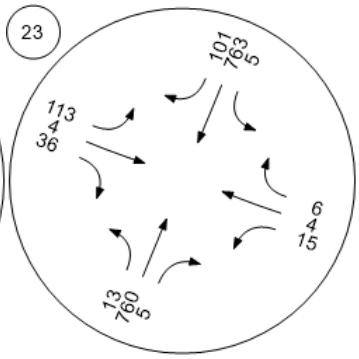
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



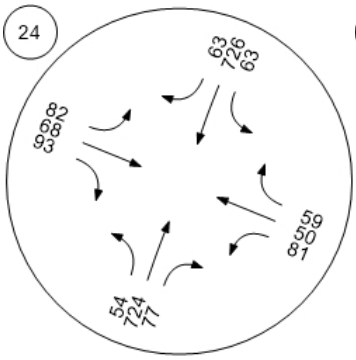
Willow Rd/Coleman Ave



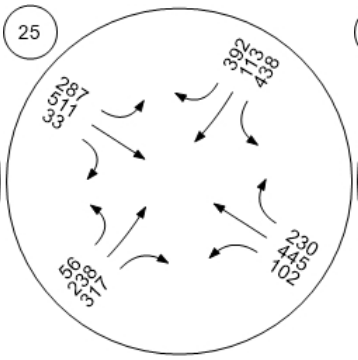
Traffic Volume - Future Total Volume



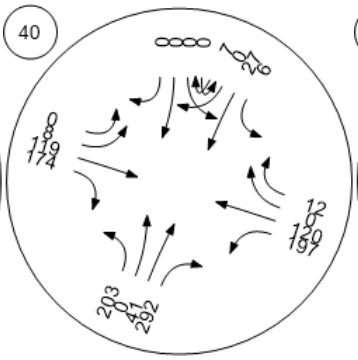
Willow Rd/Gilbert Ave



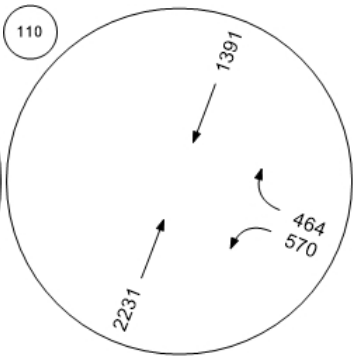
Middlefield Rd-Willow Rd



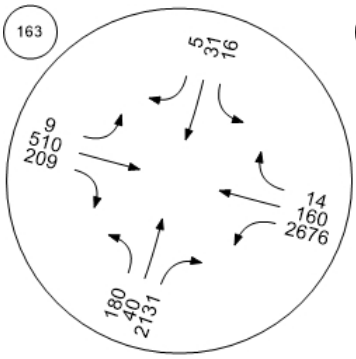
Bay Rd/Ringwood Ave/Sono



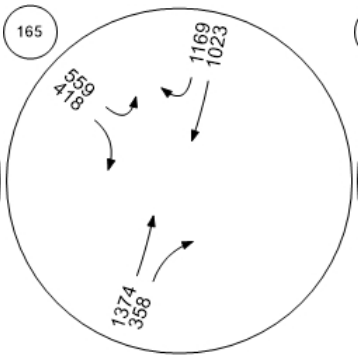
Marsh Road/101 NB Ramps



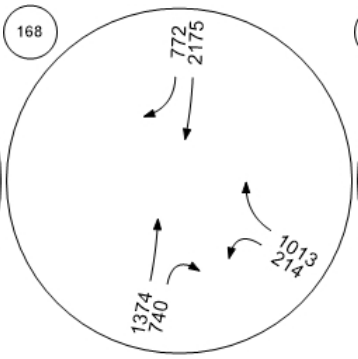
Bayfront Expy/Marsh Rd



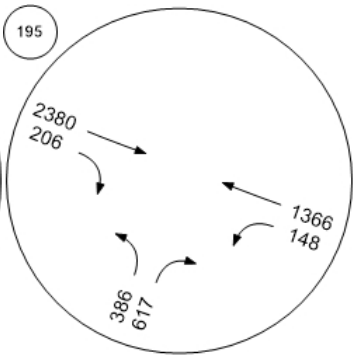
Willow & 101 SB Ramps



Willow & 101 NB Ramps



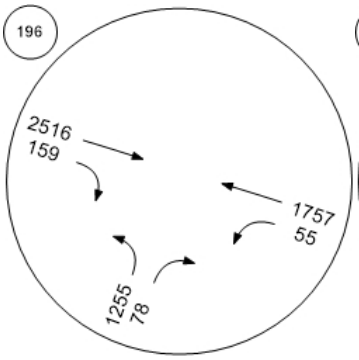
Bayfront Expy/Chilco St



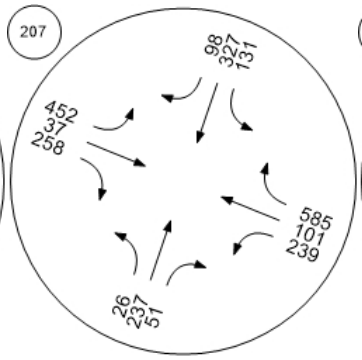
Traffic Volume - Future Total Volume



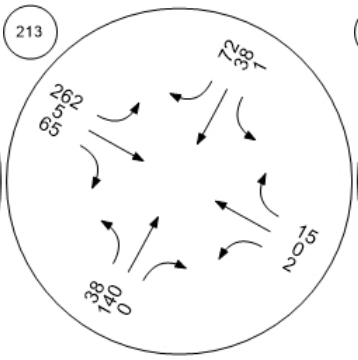
Bayfront Expy/Chrysler Drive



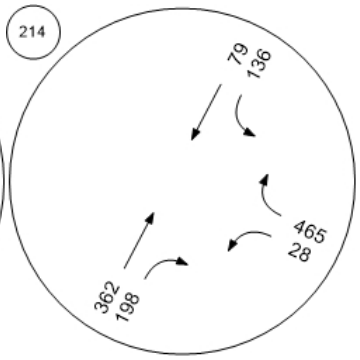
Chilco St/Constitution Dr



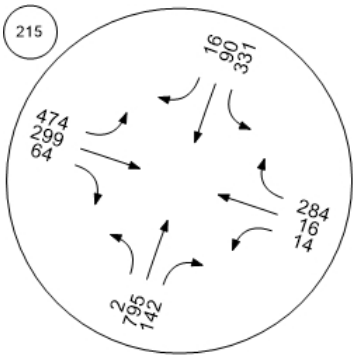
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



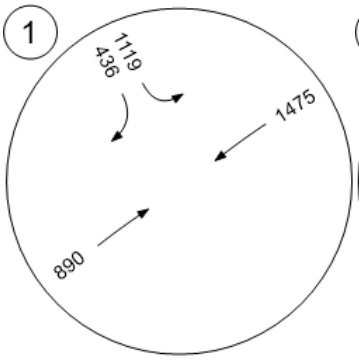
Chrysler Dr/Constitution Dr



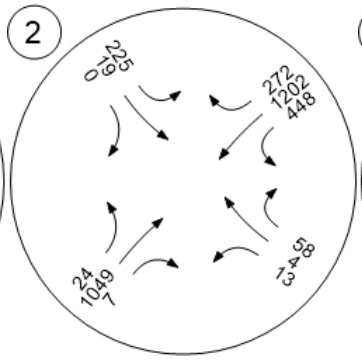
Traffic Volume - Future Total Volume



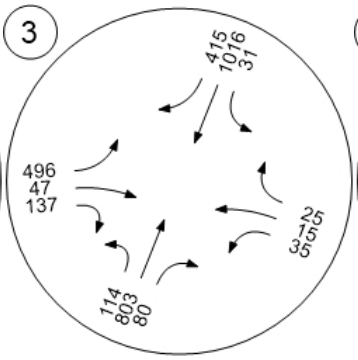
Marsh Rd (SR 84)/US 101 S



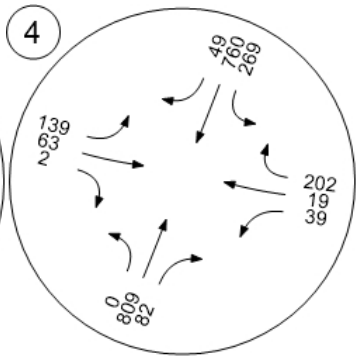
Marsh Rd/Rolison Rd-Scott D



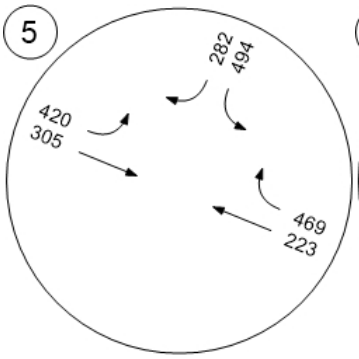
Marsh Rd/Florence St-Bohan



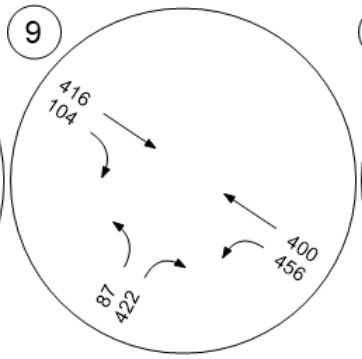
Marsh Rd/Bay Rd



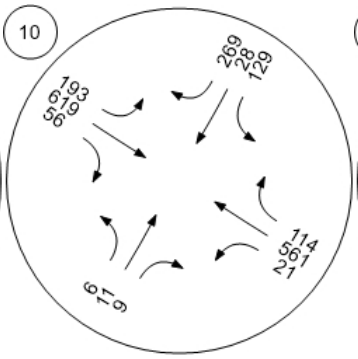
Middlefield Rd/Marsh Rd



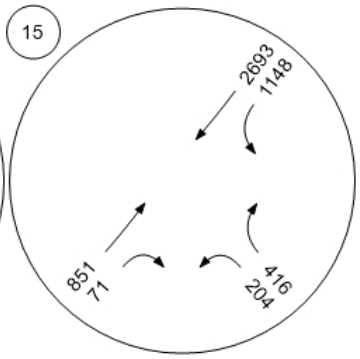
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



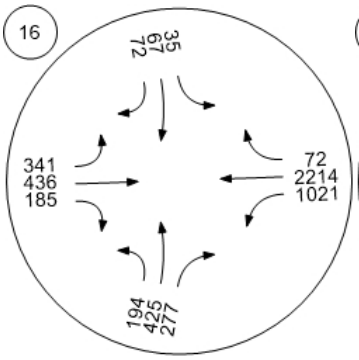
Bayfront Expy (SR 84)/Univer



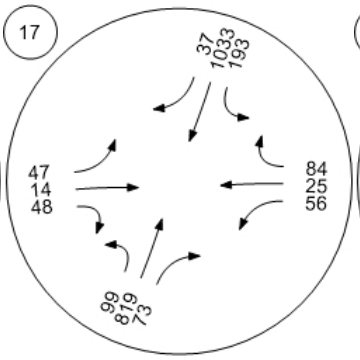
Traffic Volume - Future Total Volume



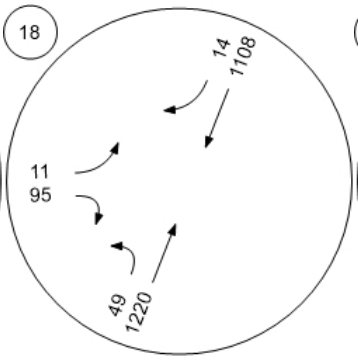
Bayfront Expy (SR 84)/Willow



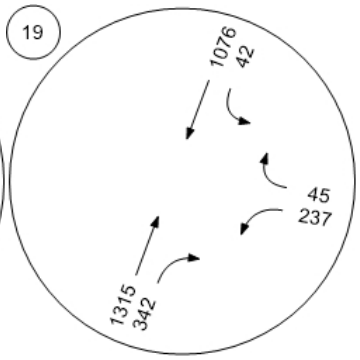
Willow Rd (SR 114)/Hamilton



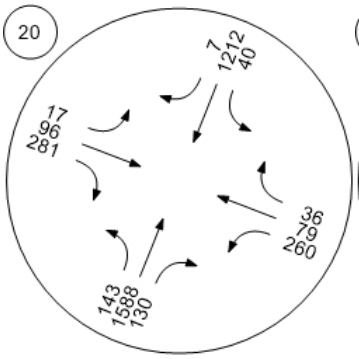
Willow Rd (SR 114)/Ivy Dr



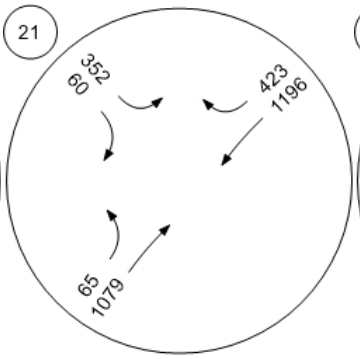
Willow Rd (SR 114)/O'Brien



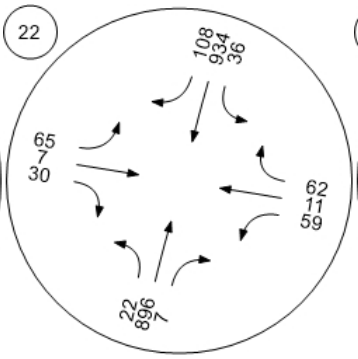
Willow Rd (SR 114)/Newbrid



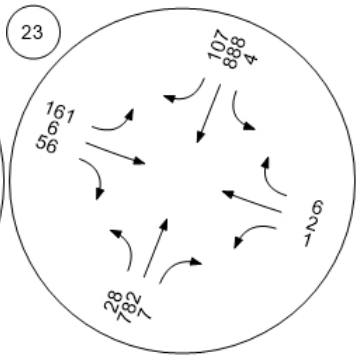
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



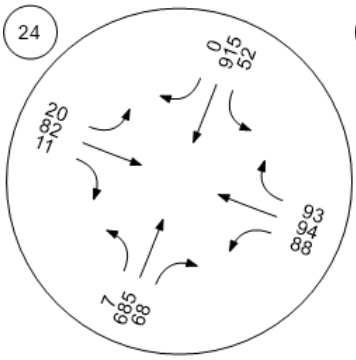
Willow Rd/Coleman Ave



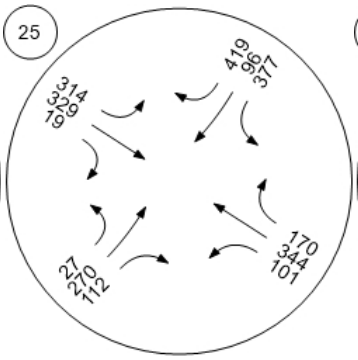
Traffic Volume - Future Total Volume



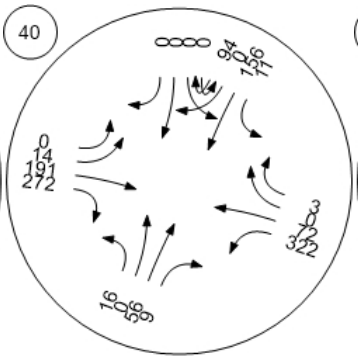
Willow Rd/Gilbert Ave



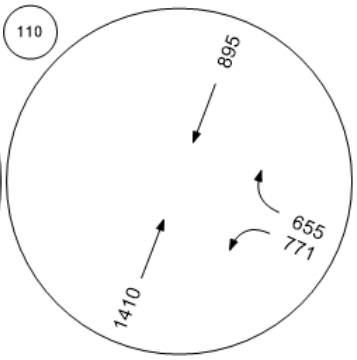
Middlefield Rd-Willow Rd



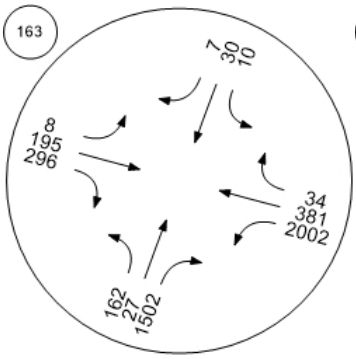
Bay Rd/Ringwood Ave/Sono



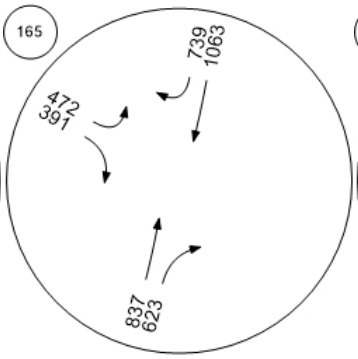
Marsh Road and US 101 NB



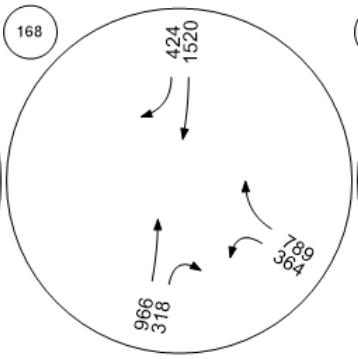
Bayfront Expy/Marsh Rd



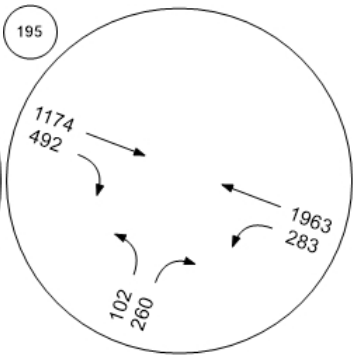
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



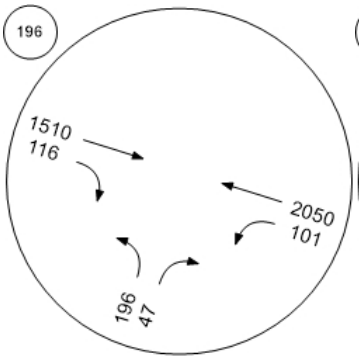
Bayfront Expy/Chilco St



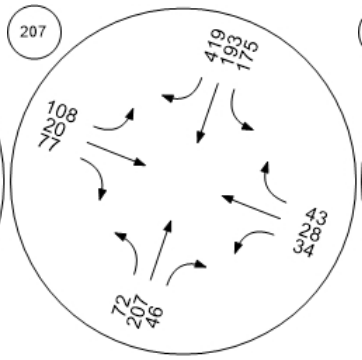
Traffic Volume - Future Total Volume



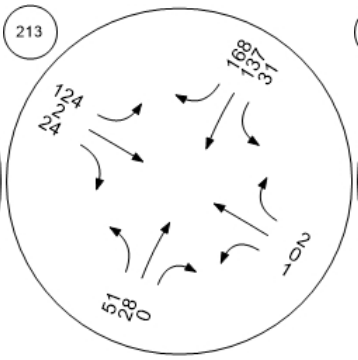
Bayfront Expy/Chrysler Drive



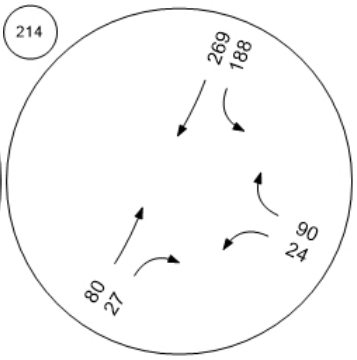
Chilco St/Constitution Dr



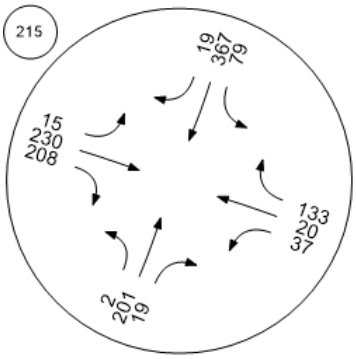
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



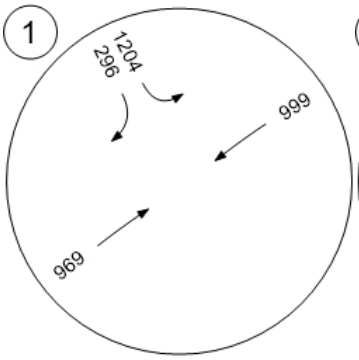
Chrysler Dr/Constitution Dr



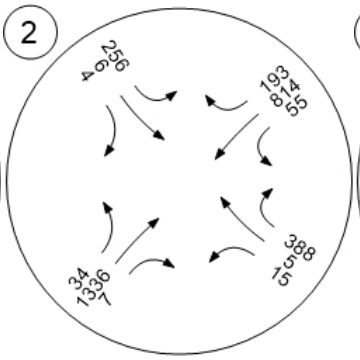
Traffic Volume - Future Total Volume



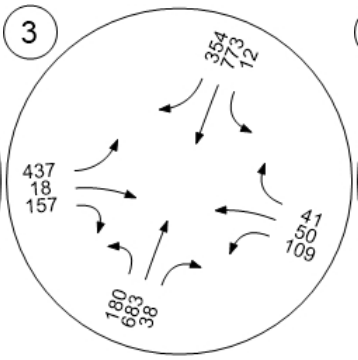
Marsh Rd (SR 84)/US 101 S



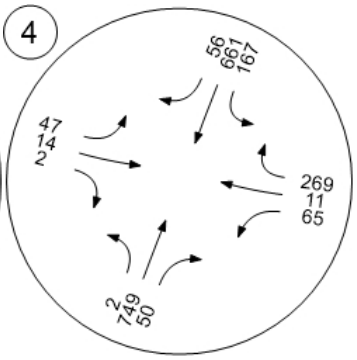
Marsh Rd/Rolison Rd-Scott D



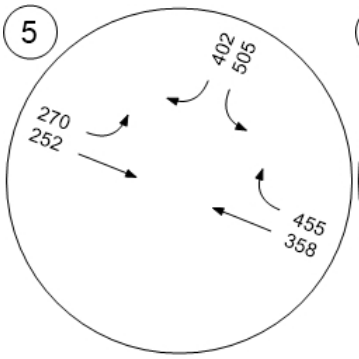
Marsh Rd/Florence St-Bohan



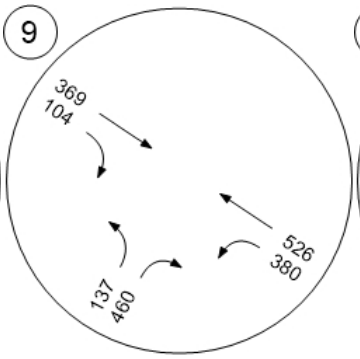
Marsh Rd/Bay Rd



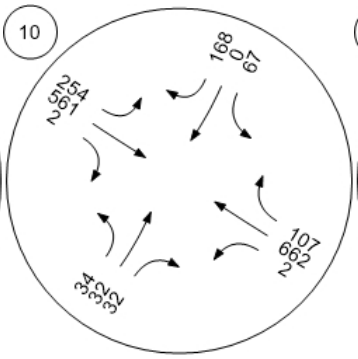
Middlefield Rd/Marsh Rd



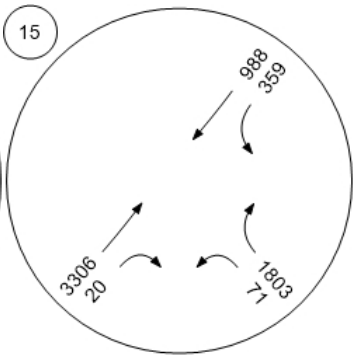
Middlefield Rd/Ravenswood



Middlefield Rd/Ringwood Ave



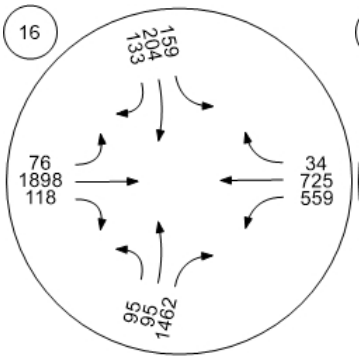
Bayfront Expy (SR 84)/Univer



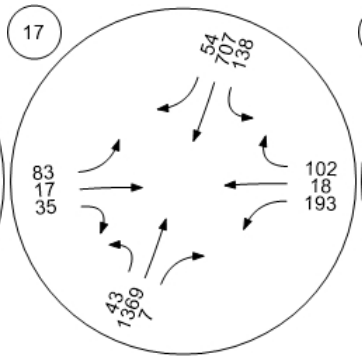
Traffic Volume - Future Total Volume



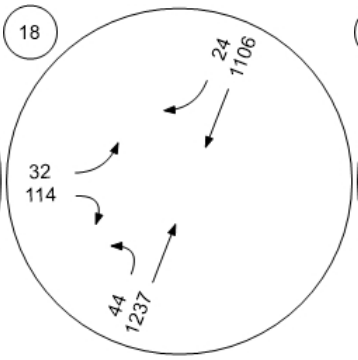
Bayfront Expy (SR 84)/Willow



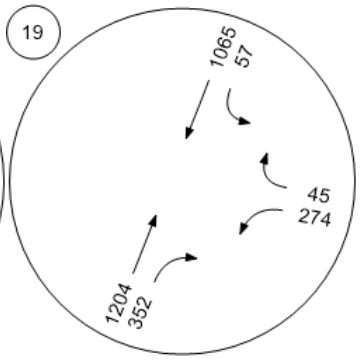
Willow Rd (SR 114)/Hamilton



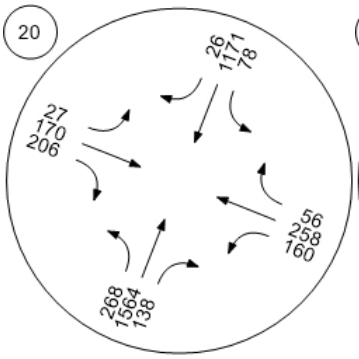
Willow Rd (SR 114)/Ivy Dr



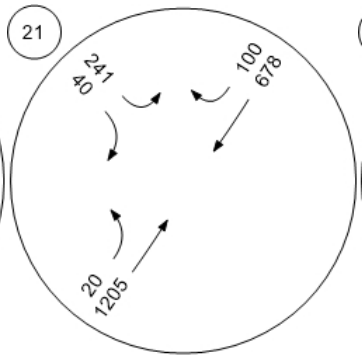
Willow Rd (SR 114)/O'Brien



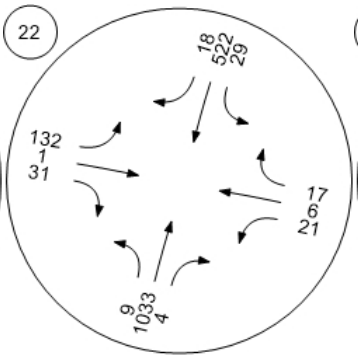
Willow Rd (SR 114)/Newbrid



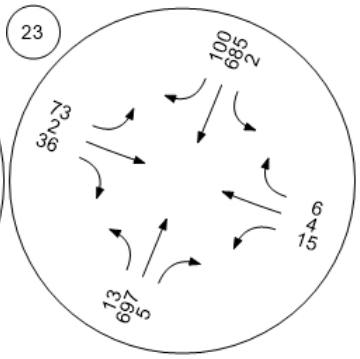
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



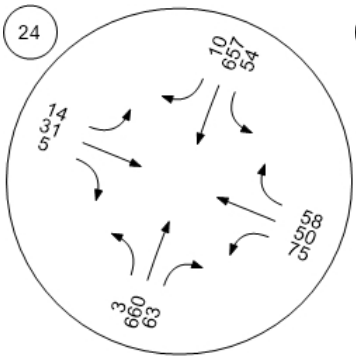
Willow Rd/Coleman Ave



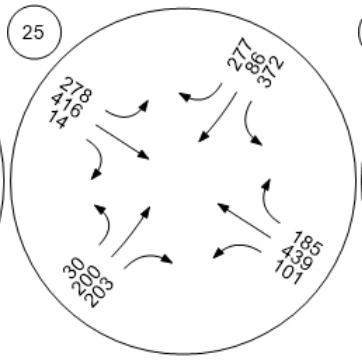
Traffic Volume - Future Total Volume



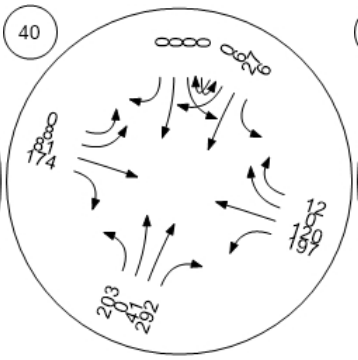
Willow Rd/Gilbert Ave



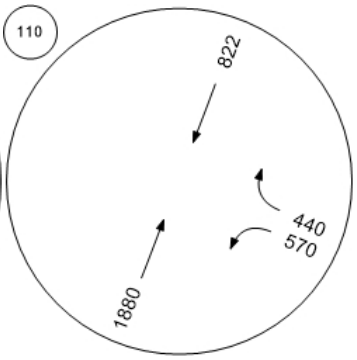
Middlefield Rd-Willow Rd



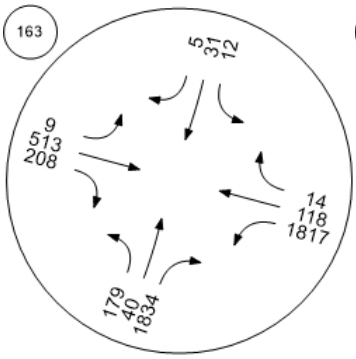
Bay Rd/Ringwood Ave/Sono



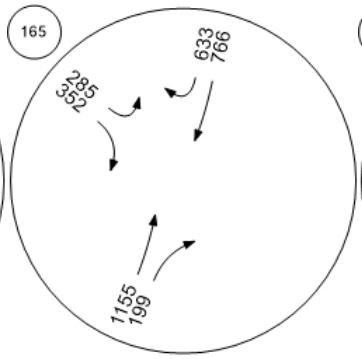
Marsh Road/101 NB Ramps



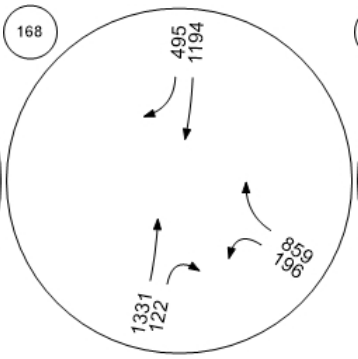
Bayfront Expy/Marsh Rd



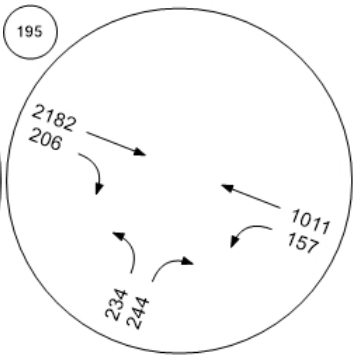
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



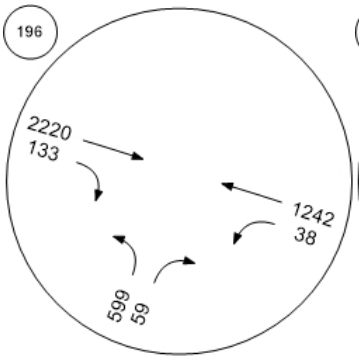
Bayfront Expy/Chilco St



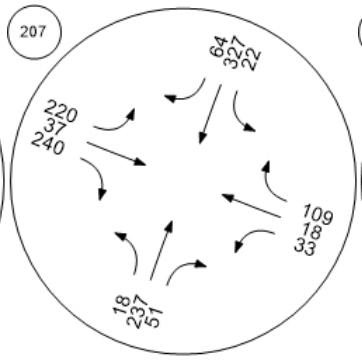
Traffic Volume - Future Total Volume



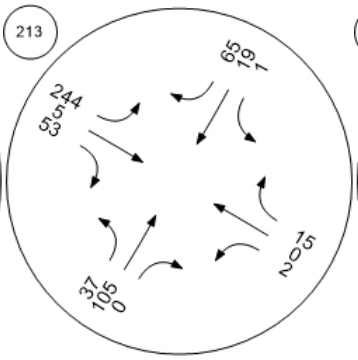
Bayfront Expy/Chrysler Drive



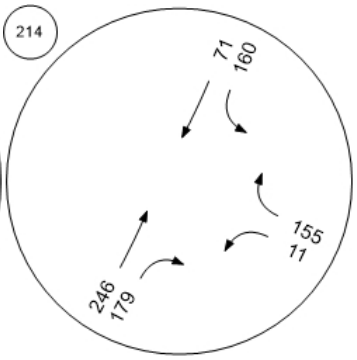
Chilco St/Constitution Dr



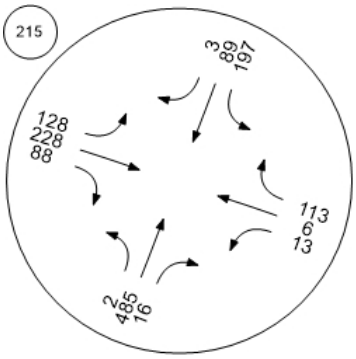
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



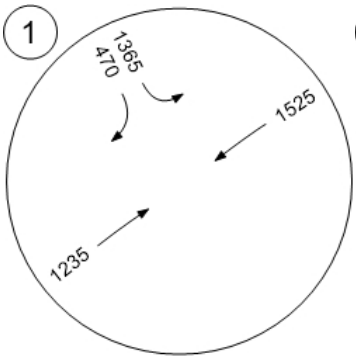
Chrysler Dr/Constitution Dr



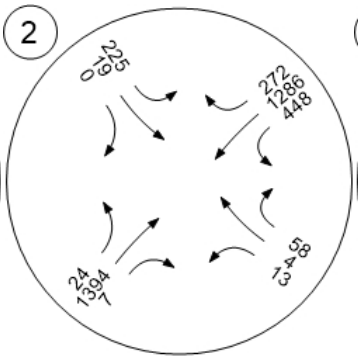
Traffic Volume - Future Total Volume



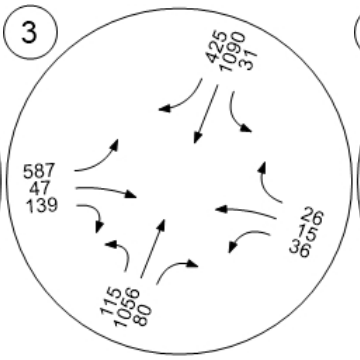
Marsh Rd (SR 84)/US 101 S



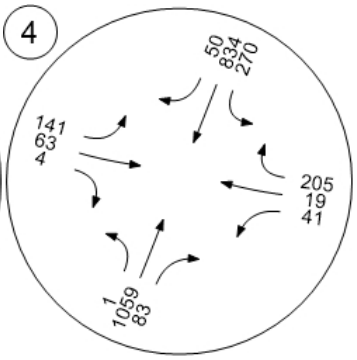
Marsh Rd/Rolison Rd-Scott D



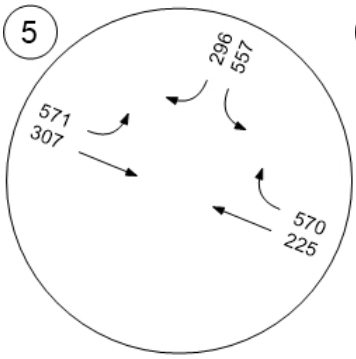
Marsh Rd/Florence St-Bohan



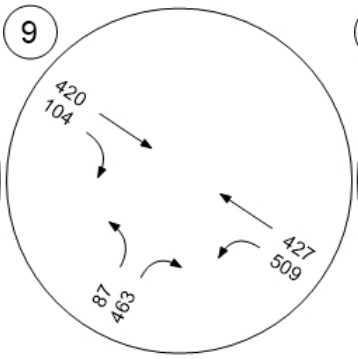
Marsh Rd/Bay Rd



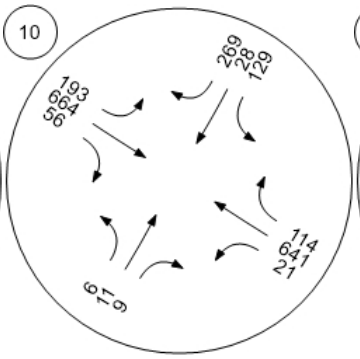
Middlefield Rd/Marsh Rd



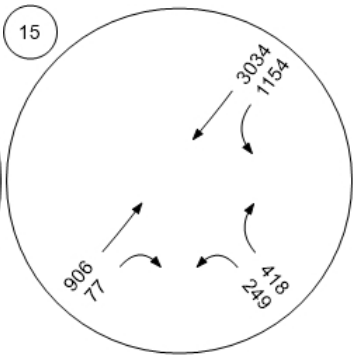
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



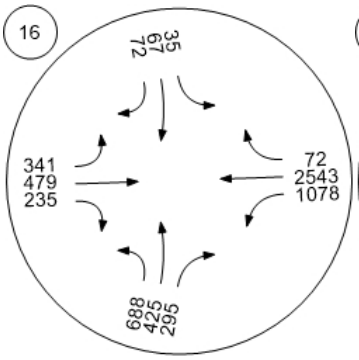
Bayfront Expy (SR 84)/Univer



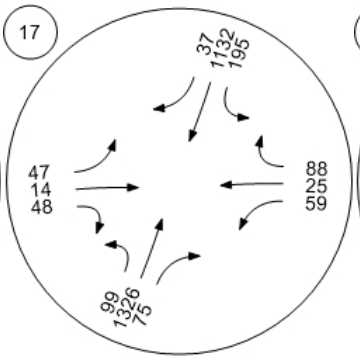
Traffic Volume - Future Total Volume



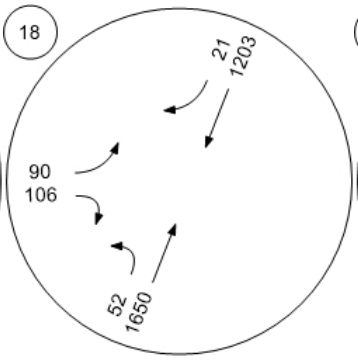
Bayfront Expy (SR 84)/Willow



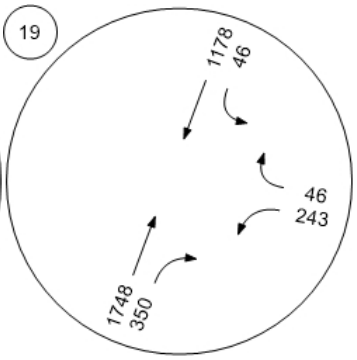
Willow Rd (SR 114)/Hamilton



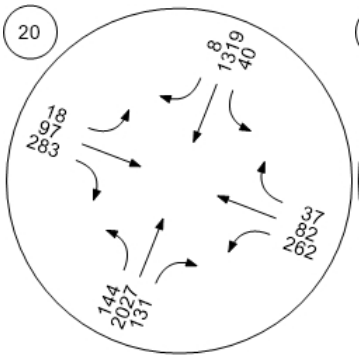
Willow Rd (SR 114)/Ivy Dr



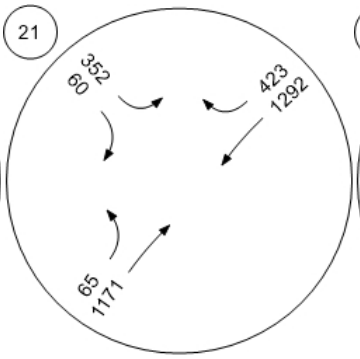
Willow Rd (SR 114)/O'Brien



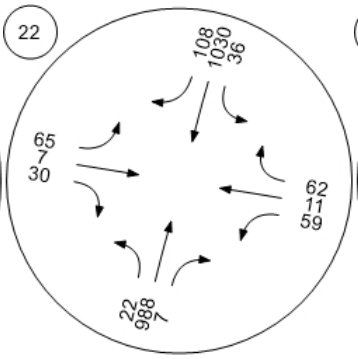
Willow Rd (SR 114)/Newbrid



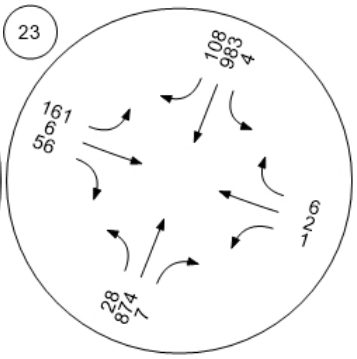
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



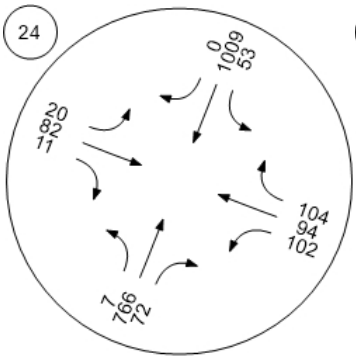
Willow Rd/Coleman Ave



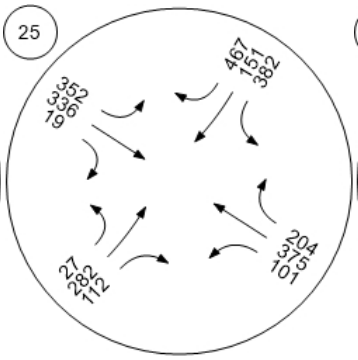
Traffic Volume - Future Total Volume



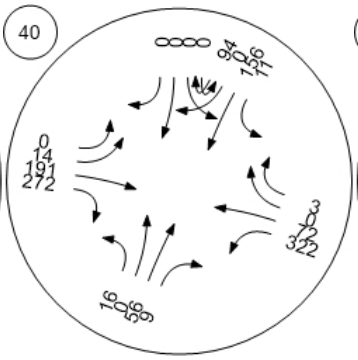
Willow Rd/Gilbert Ave



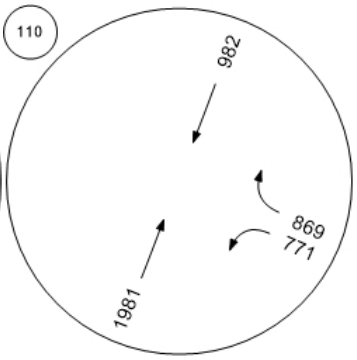
Middlefield Rd-Willow Rd



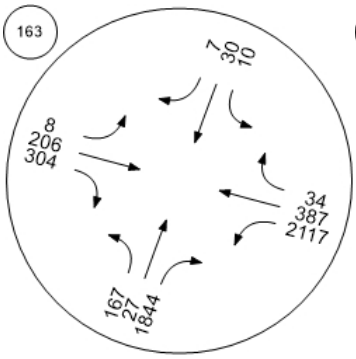
Bay Rd/Ringwood Ave/Sono



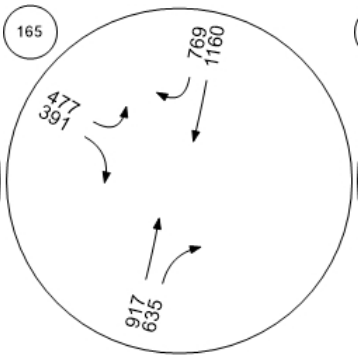
Marsh Road and US 101 NB



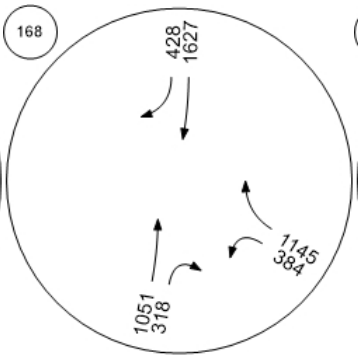
Bayfront Expy/Marsh Rd



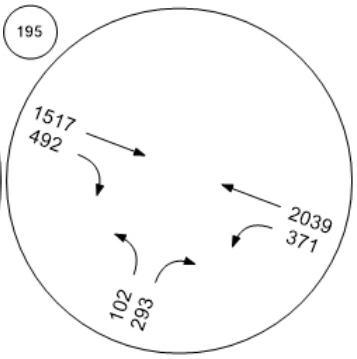
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



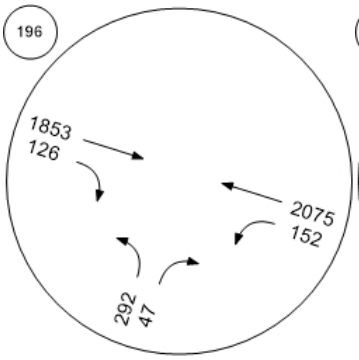
Bayfront Expy/Chilco St



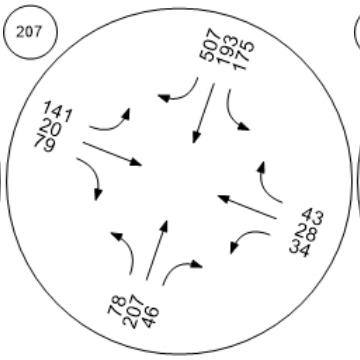
Traffic Volume - Future Total Volume



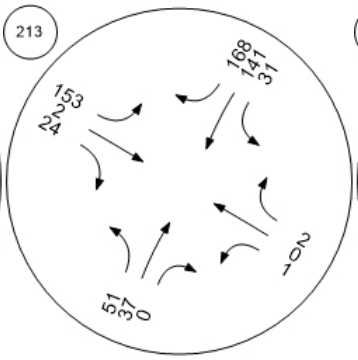
Bayfront Expy/Chrysler Drive



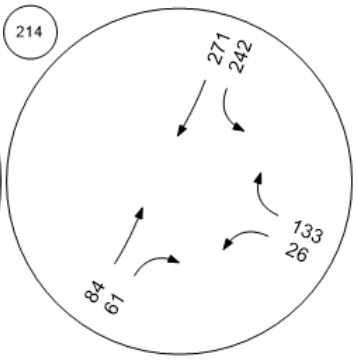
Chilco St/Constitution Dr



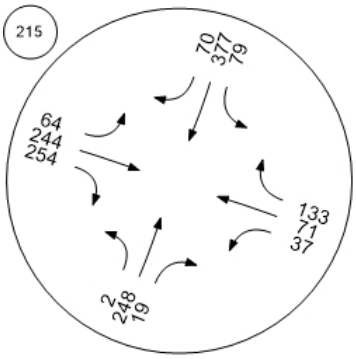
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



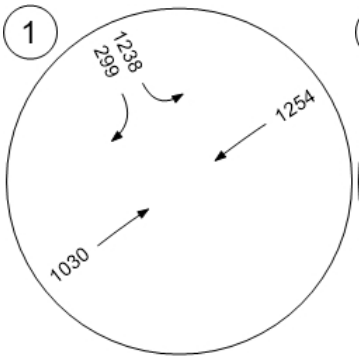
Chrysler Dr/Constitution Dr



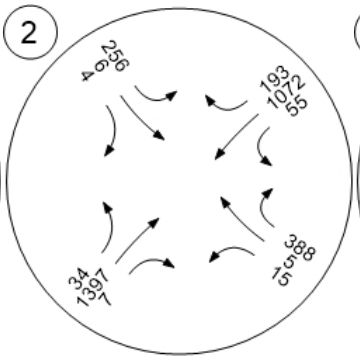
Traffic Volume - Future Total Volume



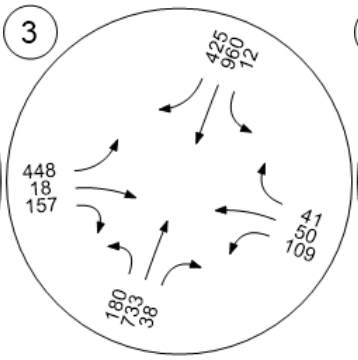
Marsh Rd (SR 84)/US 101 S



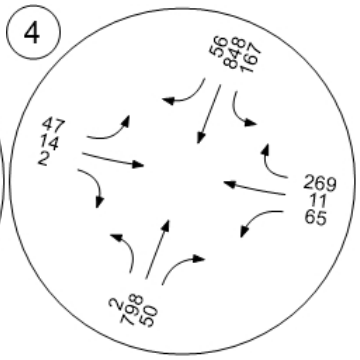
Marsh Rd/Rolison Rd-Scott D



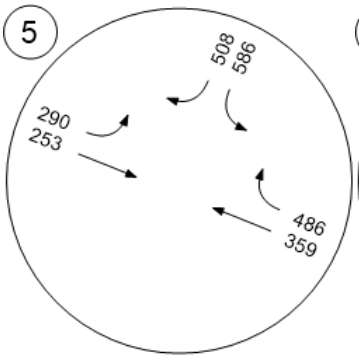
Marsh Rd/Florence St-Bohan



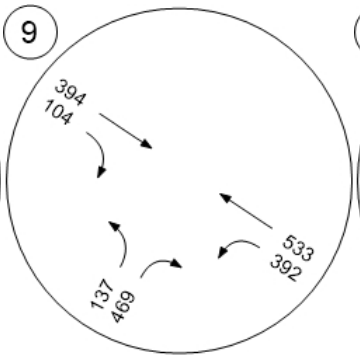
Marsh Rd/Bay Rd



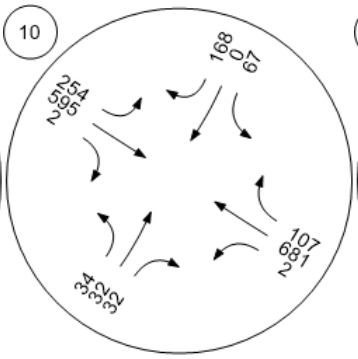
Middlefield Rd/Marsh Rd



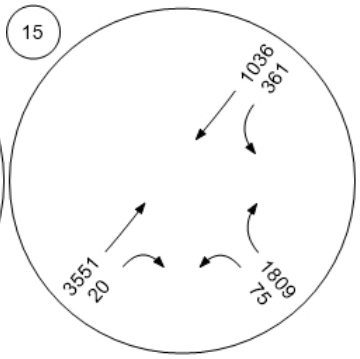
Middlefield Rd/Ravenswood



Middlefield Rd/Ringwood Ave



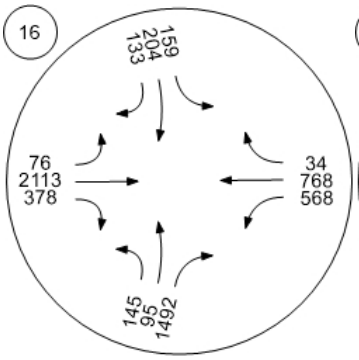
Bayfront Expy (SR 84)/Univer



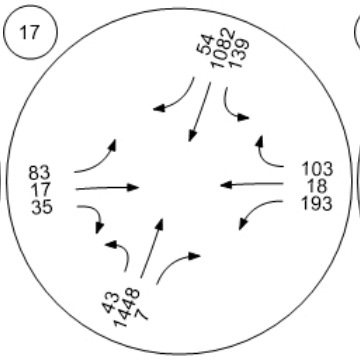
Traffic Volume - Future Total Volume



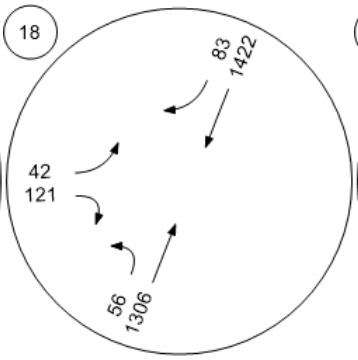
Bayfront Expy (SR 84)/Willow



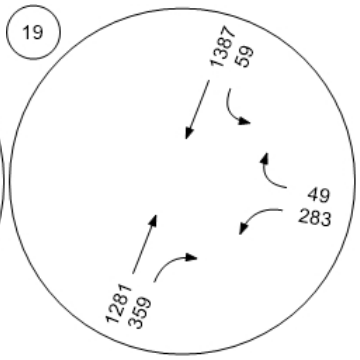
Willow Rd (SR 114)/Hamilton



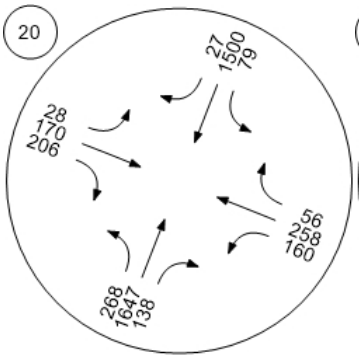
Willow Rd (SR 114)/Ivy Dr



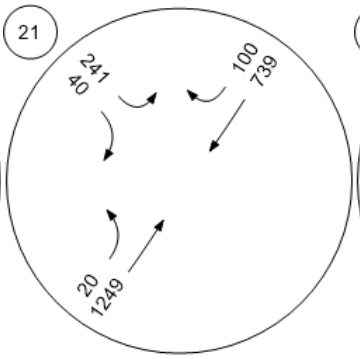
Willow Rd (SR 114)/O'Brien



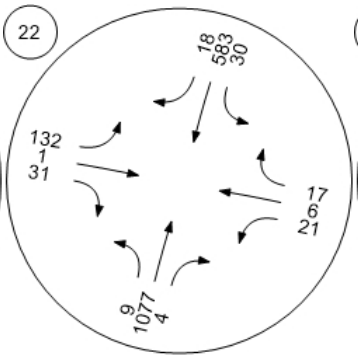
Willow Rd (SR 114)/Newbrid



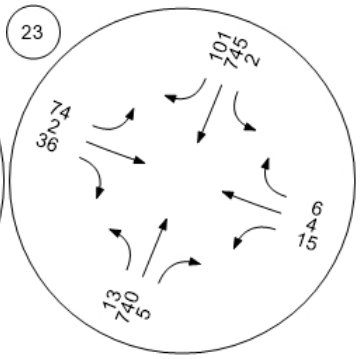
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



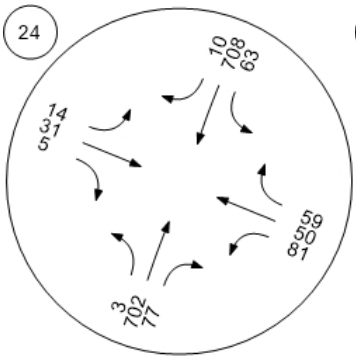
Willow Rd/Coleman Ave



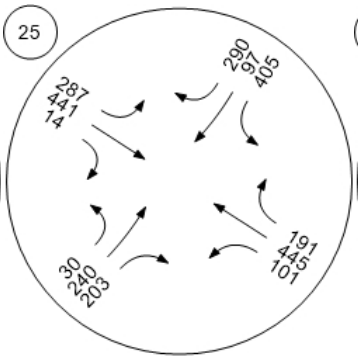
Traffic Volume - Future Total Volume



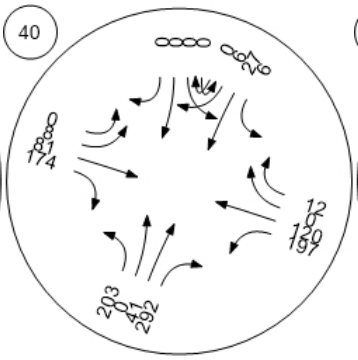
Willow Rd/Gilbert Ave



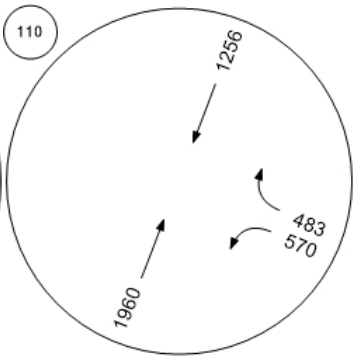
Middlefield Rd-Willow Rd



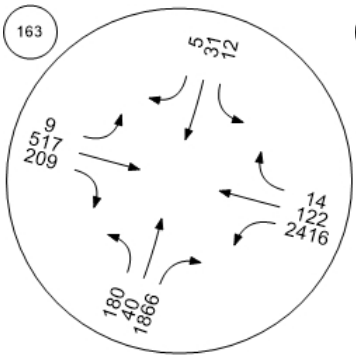
Bay Rd/Ringwood Ave/Sono



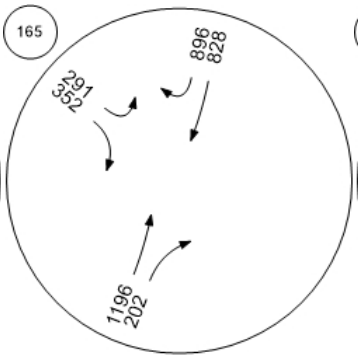
Marsh Road/101 NB Ramps



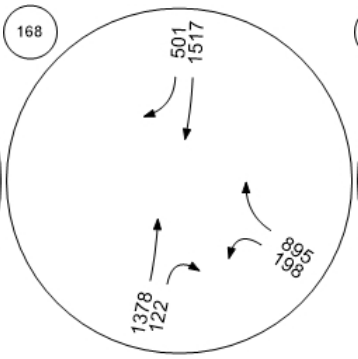
Bayfront Expy/Marsh Rd



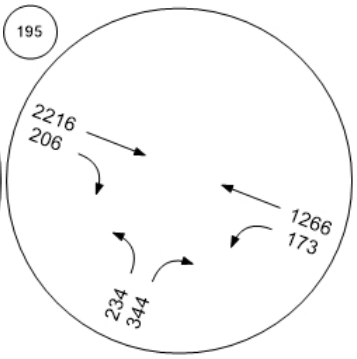
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



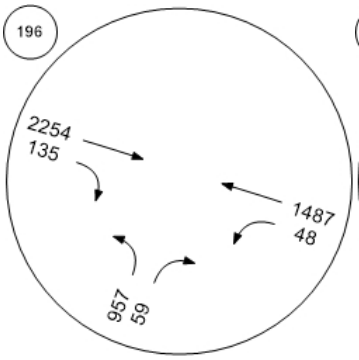
Bayfront Expy/Chilco St



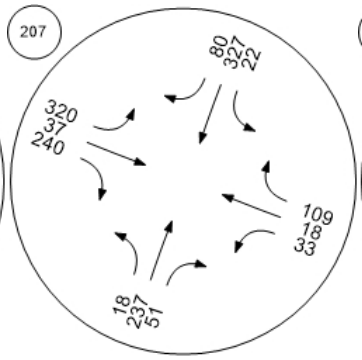
Traffic Volume - Future Total Volume



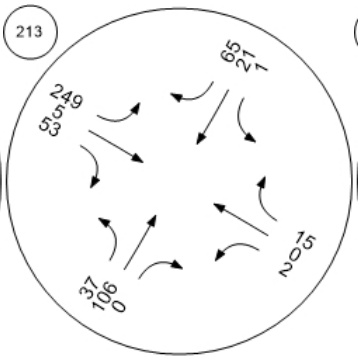
Bayfront Expy/Chrysler Drive



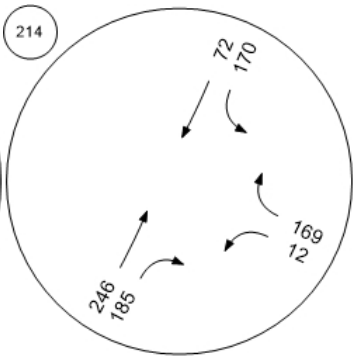
Chilco St/Constitution Dr



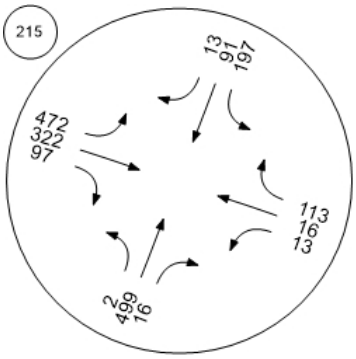
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



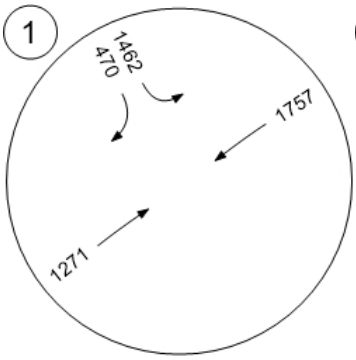
Chrysler Dr/Constitution Dr



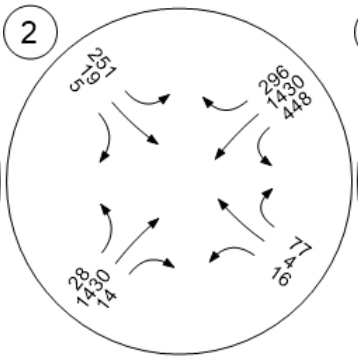
Traffic Volume - Future Total Volume



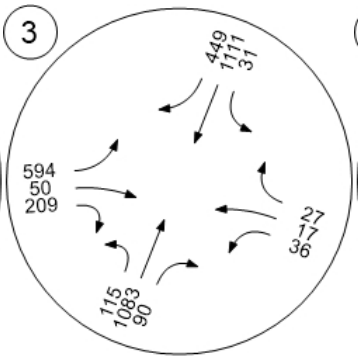
Marsh Rd (SR 84)/US 101 S



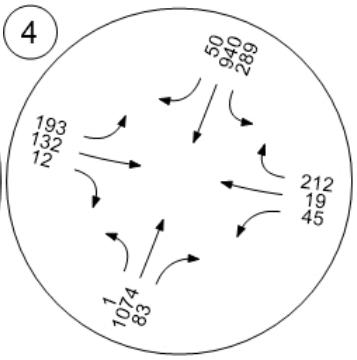
Marsh Rd/Rolison Rd-Scott D



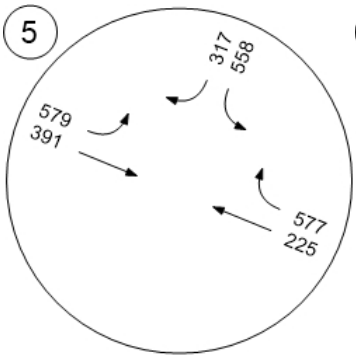
Marsh Rd/Florence St-Bohan



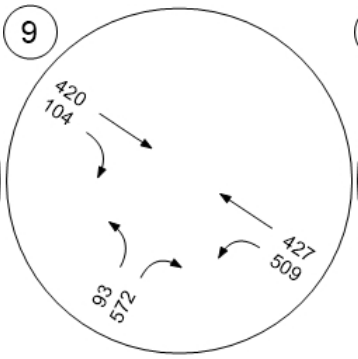
Marsh Rd/Bay Rd



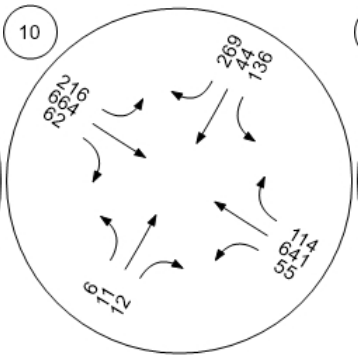
Middlefield Rd/Marsh Rd



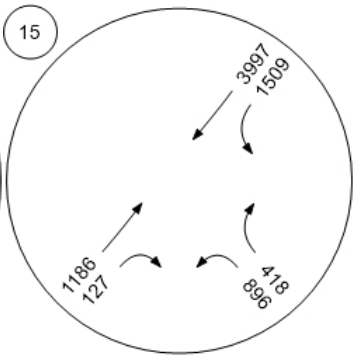
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



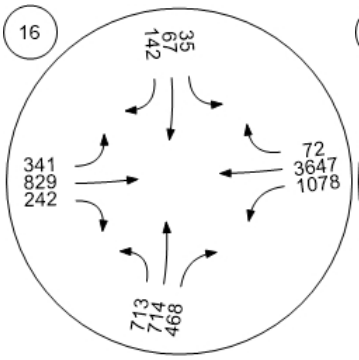
Bayfront Expy (SR 84)/Univer



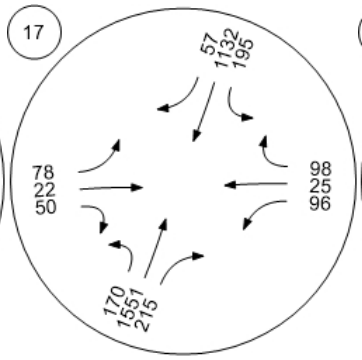
Traffic Volume - Future Total Volume



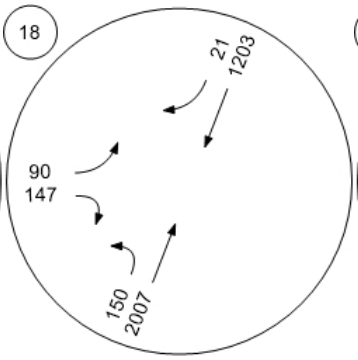
Bayfront Expy (SR 84)/Willow



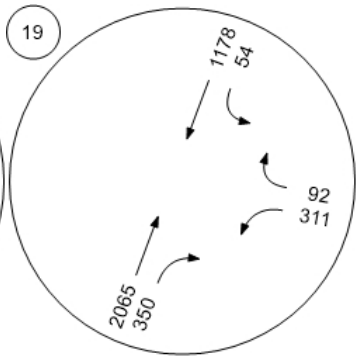
Willow Rd (SR 114)/Hamilton



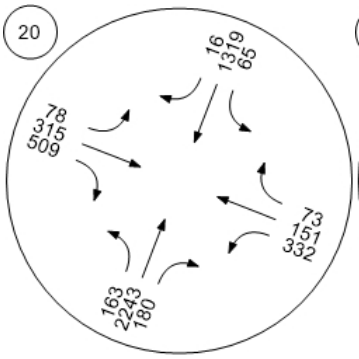
Willow Rd (SR 114)/Ivy Dr



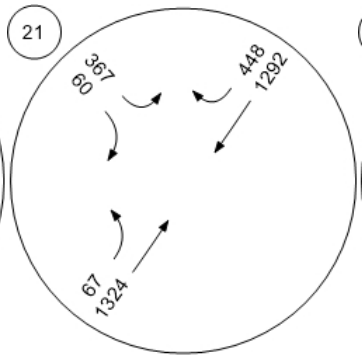
Willow Rd (SR 114)/O'Brien



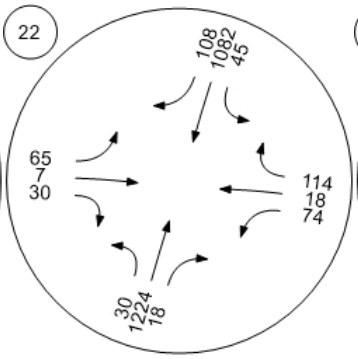
Willow Rd (SR 114)/Newbrid



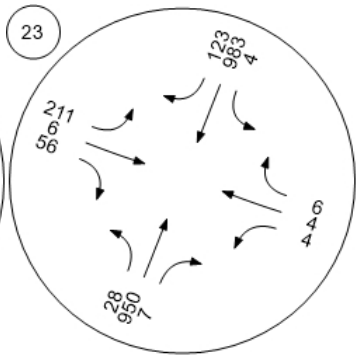
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



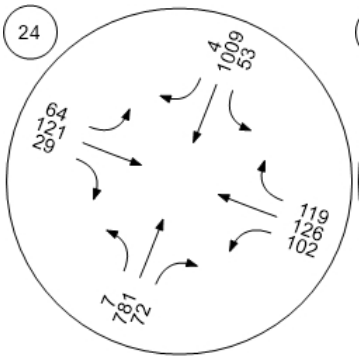
Willow Rd/Coleman Ave



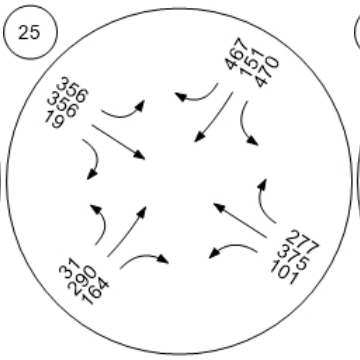
Traffic Volume - Future Total Volume



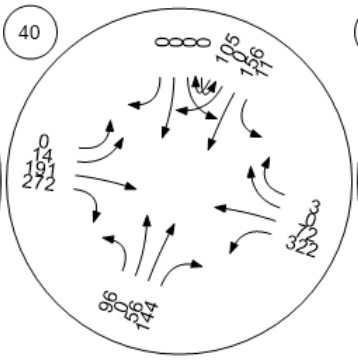
Willow Rd/Gilbert Ave



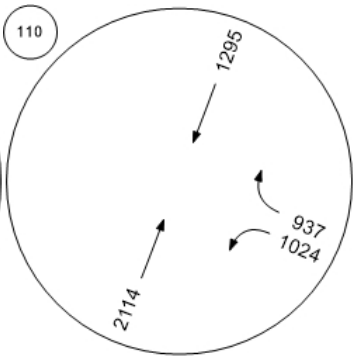
Middlefield Rd-Willow Rd



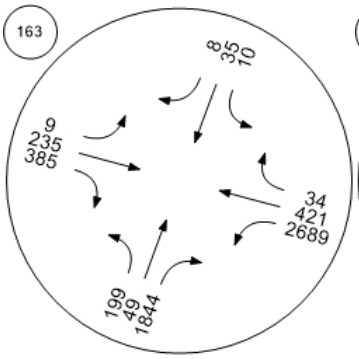
Bay Rd/Ringwood Ave/Sono



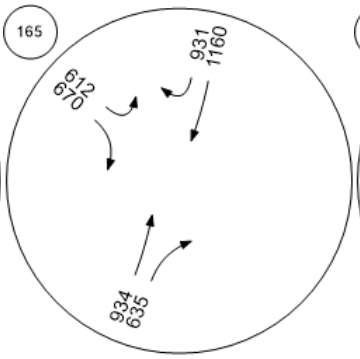
Marsh Road and US 101 NB



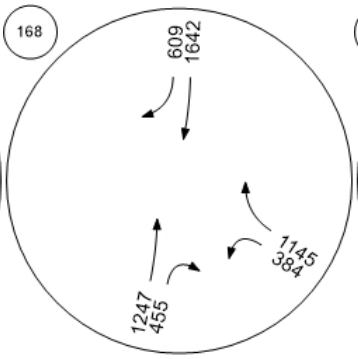
Bayfront Expy/Marsh Rd



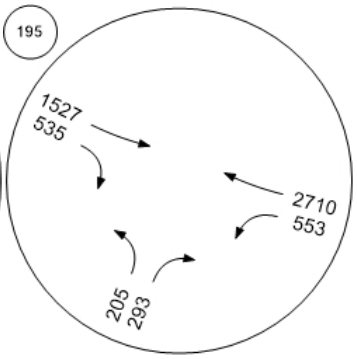
Willow & 101 SB Ramps



Willow & 101 NB Ramps



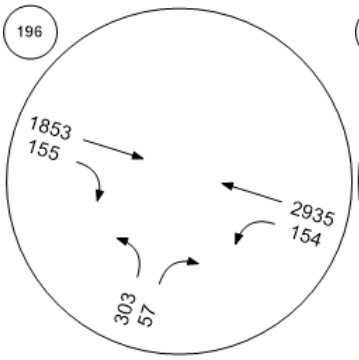
Bayfront Expy/Chilco St



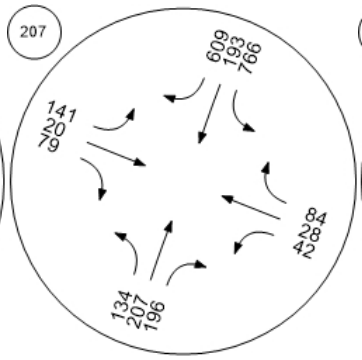
Traffic Volume - Future Total Volume



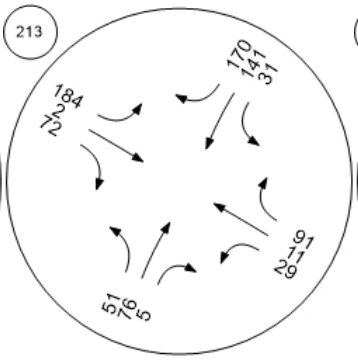
Bayfront Expy/Chrysler Drive



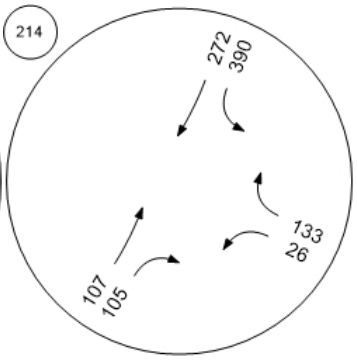
Chilco St/Constitution Dr



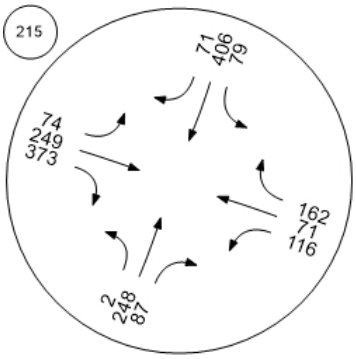
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



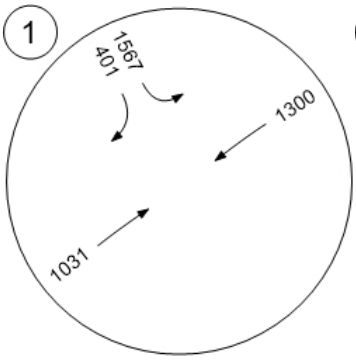
Chrysler Dr/Constitution Dr



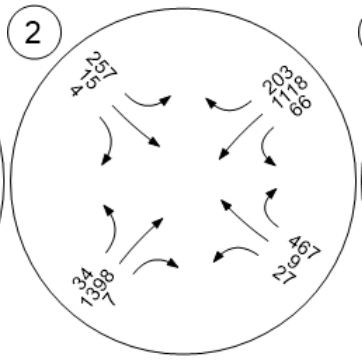
Traffic Volume - Future Total Volume



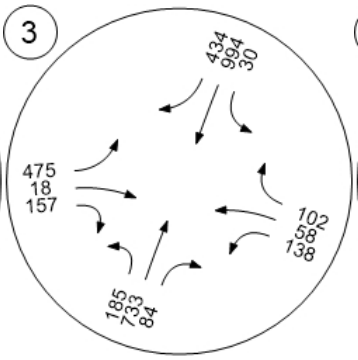
Marsh Rd (SR 84)/US 101 S



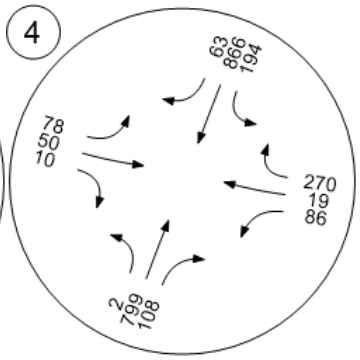
Marsh Rd/Rolison Rd-Scott D



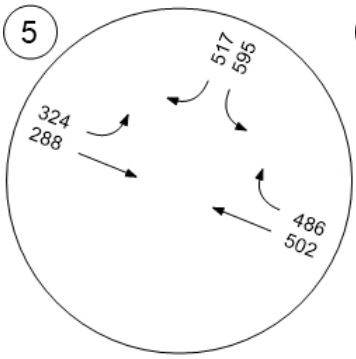
Marsh Rd/Florence St-Bohan



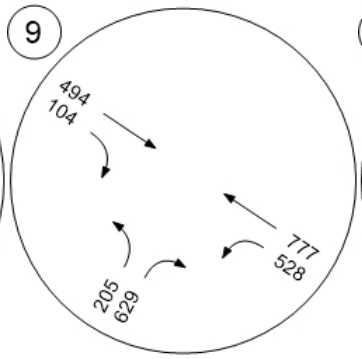
Marsh Rd/Bay Rd



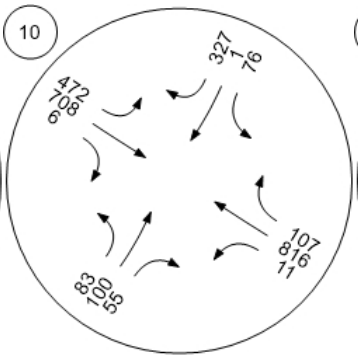
Middlefield Rd/Marsh Rd



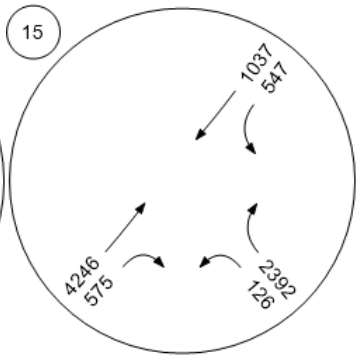
Middlefield Rd/Ravenswood



Middlefield Rd/Ringwood Ave



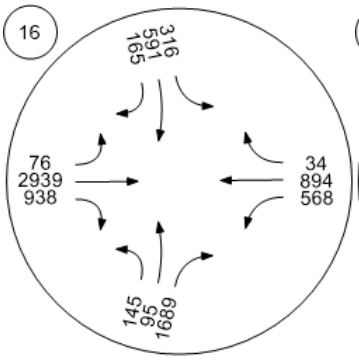
Bayfront Expy (SR 84)/Univer



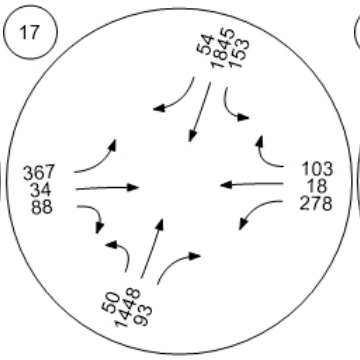
Traffic Volume - Future Total Volume



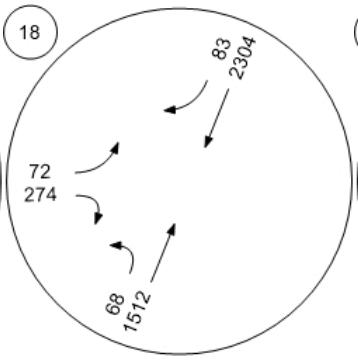
Bayfront Expy (SR 84)/Willow



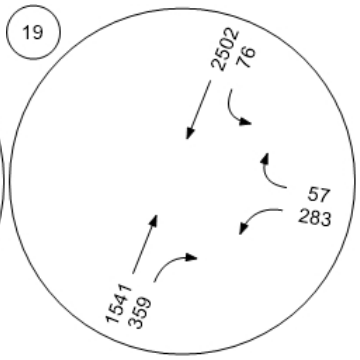
Willow Rd (SR 114)/Hamilton



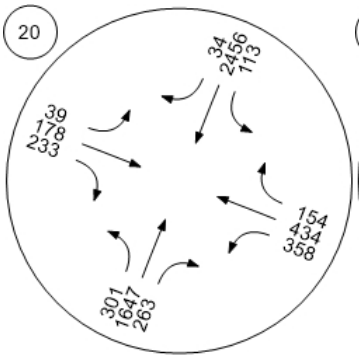
Willow Rd (SR 114)/Ivy Dr



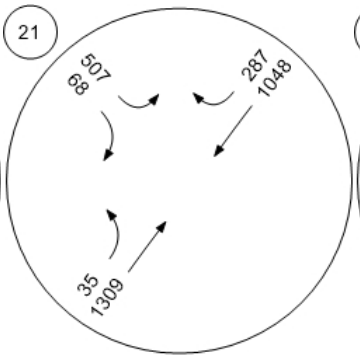
Willow Rd (SR 114)/O'Brien



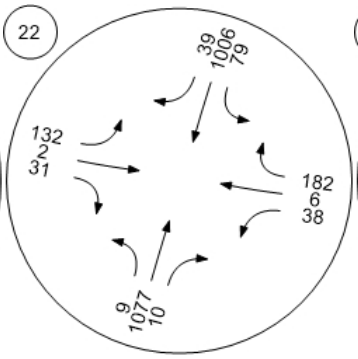
Willow Rd (SR 114)/Newbrid



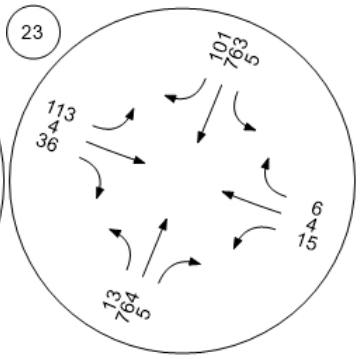
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



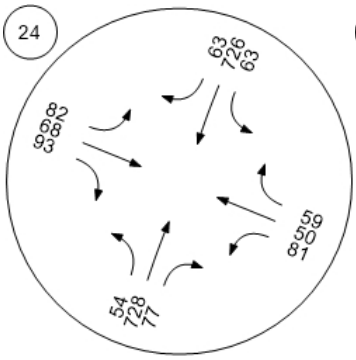
Willow Rd/Coleman Ave



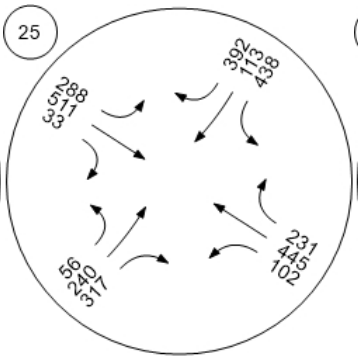
Traffic Volume - Future Total Volume



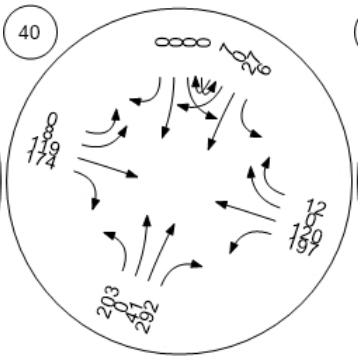
Willow Rd/Gilbert Ave



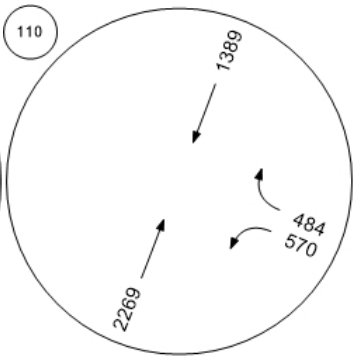
Middlefield Rd-Willow Rd



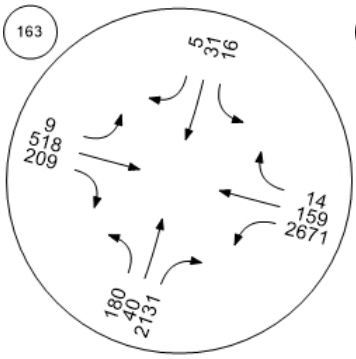
Bay Rd/Ringwood Ave/Sono



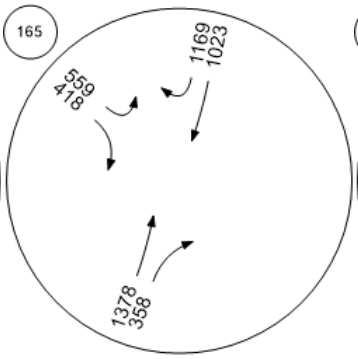
Marsh Road/101 NB Ramps



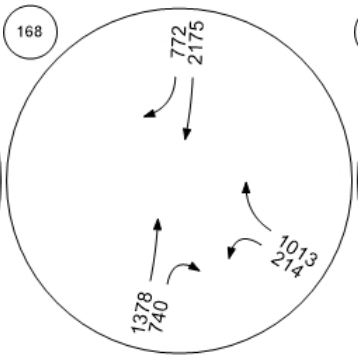
Bayfront Expy/Marsh Rd



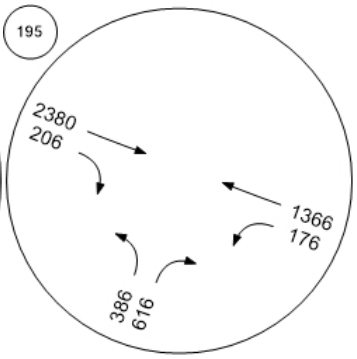
Willow & 101 SB Ramps



Willow & 101 NB Ramps



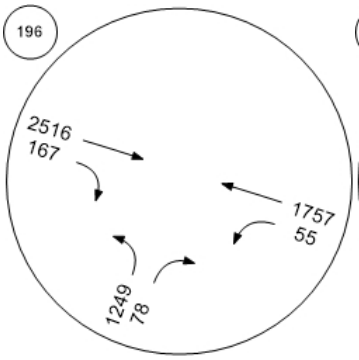
Bayfront Expy/Chilco St



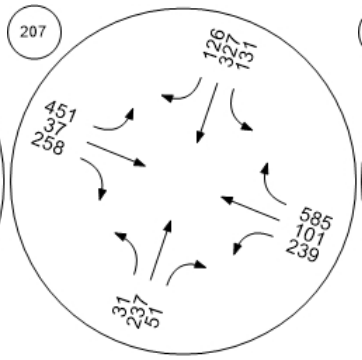
Traffic Volume - Future Total Volume



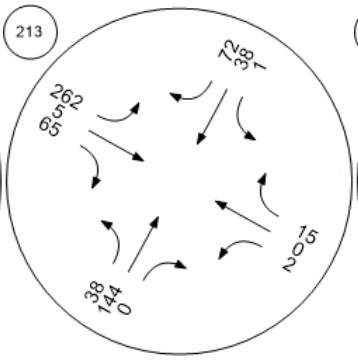
Bayfront Expy/Chrysler Drive



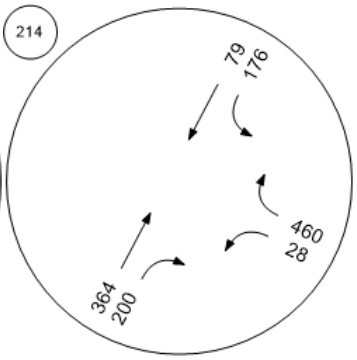
Chilco St/Constitution Dr



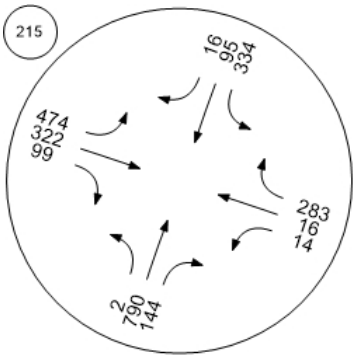
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



Chrysler Dr/Constitution Dr

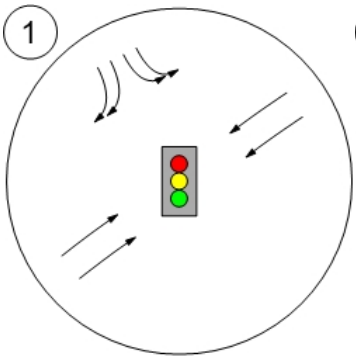


Attachment 2. Intersection Lane Configurations – All Scenarios

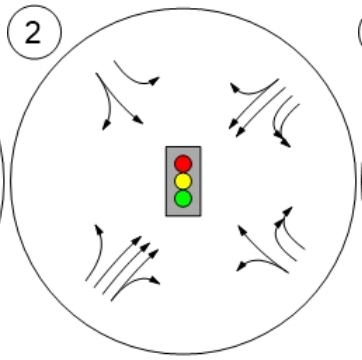
Lane Configuration and Traffic Control (Existing Conditions)



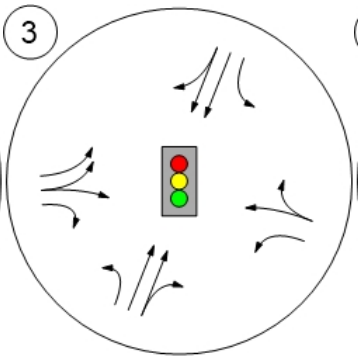
Marsh Rd (SR 84)/US 101 S



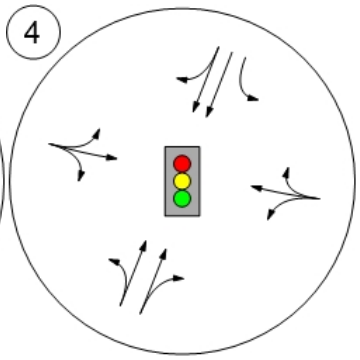
Marsh Rd/Rolison Rd-Scott D



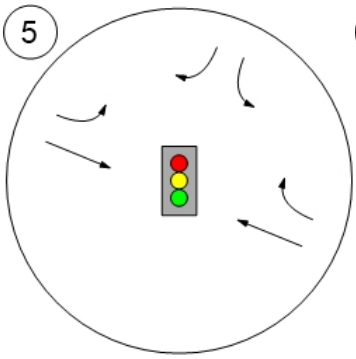
Marsh Rd/Florence St-Bohan



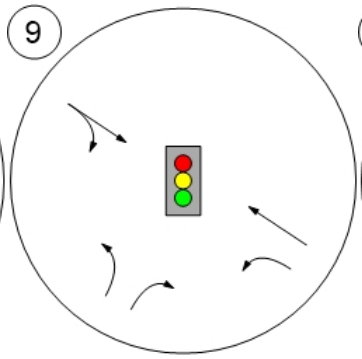
Marsh Rd/Bay Rd



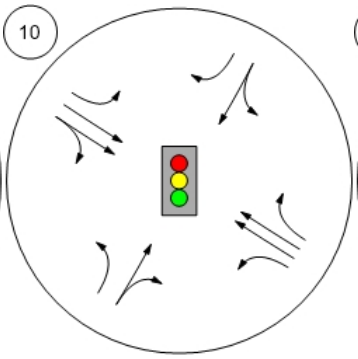
Middlefield Rd/Marsh Rd



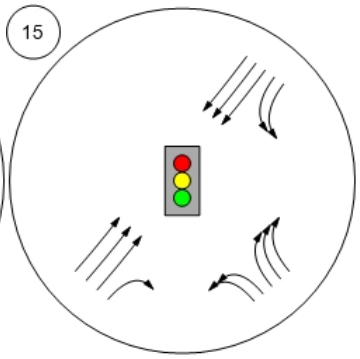
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



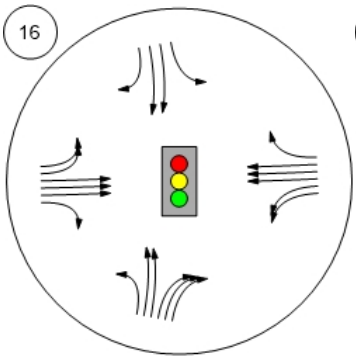
Bayfront Expy (SR 84)/Univer



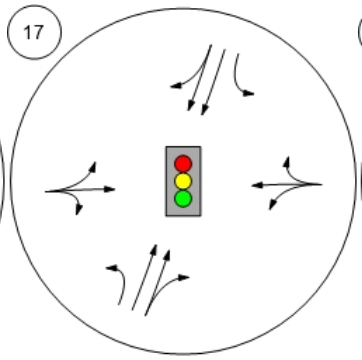
Lane Configuration and Traffic Control (Existing Conditions)



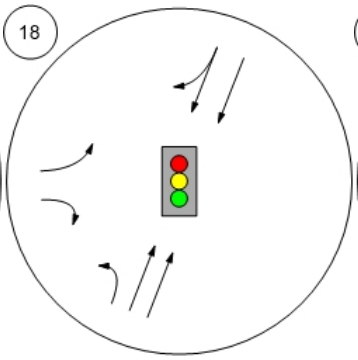
Bayfront Expy (SR 84)/Willow



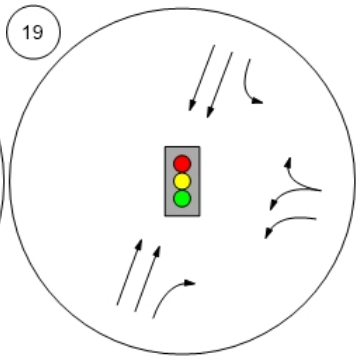
Willow Rd (SR 114)/Hamilton



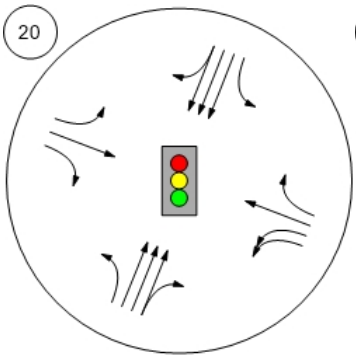
Willow Rd (SR 114)/Ivy Dr



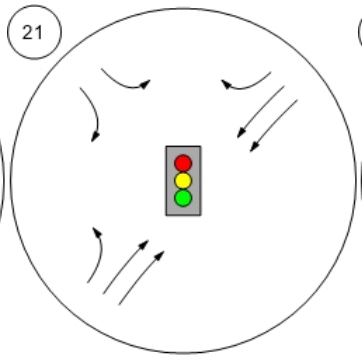
Willow Rd (SR 114)/O'Brien



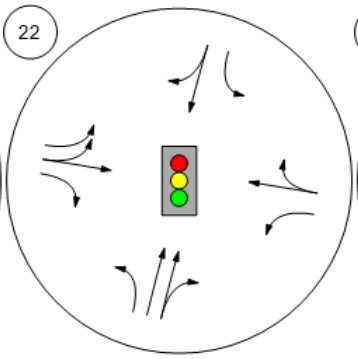
Willow Rd (SR 114)/Newbrid



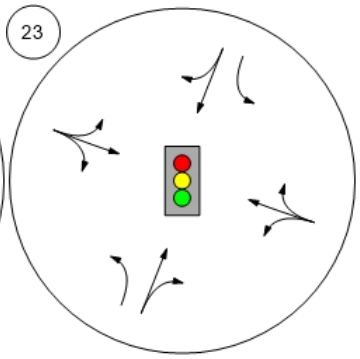
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



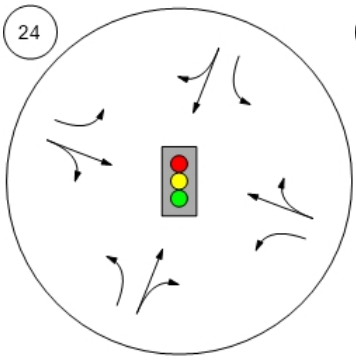
Willow Rd/Coleman Ave



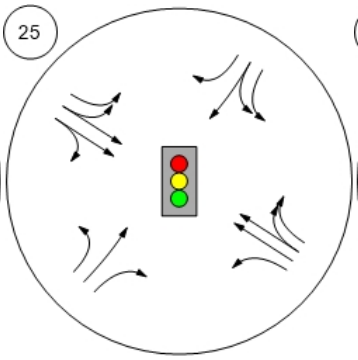
Lane Configuration and Traffic Control (Existing Conditions)



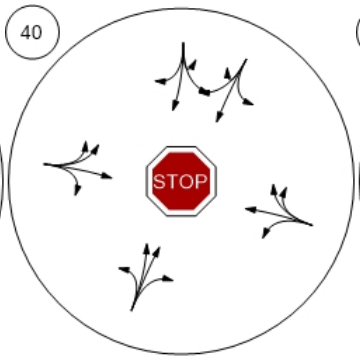
Willow Rd/Gilbert Ave



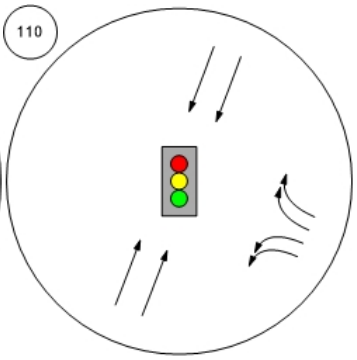
Middlefield Rd-Willow Rd



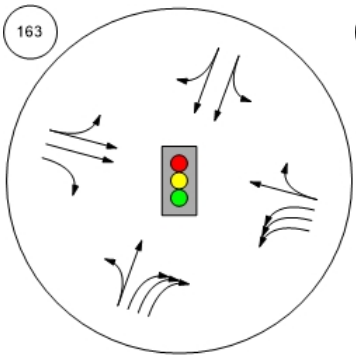
Bay Rd/Ringwood Ave/Sono



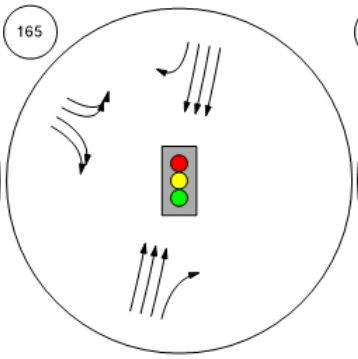
Marsh Road and US 101 NB



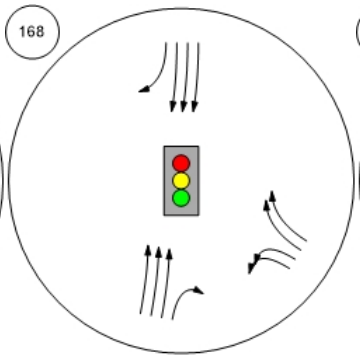
Bayfront Expy/Marsh Rd



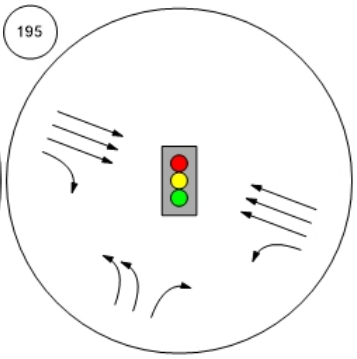
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



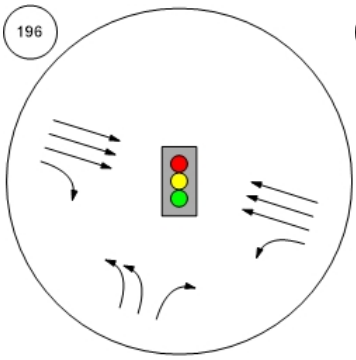
Bayfront Expy/Chilco St



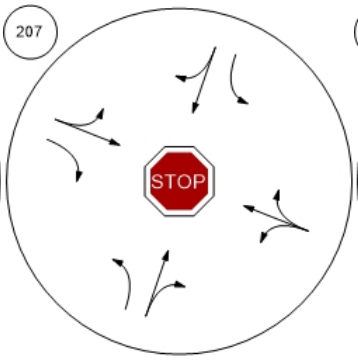
Lane Configuration and Traffic Control (Existing Conditions)



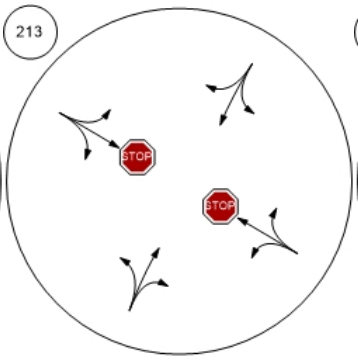
Bayfront Expy/Chrysler Drive



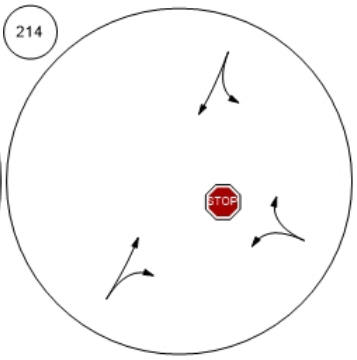
Chilco St/Constitution Dr



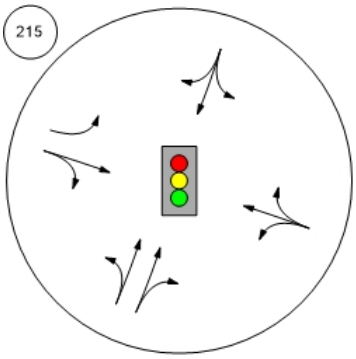
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



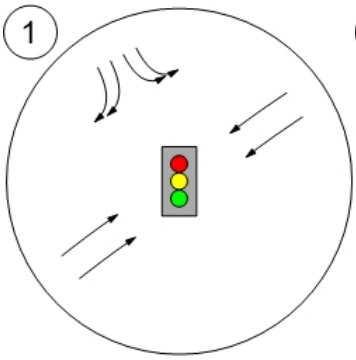
Chrysler Dr/Constitution Dr



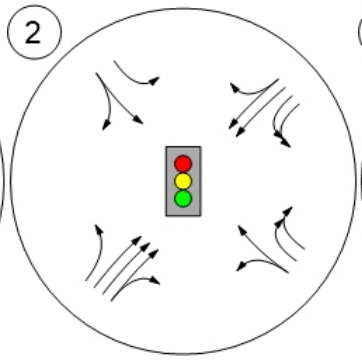
Lane Configuration and Traffic Control (Near Term Conditions)



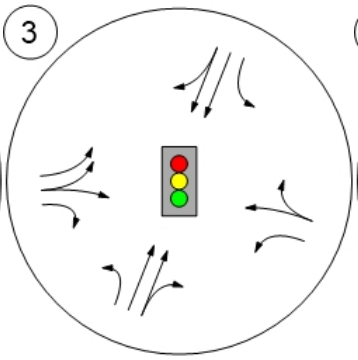
Marsh Rd (SR 84)/US 101 S



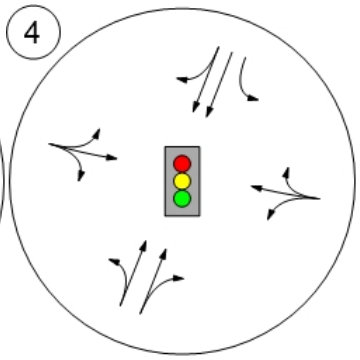
Marsh Rd/Rolison Rd-Scott D



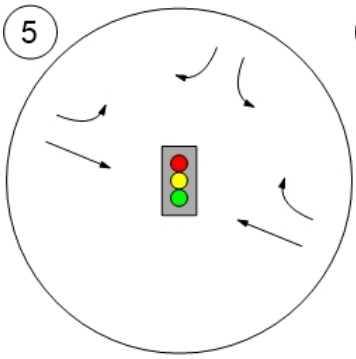
Marsh Rd/Florence St-Bohan



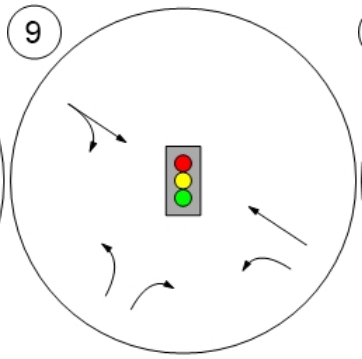
Marsh Rd/Bay Rd



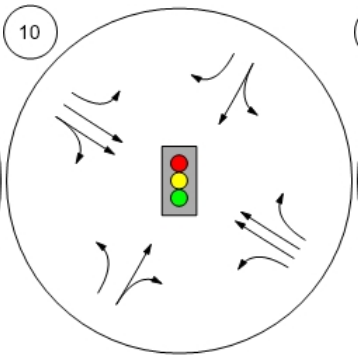
Middlefield Rd/Marsh Rd



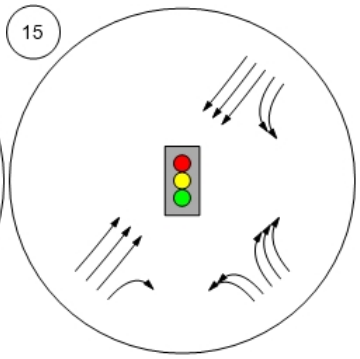
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



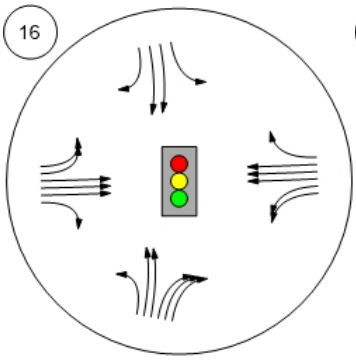
Bayfront Expy (SR 84)/Univer



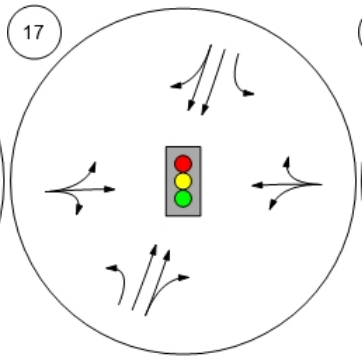
Lane Configuration and Traffic Control (Near Term Conditions)



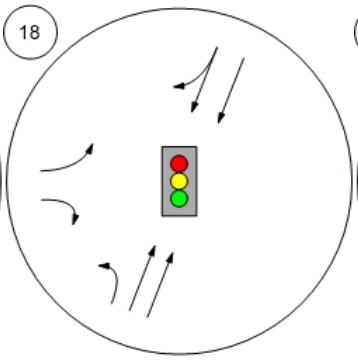
Bayfront Expy (SR 84)/Willow



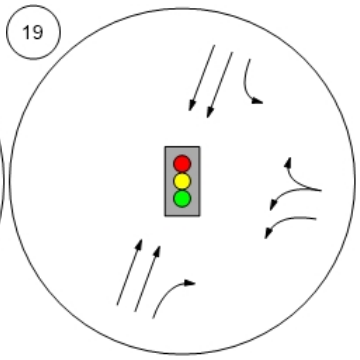
Willow Rd (SR 114)/Hamilton



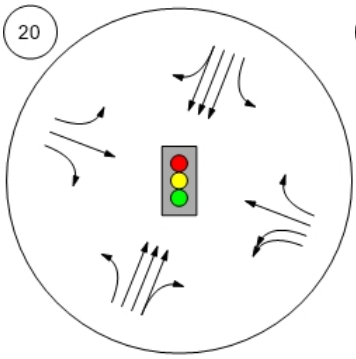
Willow Rd (SR 114)/Ivy Dr



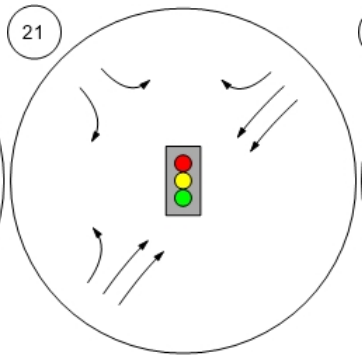
Willow Rd (SR 114)/O'Brien



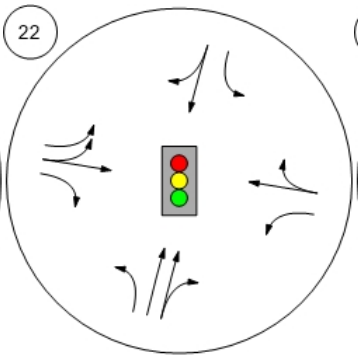
Willow Rd (SR 114)/Newbrid



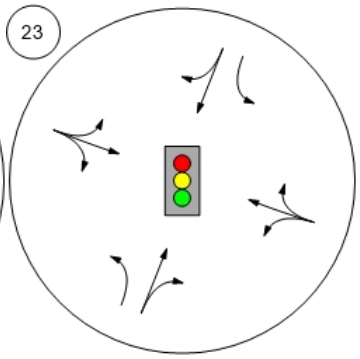
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



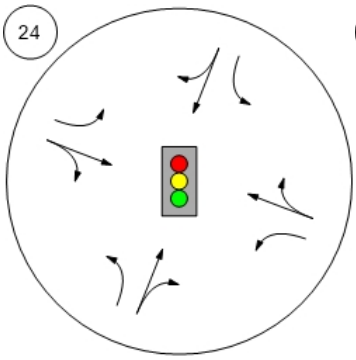
Willow Rd/Coleman Ave



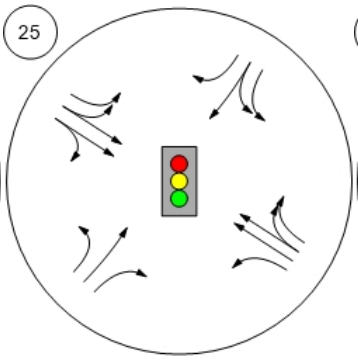
Lane Configuration and Traffic Control (Near Term Conditions)



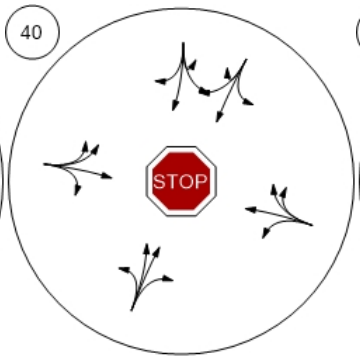
Willow Rd/Gilbert Ave



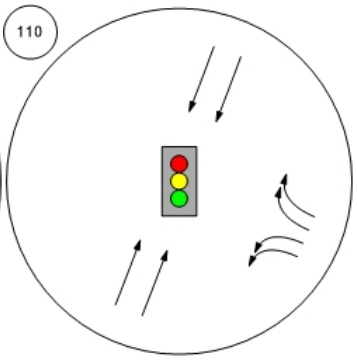
Middlefield Rd-Willow Rd



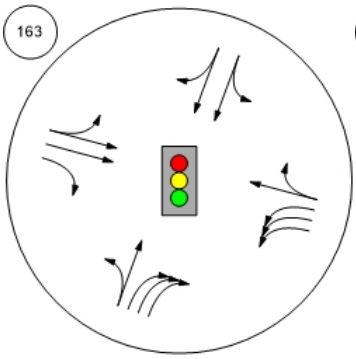
Bay Rd/Ringwood Ave/Sono



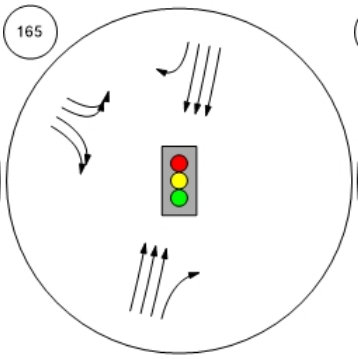
Marsh Road and US 101 NB



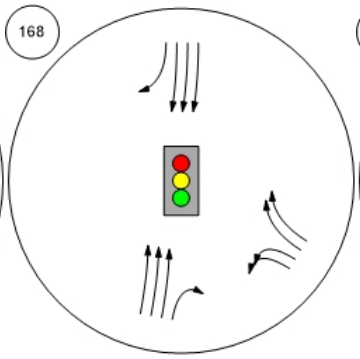
Bayfront Expy/Marsh Rd



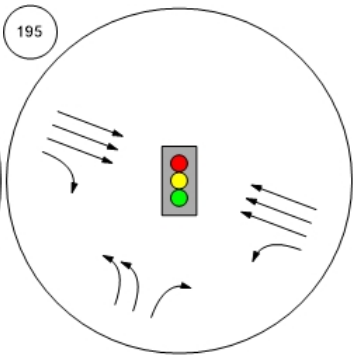
Willow Rd/US-101 SB Ramps



Willow Rd/US-101 NB Ramp



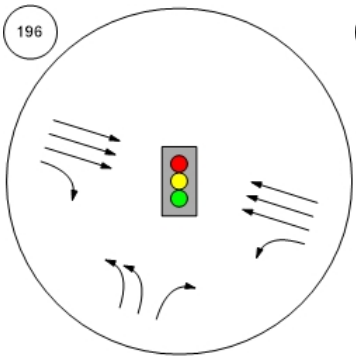
Bayfront Expy/Chilco St



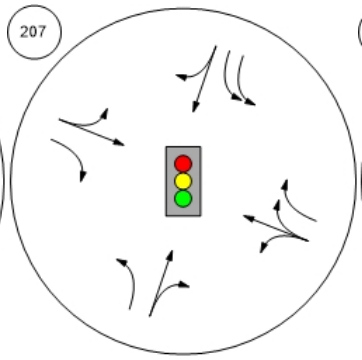
Lane Configuration and Traffic Control (Near Term Conditions)



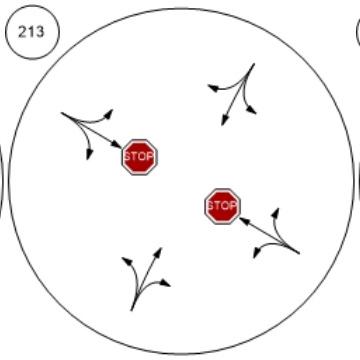
Bayfront Expy/Chrysler Drive



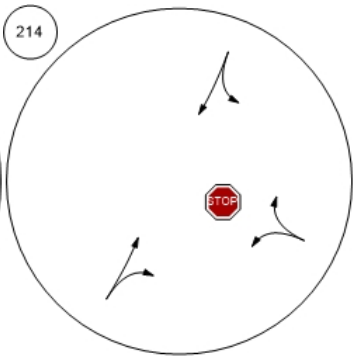
Chilco St/Constitution Dr



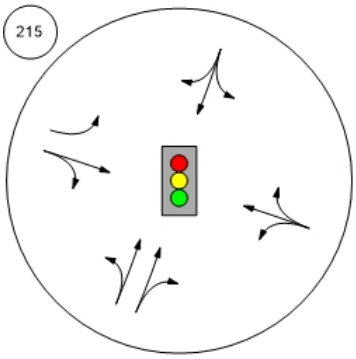
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



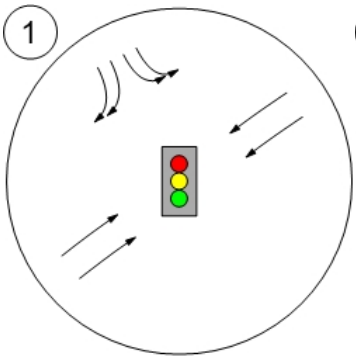
Chrysler Dr/Constitution Dr



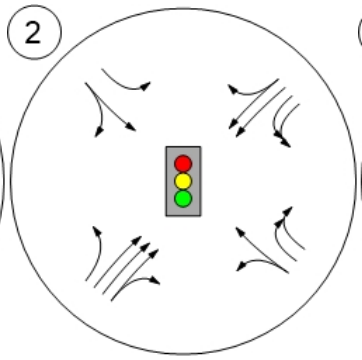
Lane Configuration and Traffic Control (Cumulative Conditions)



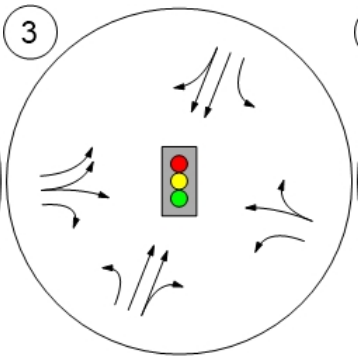
Marsh Rd (SR 84)/US 101 S



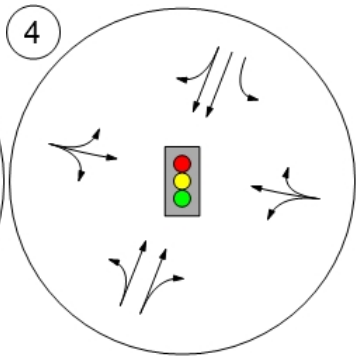
Marsh Rd/Rolison Rd-Scott D



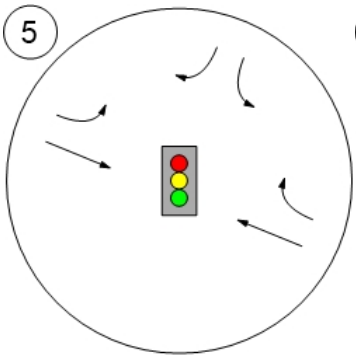
Marsh Rd/Florence St-Bohan



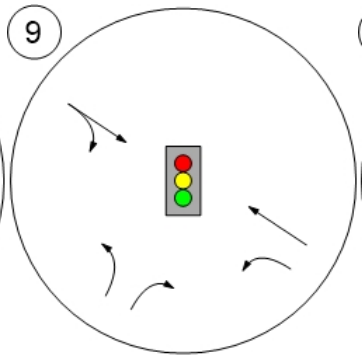
Marsh Rd/Bay Rd



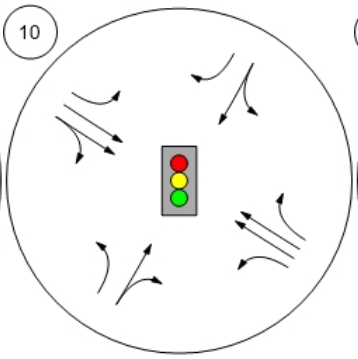
Middlefield Rd/Marsh Rd



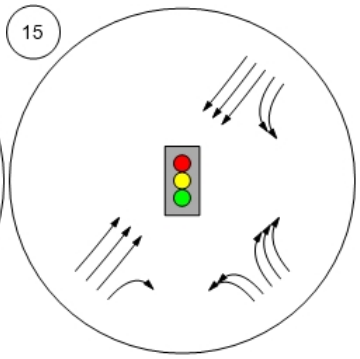
Middlefield Rd/Ravenswood



Middlefield Rd/Ringswood Av



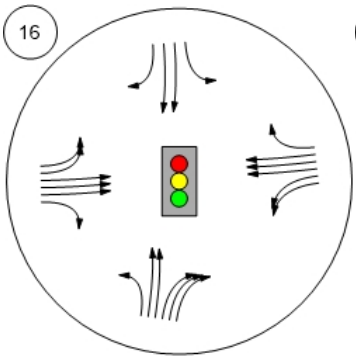
Bayfront Expy (SR 84)/Univer



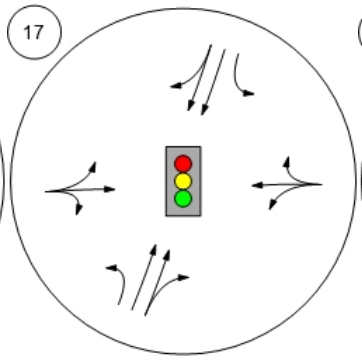
Lane Configuration and Traffic Control (Cumulative Conditions)



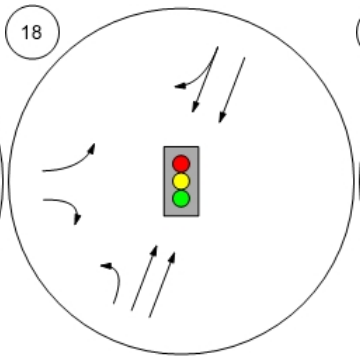
Bayfront Expy (SR 84)/Willow



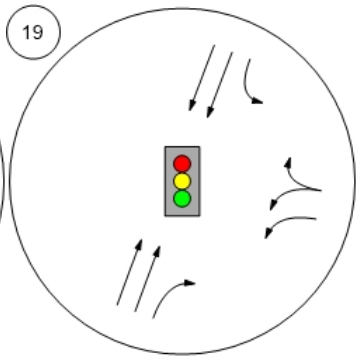
Willow Rd (SR 114)/Hamilton



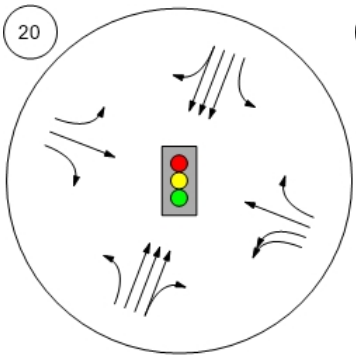
Willow Rd (SR 114)/Ivy Dr



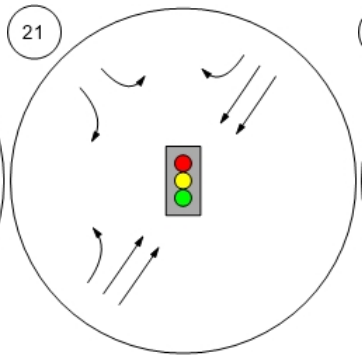
Willow Rd (SR 114)/O'Brien



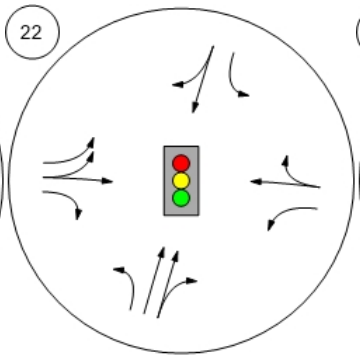
Willow Rd (SR 114)/Newbrid



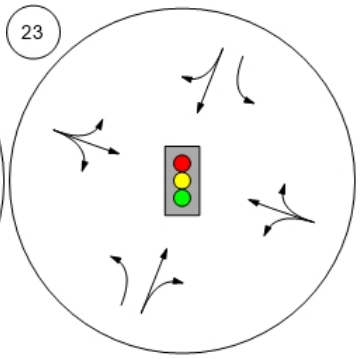
Willow Rd/Bay Rd



Willow Rd/Durham St-VA Me



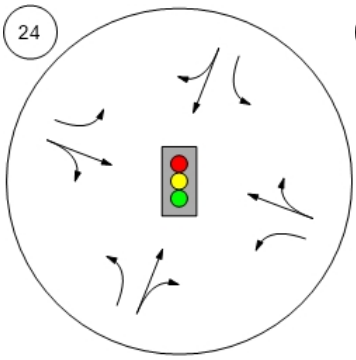
Willow Rd/Coleman Ave



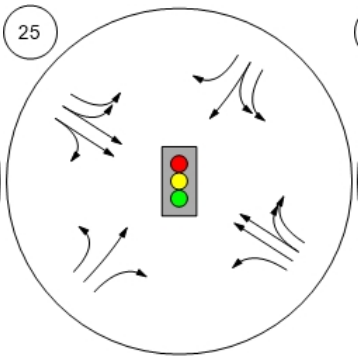
Lane Configuration and Traffic Control (Cumulative Conditions)



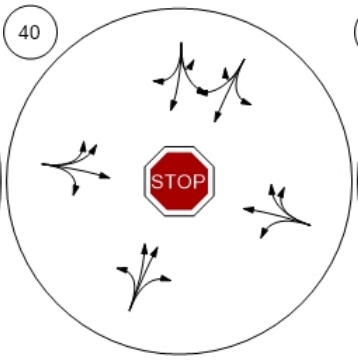
Willow Rd/Gilbert Ave



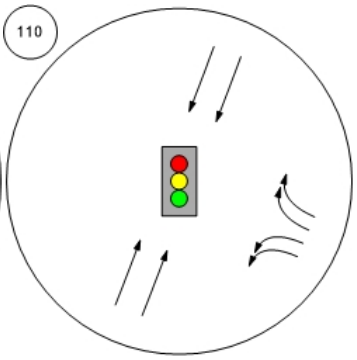
Middlefield Rd-Willow Rd



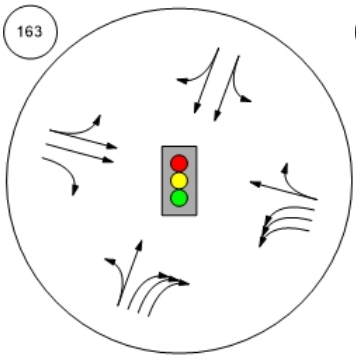
Bay Rd/Ringwood Ave/Sono



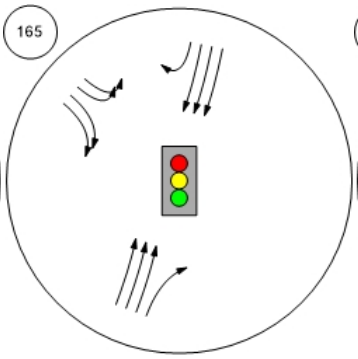
Marsh Road and US 101 NB



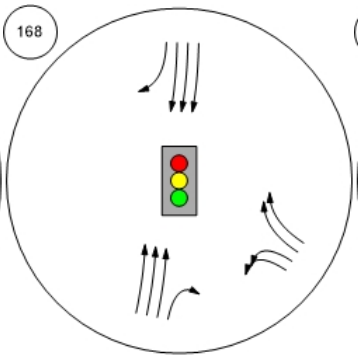
Bayfront Expy/Marsh Rd



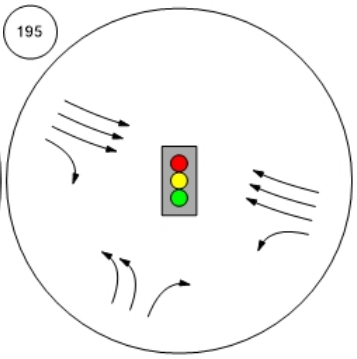
Willow & 101 SB Ramps



Willow & 101 NB Ramps



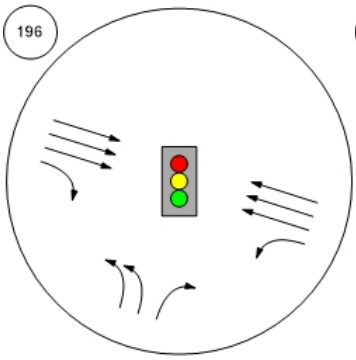
Bayfront Expy/Chilco St



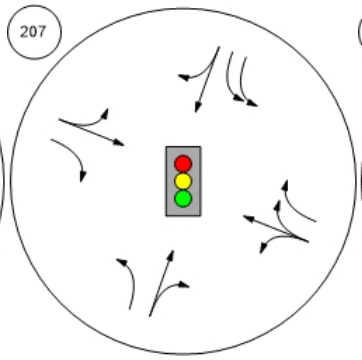
Lane Configuration and Traffic Control (Cumulative Conditions)



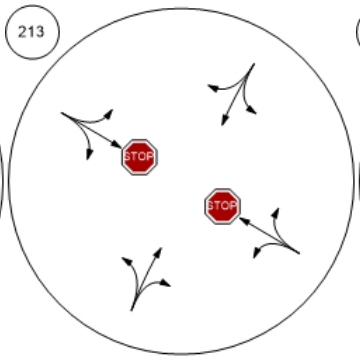
Bayfront Expy/Chrysler Drive



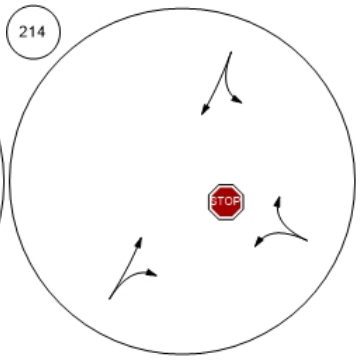
Chilco St/Constitution Dr



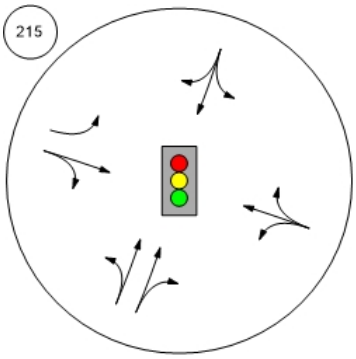
Chrysler Dr/Independence Dr



Chrysler Dr/Jefferson Dr



Chrysler Dr/Constitution Dr



Attachment 3. Intersection Level of Service Results

Existing Conditions

Vistro File: H:\...\Existing Conditions_AM.vistro
Report File: H:\...\Existing_AM.pdf
Scenario 16 Existing AM (2019 vols)
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.838	18.1	B
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.696	18.5	B
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.711	35.3	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.641	19.7	B
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	EB Left	0.855	35.0	D
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NWB Left	0.741	48.7	D
10	Middlefield Rd/Ringswood Ave	Signalized	HCM 6th Edition	NEB Left	0.351	12.5	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Left	0.727	11.4	B
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Thru	0.967	106.0	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	WB Right	0.902	35.6	D
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	NB Left	0.997	43.9	D
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	NB Thru	1.098	54.5	D
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Right	1.172	169.1	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.177	115.5	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	1.416	190.6	F
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.245	83.9	F
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	SB Left	1.200	83.4	F
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.617	67.1	E

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	EB Right	0.875	29.3	D
110	Marsh Road and US 101 NB Ramps	Signalized	HCM 6th Edition	NWB Right	0.727	15.8	B
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.792	56.9	E
165	Willow Rd/US-101 SB Ramps	Signalized	HCM 6th Edition	SB Right	1.630	103.1	F
168	Willow Rd/US-101 NB Ramps	Signalized	HCM 6th Edition	NWB Right	1.581	161.5	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	0.808	12.7	B
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.621	8.4	A
207	Chilco St/Constitution Dr	All-way stop	HCM 6th Edition	SB Right	0.985	32.1	D
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.011	44.0	E
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.084	18.6	C
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	SB Thru	0.846	50.6	D

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.

Vistro File: H:\...\Existing Conditions_PM.vistro
Report File: H:\...\Existing_PM.pdf
Scenario 16 Existing PM (2019 vols)
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.701	17.0	B
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.460	15.3	B
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.682	34.6	C
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.634	18.6	B
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	EB Left	0.849	37.9	D
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NEB Left	2.394	16.1	B
10	Middlefield Rd/Ringwood Ave	Signalized	HCM 6th Edition	NEB Left	0.366	13.7	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Right	1.043	94.1	F
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Right	1.249	168.1	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	WB Left	1.205	144.9	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	NB Left	1.008	41.2	D
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	SB Left	1.021	38.8	D
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Left	1.214	168.6	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.205	120.1	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	WB Left	0.868	36.3	D
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.089	55.1	E
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	SB Left	1.061	54.3	D
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.628	35.9	D

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	NB Right	1.133	59.9	F
110	Marsh Road/101 NB Ramps	Signalized	HCM 6th Edition	WB Left	0.771	13.3	B
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.765	36.5	D
165	Willow Rd/US-101 SB Ramps	Signalized	HCM 6th Edition	SEBL2	0.814	20.7	C
168	Willow Rd/US-101 NB Ramps	Signalized	HCM 6th Edition	NWB Right	1.408	180.2	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	0.862	16.0	B
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.779	13.1	B
207	Chilco St/Constitution Dr	All-way stop	HCM 6th Edition	SB Thru	0.916	32.5	D
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.011	17.9	C
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.041	19.0	C
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	WB Right	0.666	28.0	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.

Attachment 3. Intersection Level of Service Results

Near-Term (2022) Conditions

Vistro File: H:\...\Existing Conditions_AM.vistro
Report File: H:\...\NearTerm_AM.pdf
Scenario 18 Near Term AM (2019 vols)
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.935	22.9	C
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.724	20.0	B
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.768	38.3	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.722	22.7	C
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	EB Left	0.990	73.8	E
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NWB Left	0.780	66.5	E
10	Middlefield Rd/Ringswood Ave	Signalized	HCM 6th Edition	NEB Left	0.376	12.4	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Left	0.815	12.7	B
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Left	1.229	193.1	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	NB Right	1.168	125.6	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	NB Thru	1.331	134.4	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	NB Thru	1.422	147.0	F
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Right	1.400	272.2	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.250	154.1	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	1.540	228.3	F
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.369	113.3	F
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	SB Left	1.327	110.1	F
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.672	70.3	E

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	EB Right	0.875	29.3	D
110	Marsh Road and US 101 NB Ramps	Signalized	HCM 6th Edition	NB Thru	0.999	25.3	C
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.827	59.7	E
165	Willow Rd/US-101 SB Ramps	Signalized	HCM 6th Edition	SB Right	1.686	109.3	F
168	Willow Rd/US-101 NB Ramps	Signalized	HCM 6th Edition	NWB Right	1.989	281.2	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	0.839	21.9	C
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.690	9.5	A
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	NB Left	0.711	33.8	C
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.012	69.3	F
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.118	23.2	C
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	SB Thru	1.029	111.1	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.

Vistro File: H:\...\Existing Conditions_PM.vistro
Report File: H:\...\NearTerm_PM.pdf
Scenario 18 Near Term PM (2019 vols)
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.793	17.7	B
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.542	15.1	B
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.772	37.0	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.650	18.4	B
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	WB Right	0.956	44.2	D
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NEB Left	2.407	16.6	B
10	Middlefield Rd/Ringwood Ave	Signalized	HCM 6th Edition	NEB Left	0.371	13.6	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Right	1.097	113.1	F
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Right	1.317	180.9	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	NB Right	1.264	174.6	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	SB Right	1.221	114.8	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	NB Thru	1.123	76.1	E
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Left	1.259	213.8	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.297	150.8	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	0.943	49.1	D
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.151	68.2	E
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	NB Thru	1.141	72.8	E
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.673	39.8	D

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	NB Right	1.133	59.9	F
110	Marsh Road/101 NB Ramps	Signalized	HCM 6th Edition	WB Right	0.808	13.3	B
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.898	37.4	D
165	Willow Rd/US-101 SB Ramps	Signalized	HCM 6th Edition	SEBL2	0.901	22.6	C
168	Willow Rd/US-101 NB Ramps	Signalized	HCM 6th Edition	SB Thru	1.530	243.5	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	0.942	25.3	C
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.863	20.1	C
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	EB Left	0.776	50.0	D
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.011	18.3	C
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.046	20.1	C
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	SB Left	0.909	39.8	D

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.

Attachment 3. Intersection Level of Service Results

Cumulative (2040) Conditions

Vistro File: H:\...\2040(c)_AM.vistro
Report File: H:\...\Cumulative_AM.pdf

Scenario 17 141 Jefferson - Cum No Proj AM
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	1.041	36.5	D
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.805	32.8	C
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.791	39.8	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	NB Right	0.834	28.7	C
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	EB Left	1.042	81.4	F
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NWB Left	0.784	66.5	E
10	Middlefield Rd/Ringswood Ave	Signalized	HCM 6th Edition	NEB Left	0.395	13.1	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Left	1.171	101.4	F
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Thru	1.573	327.4	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	NB Right	1.661	331.3	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	NB Thru	1.633	244.6	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	NB Thru	1.702	250.0	F
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Right	1.764	391.1	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.258	184.5	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	1.645	282.0	F
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.510	157.7	F
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	NB Thru	1.377	122.3	F
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.730	73.1	E

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	EB Right	1.185	80.7	F
110	Marsh Road and US 101 NB Ramps	Signalized	HCM 6th Edition	NB Thru	1.071	35.1	D
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	1.052	96.8	F
165	Willow & 101 SB Ramps	Signalized	HCM 6th Edition	SB Right	1.963	157.6	F
168	Willow & 101 NB Ramps	Signalized	HCM 6th Edition	NWB Right	1.949	263.1	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	WB Left	1.104	57.6	E
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.766	10.2	B
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	SB Right	0.834	77.0	E
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Left	1.446	368.5	F
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.251	45.9	E
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	WB Right	3.329	298.2	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.

Vistro File: H:\...\2040(c)_PM.vistro
Report File: H:\...\Cumulative_PM.pdf

Scenario 17 141 Jefferson - Cum No Proj PM
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.915	37.6	D
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.667	22.9	C
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.835	46.0	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.711	19.8	B
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	WB Right	0.973	52.7	D
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NWB Left	2.147	24.6	C
10	Middlefield Rd/Ringwood Ave	Signalized	HCM 6th Edition	SWB Right	0.600	26.3	C
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Right	1.395	215.7	F
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	SB Thru	2.072	370.7	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	WB Left	4.333	564.8	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	SB Right	1.930	420.8	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	SB Thru	1.939	328.5	F
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	SB Right	1.871	432.3	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.880	398.0	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	1.722	242.7	F
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.209	72.5	E
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	NB Thru	1.211	98.1	F
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.731	41.6	D

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	NB Right	1.168	66.1	F
110	Marsh Road/101 NB Ramps	Signalized	HCM 6th Edition	WB Right	0.906	16.1	B
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.940	36.2	D
165	Willow & 101 SB Ramps	Signalized	HCM 6th Edition	SB Right	1.305	111.8	F
168	Willow & 101 NB Ramps	Signalized	HCM 6th Edition	SB Thru	1.946	367.8	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	1.153	65.1	E
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	NB Left	1.004	59.4	E
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	EB Left	1.477	246.0	F
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.011	22.6	C
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.143	126.4	F
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	SB Left	2.534	228.1	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.

Attachment 3. Intersection Level of Service Results

Near-Term (2022) Plus Project Conditions

Vistro File: H:\...\Existing Conditions_AM.vistro
Report File: H:\...\NearTerm+Project_AM.pdf
Scenario 19 Near Term Plus Project AM (2019 vols)
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.938	22.8	C
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.728	20.0	C
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.772	38.5	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.723	22.7	C
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	EB Left	0.991	73.8	E
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NWB Left	0.780	66.5	E
10	Middlefield Rd/Ringswood Ave	Signalized	HCM 6th Edition	NEB Left	0.376	12.4	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Left	0.813	12.9	B
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Left	1.228	191.6	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	NB Right	1.168	127.2	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	NB Thru	1.330	135.1	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	NB Thru	1.422	147.2	F
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Right	1.400	272.9	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.257	156.6	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	1.552	232.6	F
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.368	112.7	F
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	SB Left	1.326	109.5	F
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.673	70.2	E

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	EB Right	0.875	29.3	D
110	Marsh Road and US 101 NB Ramps	Signalized	HCM 6th Edition	NB Thru	0.997	25.0	C
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.843	60.1	E
165	Willow Rd/US-101 SB Ramps	Signalized	HCM 6th Edition	SB Right	1.686	109.2	F
168	Willow Rd/US-101 NB Ramps	Signalized	HCM 6th Edition	NWB Right	1.994	282.5	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	0.876	24.4	C
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.713	10.3	B
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	NB Left	0.746	38.2	D
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.012	70.0	F
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.130	23.6	C
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	SB Thru	1.109	142.4	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.

Vistro File: H:\...\Existing Conditions_PM.vistro
Report File: H:\...\NearTerm+Project_PM.pdf
Scenario 19 Near Term Plus Project PM (2019 vols)
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.802	18.0	B
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.541	15.1	B
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.773	37.0	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.652	18.5	B
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	WB Right	0.958	44.6	D
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NEB Left	2.407	16.6	B
10	Middlefield Rd/Ringwood Ave	Signalized	HCM 6th Edition	NEB Left	0.371	13.6	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Right	1.097	112.8	F
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Right	1.317	180.3	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	NB Right	1.267	176.1	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	SB Right	1.221	115.2	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	NB Thru	1.123	76.7	E
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Left	1.263	215.0	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.297	151.6	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	0.943	49.6	D
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.156	69.5	E
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	NB Thru	1.146	74.1	E
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.674	40.0	D

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	NB Right	1.133	59.9	F
110	Marsh Road/101 NB Ramps	Signalized	HCM 6th Edition	WB Right	0.828	13.7	B
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.897	38.2	D
165	Willow Rd/US-101 SB Ramps	Signalized	HCM 6th Edition	SEBL2	0.901	22.6	C
168	Willow Rd/US-101 NB Ramps	Signalized	HCM 6th Edition	SB Thru	1.530	244.0	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	0.946	28.4	C
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.861	20.0	B
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	SB Thru	0.806	58.6	E
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.011	18.5	C
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.056	22.9	C
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	SB Left	0.915	40.8	D

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.

Attachment 3. Intersection Level of Service Results

Near-Term (2022) Plus Project Conditions, Mitigated

Generated with PTV VISTRO

Version 2020 (SP 0-5)

Option 1: Chilco St/Constitution Dr: Mitigation Near Term Plus Project AM

Number	207											
Intersection	Chilco St/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chilco Street			Chilco Street			Constitution Drive			Constitution Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	72	207	46	175	193	423	69	20	73	34	28	43
Total Analysis Volume [veh/h]	80	211	47	179	197	517	144	20	81	35	29	44

Intersection Settings

Cycle Length [s]	100											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	3	8	0	7	4	0	0	2	2	0	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	20	37	0	20	37	0	0	24	24	0	19	0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	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
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.07	0.51	0.08	0.53	0.53	0.17	0.39	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.06	0.12	0.36	0.15	0.07	0.06	0.03
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3			3		3	
s, saturation flow rate [veh/h]	1572	1495	3105	1664	1454	1120	1093	986	1372
c, Capacity [veh/h]	104	767	252	879	768	185	427	135	110
X, volume / capacity	0.77	0.34	0.71	0.22	0.67	0.88	0.19	0.47	0.40
d, Delay for Lane Group [s/veh]	57.46	15.51	48.53	13.21	21.94	53.68	20.17	47.89	46.04
Lane Group LOS	E	B	D	B	C	D	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	Yes	No

50th-Percentile Queue Length [veh/ln]	2.27	3.58	2.28	2.43	9.21	4.56	1.25	1.65	1.10
50th-Percentile Queue Length [ft/ln]	56.87	89.38	57.02	60.78	230.28	114.10	31.20	41.20	27.51
95th-Percentile Queue Length [veh/ln]	4.09	6.44	4.11	4.38	14.19	8.07	2.25	2.97	1.98
95th-Percentile Queue Length [ft/ln]	102.36	160.89	102.63	109.41	354.72	201.69	56.16	74.17	49.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.46	15.51	15.51	48.53	13.21	21.94	53.68	53.68	20.17	47.89	47.89	46.04
Movement LOS	E	B	B	D	B	C	D	D	C	D	D	D
Critical Movement	Yes	No	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	25.44			25.35			42.60			47.13		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.52											
Intersection LOS	C											
Intersection V/C	0.618											

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Version 2020 (SP 0-5)

Option 1: Chrysler Dr/Constitution Dr: Mitigation Near Term Plus Project AM

Number	215											
Intersection	Chrysler Dr/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chrysler Drive						Constitution Drive					
Approach	Southbound			Eastbound			Westbound			Northeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	79	368	19	15	234	211	36	20	100	2	153	19
Total Analysis Volume [veh/h]	88	419	78	71	271	282	41	79	148	2	276	21

Intersection Settings

Cycle Length [s]	90											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	6	0	0	2	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	46	0	0	25	0	0	19	0	0	46	0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	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
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.35	0.35	0.23	0.23	0.23	0.27	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.10	0.32	0.05	0.16	0.20	0.25	0.12	0.12
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3			3	3	
s, saturation flow rate [veh/h]	884	1541	1357	1699	1412	1058	1263	1301
c, Capacity [veh/h]	298	542	315	394	327	291	487	458
X, volume / capacity	0.29	0.92	0.23	0.69	0.86	0.92	0.30	0.33
d, Delay for Lane Group [s/veh]	27.68	45.26	26.83	31.99	39.31	51.52	20.30	20.67
Lane Group LOS	C	D	C	C	D	D	C	C
Critical Lane Group	No	Yes	No	No	Yes	Yes	No	No

50th-Percentile Queue Length [veh/ln]	1.51	11.93	1.17	5.15	6.10	6.85	2.06	2.20
50th-Percentile Queue Length [ft/ln]	37.74	298.33	29.36	128.82	152.44	171.36	51.51	54.92
95th-Percentile Queue Length [veh/ln]	2.72	17.60	2.11	8.88	10.15	11.15	3.71	3.95
95th-Percentile Queue Length [ft/ln]	67.93	439.96	52.84	221.89	253.68	278.70	92.71	98.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.68	45.26	45.26	26.83	31.99	39.31	51.52	51.52	51.52	20.30	20.48	20.67
Movement LOS	C	D	D	C	C	D	D	D	D	C	C	C
Critical Movement	No	No	No	No	No	No	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	42.62			34.71			51.52			20.49		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	37.46											
Intersection LOS	D											
Intersection V/C	0.775											

Option 1: Bayfront Expy/Marsh Rd: Mitigation Near Term Plus Project AM

Number	163											
Intersection	Bayfront Expy/Marsh Rd											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name				Marsh Road			Haven Avenue			Bayfront Expressway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	162	27	1502	10	30	7	8	196	296	1931	371	34
Total Analysis Volume [veh/h]	174	28	1921	10	31	7	8	215	317	2205	403	35

Intersection Settings

Cycle Length [s]	160											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	2	3	3	7	4	6	4	1	4	1	2	8
Auxiliary Signal Groups		3	2,3									
Lead / Lag	Lag	-	-	-	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	10	6	6	0	4	10	4	12	4	12	10	0
Maximum Green [s]	0	0	0	0	0	10	0	0	0	0	0	0
Amber [s]	4.7	3.6	3.6	0.0	3.6	3.6	3.6	3.6	3.6	3.6	4.7	0.0
All red [s]	1.0	1.0	1.0	0.0	0.5	0.5	0.5	0.0	0.5	0.0	1.0	0.0
Split [s]	82	11	11	0	32	25	32	35	32	35	82	0
Walk [s]	5	0	0	0	5	10	5	0	5	0	5	0
Pedestrian Clearance [s]	16	0	0	0	22	10	22	0	22	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall		No	No		No			No			Yes	
Maximum Recall		No	No		No			No			No	
Pedestrian Recall		No	No		Yes			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.11	0.62	0.18	0.18	0.15	0.15	0.15	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.11	0.47	0.01	0.01	0.12	0.13	0.13	0.43	0.24
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3			3	
s, saturation flow rate [veh/h]	1822	4117	1863	1610	1623	1237	1424	5075	1790
c, Capacity [veh/h]	207	2476	339	293	236	180	207	2533	893
X, volume / capacity	0.98	0.78	0.07	0.08	0.83	0.88	0.90	0.87	0.49
d, Delay for Lane Group [s/veh]	127.68	26.15	54.31	54.36	77.30	89.06	88.18	39.94	28.51
Lane Group LOS	F	C	D	D	E	F	F	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	11.57	18.29	0.86	0.78	8.50	7.52	8.67	26.20	11.71
50th-Percentile Queue Length [ft/ln]	289.30	457.17	21.43	19.47	212.48	187.91	216.81	655.09	292.63
95th-Percentile Queue Length [veh/ln]	17.15	25.30	1.54	1.40	13.28	12.01	13.50	34.60	17.32
95th-Percentile Queue Length [ft/ln]	428.77	632.50	38.58	35.04	332.01	300.32	337.56	864.96	432.90

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	127.68	127.68	26.15	54.31	54.33	54.36	77.30	78.82	88.53	39.94	28.51	28.51
Movement LOS	F	F	C	D	D	D	E	E	F	D	C	C
Critical Movement	Yes	No	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	35.81			54.33			84.51			38.05		
Approach LOS	D			D			F			D		
d_I, Intersection Delay [s/veh]	41.99											
Intersection LOS	D											
Intersection V/C	0.762											

Option 1: Willow Rd/Bay Rd: Mitigation Near Term Plus Project AM

Number	21					
Intersection	Willow Rd/Bay Rd					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Willow Road		Willow Road		Bay Road	
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	65	1080	1186	423	352	60
Total Analysis Volume [veh/h]	65	1171	1292	124	352	0

Intersection Settings

Cycle Length [s]	48					
Coordination Type	Free Running					
Actuation Type	Fully actuated					
Lost time [s]	11.00					
Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	10	20	20	4	4
Maximum Green [s]	16	36	36	36	36	36
Amber [s]	3.0	4.5	4.5	4.5	3.2	3.2
All red [s]	0.5	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30
Walk [s]	0	0	7	7	0	0
Pedestrian Clearance [s]	0	0	18	18	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes	Yes		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.05	0.70	0.59	0.59	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.74	0.82	0.08	0.10	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	1788	1588	1580	1558	3422	1597
c, Capacity [veh/h]	86	1109	937	924	485	226
X, volume / capacity	0.76	1.06	1.38	0.13	0.73	0.00
d, Delay for Lane Group [s/veh]	33.58	43.31	186.29	5.55	25.71	0.00
Lane Group LOS	C	F	F	A	C	A
Critical Lane Group	Yes	No	Yes	No	Yes	No

50th-Percentile Queue Length [veh/ln]	1.01	9.27	26.91	0.52	2.32	0.00
50th-Percentile Queue Length [ft/ln]	25.17	231.65	672.70	13.09	58.10	0.00
95th-Percentile Queue Length [veh/ln]	1.81	14.85	43.55	0.94	4.18	0.00
95th-Percentile Queue Length [ft/ln]	45.30	371.14	1088.83	23.56	104.57	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.58	43.31	186.29	5.55	25.71	0.00
Movement LOS	C	F	F	A	C	A
Critical Movement	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	42.80		170.47		25.71	
Approach LOS	D		F		C	
d_I, Intersection Delay [s/veh]	100.97					
Intersection LOS	F					
Intersection V/C	1.169					

Option 1: Willow Rd/Coleman Ave: Mitigation Near Term Plus Project AM

Number	23											
Intersection	Willow Rd/Coleman Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Coleman Avenue			Coleman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	28	783	7	4	878	107	161	6	56	1	2	6
Total Analysis Volume [veh/h]	29	920	7	4	1035	114	169	6	59	1	2	6

Intersection Settings

Cycle Length [s]	150											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	10	10	10	10	10	10	4	4	4	0	4	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	109	109	109	109	109	109	41	41	41	0	41	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	11	11	11	13	13	13	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		Yes			Yes			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.76	0.76	0.76	0.76	0.76	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.50	0.00	0.01	0.64	0.17	0.01
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3	3
s, saturation flow rate [veh/h]	479	1829	1569	617	1805	1381	1686
c, Capacity [veh/h]	211	1397	1198	364	1378	292	333
X, volume / capacity	0.14	0.66	0.01	0.01	0.83	0.80	0.03
d, Delay for Lane Group [s/veh]	36.13	10.85	4.21	18.02	17.56	70.13	50.49
Lane Group LOS	D	B	A	B	B	E	D
Critical Lane Group	No	No	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	0.85	14.27	0.05	0.08	24.37	9.59	0.29
50th-Percentile Queue Length [ft/ln]	21.16	356.80	1.34	1.90	609.18	239.78	7.18
95th-Percentile Queue Length [veh/ln]	1.52	20.47	0.10	0.14	32.46	14.67	0.52
95th-Percentile Queue Length [ft/ln]	38.09	511.69	2.41	3.41	811.57	366.76	12.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.13	10.85	4.21	18.02	17.56	17.56	70.13	70.13	70.13	50.49	50.49	50.49
Movement LOS	D	B	A	B	B	B	E	E	E	D	D	D
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	11.57			17.56			70.13			50.49		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	20.48											
Intersection LOS	C											
Intersection V/C	0.846											

Option 1: Willow Rd/Durham St-VA Med Entrance: Mitigation Near Term Plus Project AM

Number	22											
Intersection	Willow Rd/Durham St-VA Med Entrance											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			VA Medical Center			Durham Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	22	897	7	36	924	108	65	7	30	59	11	62
Total Analysis Volume [veh/h]	23	1029	7	38	1073	113	68	7	25	61	11	65

Intersection Settings

Cycle Length [s]	40											
Coordination Type	Free Running											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	30	30	4	30	30	4	4	4	4	4	4
Maximum Green [s]	30	100	100	30	100	100	30	30	30	30	30	30
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	30	30	0	30	30	30	30	30	30	30	30
Walk [s]	0	7	7	0	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	0	11	11	0	15	15	15	15	15	15	15	15
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	Yes	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.73	0.66	0.66	0.73	0.66	0.66	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.04	0.61	0.61	0.06	0.56	0.07	0.02	0.05	0.02	0.04	0.05
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3	
s, saturation flow rate [veh/h]	613	850	848	644	1900	1575	1331	949	1463	1371	1610
c, Capacity [veh/h]	330	559	557	288	1264	1047	225	235	255	171	280
X, volume / capacity	0.07	0.93	0.93	0.13	0.85	0.11	0.14	0.18	0.10	0.36	0.27
d, Delay for Lane Group [s/veh]	13.07	29.44	29.56	18.47	16.00	5.84	38.73	37.63	33.18	44.40	34.63
Lane Group LOS	B	C	C	B	B	A	D	D	C	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	Yes

50th-Percentile Queue Length [veh/ln]	0.12	10.86	10.86	0.19	16.59	0.78	0.72	0.97	0.52	1.46	1.57
50th-Percentile Queue Length [ft/ln]	3.02	271.48	271.40	4.72	414.83	19.54	18.01	24.30	12.89	36.50	39.24
95th-Percentile Queue Length [veh/ln]	0.22	16.26	16.26	0.34	23.27	1.41	1.30	1.75	0.93	2.63	2.83
95th-Percentile Queue Length [ft/ln]	5.44	406.59	406.49	8.50	581.84	35.16	32.42	43.74	23.21	65.69	70.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.07	29.50	29.56	18.47	16.00	5.84	38.15	37.63	33.18	44.40	34.63	34.63
Movement LOS	B	C	C	B	B	A	D	D	C	D	C	C
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	29.14			15.14			36.87			38.98		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	23.18											
Intersection LOS	C											
Intersection V/C	0.717											

Option 1: Willow Rd/Gilbert Ave: Mitigation Near Term Plus Project AM

Number	24											
Intersection	Willow Rd/Gilbert Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Gilbert Avenue			Gilbert Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	7	686	68	52	905	0	20	82	11	88	94	93
Total Analysis Volume [veh/h]	8	833	78	58	1097	0	22	89	12	111	102	113

Intersection Settings

Cycle Length [s]	150											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	12	12	12	12	12	12	5	5	5	0	5	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	116	116	116	116	116	116	34	34	34	0	34	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	14	14	14	14	14	14	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		Yes			Yes			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.46	0.05	0.09	0.59	0.02	0.05	0.09	0.13
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3		3	
s, saturation flow rate [veh/h]	522	1822	1450	630	1846	1158	1840	1260	1701
c, Capacity [veh/h]	276	1407	1120	409	1426	90	318	184	294
X, volume / capacity	0.03	0.59	0.07	0.14	0.77	0.24	0.32	0.60	0.73
d, Delay for Lane Group [s/veh]	24.42	8.99	4.22	15.74	13.63	72.31	54.81	68.50	64.40
Lane Group LOS	C	A	A	B	B	E	D	E	E
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes

50th-Percentile Queue Length [veh/ln]	0.18	11.19	0.60	1.05	20.06	0.88	3.45	4.36	8.29
50th-Percentile Queue Length [ft/ln]	4.60	279.76	14.98	26.18	501.40	21.88	86.18	108.95	207.26
95th-Percentile Queue Length [veh/ln]	0.33	16.68	1.08	1.89	27.40	1.58	6.21	7.78	13.01
95th-Percentile Queue Length [ft/ln]	8.29	416.91	26.96	47.13	685.01	39.38	155.13	194.55	325.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.42	8.99	4.22	15.74	13.63	13.63	72.31	54.81	54.81	68.50	64.40	64.40
Movement LOS	C	A	A	B	B	B	E	D	D	E	E	E
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	8.72			13.73			57.94			65.79		
Approach LOS	A			B			E			E		
d_I, Intersection Delay [s/veh]	20.79											
Intersection LOS	C											
Intersection V/C	0.756											

Option 1: Willow Rd (SR 114)/Hamilton Ave: Mitigation Near Term Plus Project AM

Number	17											
Intersection	Willow Rd (SR 114)/Hamilton Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Hamilton Avenue			Hamilton Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	99	820	73	190	1023	37	47	14	48	56	25	84
Total Analysis Volume [veh/h]	106	1426	81	210	1217	40	51	15	52	63	27	95

Intersection Settings

Cycle Length [s]	130											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	9.00											
Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	2	5	2	6	4	8	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	10	10	4	10	10	4	4	4	4	4	4
Maximum Green [s]	10	30	30	10	30	30	26	26	26	26	26	26
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.2	3.0	3.2	3.0	3.2
All red [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
Split [s]	20	77	74	17	74	77	36	36	36	36	36	36
Walk [s]	0	7	7	0	7	7	5	5	5	5	5	5
Pedestrian Clearance [s]	0	19	15	0	15	19	25	25	25	25	25	25
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.81	0.74	0.74	0.81	0.75	0.75	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.20	0.41	0.05	0.48	0.80	0.80	0.10	0.14
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3	3
s, saturation flow rate [veh/h]	517	3438	1473	441	794	781	1178	1308
c, Capacity [veh/h]	170	2559	1097	376	597	588	194	187
X, volume / capacity	0.62	0.56	0.07	0.56	1.06	1.06	0.61	0.99
d, Delay for Lane Group [s/veh]	61.44	8.13	4.61	13.69	68.69	71.59	55.03	87.33
Lane Group LOS	E	A	A	B	F	F	E	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	1.14	7.50	0.54	1.54	23.40	23.51	3.81		7.69			
50th-Percentile Queue Length [ft/ln]	28.44	187.40	13.60	38.53	585.12	587.63	95.30		192.21			
95th-Percentile Queue Length [veh/ln]	2.05	11.99	0.98	2.77	32.88	33.21	6.86		12.24			
95th-Percentile Queue Length [ft/ln]	51.19	299.66	24.49	69.35	821.90	830.26	171.54		305.89			

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.44	8.13	4.61	13.69	70.09	71.59	55.03	55.03	55.03	87.33	87.33	87.33
Movement LOS	E	A	A	B	F	E	E	E	E	F	F	F
Critical Movement	No	No	No	No	No	No	No	No	No	No	No	Yes
d_A, Approach Delay [s/veh]	11.46			62.06			55.03			87.33		
Approach LOS	B			E			E			F		
d_I, Intersection Delay [s/veh]	39.07											
Intersection LOS	D											
Intersection V/C	0.984											

Option 1: Willow Rd (SR 114)/Newbridge St: Mitigation Near Term Plus Project AM

Number	20											
Intersection	Willow Rd (SR 114)/Newbridge St											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Newbridge Street			BayRoad		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	143	1589	130	40	1202	7	17	93	281	260	79	36
Total Analysis Volume [veh/h]	153	2156	139	43	1403	9	19	103	254	279	87	3

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	2	1	6	6	7	4	4	3	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	4	12	12	4	12	12	5	4	4	4	5	5
Maximum Green [s]	21	40	40	21	40	40	30	25	25	21	30	30
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0
Split [s]	9	44	44	7	42	42	16	32	32	37	53	53
Walk [s]	0	5	5	0	7	7	0	5	5	5	0	0
Pedestrian Clearance [s]	0	19	19	0	16	16	0	23	23	23	0	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.05	0.56	0.56	0.03	0.54	0.54	0.02	0.19	0.19	0.10	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.09	0.98	1.00	0.02	0.62	0.62	0.01	0.06	0.17	0.08	0.05	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1781	1546	783	1781	1491	780	1625	1838	1526	3434	1787	1547
c, Capacity [veh/h]	90	867	439	56	808	423	33	341	283	334	454	393
X, volume / capacity	1.70	1.75	1.78	0.77	1.15	1.15	0.57	0.30	0.90	0.83	0.19	0.01
d, Delay for Lane Group [s/veh]	376.98	366.85	386.56	65.49	108.10	118.33	72.73	42.39	63.26	55.36	35.34	33.49
Lane Group LOS	F	F	F	E	F	F	E	D	E	E	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No

50th-Percentile Queue Length [veh/ln]	10.67	52.13	55.21	1.43	20.15	22.29	0.71	2.67	8.58	4.23	2.04	0.07
50th-Percentile Queue Length [ft/ln]	266.72	1303.26	1380.35	35.69	503.80	557.22	17.66	66.66	214.55	105.79	50.91	1.67
95th-Percentile Queue Length [veh/ln]	18.05	86.53	91.76	2.57	30.35	33.18	1.27	4.80	13.39	7.61	3.67	0.12
95th-Percentile Queue Length [ft/ln]	451.31	2163.36	2293.91	64.25	758.86	829.62	31.79	119.98	334.66	190.13	91.63	3.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	376.98	372.72	386.56	65.49	111.57	118.33	72.73	42.39	63.26	55.36	35.34	33.49
Movement LOS	F	F	F	E	F	F	E	D	E	E	D	C
Critical Movement	No	No	Yes	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	373.78			110.25			58.02			50.46		
Approach LOS	F			F			E			D		
d_I, Intersection Delay [s/veh]	240.07											
Intersection LOS	F											
Intersection V/C	1.411											

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Option 1: Chilco St/Constitution Dr: Mitigation Near Term Plus Project PM

Number	207											
Intersection	Chilco St/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Terminal Avenue			Chilco Street			Constitution Drive					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	13	237	51	22	327	36	221	37	240	33	18	109
Total Analysis Volume [veh/h]	20	269	58	25	372	91	364	42	273	38	20	124

Intersection Settings

Cycle Length [s]	110											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	3	8	0	7	4	0	0	2	2	0	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	9	31	0	9	31	0	0	51	51	0	19	0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	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
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.05	0.31	0.02	0.29	0.29	0.42	0.64	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.01	0.20	0.01	0.22	0.07	0.41	0.20	0.08	0.08
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3			3		3	
s, saturation flow rate [veh/h]	1353	1638	2868	1659	1249	990	1386	882	1442
c, Capacity [veh/h]	66	504	73	472	355	417	890	139	145
X, volume / capacity	0.30	0.65	0.34	0.79	0.26	0.97	0.31	0.52	0.76
d, Delay for Lane Group [s/veh]	53.15	39.32	55.54	48.92	31.81	66.41	8.88	51.32	56.17
Lane Group LOS	D	D	E	D	C	E	A	D	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	Yes	No

50th-Percentile Queue Length [veh/ln]	0.58	8.35	0.37	10.74	2.01	14.25	2.77	2.04	3.26
50th-Percentile Queue Length [ft/ln]	14.48	208.75	9.19	268.61	50.32	356.23	69.21	50.95	81.49
95th-Percentile Queue Length [veh/ln]	1.04	13.09	0.66	16.12	3.62	20.44	4.98	3.67	5.87
95th-Percentile Queue Length [ft/ln]	26.07	327.23	16.54	403.00	90.58	510.99	124.57	91.71	146.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.15	39.32	39.32	55.54	48.92	31.81	66.41	66.41	8.88	51.32	51.32	55.24
Movement LOS	D	D	D	E	D	C	E	E	A	D	D	E
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	40.11			46.07			43.28			54.26		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.61											
Intersection LOS	D											
Intersection V/C	0.730											

Option 1: Chrysler Dr/Constitution Dr: Mitigation Near Term Plus Project PM

Number	215											
Intersection	Chrysler Dr/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name				Chrysler Drive						Constitution Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	2	490	14	194	84	3	128	205	53	13	6	114
Total Analysis Volume [veh/h]	2	499	16	197	91	13	472	322	97	13	16	113

Intersection Settings

Cycle Length [s]	90											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	0	4	0	0	8	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	41	0	0	41	0	0	27	0	0	22	0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	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
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.33	0.33	0.33	0.17
(v / s)_i Volume / Saturation Flow Rate	0.16	0.16	0.25	0.06	0.29	0.19	0.07	0.16
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3			3
s, saturation flow rate [veh/h]	1709	1536	798	1673	1609	1686	1326	904
c, Capacity [veh/h]	667	564	257	614	526	551	433	157
X, volume / capacity	0.41	0.44	0.77	0.17	0.90	0.58	0.22	0.91
d, Delay for Lane Group [s/veh]	23.31	23.92	55.54	19.85	36.94	26.24	22.29	53.75
Lane Group LOS	C	C	E	B	D	C	C	D
Critical Lane Group	No	No	Yes	No	Yes	No	No	Yes

50th-Percentile Queue Length [veh/ln]	4.52	4.15	5.72	1.54	10.50	5.71	1.49	3.75
50th-Percentile Queue Length [ft/ln]	113.03	103.85	143.05	38.40	262.54	142.76	37.32	93.72
95th-Percentile Queue Length [veh/ln]	8.01	7.48	9.65	2.76	15.82	9.63	2.69	6.75
95th-Percentile Queue Length [ft/ln]	200.21	186.93	241.13	69.12	395.40	240.73	67.18	168.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.31	23.59	23.92	55.54	19.85	19.85	36.94	26.24	22.29	53.75	53.75	53.75
Movement LOS	C	C	C	E	B	B	D	C	C	D	D	D
Critical Movement	No	No	No	Yes	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	23.60			43.21			31.48			53.75		
Approach LOS	C			D			C			D		
d_I, Intersection Delay [s/veh]	32.89											
Intersection LOS	C											
Intersection V/C	0.697											

Option 1: Bayfront Expy/Marsh Rd: Mitigation Near Term Plus Project PM

Number	163											
Intersection	Bayfront Expy/Marsh Rd											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name				Marsh Road			Haven Avenue			Bayfront Expressway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	179	40	1834	12	31	5	9	505	208	1822	119	14
Total Analysis Volume [veh/h]	188	42	1944	13	32	5	9	539	218	2517	127	15

Intersection Settings

Cycle Length [s]	160											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	2	3	3	6	4	6	4	1	4	1	2	8
Auxiliary Signal Groups			2,3									
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	Lead	-	-
Minimum Green [s]	10	6	6	10	4	10	4	12	4	12	10	0
Maximum Green [s]	0	0	0	10	0	10	0	0	0	0	0	0
Amber [s]	4.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.7	0.0
All red [s]	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.0	0.5	0.0	1.0	0.0
Split [s]	82	11	11	0	32	0	32	35	32	35	82	0
Walk [s]	5	0	0	10	5	10	5	0	5	0	5	0
Pedestrian Clearance [s]	16	0	0	10	22	10	22	0	22	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall		No	No		No			No			Yes	
Maximum Recall		No	No		No			No			No	
Pedestrian Recall		No	No		No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.08	0.80	0.06	0.06	0.17	0.17	0.17	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.13	0.46	0.02	0.01	0.15	0.16	0.14	0.49	0.09
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3			3	
s, saturation flow rate [veh/h]	1825	4190	1707	1588	1891	1724	1551	5150	1646
c, Capacity [veh/h]	153	3234	137	97	321	293	264	3221	1029
X, volume / capacity	1.50	0.60	0.20	0.23	0.87	0.92	0.83	0.78	0.14
d, Delay for Lane Group [s/veh]	331.44	8.60	71.86	72.00	78.41	89.48	75.65	23.91	12.56
Lane Group LOS	F	A	E	E	E	F	E	C	B
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	Yes	No

50th-Percentile Queue Length [veh/ln]	17.27	9.02	1.10	0.89	12.31	12.85	9.45	23.13	2.21
50th-Percentile Queue Length [ft/ln]	431.84	225.43	27.52	22.30	307.75	321.34	236.36	578.19	55.37
95th-Percentile Queue Length [veh/ln]	27.36	13.94	1.98	1.61	18.06	18.73	14.50	31.01	3.99
95th-Percentile Queue Length [ft/ln]	683.89	348.55	49.54	40.15	451.60	468.33	362.42	775.36	99.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	331.44	331.44	8.60	71.86	71.94	72.00	78.41	83.96	75.65	23.91	12.56	12.56
Movement LOS	F	F	A	E	E	E	E	F	E	C	B	B
Critical Movement	Yes	No	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	42.75			71.92			81.53			23.30		
Approach LOS	D			E			F			C		
d_I, Intersection Delay [s/veh]	39.11											
Intersection LOS	D											
Intersection V/C	0.899											

Option 1: Willow Rd/Bay Rd: Mitigation Near Term Plus Project PM

Number	21					
Intersection	Willow Rd/Bay Rd					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Willow Road		Willow Road		Bay Road	
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	20	1201	678	100	241	40
Total Analysis Volume [veh/h]	21	1288	762	0	248	0

Intersection Settings

Cycle Length [s]	48					
Coordination Type	Free Running					
Actuation Type	Fully actuated					
Lost time [s]	11.00					
Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	10	20	20	4	4
Maximum Green [s]	16	36	36	36	36	36
Amber [s]	3.0	4.5	4.5	4.5	3.2	3.2
All red [s]	0.5	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30
Walk [s]	0	0	7	7	0	0
Pedestrian Clearance [s]	0	0	18	18	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes	Yes		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.02	0.70	0.61	0.61	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.01	0.81	0.21	0.00	0.07	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	1810	1585	3555	1615	3486	1596
c, Capacity [veh/h]	39	1108	2166	984	395	181
X, volume / capacity	0.53	1.16	0.35	0.00	0.63	0.00
d, Delay for Lane Group [s/veh]	29.10	84.80	5.15	0.00	22.47	0.00
Lane Group LOS	C	F	A	A	C	A
Critical Lane Group	No	Yes	No	No	Yes	No

50th-Percentile Queue Length [veh/ln]	0.28	14.44	1.23	0.00	1.34	0.00
50th-Percentile Queue Length [ft/ln]	7.03	361.12	30.81	0.00	33.62	0.00
95th-Percentile Queue Length [veh/ln]	0.51	23.09	2.22	0.00	2.42	0.00
95th-Percentile Queue Length [ft/ln]	12.65	577.14	55.46	0.00	60.52	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.10	84.80	5.15	0.00	22.47	0.00
Movement LOS	C	F	A	A	C	A
Critical Movement	No	Yes	No	No	No	No
d_A, Approach Delay [s/veh]	83.90		5.15		22.47	
Approach LOS	F		A		C	
d_I, Intersection Delay [s/veh]	51.46					
Intersection LOS	D					
Intersection V/C	1.124					

Option 1: Willow Rd/Coleman Ave: Mitigation Near Term Plus Project PM

Number	23											
Intersection	Willow Rd/Coleman Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Coleman Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	13	693	5	2	685	100	73	2	36	15	4	6
Total Analysis Volume [veh/h]	14	813	5	2	819	111	81	2	40	16	4	7

Intersection Settings

Cycle Length [s]	100											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	10	10	10	10	10	10	4	4	4	0	4	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	73	73	73	73	73	73	27	27	27	0	27	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	11	11	11	13	13	13	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.78	0.78	0.78	0.78	0.78	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.44	0.00	0.00	0.52	0.09	0.02
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3	3
s, saturation flow rate [veh/h]	611	1853	1555	682	1798	1407	1465
c, Capacity [veh/h]	382	1438	1207	463	1395	260	266
X, volume / capacity	0.04	0.57	0.00	0.00	0.67	0.47	0.10
d, Delay for Lane Group [s/veh]	12.61	6.09	2.53	9.16	7.74	41.23	37.52
Lane Group LOS	B	A	A	A	A	D	D
Critical Lane Group	No	No	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	0.18	5.79	0.02	0.02	7.39	2.90	0.59
50th-Percentile Queue Length [ft/ln]	4.42	144.69	0.50	0.50	184.68	72.60	14.83
95th-Percentile Queue Length [veh/ln]	0.32	9.73	0.04	0.04	11.84	5.23	1.07
95th-Percentile Queue Length [ft/ln]	7.96	243.32	0.90	0.91	296.11	130.68	26.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.61	6.09	2.53	9.16	7.74	7.74	41.23	41.23	41.23	37.52	37.52	37.52
Movement LOS	B	A	A	A	A	A	D	D	D	D	D	D
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	6.18			7.74			41.23			37.52		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	9.63											
Intersection LOS	A											
Intersection V/C	0.650											

Option 1: Willow Rd/Durham St-VA Med Entrance: Mitigation Near Term Plus Project PM

Number	22											
Intersection	Willow Rd/Durham St-VA Med Entrance											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			VA Medical Center			Durham Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	9	1029	4	29	522	18	132	1	31	21	6	17
Total Analysis Volume [veh/h]	10	1197	4	33	648	20	147	1	14	23	7	19

Intersection Settings

Cycle Length [s]	40											
Coordination Type	Free Running											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	30	30	4	30	30	4	4	4	4	4	4
Maximum Green [s]	30	100	100	30	100	100	30	30	30	30	30	30
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	30	30	0	30	30	30	30	30	30	30	30
Walk [s]	0	7	7	0	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	0	11	11	0	15	15	15	15	15	15	15	15
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	Yes	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.80	0.74	0.74	0.80	0.76	0.76	0.12	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.72	0.72	0.06	0.35	0.02	0.05	0.09	0.01	0.02	0.02
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3	
s, saturation flow rate [veh/h]	505	836	835	545	1861	1230	1331	1025	1305	1412	1634
c, Capacity [veh/h]	422	621	620	218	1407	929	180	185	160	77	200
X, volume / capacity	0.02	0.97	0.97	0.15	0.46	0.02	0.33	0.48	0.09	0.30	0.13
d, Delay for Lane Group [s/veh]	3.41	40.06	40.16	30.34	6.02	3.67	53.31	55.11	47.14	61.87	47.48
Lane Group LOS	A	D	D	C	A	A	D	E	D	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No

50th-Percentile Queue Length [veh/ln]	0.05	17.21	17.21	0.15	5.70	0.12	1.85	2.77	0.40	0.76	0.72
50th-Percentile Queue Length [ft/ln]	1.14	430.17	430.34	3.81	142.48	2.94	46.15	69.31	9.96	18.89	18.07
95th-Percentile Queue Length [veh/ln]	0.08	24.01	24.02	0.27	9.61	0.21	3.32	4.99	0.72	1.36	1.30
95th-Percentile Queue Length [ft/ln]	2.05	600.24	600.45	6.86	240.36	5.29	83.08	124.76	17.92	34.01	32.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.41	40.11	40.16	30.34	6.02	3.67	54.37	55.11	47.14	61.87	47.48	47.48
Movement LOS	A	D	D	C	A	A	D	E	D	E	D	D
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	39.81			7.10			53.75			54.23		
Approach LOS	D			A			D			D		
d_I, Intersection Delay [s/veh]	30.40											
Intersection LOS	C											
Intersection V/C	0.859											

Option 1: Willow Rd/Gilbert Ave: Mitigation Near Term Plus Project PM

Number	24											
Intersection	Willow Rd/Gilbert Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Gilbert Avenue			Gilbert Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	3	656	63	54	657	10	14	31	5	75	50	58
Total Analysis Volume [veh/h]	3	731	80	66	738	10	15	32	5	84	52	61

Intersection Settings

Cycle Length [s]	100											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	12	12	12	12	12	12	5	5	5	0	5	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	73	73	73	73	73	73	27	27	27	0	27	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	14	14	14	14	14	14	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.13	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.00	0.39	0.05	0.09	0.40	0.01	0.02	0.06	0.07
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3		3	
s, saturation flow rate [veh/h]	725	1855	1564	736	1854	1259	1814	1384	1670
c, Capacity [veh/h]	528	1462	1233	539	1461	128	236	196	217
X, volume / capacity	0.01	0.50	0.06	0.12	0.51	0.12	0.16	0.43	0.52
d, Delay for Lane Group [s/veh]	6.91	4.93	2.46	7.78	5.05	46.62	38.95	45.60	42.53
Lane Group LOS	A	A	A	A	A	D	D	D	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes

50th-Percentile Queue Length [veh/ln]	0.03	4.39	0.31	0.61	4.57	0.38	0.83	2.10	2.72
50th-Percentile Queue Length [ft/ln]	0.65	109.73	7.66	15.30	114.15	9.43	20.82	52.62	68.09
95th-Percentile Queue Length [veh/ln]	0.05	7.83	0.55	1.10	8.07	0.68	1.50	3.79	4.90
95th-Percentile Queue Length [ft/ln]	1.16	195.63	13.78	27.54	201.75	16.97	37.47	94.71	122.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.91	4.93	2.46	7.78	5.05	5.05	46.62	38.95	38.95	45.60	42.53	42.53
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	4.69			5.27			41.16			43.84		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.06											
Intersection LOS	B											
Intersection V/C	0.507											

Option 1: Willow Rd (SR 114)/Hamilton Ave: Mitigation Near Term Plus Project PM

Number	17											
Intersection	Willow Rd (SR 114)/Hamilton Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Hamilton Avenue			Hamilton Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	43	1365	7	138	707	54	83	17	35	193	18	99
Total Analysis Volume [veh/h]	49	1645	8	158	1230	61	94	19	40	219	20	117

Intersection Settings

Cycle Length [s]	130											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	9.00											
Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	2	5	2	6	4	8	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	5	10	10	4	10	10	4	5	4	5	4	5
Maximum Green [s]	10	30	30	10	30	30	26	26	26	26	26	26
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.2	3.0	3.2	3.0	3.2
All red [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
Split [s]	20	77	74	17	74	77	36	36	36	36	36	36
Walk [s]	0	7	7	7	7	7	5	5	5	5	5	5
Pedestrian Clearance [s]	0	19	15	15	15	19	25	25	25	25	25	25
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	Yes	Yes		Yes	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.76	0.70	0.70	0.76	0.71	0.71	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.10	0.47	0.01	0.41	0.79	0.79	0.15	0.27
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3	3
s, saturation flow rate [veh/h]	498	3518	1144	382	826	808	1033	1340
c, Capacity [veh/h]	162	2452	798	295	585	572	233	265
X, volume / capacity	0.30	0.67	0.01	0.54	1.11	1.12	0.66	1.34
d, Delay for Lane Group [s/veh]	40.01	12.66	6.01	21.12	90.56	94.82	53.63	228.07
Lane Group LOS	D	B	A	C	F	F	D	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	0.38	12.25	0.07	1.55	26.97	27.06	5.00			21.50		
50th-Percentile Queue Length [ft/ln]	9.53	306.31	1.66	38.77	674.36	676.42	125.09			537.54		
95th-Percentile Queue Length [veh/ln]	0.69	17.99	0.12	2.79	38.73	39.11	8.67			33.22		
95th-Percentile Queue Length [ft/ln]	17.15	449.82	2.98	69.79	968.34	977.87	216.80			830.62		

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.01	12.66	6.01	21.12	92.57	94.82	53.63	53.63	53.63	228.07	228.07	228.07
Movement LOS	D	B	A	C	F	F	D	D	D	F	F	F
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	13.42			84.87			53.63			228.07		
Approach LOS	B			F			D			F		
d_I, Intersection Delay [s/veh]	64.27											
Intersection LOS	E											
Intersection V/C	1.020											

Option 1: Willow Rd (SR 114)/Newbridge St: Mitigation Near Term Plus Project PM

Number	20											
Intersection	Willow Rd (SR 114)/Newbridge St											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Newbridge Street			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	268	1560	138	78	1171	26	27	170	206	160	255	56
Total Analysis Volume [veh/h]	295	1810	152	87	1648	30	31	187	34	176	284	12

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	2	1	6	6	7	4	4	3	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	4	12	12	4	12	12	5	4	4	4	5	5
Maximum Green [s]	21	40	40	21	40	40	30	25	25	21	30	30
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0
Split [s]	19	49	49	8	38	38	9	32	32	31	54	54
Walk [s]	0	5	5	0	7	7	0	5	5	5	0	0
Pedestrian Clearance [s]	0	19	19	0	16	16	0	23	23	23	0	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.13	0.62	0.62	0.04	0.52	0.52	0.03	0.15	0.15	0.07	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.16	0.83	0.84	0.05	0.68	0.68	0.02	0.10	0.02	0.05	0.15	0.01
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1791	1562	788	1810	1654	817	1754	1834	1514	3409	1834	1520
c, Capacity [veh/h]	239	961	485	76	867	428	49	274	226	232	333	276
X, volume / capacity	1.23	1.35	1.37	1.14	1.29	1.30	0.64	0.68	0.15	0.76	0.85	0.04
d, Delay for Lane Group [s/veh]	183.49	188.09	201.61	133.39	169.64	179.02	70.74	49.47	44.47	56.88	53.76	40.58
Lane Group LOS	F	F	F	F	F	F	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No

50th-Percentile Queue Length [veh/ln]	15.77	33.85	35.97	3.94	29.00	29.77	1.11	5.39	0.89	2.68	8.77	0.30
50th-Percentile Queue Length [ft/ln]	394.34	846.20	899.16	98.53	724.97	744.30	27.70	134.75	22.30	66.95	219.34	7.50
95th-Percentile Queue Length [veh/ln]	24.34	53.23	56.59	7.09	44.88	46.02	1.99	9.20	1.61	4.82	13.63	0.54
95th-Percentile Queue Length [ft/ln]	608.49	1330.65	1414.87	177.35	1121.93	1150.52	49.85	229.94	40.14	120.52	340.78	13.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	183.49	191.91	201.61	133.39	172.64	179.02	70.74	49.47	44.47	56.88	53.76	40.58
Movement LOS	F	F	F	F	F	F	E	D	D	E	D	D
Critical Movement	No	No	Yes	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	191.46			170.81			51.41			54.59		
Approach LOS	F			F			D			D		
d_I, Intersection Delay [s/veh]	162.73											
Intersection LOS	F											
Intersection V/C	1.180											

Attachment 3. Intersection Level of Service Results

Cumulative (2040) Plus Project Conditions

Vistro File: H:\...\2040(c)_AM.vistro
Report File: H:\...\Cumulative+Project_AM.pdf
Scenario 16 141 Jefferson - Cum Plus Proj AM
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	1.044	36.7	D
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.810	32.9	C
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.795	40.0	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	NB Right	0.835	28.6	C
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	EB Left	1.042	81.2	F
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NWB Left	0.784	66.5	E
10	Middlefield Rd/Ringswood Ave	Signalized	HCM 6th Edition	NEB Left	0.395	13.1	B
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Left	1.171	101.0	F
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	NB Thru	1.572	325.5	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	NB Right	1.663	332.7	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	NB Thru	1.632	245.5	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	NB Thru	1.701	250.0	F
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	NB Right	1.763	391.8	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.265	186.8	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	1.658	286.1	F
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.509	157.1	F
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	NB Thru	1.376	121.7	F
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.732	73.0	E

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	EB Right	1.185	80.7	F
110	Marsh Road and US 101 NB Ramps	Signalized	HCM 6th Edition	NB Thru	1.068	34.5	C
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	1.068	101.8	F
165	Willow & 101 SB Ramps	Signalized	HCM 6th Edition	SB Right	1.963	157.4	F
168	Willow & 101 NB Ramps	Signalized	HCM 6th Edition	NWB Right	1.954	264.3	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	WB Left	1.139	61.6	E
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	WB Left	0.791	11.9	B
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	SB Right	0.862	85.3	F
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Left	1.453	372.4	F
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.275	46.6	E
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	WB Right	3.816	360.5	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.

Vistro File: H:\...\2040(c)_PM.vistro
Report File: H:\...\Cumulative+Project_PM.pdf
Scenario 16 141 Jefferson - Cum Plus Proj PM
9/30/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Marsh Rd (SR 84)/US 101 SB Offramp	Signalized	HCM 6th Edition	SEB Left	0.924	41.1	D
2	Marsh Rd/Rolison Rd-Scott Dr	Signalized	HCM 6th Edition	NEB Left	0.667	22.9	C
3	Marsh Rd/Florence St-Bohannon Dr	Signalized	HCM 6th Edition	NB Left	0.836	46.1	D
4	Marsh Rd/Bay Rd	Signalized	HCM 6th Edition	SB Left	0.714	19.9	B
5	Middlefield Rd/Marsh Rd	Signalized	HCM 6th Edition	WB Right	0.975	53.4	D
9	Middlefield Rd/Ravenswood Ave	Signalized	HCM 6th Edition	NWB Left	2.147	24.6	C
10	Middlefield Rd/Ringwood Ave	Signalized	HCM 6th Edition	SWB Right	0.600	26.3	C
15	Bayfront Expy (SR 84) /University Ave (SR 109)	Signalized	HCM 6th Edition	NWB Right	1.394	215.2	F
16	Bayfront Expy (SR 84)/Willow Rd (SR 114)	Signalized	HCM 6th Edition	SB Thru	2.077	372.4	F
17	Willow Rd (SR 114)/Hamilton Ave	Signalized	HCM 6th Edition	WB Left	4.230	563.9	F
18	Willow Rd (SR 114)/Ivy Dr	Signalized	HCM 6th Edition	SB Right	1.930	421.1	F
19	Willow Rd (SR 114)/O'Brien Dr	Signalized	HCM 6th Edition	SB Thru	1.939	328.8	F
20	Willow Rd (SR 114) /Newbridge St	Signalized	HCM 6th Edition	SB Right	1.873	433.2	F
21	Willow Rd/Bay Rd	Signalized	HCM 6th Edition	SWB Thru	1.880	398.7	F
22	Willow Rd/Durham St-VA Med Entrance	Signalized	HCM 6th Edition	SB Thru	1.722	243.1	F
23	Willow Rd/Coleman Ave	Signalized	HCM 6th Edition	NB Thru	1.216	74.0	E
24	Willow Rd/Gilbert Ave	Signalized	HCM 6th Edition	NB Thru	1.217	99.4	F
25	Middlefield Rd-Willow Rd	Signalized	HCM 6th Edition	NWB Right	0.731	41.7	D

40	Bay Rd/Ringwood Ave/Sonoma Ave	All-way stop	HCM 6th Edition	NB Right	1.168	66.1	F
110	Marsh Road/101 NB Ramps	Signalized	HCM 6th Edition	WB Right	0.927	17.5	B
163	Bayfront Expy/Marsh Rd	Signalized	HCM 6th Edition	NB Left	0.939	36.9	D
165	Willow & 101 SB Ramps	Signalized	HCM 6th Edition	SB Right	1.305	112.3	F
168	Willow & 101 NB Ramps	Signalized	HCM 6th Edition	SB Thru	1.946	368.2	F
195	Bayfront Expy/Chilco St	Signalized	HCM 6th Edition	NB Right	1.174	67.2	E
196	Bayfront Expy/Chrysler Drive	Signalized	HCM 6th Edition	NB Left	1.002	58.4	E
207	Chilco St/Constitution Dr	Signalized	HCM 6th Edition	EB Left	1.498	252.2	F
213	Chrysler Dr/Independence Dr	Two-way stop	HCM 6th Edition	SEB Thru	0.011	22.9	C
214	Chrysler Dr/Jefferson Dr	Two-way stop	HCM 6th Edition	NWB Left	0.176	140.5	F
215	Chrysler Dr/Constitution Dr	Signalized	HCM 6th Edition	SB Left	2.540	233.2	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.

Attachment 3. Intersection Level of Service Results

Cumulative (2040) Plus Project Conditions, Mitigated

Option 1: Bayfront Expy/Chilco St: Mitigation Cumulative Plus Project AM

Number	195					
Intersection	Bayfront Expy/Chilco St					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Chilco Street		Bayfront Expy		Bayfront Expy	
Approach	Northbound		Westbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Base Volume Input [veh/h]	205	281	514	2726	1494	535
Total Analysis Volume [veh/h]	216	308	582	2853	1607	563

Intersection Settings

Cycle Length [s]	100					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Fully actuated					
Lost time [s]	9.00					
Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal Group	4	4	5	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lag	-	Lead	-	-	-
Minimum Green [s]	5	5	5	5	5	0
Maximum Green [s]	20	20	25	50	50	0
Amber [s]	3.2	3.2	3.6	5.2	5.2	0.0
All red [s]	0.5	0.5	0.5	1.0	1.0	0.0
Split [s]	37	37	28	63	35	0
Walk [s]	7	7	0	0	7	0
Pedestrian Clearance [s]	26	26	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	No	No	
Pedestrian Recall	No		No	No	No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.19	0.19	0.19	0.23	0.72	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.13	0.13	0.13	0.38	0.63	0.36	0.40
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3	
s, saturation flow rate [veh/h]	1585	1194	1171	1548	4518	4470	1393
c, Capacity [veh/h]	296	223	218	361	3258	2010	626
X, volume / capacity	0.71	0.71	0.72	1.61	0.88	0.80	0.90
d, Delay for Lane Group [s/veh]	54.26	58.21	59.25	329.44	12.14	26.11	40.77
Lane Group LOS	D	E	E	F	B	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes

50th-Percentile Queue Length [veh/ln]	6.25	4.95	4.98	37.97	12.48	10.68	14.26
50th-Percentile Queue Length [ft/ln]	156.14	123.78	124.41	949.29	312.05	266.91	356.41
95th-Percentile Queue Length [veh/ln]	10.34	8.60	8.63	59.29	18.28	16.04	20.45
95th-Percentile Queue Length [ft/ln]	258.61	215.01	215.87	1482.18	456.90	400.88	511.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.86	58.80	329.44	12.14	26.11	40.77
Movement LOS	D	E	F	B	C	D
Critical Movement	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	56.94		65.90		29.91	
Approach LOS	E		E		C	
d_I, Intersection Delay [s/veh]	52.39					
Intersection LOS	D					
Intersection V/C	0.998					

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Option 1: Chilco St/Constitution Dr: Mitigation Cumulative Plus Project AM

Number	207											
Intersection	Chilco St/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chilco Street			Chilco Street			Constitution Drive			Constitution Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	134	207	196	766	193	570	129	20	79	42	28	84
Total Analysis Volume [veh/h]	137	211	200	782	197	621	144	20	81	43	29	86

Intersection Settings

Cycle Length [s]	110											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	3	8	0	7	4	0	0	2	2	0	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	9	31	0	17	39	0	0	31	31	0	31	0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	20	0	20	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
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.11	0.30	0.27	0.46	0.46	0.18	0.18	0.46	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.09	0.31	0.25	0.12	0.43	0.13	0.02	0.07	0.07	0.06
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3			3			3	
s, saturation flow rate [veh/h]	1572	1322	3105	1664	1454	1114	1170	1098	1014	1365
c, Capacity [veh/h]	171	390	852	766	669	200	210	505	152	128
X, volume / capacity	0.80	1.05	0.92	0.26	0.93	0.72	0.10	0.16	0.47	0.67
d, Delay for Lane Group [s/veh]	52.54	96.08	40.30	16.97	46.85	44.14	35.02	16.08	47.21	50.54
Lane Group LOS	D	F	D	B	D	D	D	B	D	D
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	Yes	No

50th-Percentile Queue Length [veh/ln]	3.74	15.92	9.73	2.79	17.26	3.62	0.42	1.10	1.85	2.29
50th-Percentile Queue Length [ft/ln]	93.45	397.89	243.25	69.73	431.46	90.55	10.60	27.48	46.34	57.32
95th-Percentile Queue Length [veh/ln]	6.73	23.20	14.85	5.02	24.07	6.52	0.76	1.98	3.34	4.13
95th-Percentile Queue Length [ft/ln]	168.22	580.01	371.14	125.52	601.79	163.00	19.08	49.47	83.42	103.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.54	96.08	96.08	40.30	16.97	46.85	44.14	35.02	16.08	47.21	47.21	50.31
Movement LOS	D	F	F	D	B	D	D	D	B	D	D	D
Critical Movement	No	Yes	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	85.19			39.97			34.12			49.02		
Approach LOS	F			D			C			D		
d_I, Intersection Delay [s/veh]	49.68											
Intersection LOS	D											
Intersection V/C	0.763											

Option 1: Chrysler Dr/Constitution Dr: Mitigation Cumulative Plus Project AM

Number	215											
Intersection	Chrysler Dr/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chrysler Drive			Constitution Drive			Constitution Drive			Chrysler Drive		
Approach	Southbound			Eastbound			Westbound			Northeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	79	417	97	89	250	327	119	74	162	4	231	88
Total Analysis Volume [veh/h]	88	451	79	82	277	414	129	79	180	2	276	97

Intersection Settings

Cycle Length [s]	90											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Split	Split	Split
Signal Group	0	6	0	3	8	0	7	4	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	25	0	0	46	0	0	46	0	0	19	0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	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
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.34	0.08	0.16	0.29	0.41	0.13	0.14	0.14
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3			3		3	
s, saturation flow rate [veh/h]	1461	1543	1006	1699	1414	509	1341	1467	1195
c, Capacity [veh/h]	500	529	88	584	486	242	461	259	211
X, volume / capacity	0.18	1.00	0.93	0.47	0.85	0.86	0.39	0.78	0.82
d, Delay for Lane Group [s/veh]	20.24	66.53	74.09	23.05	38.86	65.61	22.25	39.39	42.36
Lane Group LOS	C	F	E	C	D	E	C	D	D
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	Yes

50th-Percentile Queue Length [veh/ln]	1.24	16.03	2.50	4.41	9.27	6.51	2.78	4.37	3.92
50th-Percentile Queue Length [ft/ln]	31.09	400.78	62.38	110.15	231.87	162.67	69.40	109.18	97.88
95th-Percentile Queue Length [veh/ln]	2.24	22.64	4.49	7.85	14.27	10.69	5.00	7.79	7.05
95th-Percentile Queue Length [ft/ln]	55.96	566.00	112.28	196.21	356.74	267.26	124.92	194.86	176.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.24	66.53	66.53	74.09	23.05	38.86	65.61	65.61	22.25	39.39	40.21	42.36
Movement LOS	C	E	E	E	C	D	E	E	C	D	D	D
Critical Movement	No	No	No	Yes	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	59.94			36.93			45.49			40.76		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	45.74											
Intersection LOS	D											
Intersection V/C	0.897											

Option 1: Chrysler Dr/Independence Dr: Mitigation Cumulative Plus Project AM_Roundabout

Number	213											
Intersection	Chrysler Dr/Independence Dr											
Control Type	Roundabout											
Analysis Method	HCM 6th Edition											
Name	Chrysler Drive			Chrysler Drive						Independence Drive		
Approach	Northbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	53	67	5	31	136	199	29	11	91	169	2	72
Total Analysis Volume [veh/h]	71	106	7	43	196	236	40	15	126	256	3	100

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	345			130			443			391		
Exiting Flow Rate [veh/h]	405			498			97			322		
Demand Flow Rate [veh/h]	51	76	5	31	141	170	29	11	91	184	2	72
Adjusted Demand Flow Rate [veh/h]	71	106	7	43	196	236	40	15	126	256	3	100

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.95	0.85	0.98	1.00
Entry Flow Rate [veh/h]	195	558	185	359
Capacity of Entry and Bypass Lanes [veh/h]	971	1209	879	926
Pedestrian Impedance	0.99	1.00	1.00	0.97
Capacity per Entry Lane [veh/h]	910	1030	859	901
X, volume / capacity	0.20	0.46	0.21	0.40

Movement, Approach, & Intersection Results

Average Lane Delay [s/veh]	5.97	8.77	6.36	8.61
Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.76	2.48	0.79	1.93
95th-Percentile Queue Length [ft]	18.88	62.05	19.85	48.33
Approach Delay [s/veh]	5.97	8.77	6.36	8.61
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.93			
Intersection LOS	A			

Option 2: Chrysler Dr/Independence Dr: Mitigation Cumulative Plus Project AM_Signal

Number	213											
Intersection	Chrysler Dr/Independence Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chrysler Drive			Chrysler Drive						Independence Drive		
Approach	Northbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	53	67	5	31	136	199	29	11	91	169	2	72
Total Analysis Volume [veh/h]	71	106	7	43	196	236	40	15	126	256	3	100

Intersection Settings

Cycle Length [s]	70											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	4	0	0	8	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	45	0	0	45	0	0	25	0	0	25	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	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
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.49	0.49	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.21	0.45	0.12	0.29
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900
Arrival type	3	3	3	3
s, saturation flow rate [veh/h]	857	1046	1549	1238
c, Capacity [veh/h]	531	600	612	548
X, volume / capacity	0.35	0.79	0.30	0.66
d, Delay for Lane Group [s/veh]	7.08	15.60	11.81	15.42
Lane Group LOS	A	B	B	B
Critical Lane Group	No	Yes	No	Yes

50th-Percentile Queue Length [veh/ln]	0.80	3.87	1.24	3.09
50th-Percentile Queue Length [ft/ln]	19.99	96.63	30.90	77.26
95th-Percentile Queue Length [veh/ln]	1.44	6.96	2.22	5.56
95th-Percentile Queue Length [ft/ln]	35.98	173.94	55.62	139.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.08	7.08	7.08	15.60	15.60	15.60	11.81	11.81	11.81	15.42	15.42	15.42
Movement LOS	A	A	A	B	B	B	B	B	B	B	B	B
Critical Movement	No	No	No	No	No	Yes	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	7.08			15.60			11.81			15.42		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	13.66											
Intersection LOS	B											
Intersection V/C	0.744											

Option 1: Chrysler Dr/Jefferson Dr: Mitigation Cumulative Plus Project AM_Roundabout

Number	214					
Intersection	Chrysler Dr/Jefferson Dr					
Control Type	Roundabout					
Analysis Method	HCM 6th Edition					
Name	Chrysler Drive		Chrysler Drive		Jefferson Drive	
Approach	Southbound		Northeastbound		Northwestbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	333	298	120	69	25	107
Total Analysis Volume [veh/h]	429	299	118	115	29	146

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	29		441		149	
Exiting Flow Rate [veh/h]	321		359		564	
Demand Flow Rate [veh/h]	390	272	107	105	26	133
Adjusted Demand Flow Rate [veh/h]	429	299	118	115	29	146

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.95	0.86	0.87
Entry Flow Rate [veh/h]	770	271	201
Capacity of Entry and Bypass Lanes [veh/h]	1340	881	1186
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1268	760	1033
X, volume / capacity	0.57	0.31	0.17

Movement, Approach, & Intersection Results

Average Lane Delay [s/veh]	9.47	8.36	5.04
Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	3.83	1.30	0.61
95th-Percentile Queue Length [ft]	95.75	32.54	15.21
Approach Delay [s/veh]	9.47	8.36	5.04
Approach LOS	A	A	A
Intersection Delay [s/veh]	8.56		
Intersection LOS	A		

Option 2: Chrysler Dr/Jefferson Dr: Mitigation Cumulative Plus Project AM_Signal

Number	214					
Intersection	Chrysler Dr/Jefferson Dr					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Chrysler Drive		Chrysler Drive		Jefferson Drive	
Approach	Southbound		Northeastbound		Northwestbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	333	298	120	69	25	107
Total Analysis Volume [veh/h]	429	299	118	115	29	146

Intersection Settings

Cycle Length [s]	70					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Fully actuated					
Lost time [s]	0.00					
Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	8	4	0	2	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	5	5	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	48	48	0	22	0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		No	
Pedestrian Recall		No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.67	0.67	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.75	0.19	0.02	0.12
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900
Arrival type	3	3	3	
s, saturation flow rate [veh/h]	965	1249	1629	1245
c, Capacity [veh/h]	774	837	246	188
X, volume / capacity	0.94	0.28	0.12	0.78
d, Delay for Lane Group [s/veh]	31.69	3.17	16.64	25.04
Lane Group LOS	C	A	B	C
Critical Lane Group	Yes	No	No	Yes

50th-Percentile Queue Length [veh/ln]	9.46	0.38	0.25	1.66
50th-Percentile Queue Length [ft/ln]	236.62	9.62	6.19	41.48
95th-Percentile Queue Length [veh/ln]	14.51	0.69	0.45	2.99
95th-Percentile Queue Length [ft/ln]	362.75	17.31	11.14	74.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.69	31.69	3.17	3.17	16.64	25.04
Movement LOS	C	C	A	A	B	C
Critical Movement	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	31.69		3.17		23.64	
Approach LOS	C		A		C	
d_I, Intersection Delay [s/veh]	24.60					
Intersection LOS	C					
Intersection V/C	0.872					

Option 1: Bayfront Expy/Marsh Rd: Mitigation Cumulative Plus Project AM

Number	163											
Intersection	Bayfront Expy/Marsh Rd											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name				Marsh Road			Haven Avenue			Bayfront Expressway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	199	49	1832	10	35	8	9	212	385	2677	407	34
Total Analysis Volume [veh/h]	207	51	1921	10	36	8	9	245	401	2801	439	35

Intersection Settings

Cycle Length [s]	160											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	2	3	3	6	4	6	4	1	4	8	2	8
Auxiliary Signal Groups		3	2,3									
Lead / Lag	Lag	-	-	-	-	-	Lag	-	-	-	-	-
Minimum Green [s]	10	6	6	0	4	0	4	12	4	0	10	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	4.7	3.6	3.6	0.0	3.6	0.0	3.6	3.6	3.6	0.0	4.7	0.0
All red [s]	1.0	1.0	1.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0	1.0	0.0
Split [s]	82	11	11	0	32	0	32	35	32	0	82	0
Walk [s]	5	0	0	0	5	0	5	5	5	0	5	0
Pedestrian Clearance [s]	16	0	0	0	22	0	22	26	22	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No	No		No			No			Yes	
Maximum Recall		No	No		No			No			No	
Pedestrian Recall		No	No		Yes			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.09	0.60	0.18	0.18	0.18	0.18	0.18	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.14	0.47	0.02	0.02	0.15	0.16	0.16	0.55	0.26
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3			3	
s, saturation flow rate [veh/h]	1827	4119	1867	1608	1624	1221	1434	5075	1792
c, Capacity [veh/h]	166	2386	340	293	289	217	255	2534	895
X, volume / capacity	1.55	0.81	0.08	0.09	0.83	0.88	0.88	1.11	0.53
d, Delay for Lane Group [s/veh]	347.89	29.43	54.41	54.46	77.40	89.47	86.63	94.11	29.52
Lane Group LOS	F	C	D	D	E	F	F	F	C
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	19.59	19.57	0.97	0.88	10.58	9.13	10.53	45.32	13.03
50th-Percentile Queue Length [ft/ln]	489.73	489.28	24.16	21.93	264.51	228.36	263.22	1132.98	325.78
95th-Percentile Queue Length [veh/ln]	30.85	26.83	1.74	1.58	15.91	14.09	15.85	60.99	18.95
95th-Percentile Queue Length [ft/ln]	771.21	670.66	43.49	39.48	397.87	352.28	396.26	1524.85	473.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	347.89	347.89	29.43	54.41	54.43	54.46	77.40	78.11	87.81	94.11	29.52	29.52
Movement LOS	F	F	C	D	D	D	E	E	F	F	C	C
Critical Movement	Yes	No	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	67.13			54.43			84.08			84.76		
Approach LOS	E			D			F			F		
d_I, Intersection Delay [s/veh]	78.19											
Intersection LOS	E											
Intersection V/C	0.936											

Option 1: Willow Rd/Bay Rd: Mitigation Cumulative Plus Project AM

Number	21					
Intersection	Willow Rd/Bay Rd					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Willow Road		Willow Road		Bay Road	
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	67	1278	1264	445	363	60
Total Analysis Volume [veh/h]	67	1324	1292	149	367	0

Intersection Settings

Cycle Length [s]	48					
Coordination Type	Free Running					
Actuation Type	Fully actuated					
Lost time [s]	11.00					
Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	10	20	20	4	4
Maximum Green [s]	16	36	36	36	36	36
Amber [s]	3.0	4.5	4.5	4.5	3.2	3.2
All red [s]	0.5	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30
Walk [s]	0	0	7	7	0	0
Pedestrian Clearance [s]	0	0	18	18	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes	Yes		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.05	0.70	0.59	0.59	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.83	0.82	0.10	0.11	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	1788	1588	1580	1554	3422	1597
c, Capacity [veh/h]	89	1104	930	915	500	233
X, volume / capacity	0.75	1.20	1.39	0.16	0.73	0.00
d, Delay for Lane Group [s/veh]	33.48	103.68	191.16	5.83	25.78	0.00
Lane Group LOS	C	F	F	A	C	A
Critical Lane Group	Yes	No	Yes	No	Yes	No

50th-Percentile Queue Length [veh/ln]	1.04	18.58	27.40	0.66	2.44	0.00
50th-Percentile Queue Length [ft/ln]	25.99	464.53	685.11	16.54	61.04	0.00
95th-Percentile Queue Length [veh/ln]	1.87	29.31	44.41	1.19	4.40	0.00
95th-Percentile Queue Length [ft/ln]	46.78	732.76	1110.16	29.77	109.88	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.48	103.68	191.16	5.83	25.78	0.00
Movement LOS	C	F	F	A	C	A
Critical Movement	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	100.30		172.00		25.78	
Approach LOS	F		F		C	
d_I, Intersection Delay [s/veh]	124.05					
Intersection LOS	F					
Intersection V/C	1.174					

Option 1: Willow Rd/Coleman Ave: Mitigation Cumulative Plus Project AM

Number	23											
Intersection	Willow Rd/Coleman Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Coleman Avenue			Coleman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	28	914	7	4	961	120	207	6	56	4	4	6
Total Analysis Volume [veh/h]	29	1000	7	4	1035	129	222	6	59	4	4	6

Intersection Settings

Cycle Length [s]	150											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	10	10	10	10	10	10	4	4	4	0	4	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	109	109	109	109	109	109	41	41	41	0	41	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	11	11	11	13	13	13	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		Yes			Yes			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.73	0.73	0.73	0.73	0.73	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.06	0.55	0.00	0.01	0.65	0.21	0.01
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3	3
s, saturation flow rate [veh/h]	473	1829	1568	572	1801	1392	1739
c, Capacity [veh/h]	154	1332	1142	271	1311	345	409
X, volume / capacity	0.19	0.75	0.01	0.01	0.89	0.83	0.03
d, Delay for Lane Group [s/veh]	50.85	16.16	5.58	28.14	24.87	72.05	46.34
Lane Group LOS	D	B	A	C	C	E	D
Critical Lane Group	No	No	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	1.03	20.62	0.06	0.10	31.22	12.12	0.43
50th-Percentile Queue Length [ft/ln]	25.83	515.56	1.60	2.45	780.47	303.06	10.66
95th-Percentile Queue Length [veh/ln]	1.86	28.07	0.12	0.18	40.38	17.83	0.77
95th-Percentile Queue Length [ft/ln]	46.49	701.75	2.89	4.42	1009.55	445.81	19.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.85	16.16	5.58	28.14	24.87	24.87	72.05	72.05	72.05	46.34	46.34	46.34
Movement LOS	D	B	A	C	C	C	E	E	E	D	D	D
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	17.06			24.89			72.05			46.34		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	27.17											
Intersection LOS	C											
Intersection V/C	0.894											

Option 1: Willow Rd/Durham St-VA Med Entrance: Mitigation Cumulative Plus Project AM

Number	22											
Intersection	Willow Rd/Durham St-VA Med Entrance											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			VA Medical Center			Durham Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	30	1184	18	41	1058	108	65	7	30	74	18	108
Total Analysis Volume [veh/h]	31	1275	19	47	1127	113	68	7	25	77	19	119

Intersection Settings

Cycle Length [s]	40											
Coordination Type	Free Running											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	30	30	4	30	30	4	4	4	4	4	4
Maximum Green [s]	30	100	100	30	100	100	30	30	30	30	30	30
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	30	30	0	30	30	30	30	30	30	30	30
Walk [s]	0	7	7	0	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	0	11	11	0	15	15	15	15	15	15	15	15
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.74	0.68	0.68	0.74	0.69	0.69	0.20	0.20	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.05	0.76	0.76	0.09	0.59	0.07	0.03	0.05	0.02	0.05	0.09
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3	
s, saturation flow rate [veh/h]	573	850	845	509	1900	1565	1263	757	1565	1426	1605
c, Capacity [veh/h]	266	579	576	153	1302	1072	189	199	317	144	326
X, volume / capacity	0.12	1.12	1.12	0.31	0.87	0.11	0.18	0.21	0.08	0.53	0.42
d, Delay for Lane Group [s/veh]	21.56	97.91	98.76	41.71	24.54	7.90	60.02	58.18	47.44	70.61	51.86
Lane Group LOS	C	F	F	D	C	A	E	E	D	E	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	Yes

50th-Percentile Queue Length [veh/ln]	0.29	30.78	30.73	0.44	30.59	1.26	1.20	1.49	0.78	3.00	4.58
50th-Percentile Queue Length [ft/ln]	7.16	769.60	768.14	10.99	764.64	31.56	30.11	37.13	19.59	75.04	114.53
95th-Percentile Queue Length [veh/ln]	0.52	43.77	43.75	0.79	39.66	2.27	2.17	2.67	1.41	5.40	8.09
95th-Percentile Queue Length [ft/ln]	12.89	1094.19	1093.78	19.77	991.39	56.81	54.21	66.84	35.26	135.07	202.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.56	98.33	98.76	41.71	24.54	7.90	59.10	58.18	47.44	70.61	51.86	51.86
Movement LOS	C	F	F	D	C	A	E	E	D	E	D	D
Critical Movement	No	No	Yes	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	96.54			23.71			56.11			58.58		
Approach LOS	F			C			E			E		
d_I, Intersection Delay [s/veh]	60.35											
Intersection LOS	E											
Intersection V/C	0.901											

Option 1: Willow Rd/Gilbert Ave: Mitigation Cumulative Plus Project AM

Number	24											
Intersection	Willow Rd/Gilbert Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Gilbert Avenue			Gilbert Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	7	751	72	49	991	4	64	121	29	102	126	113
Total Analysis Volume [veh/h]	8	849	78	58	1097	4	70	132	32	111	137	129

Intersection Settings

Cycle Length [s]	150											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	12	12	12	12	12	12	5	5	5	0	5	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	116	116	116	116	116	116	34	34	34	0	34	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	14	14	14	14	14	14	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		Yes			Yes			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.75	0.75	0.75	0.75	0.75	0.20	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.02	0.47	0.05	0.09	0.60	0.06	0.09	0.09	0.15
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3		3	
s, saturation flow rate [veh/h]	520	1822	1450	621	1845	1107	1807	1202	1718
c, Capacity [veh/h]	232	1359	1082	364	1376	93	360	176	343
X, volume / capacity	0.03	0.62	0.07	0.16	0.80	0.76	0.46	0.63	0.78
d, Delay for Lane Group [s/veh]	31.98	11.24	5.23	20.93	16.97	84.67	53.69	69.61	66.27
Lane Group LOS	C	B	A	C	B	F	D	E	E
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes

50th-Percentile Queue Length [veh/ln]	0.21	13.41	0.69	1.23	23.53	3.03	5.62	4.41	10.56
50th-Percentile Queue Length [ft/ln]	5.36	335.34	17.27	30.86	588.28	75.75	140.58	110.16	263.92
95th-Percentile Queue Length [veh/ln]	0.39	19.42	1.24	2.22	31.49	5.45	9.51	7.85	15.89
95th-Percentile Queue Length [ft/ln]	9.65	485.51	31.09	55.55	787.16	136.34	237.80	196.23	397.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.98	11.24	5.23	20.93	16.97	16.97	84.67	53.69	53.69	69.61	66.27	66.27
Movement LOS	C	B	A	C	B	B	F	D	D	E	E	E
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	10.91			17.17			62.96			67.25		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	25.95											
Intersection LOS	C											
Intersection V/C	0.789											

Option 1: Willow Rd (SR 114)/Hamilton Ave: Cumulative Plus Project AM

Number	17											
Intersection	Willow Rd (SR 114)/Hamilton Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Hamilton Avenue			Hamilton Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	170	1531	97	161	1097	57	78	22	50	26	25	78
Total Analysis Volume [veh/h]	183	1668	231	210	1217	61	84	24	54	103	27	105

Intersection Settings

Cycle Length [s]	130											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	9.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	2	5	2	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	10	10	4	10	10	4	4	4	4	4	4
Maximum Green [s]	10	30	30	10	30	30	26	26	26	26	26	26
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.2	3.2	3.2
All red [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
Split [s]	20	77	74	17	74	77	36	36	36	36	36	36
Walk [s]	0	7	7	0	7	7	5	5	5	5	5	5
Pedestrian Clearance [s]	0	19	15	0	15	19	25	25	25	25	25	25
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.12	0.59	0.59	0.11	0.58	0.58	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.10	0.49	0.16	0.13	0.36	0.04	0.13	0.18
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3	3
s, saturation flow rate [veh/h]	1787	3438	1467	1679	3378	1372	1231	1284
c, Capacity [veh/h]	206	2022	863	181	1961	796	296	329
X, volume / capacity	0.89	0.82	0.27	1.16	0.62	0.08	0.55	0.71
d, Delay for Lane Group [s/veh]	80.58	25.36	13.72	174.65	19.35	12.10	43.33	53.15
Lane Group LOS	F	C	B	F	B	B	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes

50th-Percentile Queue Length [veh/ln]	7.20	19.78	3.32	11.81	12.07	0.82	4.57		7.78			
50th-Percentile Queue Length [ft/ln]	180.03	494.54	82.94	295.31	301.87	20.55	114.30		194.60			
95th-Percentile Queue Length [veh/ln]	11.60	27.08	5.97	18.50	17.77	1.48	8.08		12.36			
95th-Percentile Queue Length [ft/ln]	290.05	676.89	149.30	462.49	444.34	36.99	201.97		308.99			

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	80.58	25.36	13.72	174.65	19.35	12.10	43.33	43.33	43.33	53.15	53.15	53.15
Movement LOS	F	C	B	F	B	B	D	D	D	D	D	D
Critical Movement	No	No	No	Yes	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	28.92			40.97			43.33			53.15		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	35.46											
Intersection LOS	D											
Intersection V/C	0.852											

Option 1: Willow Rd (SR 114)/Newbridge St: Mitigation Cumulative Plus Project AM

Number	20											
Intersection	Willow Rd (SR 114)/Newbridge St											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Newbridge Street			BayRoad		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	163	2050	180	52	1204	10	67	306	509	332	146	51
Total Analysis Volume [veh/h]	173	2386	191	69	1403	17	83	335	495	353	161	41

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	2	1	6	6	7	4	4	3	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	4	12	12	4	12	12	5	4	4	4	5	5
Maximum Green [s]	21	40	40	21	40	40	30	25	25	21	30	30
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0
Split [s]	16	59	59	8	51	51	38	39	39	14	15	15
Walk [s]	0	5	5	0	7	7	0	5	5	0	0	0
Pedestrian Clearance [s]	0	19	19	0	16	16	0	23	23	0	0	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.11	0.45	0.45	0.04	0.38	0.38	0.06	0.29	0.29	0.09	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.10	0.49	0.51	0.04	0.29	0.01	0.05	0.18	0.32	0.10	0.09	0.03
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1781	3455	1729	1781	4767	1199	1655	1838	1559	3434	1787	1571
c, Capacity [veh/h]	193	1549	775	74	1820	458	105	536	454	321	560	492
X, volume / capacity	0.90	1.09	1.14	0.93	0.77	0.04	0.79	0.63	1.09	1.10	0.29	0.08
d, Delay for Lane Group [s/veh]	61.98	86.11	110.72	74.15	35.73	23.41	67.71	38.22	110.81	103.55	31.39	29.12
Lane Group LOS	E	F	F	E	D	C	E	D	F	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No

50th-Percentile Queue Length [veh/ln]	5.55	32.51	37.84	2.45	12.43	0.33	2.84	8.70	21.84	7.04	3.59	0.85
50th-Percentile Queue Length [ft/ln]	138.64	812.63	945.88	61.23	310.65	8.21	70.88	217.44	546.02	175.97	89.71	21.32
95th-Percentile Queue Length [veh/ln]	9.41	44.74	52.67	4.41	18.21	0.59	5.10	13.53	31.12	11.78	6.46	1.53
95th-Percentile Queue Length [ft/ln]	235.20	1118.51	1316.74	110.21	455.17	14.77	127.58	338.35	777.96	294.51	161.48	38.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	61.98	93.24	110.72	74.15	35.73	23.41	67.71	38.22	110.81	103.55	31.39	29.12
Movement LOS	E	F	F	E	D	C	E	D	F	F	C	C
Critical Movement	No	No	No	No	No	No	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	92.49			37.37			80.26			77.12		
Approach LOS	F			D			F			E		
d_I, Intersection Delay [s/veh]	74.66											
Intersection LOS	E											
Intersection V/C	1.077											

Option 1: Bayfront Expy/Chilco St: Mitigation Cumulative Plus Project PM

Number	195					
Intersection	Bayfront Expy/Chilco St					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Chilco Street		Bayfront Expy		Bayfront Expressway (SR 84)	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Base Volume Input [veh/h]	386	576	2416	206	159	1335
Total Analysis Volume [veh/h]	415	662	2559	222	189	1469

Intersection Settings

Cycle Length [s]	100					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Fully actuated					
Lost time [s]	9.00					
Control Type	Permissive	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	4	0	6	0	5	2
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	5	0	5	5
Maximum Green [s]	20	0	50	0	10	50
Amber [s]	3.0	0.0	5.0	0.0	3.0	5.0
All red [s]	0.5	0.0	0.5	0.0	0.0	0.5
Split [s]	54	0	35	0	11	46
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	26	0	21	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	Yes		No		No	No
Pedestrian Recall	Yes		No		No	No
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.30	0.30	0.30	0.50	0.50	0.10	0.63
(v / s)_i Volume / Saturation Flow Rate	0.20	0.23	0.23	0.51	0.14	0.13	0.30
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3	
s, saturation flow rate [veh/h]	1731	1604	1551	5049	1579	1508	4979
c, Capacity [veh/h]	522	484	468	2517	787	151	3129
X, volume / capacity	0.68	0.75	0.77	1.02	0.28	1.25	0.47
d, Delay for Lane Group [s/veh]	37.62	41.57	43.39	38.09	14.80	201.92	9.90
Lane Group LOS	D	D	D	F	B	F	A
Critical Lane Group	No	No	Yes	Yes	No	Yes	No

50th-Percentile Queue Length [veh/ln]	8.38	9.07	9.28	21.47	2.89	10.28	5.18
50th-Percentile Queue Length [ft/ln]	209.41	226.71	231.99	536.87	72.13	256.96	129.55
95th-Percentile Queue Length [veh/ln]	13.12	14.01	14.28	29.46	5.19	16.83	8.92
95th-Percentile Queue Length [ft/ln]	328.08	350.18	356.88	736.42	129.83	420.69	222.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.16	42.55	38.09	14.80	201.92	9.90
Movement LOS	D	D	F	B	F	A
Critical Movement	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	40.88		36.23		31.79	
Approach LOS	D		D		C	
d_I, Intersection Delay [s/veh]	35.81					
Intersection LOS	D					
Intersection V/C	0.951					

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Option 1: Chilco St/Constitution Dr: Mitigation Cumulative Plus Project PM

Number	207											
Intersection	Chilco St/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chilco Street			Chilco Street			Constitution Drive			Constitution Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	31	237	51	131	327	109	411	37	258	239	101	585
Total Analysis Volume [veh/h]	35	269	58	149	372	143	513	42	293	272	115	665

Intersection Settings

Cycle Length [s]	130											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal Group	3	8	0	7	4	0	0	2	2	0	6	0
Auxiliary Signal Groups									2,3			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	9	31	0	12	34	0	0	32	32	0	55	0
Walk [s]	0	5	0	0	5	0	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	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
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	Yes		No	Yes			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.04	0.20	0.07	0.23	0.23	0.22	0.22	0.55	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.03	0.20	0.05	0.22	0.10	0.32	0.04	0.21	0.40	0.45
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3			3			3	
s, saturation flow rate [veh/h]	1353	1638	2868	1659	1454	1582	1035	1424	996	1442
c, Capacity [veh/h]	54	328	199	381	334	341	223	778	390	565
X, volume / capacity	0.65	1.00	0.75	0.98	0.43	1.51	0.19	0.38	1.02	1.16
d, Delay for Lane Group [s/veh]	73.90	101.21	64.91	90.44	46.78	293.16	42.11	17.88	89.81	128.22
Lane Group LOS	E	F	E	F	D	F	D	B	F	F
Critical Lane Group	No	No	No	Yes	No	Yes	No	Yes	No	Yes

50th-Percentile Queue Length [veh/ln]	1.33	15.11	2.57	16.25	4.32	33.98	1.14	5.20	17.70	31.67
50th-Percentile Queue Length [ft/ln]	33.21	377.66	64.18	406.36	108.04	849.45	28.48	130.12	442.42	791.69
95th-Percentile Queue Length [veh/ln]	2.39	21.48	4.62	22.87	7.73	52.33	2.05	8.95	24.95	45.10
95th-Percentile Queue Length [ft/ln]	59.78	537.02	115.52	571.66	193.27	1308.37	51.26	223.66	623.85	1127.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.90	101.21	101.21	64.91	90.44	46.78	293.16	42.11	17.88	89.81	89.81	122.89
Movement LOS	E	F	F	E	F	D	F	D	B	F	F	F
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	98.57			75.31			185.61			113.67		
Approach LOS	F			E			F			F		
d_I, Intersection Delay [s/veh]	123.95											
Intersection LOS	F											
Intersection V/C	1.160											

Option 1: Chrysler Dr/Constitution Dr: Mitigation Cumulative Plus Project PM

Number	215											
Intersection	Chrysler Dr/Constitution Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chrysler Drive			Chrysler Drive			Constitution Drive			Constitution Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	3	762	147	334	94	27	538	325	82	15	17	283
Total Analysis Volume [veh/h]	2	790	144	334	95	16	474	322	99	14	16	283

Intersection Settings

Cycle Length [s]	90											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	4	0	0	8	0	5	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	4	0	0	4	0	4	4	0	0	4	0
Maximum Green [s]	0	26	0	0	46	0	16	26	0	0	21	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	41	0	0	41	0	11	27	0	0	22	0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	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
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.25	0.25	0.25	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.29	0.30	0.62	0.07	0.29	0.19	0.08	0.03	0.20
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3			3	
s, saturation flow rate [veh/h]	1705	1467	541	1666	1609	1686	1313	1011	1384
c, Capacity [veh/h]	743	605	159	687	410	429	334	202	277
X, volume / capacity	0.68	0.72	2.10	0.16	1.16	0.75	0.30	0.15	1.02
d, Delay for Lane Group [s/veh]	26.93	29.21	556.13	17.17	126.92	35.73	27.54	30.03	86.51
Lane Group LOS	C	C	F	B	F	D	C	C	F
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	Yes

50th-Percentile Queue Length [veh/ln]	9.43	8.47	26.28	1.50	19.27	6.84	1.73	0.55	9.80
50th-Percentile Queue Length [ft/ln]	235.77	211.84	657.05	37.57	481.74	170.98	43.26	13.70	245.09
95th-Percentile Queue Length [veh/ln]	14.47	13.25	46.46	2.70	28.71	11.13	3.11	0.99	15.11
95th-Percentile Queue Length [ft/ln]	361.68	331.18	1161.55	67.62	717.72	278.20	77.86	24.67	377.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.93	27.77	29.21	556.13	17.17	17.17	126.92	35.73	27.54	30.03	30.03	86.51
Movement LOS	C	C	C	F	B	B	F	D	C	C	C	F
Critical Movement	No	No	No	Yes	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	27.99			421.69			83.12			81.10		
Approach LOS	C			F			F			F		
d_I, Intersection Delay [s/veh]	121.14											
Intersection LOS	F											
Intersection V/C	1.116											

Option 1: Chrysler Dr/Independence Dr: Mitigation Cumulative Plus Project PM_Roundabout

Number	213											
Intersection	Chrysler Dr/Independence Dr											
Control Type	Roundabout											
Analysis Method	HCM 6th Edition											
Name	Chrysler Drive									Independence Drive		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	39	139	0	1	28	84	2	0	15	316	5	67
Total Analysis Volume [veh/h]	46	176	0	1	46	88	2	0	18	320	6	79

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	346			48			566			50		
Exiting Flow Rate [veh/h]	127			538			8			134		
Demand Flow Rate [veh/h]	38	144	0	1	38	72	2	0	15	262	5	65
Adjusted Demand Flow Rate [veh/h]	46	176	0	1	46	88	2	0	18	320	6	79

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	1.00	1.00	0.96
Entry Flow Rate [veh/h]	228	136	20	424
Capacity of Entry and Bypass Lanes [veh/h]	970	1315	776	1312
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	948	1309	775	1256
X, volume / capacity	0.23	0.10	0.03	0.32

Movement, Approach, & Intersection Results

Average Lane Delay [s/veh]	6.13	3.58	4.90	5.84
Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.91	0.34	0.08	1.41
95th-Percentile Queue Length [ft]	22.74	8.61	1.99	35.24
Approach Delay [s/veh]	6.13	3.58	4.90	5.84
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	5.51			
Intersection LOS	A			

Option 2: Chrysler Dr/Independence Dr: Mitigation Cumulative Plus Project PM_Signal

Number	213											
Intersection	Chrysler Dr/Independence Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Chrysler Drive									Independence Drive		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	39	139	0	1	28	84	2	0	15	316	5	67
Total Analysis Volume [veh/h]	46	176	0	1	46	88	2	0	18	320	6	79

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	4	0	0	8	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	90	0	0	90	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	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
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.20	0.20	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.13	0.08	0.01	0.29
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900
Arrival type	3	3	3	3
s, saturation flow rate [veh/h]	1648	1637	1545	1413
c, Capacity [veh/h]	563	521	779	868
X, volume / capacity	0.39	0.26	0.03	0.47
d, Delay for Lane Group [s/veh]	7.22	6.69	3.75	5.37
Lane Group LOS	A	A	A	A
Critical Lane Group	Yes	No	No	Yes

50th-Percentile Queue Length [veh/ln]	0.36	0.21	0.01	0.27
50th-Percentile Queue Length [ft/ln]	9.12	5.20	0.23	6.68
95th-Percentile Queue Length [veh/ln]	0.66	0.37	0.02	0.48
95th-Percentile Queue Length [ft/ln]	16.42	9.36	0.42	12.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.22	7.22	7.22	6.69	6.69	6.69	3.75	3.75	3.75	5.37	5.37	5.37
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Movement	No	Yes	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	7.22			6.69			3.75			5.37		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.08											
Intersection LOS	A											
Intersection V/C	0.421											

Option 1: Chrysler Dr/Jfferson Dr: Mitigation Cumulative Plus Project PM_Roundabout

Number	214					
Intersection	Chrysler Dr/Jefferson Dr					
Control Type	Roundabout					
Analysis Method	HCM 6th Edition					
Name			Chrysler Drive		Jefferson Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Base Volume Input [veh/h]	428	185	151	86	23	371
Total Analysis Volume [veh/h]	428	235	207	93	33	541

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	253		33		431	
Exiting Flow Rate [veh/h]	166		984		656	
Demand Flow Rate [veh/h]	364	200	176	79	28	460
Adjusted Demand Flow Rate [veh/h]	428	235	207	93	33	541

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.85	0.78	0.98
Entry Flow Rate [veh/h]	783	384	586
Capacity of Entry and Bypass Lanes [veh/h]	1067	1335	889
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	904	1043	871
X, volume / capacity	0.73	0.29	0.66

Movement, Approach, & Intersection Results

Average Lane Delay [s/veh]	17.80	6.28	15.05
Lane LOS	C	A	C
95th-Percentile Queue Length [veh]	6.76	1.20	5.10
95th-Percentile Queue Length [ft]	168.97	29.90	127.55
Approach Delay [s/veh]	17.80	6.28	15.05
Approach LOS	C	A	C
Intersection Delay [s/veh]	14.52		
Intersection LOS	B		

Option 2: Chrysler Dr/Jefferson Dr: Mitigation Cumulative Plus Project PM_Signal

Number	214					
Intersection	Chrysler Dr/Jefferson Dr					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name			Chrysler Drive		Jefferson Drive	
Approach	Northeastbound		Southwestbound		Northwestbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Base Volume Input [veh/h]	428	185	151	86	23	371
Total Analysis Volume [veh/h]	428	235	207	93	33	541

Intersection Settings

Cycle Length [s]	100					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Fully actuated					
Lost time [s]	0.00					
Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	4	0	0	8	2	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	5	0	0	5	5	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	78	0	0	78	22	0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.47	0.47	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.41	0.84	0.02	0.38
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900
Arrival type	3	3	3	
s, saturation flow rate [veh/h]	1599	359	1629	1428
c, Capacity [veh/h]	751	264	660	579
X, volume / capacity	0.88	1.14	0.05	0.94
d, Delay for Lane Group [s/veh]	26.25	122.95	11.57	35.57
Lane Group LOS	C	F	B	D
Critical Lane Group	No	Yes	No	Yes

50th-Percentile Queue Length [veh/ln]	9.69		11.08		0.26	9.47
50th-Percentile Queue Length [ft/ln]	242.36		277.09		6.60	236.80
95th-Percentile Queue Length [veh/ln]	14.80		17.95		0.48	14.52
95th-Percentile Queue Length [ft/ln]	370.01		448.69		11.88	362.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.25	26.25	122.95	122.95	11.57	35.57
Movement LOS	C	C	F	F	B	D
Critical Movement	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	26.25		122.95		34.19	
Approach LOS	C		F		C	
d_I, Intersection Delay [s/veh]	48.09					
Intersection LOS	D					
Intersection V/C	1.215					

Option 1: Bayfront Expy/Marsh Rd: Mitigation Cumulative Plus Project PM

Number	163											
Intersection	Bayfront Expy/Marsh Rd											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name				Marsh Road			Haven Avenue			Bayfront Expressway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	180	40	2131	16	31	5	9	518	209	2657	132	14
Total Analysis Volume [veh/h]	188	42	2220	17	32	5	9	540	218	2782	166	15

Intersection Settings

Cycle Length [s]	160											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal Group	2	3	3	6	4	6	4	1	4	8	2	8
Auxiliary Signal Groups			2,3									
Lead / Lag	Lag	-	-	-	-	-	Lag	-	-	-	-	-
Minimum Green [s]	10	6	6	0	4	0	4	12	4	0	10	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	4.7	3.6	3.6	0.0	3.6	0.0	3.6	3.6	3.6	0.0	4.7	0.0
All red [s]	1.0	1.0	1.0	0.0	0.5	0.0	0.5	0.0	0.5	0.0	1.0	0.0
Split [s]	82	11	11	0	32	0	32	35	32	0	82	0
Walk [s]	5	0	0	0	5	0	5	0	5	0	5	0
Pedestrian Clearance [s]	16	0	0	0	22	0	22	0	22	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No	No		No			No			Yes	
Maximum Recall		No	No		No			No			No	
Pedestrian Recall		No	No		No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.08	0.79	0.04	0.04	0.17	0.17	0.17	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.13	0.53	0.02	0.01	0.15	0.16	0.14	0.54	0.11
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3			3	
s, saturation flow rate [veh/h]	1825	4190	1522	1652	1891	1724	1587	5150	1657
c, Capacity [veh/h]	152	3233	101	72	322	293	270	3311	1066
X, volume / capacity	1.51	0.69	0.30	0.33	0.86	0.92	0.81	0.84	0.17
d, Delay for Lane Group [s/veh]	333.66	10.08	75.29	75.29	78.37	89.60	73.53	24.93	11.79
Lane Group LOS	F	B	E	E	E	F	E	C	B
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	Yes	No

50th-Percentile Queue Length [veh/ln]	17.31	11.80	1.23	0.98	12.32	12.89	9.32	26.98	2.74
50th-Percentile Queue Length [ft/ln]	432.74	294.97	30.85	24.57	308.09	322.36	232.91	674.52	68.39
95th-Percentile Queue Length [veh/ln]	27.42	17.43	2.22	1.77	18.08	18.78	14.32	35.50	4.92
95th-Percentile Queue Length [ft/ln]	685.51	435.80	55.53	44.23	452.02	469.58	358.06	887.49	123.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	333.66	333.66	10.08	75.29	75.29	75.29	78.37	84.00	73.53	24.93	11.79	11.79
Movement LOS	F	F	B	E	E	E	E	F	E	C	B	B
Critical Movement	Yes	No	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	40.46			75.29			80.96			24.13		
Approach LOS	D			E			F			C		
d_I, Intersection Delay [s/veh]	37.98											
Intersection LOS	D											
Intersection V/C	0.939											

Option 1: Willow Rd/Bay Rd: Mitigation Cumulative Plus Project PM

Number	21					
Intersection	Willow Rd/Bay Rd					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Willow Road		Willow Road		Bay Road	
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	35	1276	996	282	504	68
Total Analysis Volume [veh/h]	36	1349	1080	66	523	22

Intersection Settings

Cycle Length [s]	48					
Coordination Type	Free Running					
Actuation Type	Fully actuated					
Lost time [s]	11.00					
Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	6	4	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lag	-
Minimum Green [s]	4	10	20	20	4	4
Maximum Green [s]	16	36	36	36	36	36
Amber [s]	3.0	4.5	4.5	4.5	3.2	3.2
All red [s]	0.5	1.0	1.0	1.0	1.0	1.0
Split [s]	30	30	30	30	30	30
Walk [s]	0	0	7	7	0	0
Pedestrian Clearance [s]	0	0	18	18	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes	Yes		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.03	0.64	0.54	0.54	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.02	0.85	0.30	0.04	0.15	0.01
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	1810	1585	3555	1575	3486	1571
c, Capacity [veh/h]	57	1008	1929	855	673	303
X, volume / capacity	0.63	1.34	0.56	0.08	0.78	0.07
d, Delay for Lane Group [s/veh]	31.42	165.84	8.88	6.24	22.45	18.75
Lane Group LOS	C	F	A	A	C	B
Critical Lane Group	No	Yes	No	No	Yes	No

50th-Percentile Queue Length [veh/ln]	0.52	25.69	3.25	0.29	3.09	0.22
50th-Percentile Queue Length [ft/ln]	13.04	642.30	81.34	7.32	77.24	5.55
95th-Percentile Queue Length [veh/ln]	0.94	41.36	5.86	0.53	5.56	0.40
95th-Percentile Queue Length [ft/ln]	23.47	1033.99	146.42	13.18	139.02	10.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.42	165.84	8.88	6.24	22.45	18.75
Movement LOS	C	F	A	A	C	B
Critical Movement	No	Yes	No	No	No	No
d_A, Approach Delay [s/veh]	162.34		8.73		22.31	
Approach LOS	F		A		C	
d_I, Intersection Delay [s/veh]	80.30					
Intersection LOS	F					
Intersection V/C	1.242					

Option 1: Willow Rd/Coleman Ave: Mitigation Cumulative Plus Project PM

Number	23											
Intersection	Willow Rd/Coleman Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Coleman Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	13	738	5	5	723	96	110	4	36	15	4	6
Total Analysis Volume [veh/h]	14	840	5	5	838	111	124	4	40	16	4	7

Intersection Settings

Cycle Length [s]	100											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	10	10	10	10	10	10	4	4	4	0	4	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	73	73	73	73	73	73	27	27	27	0	27	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	11	11	11	13	13	13	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.02	0.45	0.00	0.01	0.53	0.11	0.02
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3	3
s, saturation flow rate [veh/h]	600	1853	1561	665	1801	1524	1585
c, Capacity [veh/h]	381	1454	1225	456	1413	266	269
X, volume / capacity	0.04	0.58	0.00	0.01	0.67	0.63	0.10
d, Delay for Lane Group [s/veh]	12.21	5.91	2.33	9.03	7.46	44.33	38.27
Lane Group LOS	B	A	A	A	A	D	D
Critical Lane Group	No	No	No	No	Yes	Yes	No

50th-Percentile Queue Length [veh/ln]	0.17	5.75	0.02	0.05	7.17	4.17	0.60
50th-Percentile Queue Length [ft/ln]	4.34	143.70	0.47	1.25	179.33	104.36	14.99
95th-Percentile Queue Length [veh/ln]	0.31	9.68	0.03	0.09	11.57	7.51	1.08
95th-Percentile Queue Length [ft/ln]	7.82	241.99	0.84	2.25	289.14	187.85	26.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.21	5.91	2.33	9.03	7.46	7.46	44.33	44.33	44.33	38.27	38.27	38.27
Movement LOS	B	A	A	A	A	A	D	D	D	D	D	D
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	6.00			7.47			44.33			38.27		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.34											
Intersection LOS	B											
Intersection V/C	0.685											

Option 1: Willow Rd/Durham St-VA Med Entrance: Mitigation Cumulative Plus Project PM

Number	22											
Intersection	Willow Rd/Durham St-VA Med Entrance											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			VA Medical Center			Durham Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	9	1048	10	72	961	39	132	2	31	38	6	177
Total Analysis Volume [veh/h]	10	1197	11	88	1118	43	147	2	14	42	7	202

Intersection Settings

Cycle Length [s]	40											
Coordination Type	Free Running											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	2	1	6	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	30	30	4	30	30	4	4	4	4	4	4
Maximum Green [s]	30	100	100	30	100	100	30	30	30	30	30	30
Amber [s]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	0	30	30	0	30	30	30	30	30	30	30	30
Walk [s]	0	7	7	0	7	7	7	7	7	7	7	7
Pedestrian Clearance [s]	0	11	11	0	15	15	15	15	15	15	15	15
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.74	0.68	0.68	0.74	0.70	0.70	0.20	0.20	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.03	0.72	0.72	0.16	0.60	0.04	0.05	0.23	0.01	0.03	0.13
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3	
s, saturation flow rate [veh/h]	338	836	833	556	1861	1227	1148	391	1306	1437	1564
c, Capacity [veh/h]	168	565	563	165	1295	854	124	127	265	49	317
X, volume / capacity	0.06	1.07	1.07	0.53	0.86	0.05	0.47	0.71	0.05	0.85	0.66
d, Delay for Lane Group [s/veh]	22.17	82.19	82.62	49.73	23.88	7.12	70.78	98.28	47.58	104.93	58.41
Lane Group LOS	C	F	F	D	C	A	E	F	D	F	E
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	No	No

50th-Percentile Queue Length [veh/ln]	0.10	27.73	27.68	1.07	29.92	0.45	2.33	4.57	0.44	2.04	7.63
50th-Percentile Queue Length [ft/ln]	2.43	693.18	692.07	26.69	748.02	11.23	58.19	114.17	11.04	50.96	190.71
95th-Percentile Queue Length [veh/ln]	0.17	38.53	38.51	1.92	38.89	0.81	4.19	8.07	0.79	3.67	12.16
95th-Percentile Queue Length [ft/ln]	4.37	963.37	962.77	48.04	972.29	20.21	104.75	201.79	19.86	91.74	303.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.17	82.40	82.62	49.73	23.88	7.12	87.35	98.28	47.58	104.93	58.41	58.41
Movement LOS	C	F	F	D	C	A	F	F	D	F	E	E
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	81.91			25.12			84.10			66.19		
Approach LOS	F			C			F			E		
d_I, Intersection Delay [s/veh]	56.05											
Intersection LOS	E											
Intersection V/C	1.020											

Option 1: Willow Rd/Gilbert Ave: Mitigation Cumulative Plus Project PM

Number	24											
Intersection	Willow Rd/Gilbert Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road			Willow Road			Gilbert Avenue			Gilbert Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	54	707	77	56	693	63	82	68	93	81	50	54
Total Analysis Volume [veh/h]	56	758	80	66	756	66	85	71	97	84	52	61

Intersection Settings

Cycle Length [s]	100											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Fully actuated											
Lost time [s]	7.00											
Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	2	2	6	6	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	12	12	12	12	12	12	5	5	5	0	5	0
Maximum Green [s]	60	60	60	60	60	60	24	24	24	0	24	0
Amber [s]	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0	3.1	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	73	73	73	73	73	73	27	27	27	0	27	0
Walk [s]	7	7	7	7	7	7	7	7	7	0	7	0
Pedestrian Clearance [s]	14	14	14	14	14	14	15	15	15	0	15	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		Yes			Yes			No			No	
Pedestrian Recall		No			No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.20	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.08	0.41	0.05	0.09	0.45	0.07	0.10	0.07	0.07
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3		3		3	
s, saturation flow rate [veh/h]	676	1855	1567	718	1829	1261	1661	1233	1681
c, Capacity [veh/h]	388	1325	1119	433	1306	228	338	184	342
X, volume / capacity	0.14	0.57	0.07	0.15	0.63	0.37	0.50	0.46	0.33
d, Delay for Lane Group [s/veh]	16.24	8.69	4.41	14.37	9.71	42.21	36.41	46.08	34.55
Lane Group LOS	B	A	A	B	A	D	D	D	C
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No

50th-Percentile Queue Length [veh/ln]	0.83	7.44	0.48	0.90	8.74	2.04	3.74	2.12	2.41
50th-Percentile Queue Length [ft/ln]	20.65	186.08	12.09	22.55	218.43	50.99	93.51	53.11	60.22
95th-Percentile Queue Length [veh/ln]	1.49	11.92	0.87	1.62	13.58	3.67	6.73	3.82	4.34
95th-Percentile Queue Length [ft/ln]	37.18	297.93	21.77	40.60	339.62	91.77	168.32	95.60	108.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.24	8.69	4.41	14.37	9.71	9.71	42.21	36.41	36.41	46.08	34.55	34.55
Movement LOS	B	A	A	B	A	A	D	D	D	D	C	C
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	8.78			10.06			38.36			39.47		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	15.35											
Intersection LOS	B											
Intersection V/C	0.592											

Option 1: Willow Rd (SR 114)/Hamilton Ave: Mitigation Cumulative Plus Project PM

Number	17											
Intersection	Willow Rd (SR 114)/Hamilton Ave											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Hamilton Avenue			Hamilton Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	50	1409	3	137	1829	54	367	34	88	139	18	64
Total Analysis Volume [veh/h]	57	1645	106	174	2097	61	417	39	100	316	20	117

Intersection Settings

Cycle Length [s]	130											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	9.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	2	5	2	6	4	4	4	8	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lag	-	-	Lag	-	-
Minimum Green [s]	4	10	10	4	10	10	4	4	4	4	4	4
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.2	3.2	3.2
All red [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
Split [s]	20	77	74	17	74	77	36	36	36	36	36	36
Walk [s]	0	7	5	7	5	7	5	5	5	5	5	5
Pedestrian Clearance [s]	0	19	10	15	10	19	25	25	25	25	25	25
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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.04	0.56	0.56	0.11	0.63	0.63	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.03	0.47	0.09	0.10	0.60	0.04	0.48	0.31
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3	3
s, saturation flow rate [veh/h]	1781	3518	1160	1699	3518	1565	1150	1451
c, Capacity [veh/h]	73	1979	653	183	2213	984	318	412
X, volume / capacity	0.78	0.83	0.16	0.95	0.95	0.06	1.75	1.10
d, Delay for Lane Group [s/veh]	68.14	27.61	14.19	105.40	32.43	9.42	397.13	124.60
Lane Group LOS	E	C	B	F	C	A	F	F
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes

50th-Percentile Queue Length [veh/ln]	1.97	20.45	1.55	8.11	30.50	0.70	40.91			22.27		
50th-Percentile Queue Length [ft/ln]	49.33	511.14	38.72	202.85	762.49	17.52	1022.66			556.63		
95th-Percentile Queue Length [veh/ln]	3.55	27.86	2.79	12.79	39.56	1.26	65.05			31.74		
95th-Percentile Queue Length [ft/ln]	88.79	696.52	69.69	319.64	988.92	31.53	1626.27			793.41		

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.14	27.61	14.19	105.40	32.43	9.42	397.13	397.13	397.13	124.60	124.60	124.60
Movement LOS	E	C	B	F	C	A	F	F	F	F	F	F
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	28.10			37.27			397.13			124.60		
Approach LOS	C			D			F			F		
d_I, Intersection Delay [s/veh]	80.59											
Intersection LOS	F											
Intersection V/C	1.010											

Option 1: Willow Rd (SR 114)/Newbridge St: Mitigation Cumulative Plus Project PM

Number	20											
Intersection	Willow Rd (SR 114)/Newbridge St											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Willow Road (SR 114)			Willow Road (SR 114)			Newbridge Street			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	301	1484	263	74	2240	22	31	171	233	358	424	130
Total Analysis Volume [veh/h]	331	1786	289	124	2699	37	43	196	64	393	477	120

Intersection Settings

Cycle Length [s]	120											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Fully actuated											
Lost time [s]	12.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	2	1	6	6	7	4	4	3	8	8
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	4	12	12	4	12	12	5	4	4	4	5	5
Maximum Green [s]	0	0	0	0	16	16	30	0	0	0	30	30
Amber [s]	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0
Split [s]	22	69	69	12	59	59	9	32	32	7	30	30
Walk [s]	0	5	5	0	7	7	0	5	5	0	0	0
Pedestrian Clearance [s]	0	19	19	0	16	16	0	23	23	0	0	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
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.16	0.53	0.53	0.08	0.45	0.45	0.03	0.16	0.16	0.10	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.18	0.40	0.41	0.07	0.54	0.02	0.02	0.11	0.04	0.12	0.26	0.08
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1791	3492	1708	1810	5037	1558	1810	1834	1506	3409	1834	1479
c, Capacity [veh/h]	282	1860	910	136	2268	702	57	297	244	359	417	336
X, volume / capacity	1.17	0.74	0.76	0.91	1.19	0.05	0.75	0.66	0.26	1.10	1.14	0.36
d, Delay for Lane Group [s/veh]	160.08	24.39	28.17	99.26	123.23	18.70	75.01	48.10	44.08	101.55	135.33	39.37
Lane Group LOS	F	C	C	F	F	B	E	D	D	F	F	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No

50th-Percentile Queue Length [veh/ln]	16.84	14.65	15.87	5.42	40.50	0.62	1.57	5.57	1.68	7.79	22.65	3.03
50th-Percentile Queue Length [ft/ln]	421.01	366.36	396.75	135.39	1012.58	15.53	39.31	139.33	42.09	194.78	566.15	75.71
95th-Percentile Queue Length [veh/ln]	25.40	20.93	22.40	9.23	57.59	1.12	2.83	9.44	3.03	12.80	32.80	5.45
95th-Percentile Queue Length [ft/ln]	634.91	523.31	560.08	230.80	1439.77	27.96	70.76	236.12	75.76	320.05	820.05	136.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	160.08	25.25	28.17	99.26	123.23	18.70	75.01	48.10	44.08	101.55	135.33	39.37
Movement LOS	F	C	C	F	F	B	E	D	D	F	F	D
Critical Movement	Yes	No	No	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	44.15			120.84			51.07			110.29		
Approach LOS	D			F			D			F		
d_I, Intersection Delay [s/veh]	87.89											
Intersection LOS	F											
Intersection V/C	1.116											

Attachment 4. Roadway Segment Level of Service Results

LOS Estimates Worksheet for the Study Roadway Segments under Cumulative (2040) Conditions

No.	Route	Segment	(1) Roadway Type	(2) Directional Capacity (vph)[1]	(3) 2018 Peak Hour Volume (Both Dir)[2]	(4) 2040 Peak Hour Volume (Both Dir)[3]	(5) Directional (D) Factor[4]	(6) 2018 Peak Hour Volume (Peak Dir)[5]	(7) 2018 v/c[6]	(8) 2040 Peak Hour Volume (Peak Dir)[5]	(9) 2040 v/c[6]	(10) v/c Increase[7]	(11) Existing LOS[8]	(12) Equivalent Existing v/c[9]	(13) Estimated 2040 v/c[9]	(14) 2040 LOS[9]
								(3) x (5)	(6) / (2)	(4) x (5)	(8) / (2)	(9) - (7)			(12) + (10)	
1	Bayfront Expressway (SR 84)	Bayshore Freeway (US 101) - Willow Road (SR 114)	Arterial	3300	4,700	11,657	0.65	3,067	0.93	7,606	2.30	1.38	C	0.80	2.18	**F**
2	Bayfront Expressway (SR 84)	Willow Road (SR 114) - University Avenue (SR 109)	Arterial	3300	7,300	14,593	0.65	4,763	1.44	9,522	2.89	1.44	**F**	>1	>1	**F**
3	Bayfront Expressway (SR 84)	University Avenue (SR 109) - San Mateo County Line	Arterial	3300	7,500	11,633	0.65	4,894	1.48	7,591	2.30	0.82	F	>1	>1	F
4	University Avenue (SR 109)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	Arterial	2200	4,000	9,247	0.66	2,647	1.20	6,119	2.78	1.58	**F**	>1	>1	**F**
5	Willow Road (SR 114)	Bayshore Freeway (US 101) - Bayfront Expressway (SR 84)	Arterial	2200	5,100	11,797	0.52	2,634	1.20	6,093	2.77	1.57	C	0.80	2.37	**F**
6	Bayshore Freeway (US 101)	North of Marsh Road	Freeway	9200	16,000	17,980	0.53	8,501	0.92	9,553	1.04	0.11	F	>1	>1	F
7	Bayshore Freeway (US 101)	Marsh Road - Willow Road (SR 114)	Freeway	9200	14,600	15,667	0.53	7,757	0.84	8,324	0.90	0.06	F	>1	>1	F
8	Bayshore Freeway (US 101)	Willow Road (SR 114) - University Avenue (SR 109)	Freeway	9200	15,500	16,567	0.53	8,235	0.90	8,802	0.96	0.06	F	>1	>1	F
9	Bayshore Freeway (US 101)	South of University Avenue (SR 109)	Freeway	9200	15,800	16,040	0.53	8,395	0.91	8,522	0.93	0.01	F	>1	>1	F

Note:

[1]Capacity is shown by direction. Freeway capacity = 2,300 vphpl for 6-lane segments, 2,200 vphpl for 4-lane segments. Arterial capacity is based on 60 percent green time of 1,900 vphpl or about 1,100 vphpl (Appendix B, San Mateo County Congestion Management Program 2019).

[2]Caltrans traffic data 2018.

[3]Cumulative (2040) volumes are based on a linear forecast using Caltrans's ADT data between 2013-2018, https://dot.ca.gov/programs/traffic-operations/census

[4]Directional (D) factors are based on Caltrans traffic data 2017. The D factors for University Avenue (SR 109) and Willow Road (SR 114) are based on 2019 traffic counts at the adjacent intersections.

[5]Peak direction hourly volume = Both directions hourly volume x D Factor

[6]v/c = Peak direction hourly volume / Directional Capacity

[7]v/c increase = 2040 v/c - 2018 v/c

[8]San Mateo County Congestion Management Program 2019

[9]Use LOS-v/c criteria based on the CMP methodologies for arterials and freeways (Appendix B, San Mateo County Congestion Management Program 2019) The worst v/c is shown.

Bold text - indicates the segment operates exceeds LOS standard.

APPENDIX F

AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA

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Menlo Uptown Project

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	512.00	Space	0.30	106,156.00	0
City Park	2.20	Acre	2.20	95,832.00	0
Apartments Mid Rise	441.00	Dwelling Unit	2.00	383,433.00	1261
Condo/Townhouse	42.00	Dwelling Unit	0.33	82,126.00	120
Strip Mall	2.10	1000sqft	0.00	2,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E, 2015)

Land Use - The proposed project would develop three residential buildings totaling approximately 466,000 square feet of gross floor area with a total of 483 residential units, 2,100 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements.

Construction Phase - Construction is expected to begin May 2021 and end summer 2024. Phasing based on assumptions provided by Project Applicant. Architectural Coating and Paving phases are default duration.

Grading - Approximately 16,500 cubic yards of soil import.

Demolition - Approximately 118,944 building square footage to be demolished.

Vehicle Trips - Based on trip generation prepared for the project.

Woodstoves - Assuming no hearth as the proposed project would not increase the demand for natural gas as the City's REACH codes would require the buildings to be all electric

Stationary Sources - Emergency Generators and Fire Pumps - Emergency Generators and Fire Pumps - Assuming the emergency generators would run 30 minutes per month.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment

Energy Mitigation - Assuming compliance with 2019 Title 24 standards, installation of high efficiency lighting, and energy-efficient appliances.

Water Mitigation - Assuming low-flow appliances.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	887.00
tblConstructionPhase	NumDays	20.00	53.00
tblConstructionPhase	NumDays	8.00	38.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	5.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblFireplaces	NumberGas	66.15	0.00
tblFireplaces	NumberGas	6.30	0.00
tblFireplaces	NumberNoFireplace	17.64	441.00
tblFireplaces	NumberNoFireplace	1.68	42.00
tblFireplaces	NumberWood	74.97	0.00
tblFireplaces	NumberWood	7.14	0.00
tblGrading	MaterialImported	0.00	16,500.00
tblLandUse	LandUseSquareFeet	204,800.00	106,156.00
tblLandUse	LandUseSquareFeet	441,000.00	383,433.00
tblLandUse	LandUseSquareFeet	42,000.00	82,126.00
tblLandUse	LotAcreage	4.61	0.30
tblLandUse	LotAcreage	11.61	2.00
tblLandUse	LotAcreage	2.63	0.33
tblLandUse	LotAcreage	0.05	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	268.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.02
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	6.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	ST_TR	6.39	6.29
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	0.00
tblVehicleTrips	ST_TR	42.04	0.00

tblVehicleTrips	SU_TR	5.86	6.29
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	6.65	6.29
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4670	4.4617	3.4340	9.1400e-003	0.8421	0.1796	1.0217	0.3482	0.1670	0.5152	0.0000	827.3701	827.3701	0.1254	0.0000	830.5061
2022	0.5003	3.8884	4.2837	0.0126	0.6227	0.1327	0.7554	0.1677	0.1248	0.2925	0.0000	1,140.3244	1,140.3244	0.1122	0.0000	1,143.1292
2023	0.4555	3.3707	4.1057	0.0123	0.6207	0.1137	0.7344	0.1672	0.1069	0.2741	0.0000	1,110.6152	1,110.6152	0.1079	0.0000	1,113.3133
2024	3.5020	1.4311	1.8179	5.3200e-003	0.2682	0.0462	0.3144	0.0722	0.0434	0.1156	0.0000	481.2247	481.2247	0.0495	0.0000	482.4626
Maximum	**3.5020**	**4.4617**	**4.2837**	**0.0126**	**0.8421**	**0.1796**	**1.0217**	**0.3482**	**0.1670**	**0.5152**	**0.0000**	**1,140.3244**	**1,140.3244**	**0.1254**	**0.0000**	**1,143.1292**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2780	4.8672	3.7471	9.1400e-003	0.5397	0.1297	0.6694	0.2000	0.1295	0.3295	0.0000	827.3696	827.3696	0.1254	0.0000	830.5056
2022	0.4024	5.1308	4.5201	0.0126	0.6227	0.1475	0.7701	0.1677	0.1471	0.3147	0.0000	1,140.3240	1,140.3240	0.1122	0.0000	1,143.1287
2023	0.3788	4.8011	4.3600	0.0123	0.6207	0.1455	0.7662	0.1672	0.1451	0.3123	0.0000	1,110.6147	1,110.6147	0.1079	0.0000	1,113.3129
2024	3.4746	2.1738	1.9417	5.3200e-003	0.2682	0.0670	0.3352	0.0722	0.0669	0.1391	0.0000	481.2245	481.2245	0.0495	0.0000	482.4624
Maximum	**3.4746**	**5.1308**	**4.5201**	**0.0126**	**0.6227**	**0.1475**	**0.7701**	**0.2000**	**0.1471**	**0.3295**	**0.0000**	**1,140.3240**	**1,140.3240**	**0.1254**	**0.0000**	**1,143.1287**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**7.94**	**-29.05**	**-6.80**	**0.00**	**12.85**	**-3.70**	**10.08**	**19.62**	**-10.51**	**8.49**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-3-2021**	**8-2-2021**	2.0775	1.9479
2	**8-3-2021**	**11-2-2021**	2.0222	2.2340
3	**11-3-2021**	**2-2-2022**	1.1821	1.4196
4	**2-3-2022**	**5-2-2022**	1.0729	1.3519
5	**5-3-2022**	**8-2-2022**	1.1008	1.3891
6	**8-3-2022**	**11-2-2022**	1.1054	1.3938
7	**11-3-2022**	**2-2-2023**	1.0638	1.3715
8	**2-3-2023**	**5-2-2023**	0.9390	1.2700

9	**5-3-2023**	**8-2-2023**	0.9637	1.3058
10	**8-3-2023**	**11-2-2023**	0.9676	1.3097
11	**11-3-2023**	**2-2-2024**	0.9566	1.3135
12	**2-3-2024**	**5-2-2024**	0.9007	1.2756
13	**5-3-2024**	**8-2-2024**	3.5350	3.7308
		Highest	3.5350	3.7308

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.3114	0.0470	3.9344	1.3100e-003		0.0762	0.0762		0.0762	0.0762	7.5332	5.8674	13.4007	0.0409	0.0000	14.4222
Energy	0.0260	0.2219	0.0946	1.4200e-003		0.0179	0.0179		0.0179	0.0179	0.0000	599.8986	599.8986	0.0352	0.0110	604.0468
Mobile	0.5932	2.6996	6.7049	0.0258	2.3839	0.0211	2.4049	0.6397	0.0196	0.6594	0.0000	2,375.4818	2,375.4818	0.0808	0.0000	2,377.5027
Stationary	2.6400e-003	7.3800e-003	6.7300e-003	1.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	1.2246	1.2246	1.7000e-004	0.0000	1.2289
Waste						0.0000	0.0000		0.0000	0.0000	45.5877	0.0000	45.5877	2.6942	0.0000	112.9416
Water						0.0000	0.0000		0.0000	0.0000	10.0331	37.2955	47.3287	1.0338	0.0250	80.6272
Total	**2.9332**	**2.9758**	**10.7406**	**0.0286**	**2.3839**	**0.1155**	**2.4994**	**0.6397**	**0.1141**	**0.7539**	**63.1541**	**3,019.7680**	**3,082.9221**	**3.8850**	**0.0360**	**3,190.7695**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2735	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Energy	0.0246	0.2104	0.0897	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	568.3039	568.3039	0.0333	0.0104	572.2331
Mobile	0.5643	2.5258	6.0330	0.0226	2.0597	0.0186	2.0783	0.5527	0.0173	0.5701	0.0000	2,077.1324	2,077.1324	0.0729	0.0000	2,078.9538
Stationary	2.6400e-003	7.3800e-003	6.7300e-003	1.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	1.2246	1.2246	1.7000e-004	0.0000	1.2289
Waste						0.0000	0.0000		0.0000	0.0000	11.3969	0.0000	11.3969	0.6735	0.0000	28.2354
Water						0.0000	0.0000		0.0000	0.0000	8.0265	32.1912	40.2178	0.8272	0.0201	66.8746
Total	**2.8650**	**2.7850**	**9.7190**	**0.0241**	**2.0597**	**0.0558**	**2.1155**	**0.5527**	**0.0546**	**0.6073**	**19.4234**	**2,684.7195**	**2,704.1430**	**1.6128**	**0.0304**	**2,753.5344**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.32**	**6.41**	**9.51**	**15.58**	**13.60**	**51.66**	**15.36**	**13.60**	**52.15**	**19.43**	**69.24**	**11.10**	**12.29**	**58.49**	**15.40**	**13.70**

3.0 Construction Detail

Construction Phase

Menlo Uptown Project - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/3/2021	7/2/2021	6	53	
2	Site Preparation	Site Preparation	7/5/2021	8/3/2021	6	26	
3	Rough Grading	Grading	7/5/2021	8/17/2021	6	38	
4	Fine Grading	Grading	8/2/2021	9/16/2021	6	40	
5	Building Construction	Building Construction	8/2/2021	5/31/2024	6	887	
6	Paving	Paving	6/3/2024	6/22/2024	6	18	
7	Architectural Coating	Architectural Coating	6/3/2024	6/22/2024	6	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.3

Residential Indoor: 942,757; Residential Outdoor: 314,252; Non-Residential Indoor: 3,150; Non-Residential Outdoor: 1,050; Striped Parking Area: 6,369 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Rough Grading	Excavators	1	8.00	158	0.38
Rough Grading	Graders	1	8.00	187	0.41
Rough Grading	Rubber Tired Dozers	1	8.00	247	0.40
Rough Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Fine Grading	Excavators	1	8.00	158	0.38
Fine Grading	Graders	1	8.00	187	0.41
Fine Grading	Rubber Tired Dozers	1	8.00	247	0.40
Fine Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	541.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Rough Grading	6	15.00	0.00	2,063.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	433.00	85.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	87.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0585	0.0000	0.0585	8.8600e-003	0.0000	8.8600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0839	0.8332	0.5715	1.0300e-003		0.0411	0.0411		0.0382	0.0382	0.0000	90.1021	90.1021	0.0254	0.0000	90.7361
Total	**0.0839**	**0.8332**	**0.5715**	**1.0300e-003**	**0.0585**	**0.0411**	**0.0997**	**8.8600e-003**	**0.0382**	**0.0471**	**0.0000**	**90.1021**	**90.1021**	**0.0254**	**0.0000**	**90.7361**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1300e-003	0.0730	0.0156	2.1000e-004	4.5700e-003	2.3000e-004	4.8000e-003	1.2600e-003	2.2000e-004	1.4700e-003	0.0000	20.4645	20.4645	1.0400e-003	0.0000	20.4906
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.4000e-004	8.9200e-003	3.0000e-005	3.1400e-003	2.0000e-005	3.1600e-003	8.4000e-004	2.0000e-005	8.5000e-004	0.0000	2.6553	2.6553	6.0000e-005	0.0000	2.6568
Total	**3.3500e-003**	**0.0738**	**0.0245**	**2.4000e-004**	**7.7100e-003**	**2.5000e-004**	**7.9600e-003**	**2.1000e-003**	**2.4000e-004**	**2.3200e-003**	**0.0000**	**23.1198**	**23.1198**	**1.1000e-003**	**0.0000**	**23.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0263	0.0000	0.0263	3.9900e-003	0.0000	3.9900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0334	0.8656	0.6539	1.0300e-003		0.0242	0.0242		0.0242	0.0242	0.0000	90.1020	90.1020	0.0254	0.0000	90.7360
Total	**0.0334**	**0.8656**	**0.6539**	**1.0300e-003**	**0.0263**	**0.0242**	**0.0506**	**3.9900e-003**	**0.0242**	**0.0282**	**0.0000**	**90.1020**	**90.1020**	**0.0254**	**0.0000**	**90.7360**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1300e-003	0.0730	0.0156	2.1000e-004	4.5700e-003	2.3000e-004	4.8000e-003	1.2600e-003	2.2000e-004	1.4700e-003	0.0000	20.4645	20.4645	1.0400e-003	0.0000	20.4906
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.4000e-004	8.9200e-003	3.0000e-005	3.1400e-003	2.0000e-005	3.1600e-003	8.4000e-004	2.0000e-005	8.5000e-004	0.0000	2.6553	2.6553	6.0000e-005	0.0000	2.6568
Total	**3.3500e-003**	**0.0738**	**0.0245**	**2.4000e-004**	**7.7100e-003**	**2.5000e-004**	**7.9600e-003**	**2.1000e-003**	**2.4000e-004**	**2.3200e-003**	**0.0000**	**23.1198**	**23.1198**	**1.1000e-003**	**0.0000**	**23.1474**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2349	0.0000	0.2349	0.1291	0.0000	0.1291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0506	0.5265	0.2750	4.9000e-004		0.0266	0.0266		0.0245	0.0245	0.0000	43.4664	43.4664	0.0141	0.0000	43.8179
Total	**0.0506**	**0.5265**	**0.2750**	**4.9000e-004**	**0.2349**	**0.0266**	**0.2614**	**0.1291**	**0.0245**	**0.1536**	**0.0000**	**43.4664**	**43.4664**	**0.0141**	**0.0000**	**43.8179**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.0000e-004	5.2500e-003	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5631	1.5631	4.0000e-005	0.0000	1.5640
Total	**7.2000e-004**	**5.0000e-004**	**5.2500e-003**	**2.0000e-005**	**1.8500e-003**	**1.0000e-005**	**1.8600e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5631**	**1.5631**	**4.0000e-005**	**0.0000**	**1.5640**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1057	0.0000	0.1057	0.0581	0.0000	0.0581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.4384	0.2985	4.9000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	43.4664	43.4664	0.0141	0.0000	43.8178
Total	**0.0157**	**0.4384**	**0.2985**	**4.9000e-004**	**0.1057**	**0.0123**	**0.1180**	**0.0581**	**0.0123**	**0.0704**	**0.0000**	**43.4664**	**43.4664**	**0.0141**	**0.0000**	**43.8178**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.0000e-004	5.2500e-003	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5631	1.5631	4.0000e-005	0.0000	1.5640
Total	**7.2000e-004**	**5.0000e-004**	**5.2500e-003**	**2.0000e-005**	**1.8500e-003**	**1.0000e-005**	**1.8600e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5631**	**1.5631**	**4.0000e-005**	**0.0000**	**1.5640**

3.4 Rough Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1254	0.0000	0.1254	0.0641	0.0000	0.0641	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0435	0.4700	0.3013	5.6000e-004		0.0220	0.0220		0.0203	0.0203	0.0000	49.5020	49.5020	0.0160	0.0000	49.9023
Total	**0.0435**	**0.4700**	**0.3013**	**5.6000e-004**	**0.1254**	**0.0220**	**0.1475**	**0.0641**	**0.0203**	**0.0844**	**0.0000**	**49.5020**	**49.5020**	**0.0160**	**0.0000**	**49.9023**

3.4 Rough Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1300e-003	0.2784	0.0593	8.0000e-004	0.0174	8.6000e-004	0.0183	4.7900e-003	8.2000e-004	5.6200e-003	0.0000	78.0374	78.0374	3.9800e-003	0.0000	78.1370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7000e-004	6.0000e-004	6.3900e-003	2.0000e-005	2.2500e-003	1.0000e-005	2.2700e-003	6.0000e-004	1.0000e-005	6.1000e-004	0.0000	1.9038	1.9038	4.0000e-005	0.0000	1.9048
Total	**9.0000e-003**	**0.2790**	**0.0657**	**8.2000e-004**	**0.0197**	**8.7000e-004**	**0.0206**	**5.3900e-003**	**8.3000e-004**	**6.2300e-003**	**0.0000**	**79.9412**	**79.9412**	**4.0200e-003**	**0.0000**	**80.0418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0564	0.0000	0.0564	0.0289	0.0000	0.0289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0192	0.4993	0.3608	5.6000e-004		0.0147	0.0147		0.0147	0.0147	0.0000	49.5020	49.5020	0.0160	0.0000	49.9022
Total	**0.0192**	**0.4993**	**0.3608**	**5.6000e-004**	**0.0564**	**0.0147**	**0.0711**	**0.0289**	**0.0147**	**0.0435**	**0.0000**	**49.5020**	**49.5020**	**0.0160**	**0.0000**	**49.9022**

3.4 Rough Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1300e-003	0.2784	0.0593	8.0000e-004	0.0174	8.6000e-004	0.0183	4.7900e-003	8.2000e-004	5.6200e-003	0.0000	78.0374	78.0374	3.9800e-003	0.0000	78.1370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7000e-004	6.0000e-004	6.3900e-003	2.0000e-005	2.2500e-003	1.0000e-005	2.2700e-003	6.0000e-004	1.0000e-005	6.1000e-004	0.0000	1.9038	1.9038	4.0000e-005	0.0000	1.9048
Total	**9.0000e-003**	**0.2790**	**0.0657**	**8.2000e-004**	**0.0197**	**8.7000e-004**	**0.0206**	**5.3900e-003**	**8.3000e-004**	**6.2300e-003**	**0.0000**	**79.9412**	**79.9412**	**4.0200e-003**	**0.0000**	**80.0418**

3.5 Fine Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1311	0.0000	0.1311	0.0674	0.0000	0.0674	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0458	0.4947	0.3172	5.9000e-004		0.0232	0.0232		0.0213	0.0213	0.0000	52.1074	52.1074	0.0169	0.0000	52.5287
Total	**0.0458**	**0.4947**	**0.3172**	**5.9000e-004**	**0.1311**	**0.0232**	**0.1543**	**0.0674**	**0.0213**	**0.0887**	**0.0000**	**52.1074**	**52.1074**	**0.0169**	**0.0000**	**52.5287**

3.5 Fine Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.4000e-004	6.7300e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0040	2.0040	4.0000e-005	0.0000	2.0051
Total	**9.2000e-004**	**6.4000e-004**	**6.7300e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0040**	**2.0040**	**4.0000e-005**	**0.0000**	**2.0051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0590	0.0000	0.0590	0.0303	0.0000	0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0202	0.5256	0.3798	5.9000e-004		0.0155	0.0155		0.0155	0.0155	0.0000	52.1073	52.1073	0.0169	0.0000	52.5287
Total	**0.0202**	**0.5256**	**0.3798**	**5.9000e-004**	**0.0590**	**0.0155**	**0.0744**	**0.0303**	**0.0155**	**0.0458**	**0.0000**	**52.1073**	**52.1073**	**0.0169**	**0.0000**	**52.5287**

3.5 Fine Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.4000e-004	6.7300e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0040	2.0040	4.0000e-005	0.0000	2.0051
Total	**9.2000e-004**	**6.4000e-004**	**6.7300e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0040**	**2.0040**	**4.0000e-005**	**0.0000**	**2.0051**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1245	1.1418	1.0857	1.7600e-003		0.0628	0.0628		0.0590	0.0590	0.0000	151.7224	151.7224	0.0366	0.0000	152.6375
Total	**0.1245**	**1.1418**	**1.0857**	**1.7600e-003**		**0.0628**	**0.0628**		**0.0590**	**0.0590**	**0.0000**	**151.7224**	**151.7224**	**0.0366**	**0.0000**	**152.6375**

3.6 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0177	0.5815	0.1452	1.5000e-003	0.0365	1.2600e-003	0.0378	0.0106	1.2100e-003	0.0118	0.0000	144.3897	144.3897	7.1000e-003	0.0000	144.5672
Worker	0.0870	0.0601	0.6361	2.0900e-003	0.2241	1.4700e-003	0.2256	0.0596	1.3500e-003	0.0610	0.0000	189.4520	189.4520	4.2500e-003	0.0000	189.5582
Total	**0.1047**	**0.6416**	**0.7813**	**3.5900e-003**	**0.2606**	**2.7300e-003**	**0.2633**	**0.0702**	**2.5600e-003**	**0.0727**	**0.0000**	**333.8417**	**333.8417**	**0.0114**	**0.0000**	**334.1254**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0708	1.5428	1.1707	1.7600e-003		0.0592	0.0592		0.0592	0.0592	0.0000	151.7222	151.7222	0.0366	0.0000	152.6373
Total	**0.0708**	**1.5428**	**1.1707**	**1.7600e-003**		**0.0592**	**0.0592**		**0.0592**	**0.0592**	**0.0000**	**151.7222**	**151.7222**	**0.0366**	**0.0000**	**152.6373**

3.6 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0177	0.5815	0.1452	1.5000e-003	0.0365	1.2600e-003	0.0378	0.0106	1.2100e-003	0.0118	0.0000	144.3897	144.3897	7.1000e-003	0.0000	144.5672
Worker	0.0870	0.0601	0.6361	2.0900e-003	0.2241	1.4700e-003	0.2256	0.0596	1.3500e-003	0.0610	0.0000	189.4520	189.4520	4.2500e-003	0.0000	189.5582
Total	**0.1047**	**0.6416**	**0.7813**	**3.5900e-003**	**0.2606**	**2.7300e-003**	**0.2633**	**0.0702**	**2.5600e-003**	**0.0727**	**0.0000**	**333.8417**	**333.8417**	**0.0114**	**0.0000**	**334.1254**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2670	2.4439	2.5609	4.2200e-003		0.1266	0.1266		0.1191	0.1191	0.0000	362.6500	362.6500	0.0869	0.0000	364.8220
Total	**0.2670**	**2.4439**	**2.5609**	**4.2200e-003**		**0.1266**	**0.1266**		**0.1191**	**0.1191**	**0.0000**	**362.6500**	**362.6500**	**0.0869**	**0.0000**	**364.8220**

3.6 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0394	1.3159	0.3261	3.5500e-003	0.0872	2.6200e-003	0.0899	0.0252	2.5100e-003	0.0277	0.0000	341.6095	341.6095	0.0162	0.0000	342.0147
Worker	0.1939	0.1287	1.3968	4.8200e-003	0.5355	3.4200e-003	0.5389	0.1425	3.1500e-003	0.1456	0.0000	436.0649	436.0649	9.1000e-003	0.0000	436.2925
Total	**0.2332**	**1.4445**	**1.7228**	**8.3700e-003**	**0.6227**	**6.0400e-003**	**0.6287**	**0.1677**	**5.6600e-003**	**0.1733**	**0.0000**	**777.6744**	**777.6744**	**0.0253**	**0.0000**	**778.3071**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1692	3.6863	2.7972	4.2200e-003		0.1414	0.1414		0.1414	0.1414	0.0000	362.6496	362.6496	0.0869	0.0000	364.8216
Total	**0.1692**	**3.6863**	**2.7972**	**4.2200e-003**		**0.1414**	**0.1414**		**0.1414**	**0.1414**	**0.0000**	**362.6496**	**362.6496**	**0.0869**	**0.0000**	**364.8216**

3.6 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0394	1.3159	0.3261	3.5500e-003	0.0872	2.6200e-003	0.0899	0.0252	2.5100e-003	0.0277	0.0000	341.6095	341.6095	0.0162	0.0000	342.0147
Worker	0.1939	0.1287	1.3968	4.8200e-003	0.5355	3.4200e-003	0.5389	0.1425	3.1500e-003	0.1456	0.0000	436.0649	436.0649	9.1000e-003	0.0000	436.2925
Total	**0.2332**	**1.4445**	**1.7228**	**8.3700e-003**	**0.6227**	**6.0400e-003**	**0.6287**	**0.1677**	**5.6600e-003**	**0.1733**	**0.0000**	**777.6744**	**777.6744**	**0.0253**	**0.0000**	**778.3071**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2454	2.2440	2.5341	4.2000e-003		0.1092	0.1092		0.1027	0.1027	0.0000	361.6154	361.6154	0.0860	0.0000	363.7660
Total	**0.2454**	**2.2440**	**2.5341**	**4.2000e-003**		**0.1092**	**0.1092**		**0.1027**	**0.1027**	**0.0000**	**361.6154**	**361.6154**	**0.0860**	**0.0000**	**363.7660**

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0295	1.0113	0.2910	3.4400e-003	0.0870	1.1600e-003	0.0881	0.0252	1.1100e-003	0.0263	0.0000	330.9748	330.9748	0.0138	0.0000	331.3191
Worker	0.1807	0.1153	1.2807	4.6200e-003	0.5338	3.3400e-003	0.5371	0.1420	3.0800e-003	0.1451	0.0000	418.0249	418.0249	8.1300e-003	0.0000	418.2282
Total	**0.2102**	**1.1266**	**1.5717**	**8.0600e-003**	**0.6207**	**4.5000e-003**	**0.6252**	**0.1671**	**4.1900e-003**	**0.1713**	**0.0000**	**748.9998**	**748.9998**	**0.0219**	**0.0000**	**749.5473**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1686	3.6745	2.7883	4.2000e-003		0.1410	0.1410		0.1410	0.1410	0.0000	361.6150	361.6150	0.0860	0.0000	363.7655
Total	**0.1686**	**3.6745**	**2.7883**	**4.2000e-003**		**0.1410**	**0.1410**		**0.1410**	**0.1410**	**0.0000**	**361.6150**	**361.6150**	**0.0860**	**0.0000**	**363.7655**

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0295	1.0113	0.2910	3.4400e-003	0.0870	1.1600e-003	0.0881	0.0252	1.1100e-003	0.0263	0.0000	330.9748	330.9748	0.0138	0.0000	331.3191
Worker	0.1807	0.1153	1.2807	4.6200e-003	0.5338	3.3400e-003	0.5371	0.1420	3.0800e-003	0.1451	0.0000	418.0249	418.0249	8.1300e-003	0.0000	418.2282
Total	**0.2102**	**1.1266**	**1.5717**	**8.0600e-003**	**0.6207**	**4.5000e-003**	**0.6252**	**0.1671**	**4.1900e-003**	**0.1713**	**0.0000**	**748.9998**	**748.9998**	**0.0219**	**0.0000**	**749.5473**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0964	0.8806	1.0589	1.7700e-003		0.0402	0.0402		0.0378	0.0378	0.0000	151.8612	151.8612	0.0359	0.0000	152.7589
Total	**0.0964**	**0.8806**	**1.0589**	**1.7700e-003**		**0.0402**	**0.0402**		**0.0378**	**0.0378**	**0.0000**	**151.8612**	**151.8612**	**0.0359**	**0.0000**	**152.7589**

3.6 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0120	0.4199	0.1176	1.4300e-003	0.0365	4.8000e-004	0.0370	0.0106	4.6000e-004	0.0110	0.0000	138.0291	138.0291	5.6700e-003	0.0000	138.1707
Worker	0.0713	0.0437	0.4981	1.8600e-003	0.2241	1.3800e-003	0.2255	0.0596	1.2700e-003	0.0609	0.0000	168.5705	168.5705	3.0800e-003	0.0000	168.6473
Total	**0.0833**	**0.4636**	**0.6157**	**3.2900e-003**	**0.2606**	**1.8600e-003**	**0.2625**	**0.0702**	**1.7300e-003**	**0.0719**	**0.0000**	**306.5996**	**306.5996**	**8.7500e-003**	**0.0000**	**306.8181**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0708	1.5428	1.1707	1.7700e-003		0.0592	0.0592		0.0592	0.0592	0.0000	151.8610	151.8610	0.0359	0.0000	152.7588
Total	**0.0708**	**1.5428**	**1.1707**	**1.7700e-003**		**0.0592**	**0.0592**		**0.0592**	**0.0592**	**0.0000**	**151.8610**	**151.8610**	**0.0359**	**0.0000**	**152.7588**

3.6 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0120	0.4199	0.1176	1.4300e-003	0.0365	4.8000e-004	0.0370	0.0106	4.6000e-004	0.0110	0.0000	138.0291	138.0291	5.6700e-003	0.0000	138.1707
Worker	0.0713	0.0437	0.4981	1.8600e-003	0.2241	1.3800e-003	0.2255	0.0596	1.2700e-003	0.0609	0.0000	168.5705	168.5705	3.0800e-003	0.0000	168.6473
Total	**0.0833**	**0.4636**	**0.6157**	**3.2900e-003**	**0.2606**	**1.8600e-003**	**0.2625**	**0.0702**	**1.7300e-003**	**0.0719**	**0.0000**	**306.5996**	**306.5996**	**8.7500e-003**	**0.0000**	**306.8181**

3.7 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.7 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	2.8000e-004	3.1600e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0699	1.0699	2.0000e-005	0.0000	1.0703
Total	**4.5000e-004**	**2.8000e-004**	**3.1600e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0699**	**1.0699**	**2.0000e-005**	**0.0000**	**1.0703**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7700e-003	0.1448	0.1218	1.7000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7700e-003**	**0.1448**	**0.1218**	**1.7000e-004**		**5.0400e-003**	**5.0400e-003**		**5.0400e-003**	**5.0400e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.7 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	2.8000e-004	3.1600e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0699	1.0699	2.0000e-005	0.0000	1.0703
Total	**4.5000e-004**	**2.8000e-004**	**3.1600e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0699**	**1.0699**	**2.0000e-005**	**0.0000**	**1.0703**

3.8 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.3120**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.8 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9700e-003	1.2100e-003	0.0138	5.0000e-005	6.1900e-003	4.0000e-005	6.2300e-003	1.6500e-003	3.0000e-005	1.6800e-003	0.0000	4.6539	4.6539	8.0000e-005	0.0000	4.6560
Total	**1.9700e-003**	**1.2100e-003**	**0.0138**	**5.0000e-005**	**6.1900e-003**	**4.0000e-005**	**6.2300e-003**	**1.6500e-003**	**3.0000e-005**	**1.6800e-003**	**0.0000**	**4.6539**	**4.6539**	**8.0000e-005**	**0.0000**	**4.6560**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0300e-003	0.0212	0.0165	3.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.3114**	**0.0212**	**0.0165**	**3.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.8 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9700e-003	1.2100e-003	0.0138	5.0000e-005	6.1900e-003	4.0000e-005	6.2300e-003	1.6500e-003	3.0000e-005	1.6800e-003	0.0000	4.6539	4.6539	8.0000e-005	0.0000	4.6560
Total	**1.9700e-003**	**1.2100e-003**	**0.0138**	**5.0000e-005**	**6.1900e-003**	**4.0000e-005**	**6.2300e-003**	**1.6500e-003**	**3.0000e-005**	**1.6800e-003**	**0.0000**	**4.6539**	**4.6539**	**8.0000e-005**	**0.0000**	**4.6560**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

Improve Pedestrian Network

Unbundle Parking Cost

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5643	2.5258	6.0330	0.0226	2.0597	0.0186	2.0783	0.5527	0.0173	0.5701	0.0000	2,077.1324	2,077.1324	0.0729	0.0000	2,078.9538
Unmitigated	0.5932	2.6996	6.7049	0.0258	2.3839	0.0211	2.4049	0.6397	0.0196	0.6594	0.0000	2,375.4818	2,375.4818	0.0808	0.0000	2,377.5027

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,773.89	2,773.89	2773.89	6,406,597	5,535,346
City Park	0.00	0.00	0.00		
Condo/Townhouse	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,773.89	2,773.89	2,773.89	6,406,597	5,535,346

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15
Unenclosed Parking with	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
City Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Condo/Townhouse	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Strip Mall	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unenclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

Menlo Uptown Project - Bay Area AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	324.6702	324.6702	0.0286	5.9200e-003	327.1516
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	343.0060	343.0060	0.0303	6.2600e-003	345.6276
NaturalGas Mitigated	0.0246	0.2104	0.0897	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.6337	243.6337	4.6700e-003	4.4700e-003	245.0815
NaturalGas Unmitigated	0.0260	0.2219	0.0946	1.4200e-003		0.0179	0.0179		0.0179	0.0179	0.0000	256.8926	256.8926	4.9200e-003	4.7100e-003	258.4192

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.85012e+006	0.0208	0.1774	0.0755	1.1300e-003		0.0143	0.0143		0.0143	0.0143	0.0000	205.4571	205.4571	3.9400e-003	3.7700e-003	206.6780
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	954206	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	50.9201	50.9201	9.8000e-004	9.3000e-004	51.2227
Strip Mall	9660	5.0000e-005	4.7000e-004	4.0000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5155	0.5155	1.0000e-005	1.0000e-005	0.5186
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0260**	**0.2219**	**0.0946**	**1.4100e-003**		**0.0179**	**0.0179**		**0.0179**	**0.0179**	**0.0000**	**256.8926**	**256.8926**	**4.9300e-003**	**4.7100e-003**	**258.4192**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.66134e+006	0.0197	0.1687	0.0718	1.0800e-003		0.0136	0.0136		0.0136	0.0136	0.0000	195.3829	195.3829	3.7400e-003	3.5800e-003	196.5439
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	895100	4.8300e-003	0.0412	0.0176	2.6000e-004		3.3300e-003	3.3300e-003		3.3300e-003	3.3300e-003	0.0000	47.7660	47.7660	9.2000e-004	8.8000e-004	48.0498
Strip Mall	9086.7	5.0000e-005	4.5000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4849	0.4849	1.0000e-005	1.0000e-005	0.4878
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0246**	**0.2104**	**0.0897**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.6337**	**243.6337**	**4.6700e-003**	**4.4700e-003**	**245.0815**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.8619e+006	277.6856	0.0245	5.0700e-003	279.8079
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	210026	31.3236	2.7600e-003	5.7000e-004	31.5630
Strip Mall	22008	3.2823	2.9000e-004	6.0000e-005	3.3074
Unenclosed Parking with Elevator	205943	30.7145	2.7100e-003	5.6000e-004	30.9493
Total		**343.0060**	**0.0303**	**6.2600e-003**	**345.6276**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.76922e+006	263.8635	0.0233	4.8200e-003	265.8802
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	199693	29.7824	2.6300e-003	5.4000e-004	30.0100
Strip Mall	20653.9	3.0804	2.7000e-004	6.0000e-005	3.1039
Unenclosed Parking with Elevator	187365	27.9439	2.4600e-003	5.1000e-004	28.1575
Total		**324.6702**	**0.0286**	**5.9300e-003**	**327.1516**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.2735	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Unmitigated	2.3114	0.0470	3.9344	1.3100e-003		0.0762	0.0762		0.0762	0.0762	7.5332	5.8674	13.4007	0.0409	0.0000	14.4222

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3310					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0380	5.6300e-003	0.3449	1.1300e-003		0.0563	0.0563		0.0563	0.0563	7.5332	0.0000	7.5332	0.0352	0.0000	8.4136
Landscaping	0.1082	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Total	**2.3114**	**0.0470**	**3.9344**	**1.3200e-003**		**0.0762**	**0.0762**		**0.0762**	**0.0762**	**7.5332**	**5.8674**	**13.4007**	**0.0409**	**0.0000**	**14.4222**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3310					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1082	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Total	**2.2735**	**0.0414**	**3.5896**	**1.9000e-004**		**0.0199**	**0.0199**		**0.0199**	**0.0199**	**0.0000**	**5.8674**	**5.8674**	**5.6400e-003**	**0.0000**	**6.0086**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	40.2178	0.8272	0.0201	66.8746
Unmitigated	47.3287	1.0338	0.0250	80.6272

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.7329 / 18.1142	41.7587	0.9391	0.0227	72.0027
City Park	0 / 2.62126	1.3683	1.2000e-004	2.0000e-005	1.3787
Condo/Townhouse	2.73647 / 1.72517	3.9770	0.0894	2.1600e-003	6.8574
Strip Mall	0.155552 / 0.0953385	0.2247	5.0800e-003	1.2000e-004	0.3884
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**47.3287**	**1.0338**	**0.0250**	**80.6272**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	22.9863 / 18.1142	35.2981	0.7515	0.0182	59.5077
City Park	0 / 2.62126	1.3683	1.2000e-004	2.0000e-005	1.3787
Condo/Townhouse	2.18918 / 1.72517	3.3617	0.0716	1.7300e-003	5.6674
Strip Mall	0.124442 / 0.0953385	0.1897	4.0700e-003	1.0000e-004	0.3207
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**40.2177**	**0.8272**	**0.0201**	**66.8746**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.3969	0.6735	0.0000	28.2354
Unmitigated	45.5877	2.6942	0.0000	112.9416

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	202.86	41.1788	2.4336	0.0000	102.0186
City Park	0.19	0.0386	2.2800e-003	0.0000	0.0956
Condo/Townhouse	19.32	3.9218	0.2318	0.0000	9.7161
Strip Mall	2.21	0.4486	0.0265	0.0000	1.1114
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**45.5877**	**2.6942**	**0.0000**	**112.9416**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	50.715	10.2947	0.6084	0.0000	25.5047
City Park	0.0475	9.6400e-003	5.7000e-004	0.0000	0.0239
Condo/Townhouse	4.83	0.9805	0.0579	0.0000	2.4290
Strip Mall	0.5525	0.1122	6.6300e-003	0.0000	0.2779
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**11.3969**	**0.6735**	**0.0000**	**28.2354**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	0.02	6	268	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (175 - 300 HP)	2.6400e-003	7.3800e-003	6.7300e-003	1.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	1.2246	1.2246	1.7000e-004	0.0000	1.2289
Total	**2.6400e-003**	**7.3800e-003**	**6.7300e-003**	**1.0000e-005**		**3.9000e-004**	**3.9000e-004**		**3.9000e-004**	**3.9000e-004**	**0.0000**	**1.2246**	**1.2246**	**1.7000e-004**	**0.0000**	**1.2289**

11.0 Vegetation

Menlo Uptown Project

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	512.00	Space	0.30	106,156.00	0
City Park	2.20	Acre	2.20	95,832.00	0
Apartments Mid Rise	441.00	Dwelling Unit	2.00	383,433.00	1261
Condo/Townhouse	42.00	Dwelling Unit	0.33	82,126.00	120
Strip Mall	2.10	1000sqft	0.00	2,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E, 2015)

Land Use - The proposed project would develop three residential buildings totaling approximately 466,000 square feet of gross floor area with a total of 483 residential units, 2,100 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements.

Construction Phase - Construction is expected to begin May 2021 and end summer 2024. Phasing based on assumptions provided by Project Applicant. Architectural Coating and Paving phases are default duration.

Grading - Approximately 16,500 cubic yards of soil import.

Demolition - Approximately 118,944 building square footage to be demolished.

Vehicle Trips - Based on trip generation prepared for the project.

Woodstoves - Assuming no hearth as the proposed project would not increase the demand for natural gas as the City's REACH codes would require the buildings to be all electric

Stationary Sources - Emergency Generators and Fire Pumps - Emergency Generators and Fire Pumps - Assuming the emergency generators would run 30 minutes per month.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment

Energy Mitigation - Assuming compliance with 2019 Title 24 standards, installation of high efficiency lighting, and energy-efficient appliances.

Water Mitigation - Assuming low-flow appliances.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	887.00
tblConstructionPhase	NumDays	20.00	53.00
tblConstructionPhase	NumDays	8.00	38.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	5.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblFireplaces	NumberGas	66.15	0.00
tblFireplaces	NumberGas	6.30	0.00
tblFireplaces	NumberNoFireplace	17.64	441.00
tblFireplaces	NumberNoFireplace	1.68	42.00
tblFireplaces	NumberWood	74.97	0.00
tblFireplaces	NumberWood	7.14	0.00
tblGrading	MaterialImported	0.00	16,500.00
tblLandUse	LandUseSquareFeet	204,800.00	106,156.00
tblLandUse	LandUseSquareFeet	441,000.00	383,433.00
tblLandUse	LandUseSquareFeet	42,000.00	82,126.00
tblLandUse	LotAcreage	4.61	0.30
tblLandUse	LotAcreage	11.61	2.00
tblLandUse	LotAcreage	2.63	0.33
tblLandUse	LotAcreage	0.05	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	268.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.02
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	6.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	ST_TR	6.39	6.29
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	0.00
tblVehicleTrips	ST_TR	42.04	0.00

tblVehicleTrips	SU_TR	5.86	6.29
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	6.65	6.29
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.6029	131.4554	86.3588	0.2282	36.6952	5.4118	42.1070	18.1467	5.0006	23.1473	0.0000	22,808.1763	22,808.1763	4.0924	0.0000	22,910.4866
2022	3.2480	24.6704	28.1118	0.0830	4.1324	0.8474	4.9798	1.1091	0.7971	1.9062	0.0000	8,289.8988	8,289.8988	0.7910	0.0000	8,309.6739
2023	2.9668	21.4747	27.0364	0.0811	4.1324	0.7285	4.8609	1.1091	0.6851	1.7943	0.0000	8,095.7159	8,095.7159	0.7639	0.0000	8,114.8123
2024	369.1591	20.3989	26.2461	0.0796	4.1324	0.6415	4.7739	1.1091	0.6031	1.7123	0.0000	7,954.2073	7,954.2073	0.7525	0.0000	7,973.0185
Maximum	**369.1591**	**131.4554**	**86.3588**	**0.2282**	**36.6952**	**5.4118**	**42.1070**	**18.1467**	**5.0006**	**23.1473**	**0.0000**	**22,808.1763**	**22,808.1763**	**4.0924**	**0.0000**	**22,910.4866**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.5423	133.8868	95.7294	0.2282	19.5242	3.4836	23.0078	8.9765	3.4789	12.4554	0.0000	22,808.1763	22,808.1763	4.0924	0.0000	22,910.4865
2022	2.6226	32.6091	29.6221	0.0830	4.1324	0.9419	5.0743	1.1091	0.9395	2.0486	0.0000	8,289.8988	8,289.8988	0.7910	0.0000	8,309.6739
2023	2.4749	30.6442	28.6662	0.0811	4.1324	0.9323	5.0647	1.1091	0.9303	2.0394	0.0000	8,095.7159	8,095.7159	0.7639	0.0000	8,114.8123
2024	368.9632	30.5095	27.9531	0.0796	4.1324	0.9318	5.0642	1.1091	0.9298	2.0389	0.0000	7,954.2073	7,954.2073	0.7525	0.0000	7,973.0185
Maximum	**368.9632**	**133.8868**	**95.7294**	**0.2282**	**19.5242**	**3.4836**	**23.0078**	**8.9765**	**3.4789**	**12.4554**	**0.0000**	**22,808.1763**	**22,808.1763**	**4.0924**	**0.0000**	**22,910.4865**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.90**	**-14.97**	**-8.48**	**0.00**	**34.98**	**17.56**	**32.63**	**42.70**	**11.40**	**34.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	18.4458	1.2563	88.7328	0.1615		8.1898	8.1898		8.1898	8.1898	1,176.1972	71.8638	1,248.0610	5.5676	0.0000	1,387.2515
Energy	0.1422	1.2156	0.5184	7.7600e-003		0.0983	0.0983		0.0983	0.0983		1,551.6474	1,551.6474	0.0297	0.0285	1,560.8681
Mobile	3.7529	14.4065	38.4059	0.1501	13.6083	0.1156	13.7239	3.6403	0.1078	3.7481		15,209.7799	15,209.7799	0.4922		15,222.0836
Stationary	0.0176	0.0492	0.0449	8.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003		8.9996	8.9996	1.2600e-003		9.0311
Total	**22.3585**	**16.9275**	**127.7019**	**0.3195**	**13.6083**	**8.4062**	**22.0145**	**3.6403**	**8.3985**	**12.0387**	**1,176.1972**	**16,842.2906**	**18,018.4878**	**6.0908**	**0.0285**	**18,179.2344**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	13.0668	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210	0.0000	71.8638	71.8638	0.0691	0.0000	73.5922
Energy	0.1349	1.1529	0.4916	7.3600e-003		0.0932	0.0932		0.0932	0.0932		1,471.5626	1,471.5626	0.0282	0.0270	1,480.3074
Mobile	3.5911	13.5110	34.2438	0.1312	11.7577	0.1019	11.8596	3.1452	0.0950	3.2402		13,296.9883	13,296.9883	0.4418		13,308.0334
Stationary	0.0176	0.0492	0.0449	8.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003		8.9996	8.9996	1.2600e-003		9.0311
Total	**16.8105**	**15.1724**	**74.6642**	**0.1408**	**11.7577**	**0.4186**	**12.1763**	**3.1452**	**0.4117**	**3.5570**	**0.0000**	**14,849.4143**	**14,849.4143**	**0.5404**	**0.0270**	**14,870.9642**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**24.81**	**10.37**	**41.53**	**55.93**	**13.60**	**95.02**	**44.69**	**13.60**	**95.10**	**70.45**	**100.00**	**11.83**	**17.59**	**91.13**	**5.17**	**18.20**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/3/2021	7/2/2021	6	53	
2	Site Preparation	Site Preparation	7/5/2021	8/3/2021	6	26	
3	Rough Grading	Grading	7/5/2021	8/17/2021	6	38	
4	Fine Grading	Grading	8/2/2021	9/16/2021	6	40	
5	Building Construction	Building Construction	8/2/2021	5/31/2024	6	887	
6	Paving	Paving	6/3/2024	6/22/2024	6	18	
7	Architectural Coating	Architectural Coating	6/3/2024	6/22/2024	6	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.3

Residential Indoor: 942,757; Residential Outdoor: 314,252; Non-Residential Indoor: 3,150; Non-Residential Outdoor: 1,050; Striped Parking Area: 6,369 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Rough Grading	Excavators	1	8.00	158	0.38
Rough Grading	Graders	1	8.00	187	0.41
Rough Grading	Rubber Tired Dozers	1	8.00	247	0.40
Rough Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Fine Grading	Excavators	1	8.00	158	0.38
Fine Grading	Graders	1	8.00	187	0.41
Fine Grading	Rubber Tired Dozers	1	8.00	247	0.40
Fine Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	541.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Rough Grading	6	15.00	0.00	2,063.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	433.00	85.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	87.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2091	0.0000	2.2091	0.3345	0.0000	0.3345			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**2.2091**	**1.5513**	**3.7605**	**0.3345**	**1.4411**	**1.7756**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0795	2.7009	0.5694	8.0100e-003	0.1783	8.4700e-003	0.1868	0.0489	8.1000e-003	0.0570		857.3418	857.3418	0.0425		858.4054
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.1277**	**2.7291**	**0.9378**	**9.2000e-003**	**0.3016**	**9.2500e-003**	**0.3108**	**0.0816**	**8.8100e-003**	**0.0904**		**976.1357**	**976.1357**	**0.0452**		**977.2657**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9941	0.0000	0.9941	0.1505	0.0000	0.1505			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.9941**	**0.9135**	**1.9076**	**0.1505**	**0.9135**	**1.0641**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0795	2.7009	0.5694	8.0100e-003	0.1783	8.4700e-003	0.1868	0.0489	8.1000e-003	0.0570		857.3418	857.3418	0.0425		858.4054
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.1277**	**2.7291**	**0.9378**	**9.2000e-003**	**0.3016**	**9.2500e-003**	**0.3108**	**0.0816**	**8.8100e-003**	**0.0904**		**976.1357**	**976.1357**	**0.0452**		**977.2657**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0338	0.4421	1.4300e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		142.5527	142.5527	3.1900e-003		142.6324
Total	**0.0579**	**0.0338**	**0.4421**	**1.4300e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**142.5527**	**142.5527**	**3.1900e-003**		**142.6324**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**8.1298**	**0.9462**	**9.0760**	**4.4688**	**0.9462**	**5.4150**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0338	0.4421	1.4300e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		142.5527	142.5527	3.1900e-003		142.6324
Total	**0.0579**	**0.0338**	**0.4421**	**1.4300e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**142.5527**	**142.5527**	**3.1900e-003**		**142.6324**

3.4 Rough Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6014	0.0000	6.6014	3.3749	0.0000	3.3749			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.6014**	**1.1599**	**7.7614**	**3.3749**	**1.0671**	**4.4420**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Rough Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4229	14.3650	3.0281	0.0426	0.9485	0.0450	0.9935	0.2599	0.0431	0.3030		4,559.8256	4,559.8256	0.2263		4,565.4823
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.4711**	**14.3932**	**3.3966**	**0.0438**	**1.0717**	**0.0458**	**1.1175**	**0.2926**	**0.0438**	**0.3364**		**4,678.6196**	**4,678.6196**	**0.2289**		**4,684.3426**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9707	0.0000	2.9707	1.5187	0.0000	1.5187			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0296		0.7725	0.7725		0.7725	0.7725	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**1.0093**	**26.2791**	**18.9906**	**0.0296**	**2.9707**	**0.7725**	**3.7431**	**1.5187**	**0.7725**	**2.2912**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Rough Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4229	14.3650	3.0281	0.0426	0.9485	0.0450	0.9935	0.2599	0.0431	0.3030		4,559.8256	4,559.8256	0.2263		4,565.4823
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.4711**	**14.3932**	**3.3966**	**0.0438**	**1.0717**	**0.0458**	**1.1175**	**0.2926**	**0.0438**	**0.3364**		**4,678.6196**	**4,678.6196**	**0.2289**		**4,684.3426**

3.5 Fine Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.5 Fine Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0296		0.7725	0.7725		0.7725	0.7725	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**1.0093**	**26.2791**	**18.9906**	**0.0296**	**2.9486**	**0.7725**	**3.7210**	**1.5154**	**0.7725**	**2.2879**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.5 Fine Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2636	8.7840	2.0713	0.0232	0.5754	0.0190	0.5944	0.1656	0.0182	0.1838		2,456.1476	2,456.1476	0.1153		2,459.0295
Worker	1.3923	0.8137	10.6359	0.0344	3.5570	0.0224	3.5794	0.9435	0.0206	0.9641		3,429.1847	3,429.1847	0.0767		3,431.1011
Total	**1.6559**	**9.5977**	**12.7072**	**0.0576**	**4.1324**	**0.0414**	**4.1738**	**1.1091**	**0.0388**	**1.1479**		**5,885.3323**	**5,885.3323**	**0.1919**		**5,890.1307**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2636	8.7840	2.0713	0.0232	0.5754	0.0190	0.5944	0.1656	0.0182	0.1838		2,456.1476	2,456.1476	0.1153		2,459.0295
Worker	1.3923	0.8137	10.6359	0.0344	3.5570	0.0224	3.5794	0.9435	0.0206	0.9641		3,429.1847	3,429.1847	0.0767		3,431.1011
Total	**1.6559**	**9.5977**	**12.7072**	**0.0576**	**4.1324**	**0.0414**	**4.1738**	**1.1091**	**0.0388**	**1.1479**		**5,885.3323**	**5,885.3323**	**0.1919**		**5,890.1307**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2459	8.3249	1.9480	0.0229	0.5754	0.0165	0.5919	0.1656	0.0158	0.1814		2,432.2283	2,432.2283	0.1102		2,434.9838
Worker	1.2959	0.7298	9.8003	0.0331	3.5570	0.0219	3.5789	0.9435	0.0201	0.9636		3,303.3370	3,303.3370	0.0688		3,305.0579
Total	**1.5417**	**9.0547**	**11.7484**	**0.0561**	**4.1324**	**0.0384**	**4.1707**	**1.1091**	**0.0359**	**1.1450**		**5,735.5652**	**5,735.5652**	**0.1791**		**5,740.0417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2459	8.3249	1.9480	0.0229	0.5754	0.0165	0.5919	0.1656	0.0158	0.1814		2,432.2283	2,432.2283	0.1102		2,434.9838
Worker	1.2959	0.7298	9.8003	0.0331	3.5570	0.0219	3.5789	0.9435	0.0201	0.9636		3,303.3370	3,303.3370	0.0688		3,305.0579
Total	**1.5417**	**9.0547**	**11.7484**	**0.0561**	**4.1324**	**0.0384**	**4.1707**	**1.1091**	**0.0359**	**1.1450**		**5,735.5652**	**5,735.5652**	**0.1791**		**5,740.0417**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1843	6.4334	1.7537	0.0223	0.5754	7.3200e-003	0.5827	0.1656	7.0000e-003	0.1726		2,363.8068	2,363.8068	0.0942		2,366.1619
Worker	1.2097	0.6564	9.0387	0.0319	3.5570	0.0214	3.5784	0.9435	0.0197	0.9632		3,176.6992	3,176.6992	0.0618		3,178.2444
Total	**1.3940**	**7.0898**	**10.7924**	**0.0541**	**4.1324**	**0.0287**	**4.1611**	**1.1091**	**0.0267**	**1.1358**		**5,540.5059**	**5,540.5059**	**0.1560**		**5,544.4063**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1843	6.4334	1.7537	0.0223	0.5754	7.3200e-003	0.5827	0.1656	7.0000e-003	0.1726		2,363.8068	2,363.8068	0.0942		2,366.1619
Worker	1.2097	0.6564	9.0387	0.0319	3.5570	0.0214	3.5784	0.9435	0.0197	0.9632		3,176.6992	3,176.6992	0.0618		3,178.2444
Total	**1.3940**	**7.0898**	**10.7924**	**0.0541**	**4.1324**	**0.0287**	**4.1611**	**1.1091**	**0.0267**	**1.1358**		**5,540.5059**	**5,540.5059**	**0.1560**		**5,544.4063**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.6 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1783	6.3622	1.6896	0.0221	0.5754	7.2000e-003	0.5826	0.1657	6.8800e-003	0.1725		2,347.6598	2,347.6598	0.0924		2,349.9689
Worker	1.1349	0.5930	8.3897	0.0306	3.5570	0.0210	3.5780	0.9435	0.0193	0.9628		3,050.8485	3,050.8485	0.0557		3,052.2420
Total	**1.3132**	**6.9551**	**10.0793**	**0.0527**	**4.1324**	**0.0282**	**4.1606**	**1.1091**	**0.0262**	**1.1354**		**5,398.5084**	**5,398.5084**	**0.1481**		**5,402.2108**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.0809**	**23.5544**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.6 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1783	6.3622	1.6896	0.0221	0.5754	7.2000e-003	0.5826	0.1657	6.8800e-003	0.1725		2,347.6598	2,347.6598	0.0924		2,349.9689
Worker	1.1349	0.5930	8.3897	0.0306	3.5570	0.0210	3.5780	0.9435	0.0193	0.9628		3,050.8485	3,050.8485	0.0557		3,052.2420
Total	**1.3132**	**6.9551**	**10.0793**	**0.0527**	**4.1324**	**0.0282**	**4.1606**	**1.1091**	**0.0262**	**1.1354**		**5,398.5084**	**5,398.5084**	**0.1481**		**5,402.2108**

3.7 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8814**	**8.2730**	**12.2210**	**0.0189**		**0.3987**	**0.3987**		**0.3685**	**0.3685**		**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

3.7 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0524	0.0274	0.3875	1.4100e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		140.9168	140.9168	2.5700e-003		140.9812
Total	**0.0524**	**0.0274**	**0.3875**	**1.4100e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**140.9168**	**140.9168**	**2.5700e-003**		**140.9812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7524**	**16.0849**	**13.5323**	**0.0189**		**0.5601**	**0.5601**		**0.5601**	**0.5601**	**0.0000**	**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

3.7 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0524	0.0274	0.3875	1.4100e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		140.9168	140.9168	2.5700e-003		140.9812
Total	**0.0524**	**0.0274**	**0.3875**	**1.4100e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**140.9168**	**140.9168**	**2.5700e-003**		**140.9812**

3.8 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	367.8165					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**367.9972**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.8 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2280	0.1191	1.6857	6.1500e-003	0.7147	4.2200e-003	0.7189	0.1896	3.8800e-003	0.1935		612.9880	612.9880	0.0112		613.2680
Total	**0.2280**	**0.1191**	**1.6857**	**6.1500e-003**	**0.7147**	**4.2200e-003**	**0.7189**	**0.1896**	**3.8800e-003**	**0.1935**		**612.9880**	**612.9880**	**0.0112**		**613.2680**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	367.8165					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**367.9304**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.8 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2280	0.1191	1.6857	6.1500e-003	0.7147	4.2200e-003	0.7189	0.1896	3.8800e-003	0.1935		612.9880	612.9880	0.0112		613.2680
Total	**0.2280**	**0.1191**	**1.6857**	**6.1500e-003**	**0.7147**	**4.2200e-003**	**0.7189**	**0.1896**	**3.8800e-003**	**0.1935**		**612.9880**	**612.9880**	**0.0112**		**613.2680**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

Improve Pedestrian Network

Unbundle Parking Cost

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.5911	13.5110	34.2438	0.1312	11.7577	0.1019	11.8596	3.1452	0.0950	3.2402		13,296.9883	13,296.9883	0.4418		13,308.0334
Unmitigated	3.7529	14.4065	38.4059	0.1501	13.6083	0.1156	13.7239	3.6403	0.1078	3.7481		15,209.7799	15,209.7799	0.4922		15,222.0836

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,773.89	2,773.89	2773.89	6,406,597	5,535,346
City Park	0.00	0.00	0.00		
Condo/Townhouse	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,773.89	2,773.89	2,773.89	6,406,597	5,535,346

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15
Unenclosed Parking with	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
City Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Condo/Townhouse	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Strip Mall	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unenclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1349	1.1529	0.4916	7.3600e-003		0.0932	0.0932		0.0932	0.0932		1,471.5626	1,471.5626	0.0282	0.0270	1,480.3074
NaturalGas Unmitigated	0.1422	1.2156	0.5184	7.7600e-003		0.0983	0.0983		0.0983	0.0983		1,551.6474	1,551.6474	0.0297	0.0285	1,560.8681

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	10548.3	0.1138	0.9721	0.4137	6.2000e-003		0.0786	0.0786		0.0786	0.0786		1,240.9733	1,240.9733	0.0238	0.0228	1,248.3478
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	2614.26	0.0282	0.2409	0.1025	1.5400e-003		0.0195	0.0195		0.0195	0.0195		307.5605	307.5605	5.8900e-003	5.6400e-003	309.3882
Strip Mall	26.4658	2.9000e-004	2.5900e-003	2.1800e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		3.1136	3.1136	6.0000e-005	6.0000e-005	3.1321
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1422**	**1.2156**	**0.5184**	**7.7600e-003**		**0.0983**	**0.0983**		**0.0983**	**0.0983**		**1,551.6474**	**1,551.6474**	**0.0297**	**0.0285**	**1,560.8681**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	10.0311	0.1082	0.9244	0.3934	5.9000e-003		0.0747	0.0747		0.0747	0.0747		1,180.1245	1,180.1245	0.0226	0.0216	1,187.1374
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	2.45233	0.0265	0.2260	0.0962	1.4400e-003		0.0183	0.0183		0.0183	0.0183		288.5093	288.5093	5.5300e-003	5.2900e-003	290.2238
Strip Mall	0.0248951	2.7000e-004	2.4400e-003	2.0500e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9288	2.9288	6.0000e-005	5.0000e-005	2.9462
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1349**	**1.1529**	**0.4916**	**7.3500e-003**		**0.0932**	**0.0932**		**0.0932**	**0.0932**		**1,471.5626**	**1,471.5626**	**0.0282**	**0.0270**	**1,480.3074**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	13.0668	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210	0.0000	71.8638	71.8638	0.0691	0.0000	73.5922
Unmitigated	18.4458	1.2563	88.7328	0.1615		8.1898	8.1898		8.1898	8.1898	1,176.1972	71.8638	1,248.0610	5.5676	0.0000	1,387.2515

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.0504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	5.3790	0.7969	48.8488	0.1594		7.9688	7.9688		7.9688	7.9688	1,176.1972	0.0000	1,176.1972	5.4985	0.0000	1,313.6593
Landscaping	1.2025	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210		71.8638	71.8638	0.0691		73.5922
Total	**18.4458**	**1.2563**	**88.7328**	**0.1615**		**8.1898**	**8.1898**		**8.1898**	**8.1898**	**1,176.1972**	**71.8638**	**1,248.0610**	**5.5676**	**0.0000**	**1,387.2515**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.0504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2025	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210		71.8638	71.8638	0.0691		73.5922
Total	**13.0668**	**0.4594**	**39.8840**	**2.1100e-003**		**0.2210**	**0.2210**		**0.2210**	**0.2210**	**0.0000**	**71.8638**	**71.8638**	**0.0691**	**0.0000**	**73.5922**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	0.02	6	268	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.0176	0.0492	0.0449	8.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003		8.9996	8.9996	1.2600e-003		9.0311
Total	**0.0176**	**0.0492**	**0.0449**	**8.0000e-005**		**2.5900e-003**	**2.5900e-003**		**2.5900e-003**	**2.5900e-003**		**8.9996**	**8.9996**	**1.2600e-003**		**9.0311**

11.0 Vegetation

Menlo Uptown Project

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	512.00	Space	0.30	106,156.00	0
City Park	2.20	Acre	2.20	95,832.00	0
Apartments Mid Rise	441.00	Dwelling Unit	2.00	383,433.00	1261
Condo/Townhouse	42.00	Dwelling Unit	0.33	82,126.00	120
Strip Mall	2.10	1000sqft	0.00	2,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E, 2015)

Land Use - The proposed project would develop three residential buildings totaling approximately 466,000 square feet of gross floor area with a total of 483 residential units, 2,100 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements.

Construction Phase - Construction is expected to begin May 2021 and end summer 2024. Phasing based on assumptions provided by Project Applicant. Architectural Coating and Paving phases are default duration.

Grading - Approximately 16,500 cubic yards of soil import.

Demolition - Approximately 118,944 building square footage to be demolished.

Vehicle Trips - Based on trip generation prepared for the project.

Woodstoves - Assuming no hearth as the proposed project would not increase the demand for natural gas as the City's REACH codes would require the buildings to be all electric

Stationary Sources - Emergency Generators and Fire Pumps - Emergency Generators and Fire Pumps - Assuming the emergency generators would run 30 minutes per month.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment

Energy Mitigation - Assuming compliance with 2019 Title 24 standards, installation of high efficiency lighting, and energy-efficient appliances.

Water Mitigation - Assuming low-flow appliances.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

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tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	887.00
tblConstructionPhase	NumDays	20.00	53.00
tblConstructionPhase	NumDays	8.00	38.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	5.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblFireplaces	NumberGas	66.15	0.00
tblFireplaces	NumberGas	6.30	0.00
tblFireplaces	NumberNoFireplace	17.64	441.00
tblFireplaces	NumberNoFireplace	1.68	42.00
tblFireplaces	NumberWood	74.97	0.00
tblFireplaces	NumberWood	7.14	0.00
tblGrading	MaterialImported	0.00	16,500.00
tblLandUse	LandUseSquareFeet	204,800.00	106,156.00
tblLandUse	LandUseSquareFeet	441,000.00	383,433.00
tblLandUse	LandUseSquareFeet	42,000.00	82,126.00
tblLandUse	LotAcreage	4.61	0.30
tblLandUse	LotAcreage	11.61	2.00
tblLandUse	LotAcreage	2.63	0.33
tblLandUse	LotAcreage	0.05	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	268.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.02
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	6.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	ST_TR	6.39	6.29
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	0.00
tblVehicleTrips	ST_TR	42.04	0.00

tblVehicleTrips	SU_TR	5.86	6.29
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	6.65	6.29
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	12.7217	132.0794	86.1300	0.2239	36.6952	5.4133	42.1085	18.1467	5.0020	23.1487	0.0000	22,368.5191	22,368.5191	4.1071	0.0000	22,471.1962
2022	3.3432	24.9045	27.7329	0.0798	4.1324	0.8480	4.9804	1.1091	0.7976	1.9068	0.0000	7,967.5537	7,967.5537	0.7951	0.0000	7,987.4307
2023	3.0580	21.6598	26.6179	0.0780	4.1324	0.7288	4.8612	1.1091	0.6855	1.7946	0.0000	7,785.8236	7,785.8236	0.7663	0.0000	7,804.9800
2024	369.1788	20.5680	25.8389	0.0767	4.1324	0.6418	4.7742	1.1091	0.6034	1.7125	0.0000	7,655.2098	7,655.2098	0.7549	0.0000	7,674.0817
Maximum	**369.1788**	**132.0794**	**86.1300**	**0.2239**	**36.6952**	**5.4133**	**42.1085**	**18.1467**	**5.0020**	**23.1487**	**0.0000**	**22,368.5191**	**22,368.5191**	**4.1071**	**0.0000**	**22,471.1962**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	6.6612	134.5108	95.5006	0.2239	19.5242	3.4851	23.0093	8.9765	3.4803	12.4568	0.0000	22,368.5191	22,368.5191	4.1071	0.0000	22,471.1962
2022	2.7179	32.8432	29.2432	0.0798	4.1324	0.9425	5.0749	1.1091	0.9400	2.0492	0.0000	7,967.5537	7,967.5537	0.7951	0.0000	7,987.4307
2023	2.5661	30.8293	28.2476	0.0780	4.1324	0.9326	5.0650	1.1091	0.9306	2.0397	0.0000	7,785.8236	7,785.8236	0.7663	0.0000	7,804.9799
2024	368.9829	30.6786	27.5458	0.0767	4.1324	0.9320	5.0645	1.1091	0.9300	2.0392	0.0000	7,655.2098	7,655.2098	0.7549	0.0000	7,674.0817
Maximum	**368.9829**	**134.5108**	**95.5006**	**0.2239**	**19.5242**	**3.4851**	**23.0093**	**8.9765**	**3.4803**	**12.4568**	**0.0000**	**22,368.5191**	**22,368.5191**	**4.1071**	**0.0000**	**22,471.1962**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.90**	**-14.88**	**-8.55**	**0.00**	**34.98**	**17.55**	**32.63**	**42.70**	**11.39**	**34.93**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	18.4458	1.2563	88.7328	0.1615		8.1898	8.1898		8.1898	8.1898	1,176.1972	71.8638	1,248.0610	5.5676	0.0000	1,387.2515
Energy	0.1422	1.2156	0.5184	7.7600e-003		0.0983	0.0983		0.0983	0.0983		1,551.6474	1,551.6474	0.0297	0.0285	1,560.8681
Mobile	3.2235	15.0981	38.5102	0.1406	13.6083	0.1161	13.7244	3.6403	0.1083	3.7486		14,251.3067	14,251.3067	0.5017		14,263.8495
Stationary	0.0176	0.0492	0.0449	8.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003		8.9996	8.9996	1.2600e-003		9.0311
Total	**21.8291**	**17.6192**	**127.8063**	**0.3100**	**13.6083**	**8.4067**	**22.0151**	**3.6403**	**8.3990**	**12.0392**	**1,176.1972**	**15,883.8174**	**17,060.0147**	**6.1003**	**0.0285**	**17,221.0002**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	13.0668	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210	0.0000	71.8638	71.8638	0.0691	0.0000	73.5922
Energy	0.1349	1.1529	0.4916	7.3600e-003		0.0932	0.0932		0.0932	0.0932		1,471.5626	1,471.5626	0.0282	0.0270	1,480.3074
Mobile	3.0636	14.1022	34.8043	0.1229	11.7577	0.1024	11.8601	3.1452	0.0955	3.2407		12,454.9195	12,454.9195	0.4534		12,466.2542
Stationary	0.0176	0.0492	0.0449	8.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003		8.9996	8.9996	1.2600e-003		9.0311
Total	**16.2829**	**15.7636**	**75.2247**	**0.1324**	**11.7577**	**0.4191**	**12.1768**	**3.1452**	**0.4122**	**3.5575**	**0.0000**	**14,007.3454**	**14,007.3454**	**0.5520**	**0.0270**	**14,029.1850**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**25.41**	**10.53**	**41.14**	**57.27**	**13.60**	**95.01**	**44.69**	**13.60**	**95.09**	**70.45**	**100.00**	**11.81**	**17.89**	**90.95**	**5.17**	**18.53**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/3/2021	7/2/2021	6	53	
2	Site Preparation	Site Preparation	7/5/2021	8/3/2021	6	26	
3	Rough Grading	Grading	7/5/2021	8/17/2021	6	38	
4	Fine Grading	Grading	8/2/2021	9/16/2021	6	40	
5	Building Construction	Building Construction	8/2/2021	5/31/2024	6	887	
6	Paving	Paving	6/3/2024	6/22/2024	6	18	
7	Architectural Coating	Architectural Coating	6/3/2024	6/22/2024	6	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.3

Residential Indoor: 942,757; Residential Outdoor: 314,252; Non-Residential Indoor: 3,150; Non-Residential Outdoor: 1,050; Striped Parking Area: 6,369 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Rough Grading	Excavators	1	8.00	158	0.38
Rough Grading	Graders	1	8.00	187	0.41
Rough Grading	Rubber Tired Dozers	1	8.00	247	0.40
Rough Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Fine Grading	Excavators	1	8.00	158	0.38
Fine Grading	Graders	1	8.00	187	0.41
Fine Grading	Rubber Tired Dozers	1	8.00	247	0.40
Fine Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	541.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Rough Grading	6	15.00	0.00	2,063.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	433.00	85.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	87.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2091	0.0000	2.2091	0.3345	0.0000	0.3345			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**2.2091**	**1.5513**	**3.7605**	**0.3345**	**1.4411**	**1.7756**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0817	2.7641	0.6112	7.8700e-003	0.1783	8.6200e-003	0.1870	0.0489	8.2500e-003	0.0571		842.8480	842.8480	0.0446		843.9632
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.1328**	**2.7989**	**0.9560**	**8.9700e-003**	**0.3016**	**9.4000e-003**	**0.3110**	**0.0816**	**8.9600e-003**	**0.0905**		**952.2785**	**952.2785**	**0.0471**		**953.4556**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9941	0.0000	0.9941	0.1505	0.0000	0.1505			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.9941**	**0.9135**	**1.9076**	**0.1505**	**0.9135**	**1.0641**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0817	2.7641	0.6112	7.8700e-003	0.1783	8.6200e-003	0.1870	0.0489	8.2500e-003	0.0571		842.8480	842.8480	0.0446		843.9632
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.1328**	**2.7989**	**0.9560**	**8.9700e-003**	**0.3016**	**9.4000e-003**	**0.3110**	**0.0816**	**8.9600e-003**	**0.0905**		**952.2785**	**952.2785**	**0.0471**		**953.4556**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0613	0.0418	0.4137	1.3200e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		131.3166	131.3166	2.9700e-003		131.3909
Total	**0.0613**	**0.0418**	**0.4137**	**1.3200e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**131.3166**	**131.3166**	**2.9700e-003**		**131.3909**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**8.1298**	**0.9462**	**9.0760**	**4.4688**	**0.9462**	**5.4150**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0613	0.0418	0.4137	1.3200e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		131.3166	131.3166	2.9700e-003		131.3909
Total	**0.0613**	**0.0418**	**0.4137**	**1.3200e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**131.3166**	**131.3166**	**2.9700e-003**		**131.3909**

3.4 Rough Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6014	0.0000	6.6014	3.3749	0.0000	3.3749			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.6014**	**1.1599**	**7.7614**	**3.3749**	**1.0671**	**4.4420**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Rough Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4343	14.7009	3.2509	0.0419	0.9485	0.0458	0.9943	0.2599	0.0439	0.3038		4,482.7393	4,482.7393	0.2373		4,488.6708
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.4854**	**14.7357**	**3.5956**	**0.0430**	**1.0717**	**0.0466**	**1.1183**	**0.2926**	**0.0446**	**0.3372**		**4,592.1698**	**4,592.1698**	**0.2397**		**4,598.1632**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9707	0.0000	2.9707	1.5187	0.0000	1.5187			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0296		0.7725	0.7725		0.7725	0.7725	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**1.0093**	**26.2791**	**18.9906**	**0.0296**	**2.9707**	**0.7725**	**3.7431**	**1.5187**	**0.7725**	**2.2912**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.4 Rough Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4343	14.7009	3.2509	0.0419	0.9485	0.0458	0.9943	0.2599	0.0439	0.3038		4,482.7393	4,482.7393	0.2373		4,488.6708
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.4854**	**14.7357**	**3.5956**	**0.0430**	**1.0717**	**0.0466**	**1.1183**	**0.2926**	**0.0446**	**0.3372**		**4,592.1698**	**4,592.1698**	**0.2397**		**4,598.1632**

3.5 Fine Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.2903	24.7367	15.8575	0.0296		1.1599	1.1599		1.0671	1.0671		2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**2.2903**	**24.7367**	**15.8575**	**0.0296**	**6.5523**	**1.1599**	**7.7123**	**3.3675**	**1.0671**	**4.4346**		**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.5 Fine Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9486	0.0000	2.9486	1.5154	0.0000	1.5154			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0296		0.7725	0.7725		0.7725	0.7725	0.0000	2,871.9285	2,871.9285	0.9288		2,895.1495
Total	**1.0093**	**26.2791**	**18.9906**	**0.0296**	**2.9486**	**0.7725**	**3.7210**	**1.5154**	**0.7725**	**2.2879**	**0.0000**	**2,871.9285**	**2,871.9285**	**0.9288**		**2,895.1495**

3.5 Fine Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2792	8.8595	2.3808	0.0226	0.5754	0.0197	0.5951	0.1656	0.0188	0.1845		2,393.8308	2,393.8308	0.1247		2,396.9486
Worker	1.4749	1.0050	9.9508	0.0317	3.5570	0.0224	3.5794	0.9435	0.0206	0.9641		3,158.8937	3,158.8937	0.0715		3,160.6806
Total	**1.7541**	**9.8646**	**12.3316**	**0.0543**	**4.1324**	**0.0421**	**4.1744**	**1.1091**	**0.0394**	**1.1486**		**5,552.7244**	**5,552.7244**	**0.1962**		**5,557.6292**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2792	8.8595	2.3808	0.0226	0.5754	0.0197	0.5951	0.1656	0.0188	0.1845		2,393.8308	2,393.8308	0.1247		2,396.9486
Worker	1.4749	1.0050	9.9508	0.0317	3.5570	0.0224	3.5794	0.9435	0.0206	0.9641		3,158.8937	3,158.8937	0.0715		3,160.6806
Total	**1.7541**	**9.8646**	**12.3316**	**0.0543**	**4.1324**	**0.0421**	**4.1744**	**1.1091**	**0.0394**	**1.1486**		**5,552.7244**	**5,552.7244**	**0.1962**		**5,557.6292**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2604	8.3877	2.2381	0.0224	0.5754	0.0171	0.5925	0.1656	0.0164	0.1820		2,370.1307	2,370.1307	0.1191		2,373.1091
Worker	1.3766	0.9011	9.1314	0.0305	3.5570	0.0219	3.5789	0.9435	0.0201	0.9636		3,043.0895	3,043.0895	0.0640		3,044.6894
Total	**1.6370**	**9.2888**	**11.3695**	**0.0529**	**4.1324**	**0.0390**	**4.1713**	**1.1091**	**0.0365**	**1.1456**		**5,413.2201**	**5,413.2201**	**0.1831**		**5,417.7985**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2604	8.3877	2.2381	0.0224	0.5754	0.0171	0.5925	0.1656	0.0164	0.1820		2,370.1307	2,370.1307	0.1191		2,373.1091
Worker	1.3766	0.9011	9.1314	0.0305	3.5570	0.0219	3.5789	0.9435	0.0201	0.9636		3,043.0895	3,043.0895	0.0640		3,044.6894
Total	**1.6370**	**9.2888**	**11.3695**	**0.0529**	**4.1324**	**0.0390**	**4.1713**	**1.1091**	**0.0365**	**1.1456**		**5,413.2201**	**5,413.2201**	**0.1831**		**5,417.7985**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1958	6.4648	1.9874	0.0217	0.5754	7.6500e-003	0.5831	0.1656	7.3100e-003	0.1730		2,304.0613	2,304.0613	0.1011		2,306.5898
Worker	1.2895	0.8101	8.3865	0.0293	3.5570	0.0214	3.5784	0.9435	0.0197	0.9632		2,926.5524	2,926.5524	0.0573		2,927.9841
Total	**1.4853**	**7.2749**	**10.3739**	**0.0511**	**4.1324**	**0.0291**	**4.1615**	**1.1091**	**0.0270**	**1.1361**		**5,230.6137**	**5,230.6137**	**0.1584**		**5,234.5739**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1958	6.4648	1.9874	0.0217	0.5754	7.6500e-003	0.5831	0.1656	7.3100e-003	0.1730		2,304.0613	2,304.0613	0.1011		2,306.5898
Worker	1.2895	0.8101	8.3865	0.0293	3.5570	0.0214	3.5784	0.9435	0.0197	0.9632		2,926.5524	2,926.5524	0.0573		2,927.9841
Total	**1.4853**	**7.2749**	**10.3739**	**0.0511**	**4.1324**	**0.0291**	**4.1615**	**1.1091**	**0.0270**	**1.1361**		**5,230.6137**	**5,230.6137**	**0.1584**		**5,234.5739**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.6 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1892	6.3926	1.9126	0.0216	0.5754	7.4900e-003	0.5829	0.1657	7.1600e-003	0.1728		2,288.7774	2,288.7774	0.0990		2,291.2534
Worker	1.2146	0.7316	7.7595	0.0282	3.5570	0.0210	3.5780	0.9435	0.0193	0.9628		2,810.7335	2,810.7335	0.0515		2,812.0207
Total	**1.4038**	**7.1242**	**9.6721**	**0.0497**	**4.1324**	**0.0285**	**4.1609**	**1.1091**	**0.0265**	**1.1356**		**5,099.5109**	**5,099.5109**	**0.1505**		**5,103.2741**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0809	23.5544	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.0809**	**23.5544**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.6 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1892	6.3926	1.9126	0.0216	0.5754	7.4900e-003	0.5829	0.1657	7.1600e-003	0.1728		2,288.7774	2,288.7774	0.0990		2,291.2534
Worker	1.2146	0.7316	7.7595	0.0282	3.5570	0.0210	3.5780	0.9435	0.0193	0.9628		2,810.7335	2,810.7335	0.0515		2,812.0207
Total	**1.4038**	**7.1242**	**9.6721**	**0.0497**	**4.1324**	**0.0285**	**4.1609**	**1.1091**	**0.0265**	**1.1356**		**5,099.5109**	**5,099.5109**	**0.1505**		**5,103.2741**

3.7 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8814	8.2730	12.2210	0.0189		0.3987	0.3987		0.3685	0.3685		1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8814**	**8.2730**	**12.2210**	**0.0189**		**0.3987**	**0.3987**		**0.3685**	**0.3685**		**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

3.7 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0338	0.3584	1.3000e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		129.8260	129.8260	2.3800e-003		129.8855
Total	**0.0561**	**0.0338**	**0.3584**	**1.3000e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**129.8260**	**129.8260**	**2.3800e-003**		**129.8855**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,805.6205	1,805.6205	0.5673		1,819.8039
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7524**	**16.0849**	**13.5323**	**0.0189**		**0.5601**	**0.5601**		**0.5601**	**0.5601**	**0.0000**	**1,805.6205**	**1,805.6205**	**0.5673**		**1,819.8039**

3.7 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0561	0.0338	0.3584	1.3000e-003	0.1643	9.7000e-004	0.1653	0.0436	8.9000e-004	0.0445		129.8260	129.8260	2.3800e-003		129.8855
Total	**0.0561**	**0.0338**	**0.3584**	**1.3000e-003**	**0.1643**	**9.7000e-004**	**0.1653**	**0.0436**	**8.9000e-004**	**0.0445**		**129.8260**	**129.8260**	**2.3800e-003**		**129.8855**

3.8 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	367.8165					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**367.9972**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.8 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2440	0.1470	1.5591	5.6600e-003	0.7147	4.2200e-003	0.7189	0.1896	3.8800e-003	0.1935		564.7432	564.7432	0.0104		565.0019
Total	**0.2440**	**0.1470**	**1.5591**	**5.6600e-003**	**0.7147**	**4.2200e-003**	**0.7189**	**0.1896**	**3.8800e-003**	**0.1935**		**564.7432**	**564.7432**	**0.0104**		**565.0019**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	367.8165					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**367.9304**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.8 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2440	0.1470	1.5591	5.6600e-003	0.7147	4.2200e-003	0.7189	0.1896	3.8800e-003	0.1935		564.7432	564.7432	0.0104		565.0019
Total	**0.2440**	**0.1470**	**1.5591**	**5.6600e-003**	**0.7147**	**4.2200e-003**	**0.7189**	**0.1896**	**3.8800e-003**	**0.1935**		**564.7432**	**564.7432**	**0.0104**		**565.0019**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

Improve Pedestrian Network

Unbundle Parking Cost

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0636	14.1022	34.8043	0.1229	11.7577	0.1024	11.8601	3.1452	0.0955	3.2407		12,454.9195	12,454.9195	0.4534		12,466.2542
Unmitigated	3.2235	15.0981	38.5102	0.1406	13.6083	0.1161	13.7244	3.6403	0.1083	3.7486		14,251.3067	14,251.3067	0.5017		14,263.8495

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,773.89	2,773.89	2773.89	6,406,597	5,535,346
City Park	0.00	0.00	0.00		
Condo/Townhouse	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,773.89	2,773.89	2,773.89	6,406,597	5,535,346

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15
Unenclosed Parking with	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
City Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Condo/Townhouse	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Strip Mall	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unenclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1349	1.1529	0.4916	7.3600e-003		0.0932	0.0932		0.0932	0.0932		1,471.5626	1,471.5626	0.0282	0.0270	1,480.3074
NaturalGas Unmitigated	0.1422	1.2156	0.5184	7.7600e-003		0.0983	0.0983		0.0983	0.0983		1,551.6474	1,551.6474	0.0297	0.0285	1,560.8681

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	10548.3	0.1138	0.9721	0.4137	6.2000e-003		0.0786	0.0786		0.0786	0.0786		1,240.9733	1,240.9733	0.0238	0.0228	1,248.3478
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	2614.26	0.0282	0.2409	0.1025	1.5400e-003		0.0195	0.0195		0.0195	0.0195		307.5605	307.5605	5.8900e-003	5.6400e-003	309.3882
Strip Mall	26.4658	2.9000e-004	2.5900e-003	2.1800e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004		3.1136	3.1136	6.0000e-005	6.0000e-005	3.1321
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1422**	**1.2156**	**0.5184**	**7.7600e-003**		**0.0983**	**0.0983**		**0.0983**	**0.0983**		**1,551.6474**	**1,551.6474**	**0.0297**	**0.0285**	**1,560.8681**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	10.0311	0.1082	0.9244	0.3934	5.9000e-003		0.0747	0.0747		0.0747	0.0747		1,180.1245	1,180.1245	0.0226	0.0216	1,187.1374
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	2.45233	0.0265	0.2260	0.0962	1.4400e-003		0.0183	0.0183		0.0183	0.0183		288.5093	288.5093	5.5300e-003	5.2900e-003	290.2238
Strip Mall	0.0248951	2.7000e-004	2.4400e-003	2.0500e-003	1.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		2.9288	2.9288	6.0000e-005	5.0000e-005	2.9462
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.1349**	**1.1529**	**0.4916**	**7.3500e-003**		**0.0932**	**0.0932**		**0.0932**	**0.0932**		**1,471.5626**	**1,471.5626**	**0.0282**	**0.0270**	**1,480.3074**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	13.0668	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210	0.0000	71.8638	71.8638	0.0691	0.0000	73.5922
Unmitigated	18.4458	1.2563	88.7328	0.1615		8.1898	8.1898		8.1898	8.1898	1,176.1972	71.8638	1,248.0610	5.5676	0.0000	1,387.2515

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.0504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	5.3790	0.7969	48.8488	0.1594		7.9688	7.9688		7.9688	7.9688	1,176.1972	0.0000	1,176.1972	5.4985	0.0000	1,313.6593
Landscaping	1.2025	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210		71.8638	71.8638	0.0691		73.5922
Total	**18.4458**	**1.2563**	**88.7328**	**0.1615**		**8.1898**	**8.1898**		**8.1898**	**8.1898**	**1,176.1972**	**71.8638**	**1,248.0610**	**5.5676**	**0.0000**	**1,387.2515**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.8139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	10.0504					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2025	0.4594	39.8840	2.1100e-003		0.2210	0.2210		0.2210	0.2210		71.8638	71.8638	0.0691		73.5922
Total	**13.0668**	**0.4594**	**39.8840**	**2.1100e-003**		**0.2210**	**0.2210**		**0.2210**	**0.2210**	**0.0000**	**71.8638**	**71.8638**	**0.0691**	**0.0000**	**73.5922**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	0.02	6	268	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.0176	0.0492	0.0449	8.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003		8.9996	8.9996	1.2600e-003		9.0311
Total	**0.0176**	**0.0492**	**0.0449**	**8.0000e-005**		**2.5900e-003**	**2.5900e-003**		**2.5900e-003**	**2.5900e-003**		**8.9996**	**8.9996**	**1.2600e-003**		**9.0311**

11.0 Vegetation

Menlo Uptown Project - Mitigated

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unenclosed Parking with Elevator	512.00	Space	0.30	106,156.00	0
City Park	2.20	Acre	2.20	95,832.00	0
Apartments Mid Rise	441.00	Dwelling Unit	2.00	383,433.00	1261
Condo/Townhouse	42.00	Dwelling Unit	0.33	82,126.00	120
Strip Mall	2.10	1000sqft	0.00	2,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E, 2015)

Land Use - The proposed project would develop three residential buildings totaling approximately 466,000 square feet of gross floor area with a total of 483 residential units, 2,100 square feet of commercial space, associated open space, circulation and parking, and infrastructure improvements.

Construction Phase - Construction is expected to begin May 2021 and end summer 2024. Phasing based on assumptions provided by Project Applicant. Architectural Coating and Paving phases are default duration.

Grading - Approximately 16,500 cubic yards of soil import.

Demolition - Approximately 118,944 building square footage to be demolished.

Vehicle Trips - Based on trip generation prepared for the project.

Woodstoves - Assuming no hearth as the proposed project would not increase the demand for natural gas as the City's REACH codes would require the buildings to be all electric

Stationary Sources - Emergency Generators and Fire Pumps - Emergency Generators and Fire Pumps - Assuming the emergency generators would run 30 minutes per month.

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 4 construction equipment mitigation

Energy Mitigation - Assuming compliance with 2019 Title 24 standards, installation of high efficiency lighting, and energy-efficient appliances.

Water Mitigation - Assuming low-flow appliances.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	887.00
tblConstructionPhase	NumDays	20.00	53.00
tblConstructionPhase	NumDays	8.00	38.00
tblConstructionPhase	NumDays	8.00	40.00
tblConstructionPhase	NumDays	5.00	26.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblFireplaces	NumberGas	66.15	0.00
tblFireplaces	NumberGas	6.30	0.00
tblFireplaces	NumberNoFireplace	17.64	441.00
tblFireplaces	NumberNoFireplace	1.68	42.00
tblFireplaces	NumberWood	74.97	0.00
tblFireplaces	NumberWood	7.14	0.00
tblGrading	MaterialImported	0.00	16,500.00
tblLandUse	LandUseSquareFeet	204,800.00	106,156.00
tblLandUse	LandUseSquareFeet	441,000.00	383,433.00
tblLandUse	LandUseSquareFeet	42,000.00	82,126.00
tblLandUse	LotAcreage	4.61	0.30
tblLandUse	LotAcreage	11.61	2.00
tblLandUse	LotAcreage	2.63	0.33
tblLandUse	LotAcreage	0.05	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	268.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.02
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	6.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblVehicleTrips	ST_TR	6.39	6.29
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	0.00

tblVehicleTrips	ST_TR	42.04	0.00
tblVehicleTrips	SU_TR	5.86	6.29
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	0.00
tblVehicleTrips	SU_TR	20.43	0.00
tblVehicleTrips	WD_TR	6.65	6.29
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	0.00
tblVehicleTrips	WD_TR	44.32	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4670	4.4617	3.4340	9.1400e-003	0.8421	0.1796	1.0217	0.3482	0.1670	0.5152	0.0000	827.3701	827.3701	0.1254	0.0000	830.5061
2022	0.5003	3.8884	4.2837	0.0126	0.6227	0.1327	0.7554	0.1677	0.1248	0.2925	0.0000	1,140.3244	1,140.3244	0.1122	0.0000	1,143.1292
2023	0.4555	3.3707	4.1057	0.0123	0.6207	0.1137	0.7344	0.1672	0.1069	0.2741	0.0000	1,110.6152	1,110.6152	0.1079	0.0000	1,113.3133
2024	3.5020	1.4311	1.8179	5.3200e-003	0.2682	0.0462	0.3144	0.0722	0.0434	0.1156	0.0000	481.2247	481.2247	0.0495	0.0000	482.4626
Maximum	**3.5020**	**4.4617**	**4.2837**	**0.0126**	**0.8421**	**0.1796**	**1.0217**	**0.3482**	**0.1670**	**0.5152**	**0.0000**	**1,140.3244**	**1,140.3244**	**0.1254**	**0.0000**	**1,143.1292**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1726	1.2826	3.6076	9.1400e-003	0.5397	0.0109	0.5506	0.2000	0.0107	0.2107	0.0000	827.3696	827.3696	0.1254	0.0000	830.5056
2022	0.2845	1.7943	4.4554	0.0126	0.6227	0.0124	0.6351	0.1677	0.0120	0.1797	0.0000	1,140.3240	1,140.3240	0.1122	0.0000	1,143.1287
2023	0.2613	1.4752	4.2955	0.0123	0.6207	0.0109	0.6316	0.1672	0.0106	0.1777	0.0000	1,110.6147	1,110.6147	0.1079	0.0000	1,113.3129
2024	3.4198	0.6212	1.9146	5.3200e-003	0.2682	4.8700e-003	0.2731	0.0722	4.7400e-003	0.0769	0.0000	481.2245	481.2245	0.0495	0.0000	482.4624
Maximum	**3.4198**	**1.7943**	**4.4554**	**0.0126**	**0.6227**	**0.0124**	**0.6351**	**0.2000**	**0.0120**	**0.2107**	**0.0000**	**1,140.3240**	**1,140.3240**	**0.1254**	**0.0000**	**1,143.1287**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.97**	**60.67**	**-4.63**	**0.00**	**12.85**	**91.73**	**26.03**	**19.62**	**91.41**	**46.12**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**5-3-2021**	**8-2-2021**	2.0775	0.3867
2	**8-3-2021**	**11-2-2021**	2.0222	0.6979
3	**11-3-2021**	**2-2-2022**	1.1821	0.5493
4	**2-3-2022**	**5-2-2022**	1.0729	0.5100
5	**5-3-2022**	**8-2-2022**	1.1008	0.5188
6	**8-3-2022**	**11-2-2022**	1.1054	0.5235
7	**11-3-2022**	**2-2-2023**	1.0638	0.5012
8	**2-3-2023**	**5-2-2023**	0.9390	0.4281

9	**5-3-2023**	**8-2-2023**	0.9637	0.4355
10	**8-3-2023**	**11-2-2023**	0.9676	0.4394
11	**11-3-2023**	**2-2-2024**	0.9566	0.4432
12	**2-3-2024**	**5-2-2024**	0.9007	0.4242
13	**5-3-2024**	**8-2-2024**	3.5350	3.3024
		Highest	3.5350	3.3024

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.3114	0.0470	3.9344	1.3100e-003		0.0762	0.0762		0.0762	0.0762	7.5332	5.8674	13.4007	0.0409	0.0000	14.4222
Energy	0.0260	0.2219	0.0946	1.4200e-003		0.0179	0.0179		0.0179	0.0179	0.0000	599.8986	599.8986	0.0352	0.0110	604.0468
Mobile	0.5932	2.6996	6.7049	0.0258	2.3839	0.0211	2.4049	0.6397	0.0196	0.6594	0.0000	2,375.4818	2,375.4818	0.0808	0.0000	2,377.5027
Stationary	2.6400e-003	7.3800e-003	6.7300e-003	1.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	1.2246	1.2246	1.7000e-004	0.0000	1.2289
Waste						0.0000	0.0000		0.0000	0.0000	45.5877	0.0000	45.5877	2.6942	0.0000	112.9416
Water						0.0000	0.0000		0.0000	0.0000	10.0331	37.2955	47.3287	1.0338	0.0250	80.6272
Total	**2.9332**	**2.9758**	**10.7406**	**0.0286**	**2.3839**	**0.1155**	**2.4994**	**0.6397**	**0.1141**	**0.7539**	**63.1541**	**3,019.7680**	**3,082.9221**	**3.8850**	**0.0360**	**3,190.7695**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2735	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Energy	0.0246	0.2104	0.0897	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	568.3039	568.3039	0.0333	0.0104	572.2331
Mobile	0.5643	2.5258	6.0330	0.0226	2.0597	0.0186	2.0783	0.5527	0.0173	0.5701	0.0000	2,077.1324	2,077.1324	0.0729	0.0000	2,078.9538
Stationary	2.6400e-003	7.3800e-003	6.7300e-003	1.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	1.2246	1.2246	1.7000e-004	0.0000	1.2289
Waste						0.0000	0.0000		0.0000	0.0000	11.3969	0.0000	11.3969	0.6735	0.0000	28.2354
Water						0.0000	0.0000		0.0000	0.0000	8.0265	32.1912	40.2178	0.8272	0.0201	66.8746
Total	**2.8650**	**2.7850**	**9.7190**	**0.0241**	**2.0597**	**0.0558**	**2.1155**	**0.5527**	**0.0546**	**0.6073**	**19.4234**	**2,684.7195**	**2,704.1430**	**1.6128**	**0.0304**	**2,753.5344**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.32**	**6.41**	**9.51**	**15.58**	**13.60**	**51.66**	**15.36**	**13.60**	**52.15**	**19.43**	**69.24**	**11.10**	**12.29**	**58.49**	**15.40**	**13.70**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/3/2021	7/2/2021	6	53	
2	Site Preparation	Site Preparation	7/5/2021	8/3/2021	6	26	
3	Rough Grading	Grading	7/5/2021	8/17/2021	6	38	
4	Fine Grading	Grading	8/2/2021	9/16/2021	6	40	
5	Building Construction	Building Construction	8/2/2021	5/31/2024	6	887	
6	Paving	Paving	6/3/2024	6/22/2024	6	18	
7	Architectural Coating	Architectural Coating	6/3/2024	6/22/2024	6	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.3

Residential Indoor: 942,757; Residential Outdoor: 314,252; Non-Residential Indoor: 3,150; Non-Residential Outdoor: 1,050; Striped Parking Area: 6,369 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Rough Grading	Excavators	1	8.00	158	0.38
Rough Grading	Graders	1	8.00	187	0.41
Rough Grading	Rubber Tired Dozers	1	8.00	247	0.40
Rough Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Fine Grading	Excavators	1	8.00	158	0.38
Fine Grading	Graders	1	8.00	187	0.41
Fine Grading	Rubber Tired Dozers	1	8.00	247	0.40
Fine Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	541.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Rough Grading	6	15.00	0.00	2,063.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	433.00	85.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	87.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0585	0.0000	0.0585	8.8600e-003	0.0000	8.8600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0839	0.8332	0.5715	1.0300e-003		0.0411	0.0411		0.0382	0.0382	0.0000	90.1021	90.1021	0.0254	0.0000	90.7361
Total	**0.0839**	**0.8332**	**0.5715**	**1.0300e-003**	**0.0585**	**0.0411**	**0.0997**	**8.8600e-003**	**0.0382**	**0.0471**	**0.0000**	**90.1021**	**90.1021**	**0.0254**	**0.0000**	**90.7361**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1300e-003	0.0730	0.0156	2.1000e-004	4.5700e-003	2.3000e-004	4.8000e-003	1.2600e-003	2.2000e-004	1.4700e-003	0.0000	20.4645	20.4645	1.0400e-003	0.0000	20.4906
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.4000e-004	8.9200e-003	3.0000e-005	3.1400e-003	2.0000e-005	3.1600e-003	8.4000e-004	2.0000e-005	8.5000e-004	0.0000	2.6553	2.6553	6.0000e-005	0.0000	2.6568
Total	**3.3500e-003**	**0.0738**	**0.0245**	**2.4000e-004**	**7.7100e-003**	**2.5000e-004**	**7.9600e-003**	**2.1000e-003**	**2.4000e-004**	**2.3200e-003**	**0.0000**	**23.1198**	**23.1198**	**1.1000e-003**	**0.0000**	**23.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0263	0.0000	0.0263	3.9900e-003	0.0000	3.9900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0123	0.0531	0.6169	1.0300e-003		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	90.1020	90.1020	0.0254	0.0000	90.7360
Total	**0.0123**	**0.0531**	**0.6169**	**1.0300e-003**	**0.0263**	**1.6300e-003**	**0.0280**	**3.9900e-003**	**1.6300e-003**	**5.6200e-003**	**0.0000**	**90.1020**	**90.1020**	**0.0254**	**0.0000**	**90.7360**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1300e-003	0.0730	0.0156	2.1000e-004	4.5700e-003	2.3000e-004	4.8000e-003	1.2600e-003	2.2000e-004	1.4700e-003	0.0000	20.4645	20.4645	1.0400e-003	0.0000	20.4906
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	8.4000e-004	8.9200e-003	3.0000e-005	3.1400e-003	2.0000e-005	3.1600e-003	8.4000e-004	2.0000e-005	8.5000e-004	0.0000	2.6553	2.6553	6.0000e-005	0.0000	2.6568
Total	**3.3500e-003**	**0.0738**	**0.0245**	**2.4000e-004**	**7.7100e-003**	**2.5000e-004**	**7.9600e-003**	**2.1000e-003**	**2.4000e-004**	**2.3200e-003**	**0.0000**	**23.1198**	**23.1198**	**1.1000e-003**	**0.0000**	**23.1474**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2349	0.0000	0.2349	0.1291	0.0000	0.1291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0506	0.5265	0.2750	4.9000e-004		0.0266	0.0266		0.0245	0.0245	0.0000	43.4664	43.4664	0.0141	0.0000	43.8179
Total	**0.0506**	**0.5265**	**0.2750**	**4.9000e-004**	**0.2349**	**0.0266**	**0.2614**	**0.1291**	**0.0245**	**0.1536**	**0.0000**	**43.4664**	**43.4664**	**0.0141**	**0.0000**	**43.8179**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.0000e-004	5.2500e-003	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5631	1.5631	4.0000e-005	0.0000	1.5640
Total	**7.2000e-004**	**5.0000e-004**	**5.2500e-003**	**2.0000e-005**	**1.8500e-003**	**1.0000e-005**	**1.8600e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5631**	**1.5631**	**4.0000e-005**	**0.0000**	**1.5640**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1057	0.0000	0.1057	0.0581	0.0000	0.0581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.0262	0.2713	4.9000e-004		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	43.4664	43.4664	0.0141	0.0000	43.8178
Total	**6.0500e-003**	**0.0262**	**0.2713**	**4.9000e-004**	**0.1057**	**8.1000e-004**	**0.1065**	**0.0581**	**8.1000e-004**	**0.0589**	**0.0000**	**43.4664**	**43.4664**	**0.0141**	**0.0000**	**43.8178**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.0000e-004	5.2500e-003	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.5631	1.5631	4.0000e-005	0.0000	1.5640
Total	**7.2000e-004**	**5.0000e-004**	**5.2500e-003**	**2.0000e-005**	**1.8500e-003**	**1.0000e-005**	**1.8600e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.5631**	**1.5631**	**4.0000e-005**	**0.0000**	**1.5640**

3.4 Rough Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1254	0.0000	0.1254	0.0641	0.0000	0.0641	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0435	0.4700	0.3013	5.6000e-004		0.0220	0.0220		0.0203	0.0203	0.0000	49.5020	49.5020	0.0160	0.0000	49.9023
Total	**0.0435**	**0.4700**	**0.3013**	**5.6000e-004**	**0.1254**	**0.0220**	**0.1475**	**0.0641**	**0.0203**	**0.0844**	**0.0000**	**49.5020**	**49.5020**	**0.0160**	**0.0000**	**49.9023**

3.4 Rough Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1300e-003	0.2784	0.0593	8.0000e-004	0.0174	8.6000e-004	0.0183	4.7900e-003	8.2000e-004	5.6200e-003	0.0000	78.0374	78.0374	3.9800e-003	0.0000	78.1370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7000e-004	6.0000e-004	6.3900e-003	2.0000e-005	2.2500e-003	1.0000e-005	2.2700e-003	6.0000e-004	1.0000e-005	6.1000e-004	0.0000	1.9038	1.9038	4.0000e-005	0.0000	1.9048
Total	**9.0000e-003**	**0.2790**	**0.0657**	**8.2000e-004**	**0.0197**	**8.7000e-004**	**0.0206**	**5.3900e-003**	**8.3000e-004**	**6.2300e-003**	**0.0000**	**79.9412**	**79.9412**	**4.0200e-003**	**0.0000**	**80.0418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0564	0.0000	0.0564	0.0289	0.0000	0.0289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9000e-003	0.0299	0.3373	5.6000e-004		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	49.5020	49.5020	0.0160	0.0000	49.9022
Total	**6.9000e-003**	**0.0299**	**0.3373**	**5.6000e-004**	**0.0564**	**9.2000e-004**	**0.0574**	**0.0289**	**9.2000e-004**	**0.0298**	**0.0000**	**49.5020**	**49.5020**	**0.0160**	**0.0000**	**49.9022**

3.4 Rough Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.1300e-003	0.2784	0.0593	8.0000e-004	0.0174	8.6000e-004	0.0183	4.7900e-003	8.2000e-004	5.6200e-003	0.0000	78.0374	78.0374	3.9800e-003	0.0000	78.1370
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.7000e-004	6.0000e-004	6.3900e-003	2.0000e-005	2.2500e-003	1.0000e-005	2.2700e-003	6.0000e-004	1.0000e-005	6.1000e-004	0.0000	1.9038	1.9038	4.0000e-005	0.0000	1.9048
Total	**9.0000e-003**	**0.2790**	**0.0657**	**8.2000e-004**	**0.0197**	**8.7000e-004**	**0.0206**	**5.3900e-003**	**8.3000e-004**	**6.2300e-003**	**0.0000**	**79.9412**	**79.9412**	**4.0200e-003**	**0.0000**	**80.0418**

3.5 Fine Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1311	0.0000	0.1311	0.0674	0.0000	0.0674	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0458	0.4947	0.3172	5.9000e-004		0.0232	0.0232		0.0213	0.0213	0.0000	52.1074	52.1074	0.0169	0.0000	52.5287
Total	**0.0458**	**0.4947**	**0.3172**	**5.9000e-004**	**0.1311**	**0.0232**	**0.1543**	**0.0674**	**0.0213**	**0.0887**	**0.0000**	**52.1074**	**52.1074**	**0.0169**	**0.0000**	**52.5287**

3.5 Fine Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.4000e-004	6.7300e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0040	2.0040	4.0000e-005	0.0000	2.0051
Total	**9.2000e-004**	**6.4000e-004**	**6.7300e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0040**	**2.0040**	**4.0000e-005**	**0.0000**	**2.0051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0590	0.0000	0.0590	0.0303	0.0000	0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2600e-003	0.0315	0.3551	5.9000e-004		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	52.1073	52.1073	0.0169	0.0000	52.5287
Total	**7.2600e-003**	**0.0315**	**0.3551**	**5.9000e-004**	**0.0590**	**9.7000e-004**	**0.0599**	**0.0303**	**9.7000e-004**	**0.0313**	**0.0000**	**52.1073**	**52.1073**	**0.0169**	**0.0000**	**52.5287**

3.5 Fine Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.4000e-004	6.7300e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0040	2.0040	4.0000e-005	0.0000	2.0051
Total	**9.2000e-004**	**6.4000e-004**	**6.7300e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0040**	**2.0040**	**4.0000e-005**	**0.0000**	**2.0051**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1245	1.1418	1.0857	1.7600e-003		0.0628	0.0628		0.0590	0.0590	0.0000	151.7224	151.7224	0.0366	0.0000	152.6375
Total	**0.1245**	**1.1418**	**1.0857**	**1.7600e-003**		**0.0628**	**0.0628**		**0.0590**	**0.0590**	**0.0000**	**151.7224**	**151.7224**	**0.0366**	**0.0000**	**152.6375**

3.6 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0177	0.5815	0.1452	1.5000e-003	0.0365	1.2600e-003	0.0378	0.0106	1.2100e-003	0.0118	0.0000	144.3897	144.3897	7.1000e-003	0.0000	144.5672
Worker	0.0870	0.0601	0.6361	2.0900e-003	0.2241	1.4700e-003	0.2256	0.0596	1.3500e-003	0.0610	0.0000	189.4520	189.4520	4.2500e-003	0.0000	189.5582
Total	**0.1047**	**0.6416**	**0.7813**	**3.5900e-003**	**0.2606**	**2.7300e-003**	**0.2633**	**0.0702**	**2.5600e-003**	**0.0727**	**0.0000**	**333.8417**	**333.8417**	**0.0114**	**0.0000**	**334.1254**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7600e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	151.7222	151.7222	0.0366	0.0000	152.6373
Total	**0.0215**	**0.1464**	**1.1436**	**1.7600e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**151.7222**	**151.7222**	**0.0366**	**0.0000**	**152.6373**

3.6 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0177	0.5815	0.1452	1.5000e-003	0.0365	1.2600e-003	0.0378	0.0106	1.2100e-003	0.0118	0.0000	144.3897	144.3897	7.1000e-003	0.0000	144.5672
Worker	0.0870	0.0601	0.6361	2.0900e-003	0.2241	1.4700e-003	0.2256	0.0596	1.3500e-003	0.0610	0.0000	189.4520	189.4520	4.2500e-003	0.0000	189.5582
Total	**0.1047**	**0.6416**	**0.7813**	**3.5900e-003**	**0.2606**	**2.7300e-003**	**0.2633**	**0.0702**	**2.5600e-003**	**0.0727**	**0.0000**	**333.8417**	**333.8417**	**0.0114**	**0.0000**	**334.1254**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2670	2.4439	2.5609	4.2200e-003		0.1266	0.1266		0.1191	0.1191	0.0000	362.6500	362.6500	0.0869	0.0000	364.8220
Total	**0.2670**	**2.4439**	**2.5609**	**4.2200e-003**		**0.1266**	**0.1266**		**0.1191**	**0.1191**	**0.0000**	**362.6500**	**362.6500**	**0.0869**	**0.0000**	**364.8220**

3.6 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0394	1.3159	0.3261	3.5500e-003	0.0872	2.6200e-003	0.0899	0.0252	2.5100e-003	0.0277	0.0000	341.6095	341.6095	0.0162	0.0000	342.0147
Worker	0.1939	0.1287	1.3968	4.8200e-003	0.5355	3.4200e-003	0.5389	0.1425	3.1500e-003	0.1456	0.0000	436.0649	436.0649	9.1000e-003	0.0000	436.2925
Total	**0.2332**	**1.4445**	**1.7228**	**8.3700e-003**	**0.6227**	**6.0400e-003**	**0.6287**	**0.1677**	**5.6600e-003**	**0.1733**	**0.0000**	**777.6744**	**777.6744**	**0.0253**	**0.0000**	**778.3071**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0513	0.3497	2.7325	4.2200e-003		6.3800e-003	6.3800e-003		6.3800e-003	6.3800e-003	0.0000	362.6496	362.6496	0.0869	0.0000	364.8216
Total	**0.0513**	**0.3497**	**2.7325**	**4.2200e-003**		**6.3800e-003**	**6.3800e-003**		**6.3800e-003**	**6.3800e-003**	**0.0000**	**362.6496**	**362.6496**	**0.0869**	**0.0000**	**364.8216**

3.6 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0394	1.3159	0.3261	3.5500e-003	0.0872	2.6200e-003	0.0899	0.0252	2.5100e-003	0.0277	0.0000	341.6095	341.6095	0.0162	0.0000	342.0147
Worker	0.1939	0.1287	1.3968	4.8200e-003	0.5355	3.4200e-003	0.5389	0.1425	3.1500e-003	0.1456	0.0000	436.0649	436.0649	9.1000e-003	0.0000	436.2925
Total	**0.2332**	**1.4445**	**1.7228**	**8.3700e-003**	**0.6227**	**6.0400e-003**	**0.6287**	**0.1677**	**5.6600e-003**	**0.1733**	**0.0000**	**777.6744**	**777.6744**	**0.0253**	**0.0000**	**778.3071**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2454	2.2440	2.5341	4.2000e-003		0.1092	0.1092		0.1027	0.1027	0.0000	361.6154	361.6154	0.0860	0.0000	363.7660
Total	**0.2454**	**2.2440**	**2.5341**	**4.2000e-003**		**0.1092**	**0.1092**		**0.1027**	**0.1027**	**0.0000**	**361.6154**	**361.6154**	**0.0860**	**0.0000**	**363.7660**

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0295	1.0113	0.2910	3.4400e-003	0.0870	1.1600e-003	0.0881	0.0252	1.1100e-003	0.0263	0.0000	330.9748	330.9748	0.0138	0.0000	331.3191
Worker	0.1807	0.1153	1.2807	4.6200e-003	0.5338	3.3400e-003	0.5371	0.1420	3.0800e-003	0.1451	0.0000	418.0249	418.0249	8.1300e-003	0.0000	418.2282
Total	**0.2102**	**1.1266**	**1.5717**	**8.0600e-003**	**0.6207**	**4.5000e-003**	**0.6252**	**0.1671**	**4.1900e-003**	**0.1713**	**0.0000**	**748.9998**	**748.9998**	**0.0219**	**0.0000**	**749.5473**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0511	0.3486	2.7238	4.2000e-003		6.3600e-003	6.3600e-003		6.3600e-003	6.3600e-003	0.0000	361.6150	361.6150	0.0860	0.0000	363.7655
Total	**0.0511**	**0.3486**	**2.7238**	**4.2000e-003**		**6.3600e-003**	**6.3600e-003**		**6.3600e-003**	**6.3600e-003**	**0.0000**	**361.6150**	**361.6150**	**0.0860**	**0.0000**	**363.7655**

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0295	1.0113	0.2910	3.4400e-003	0.0870	1.1600e-003	0.0881	0.0252	1.1100e-003	0.0263	0.0000	330.9748	330.9748	0.0138	0.0000	331.3191
Worker	0.1807	0.1153	1.2807	4.6200e-003	0.5338	3.3400e-003	0.5371	0.1420	3.0800e-003	0.1451	0.0000	418.0249	418.0249	8.1300e-003	0.0000	418.2282
Total	**0.2102**	**1.1266**	**1.5717**	**8.0600e-003**	**0.6207**	**4.5000e-003**	**0.6252**	**0.1671**	**4.1900e-003**	**0.1713**	**0.0000**	**748.9998**	**748.9998**	**0.0219**	**0.0000**	**749.5473**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0964	0.8806	1.0589	1.7700e-003		0.0402	0.0402		0.0378	0.0378	0.0000	151.8612	151.8612	0.0359	0.0000	152.7589
Total	**0.0964**	**0.8806**	**1.0589**	**1.7700e-003**		**0.0402**	**0.0402**		**0.0378**	**0.0378**	**0.0000**	**151.8612**	**151.8612**	**0.0359**	**0.0000**	**152.7589**

3.6 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0120	0.4199	0.1176	1.4300e-003	0.0365	4.8000e-004	0.0370	0.0106	4.6000e-004	0.0110	0.0000	138.0291	138.0291	5.6700e-003	0.0000	138.1707
Worker	0.0713	0.0437	0.4981	1.8600e-003	0.2241	1.3800e-003	0.2255	0.0596	1.2700e-003	0.0609	0.0000	168.5705	168.5705	3.0800e-003	0.0000	168.6473
Total	**0.0833**	**0.4636**	**0.6157**	**3.2900e-003**	**0.2606**	**1.8600e-003**	**0.2625**	**0.0702**	**1.7300e-003**	**0.0719**	**0.0000**	**306.5996**	**306.5996**	**8.7500e-003**	**0.0000**	**306.8181**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7700e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	151.8610	151.8610	0.0359	0.0000	152.7588
Total	**0.0215**	**0.1464**	**1.1436**	**1.7700e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**151.8610**	**151.8610**	**0.0359**	**0.0000**	**152.7588**

3.6 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0120	0.4199	0.1176	1.4300e-003	0.0365	4.8000e-004	0.0370	0.0106	4.6000e-004	0.0110	0.0000	138.0291	138.0291	5.6700e-003	0.0000	138.1707
Worker	0.0713	0.0437	0.4981	1.8600e-003	0.2241	1.3800e-003	0.2255	0.0596	1.2700e-003	0.0609	0.0000	168.5705	168.5705	3.0800e-003	0.0000	168.6473
Total	**0.0833**	**0.4636**	**0.6157**	**3.2900e-003**	**0.2606**	**1.8600e-003**	**0.2625**	**0.0702**	**1.7300e-003**	**0.0719**	**0.0000**	**306.5996**	**306.5996**	**8.7500e-003**	**0.0000**	**306.8181**

3.7 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.7 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	2.8000e-004	3.1600e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0699	1.0699	2.0000e-005	0.0000	1.0703
Total	**4.5000e-004**	**2.8000e-004**	**3.1600e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0699**	**1.0699**	**2.0000e-005**	**0.0000**	**1.0703**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9700e-003	8.5600e-003	0.1218	1.7000e-004		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.9700e-003**	**8.5600e-003**	**0.1218**	**1.7000e-004**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

3.7 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	2.8000e-004	3.1600e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.0699	1.0699	2.0000e-005	0.0000	1.0703
Total	**4.5000e-004**	**2.8000e-004**	**3.1600e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.0699**	**1.0699**	**2.0000e-005**	**0.0000**	**1.0703**

3.8 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.3120**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.8 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9700e-003	1.2100e-003	0.0138	5.0000e-005	6.1900e-003	4.0000e-005	6.2300e-003	1.6500e-003	3.0000e-005	1.6800e-003	0.0000	4.6539	4.6539	8.0000e-005	0.0000	4.6560
Total	**1.9700e-003**	**1.2100e-003**	**0.0138**	**5.0000e-005**	**6.1900e-003**	**4.0000e-005**	**6.2300e-003**	**1.6500e-003**	**3.0000e-005**	**1.6800e-003**	**0.0000**	**4.6539**	**4.6539**	**8.0000e-005**	**0.0000**	**4.6560**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	1.1600e-003	0.0165	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**3.3106**	**1.1600e-003**	**0.0165**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

3.8 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9700e-003	1.2100e-003	0.0138	5.0000e-005	6.1900e-003	4.0000e-005	6.2300e-003	1.6500e-003	3.0000e-005	1.6800e-003	0.0000	4.6539	4.6539	8.0000e-005	0.0000	4.6560
Total	**1.9700e-003**	**1.2100e-003**	**0.0138**	**5.0000e-005**	**6.1900e-003**	**4.0000e-005**	**6.2300e-003**	**1.6500e-003**	**3.0000e-005**	**1.6800e-003**	**0.0000**	**4.6539**	**4.6539**	**8.0000e-005**	**0.0000**	**4.6560**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Integrate Below Market Rate Housing

Improve Pedestrian Network

Unbundle Parking Cost

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5643	2.5258	6.0330	0.0226	2.0597	0.0186	2.0783	0.5527	0.0173	0.5701	0.0000	2,077.1324	2,077.1324	0.0729	0.0000	2,078.9538
Unmitigated	0.5932	2.6996	6.7049	0.0258	2.3839	0.0211	2.4049	0.6397	0.0196	0.6594	0.0000	2,375.4818	2,375.4818	0.0808	0.0000	2,377.5027

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,773.89	2,773.89	2773.89	6,406,597	5,535,346
City Park	0.00	0.00	0.00		
Condo/Townhouse	0.00	0.00	0.00		
Strip Mall	0.00	0.00	0.00		
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,773.89	2,773.89	2,773.89	6,406,597	5,535,346

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15
Unenclosed Parking with	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
City Park	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Condo/Townhouse	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Strip Mall	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Unenclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

Menlo Uptown Project - Mitigated - Bay Area AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	324.6702	324.6702	0.0286	5.9200e-003	327.1516
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	343.0060	343.0060	0.0303	6.2600e-003	345.6276
NaturalGas Mitigated	0.0246	0.2104	0.0897	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.6337	243.6337	4.6700e-003	4.4700e-003	245.0815
NaturalGas Unmitigated	0.0260	0.2219	0.0946	1.4200e-003		0.0179	0.0179		0.0179	0.0179	0.0000	256.8926	256.8926	4.9200e-003	4.7100e-003	258.4192

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.85012e+006	0.0208	0.1774	0.0755	1.1300e-003		0.0143	0.0143		0.0143	0.0143	0.0000	205.4571	205.4571	3.9400e-003	3.7700e-003	206.6780
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	954206	5.1500e-003	0.0440	0.0187	2.8000e-004		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	50.9201	50.9201	9.8000e-004	9.3000e-004	51.2227
Strip Mall	9660	5.0000e-005	4.7000e-004	4.0000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5155	0.5155	1.0000e-005	1.0000e-005	0.5186
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0260**	**0.2219**	**0.0946**	**1.4100e-003**		**0.0179**	**0.0179**		**0.0179**	**0.0179**	**0.0000**	**256.8926**	**256.8926**	**4.9300e-003**	**4.7100e-003**	**258.4192**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.66134e+006	0.0197	0.1687	0.0718	1.0800e-003		0.0136	0.0136		0.0136	0.0136	0.0000	195.3829	195.3829	3.7400e-003	3.5800e-003	196.5439
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	895100	4.8300e-003	0.0412	0.0176	2.6000e-004		3.3300e-003	3.3300e-003		3.3300e-003	3.3300e-003	0.0000	47.7660	47.7660	9.2000e-004	8.8000e-004	48.0498
Strip Mall	9086.7	5.0000e-005	4.5000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4849	0.4849	1.0000e-005	1.0000e-005	0.4878
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0246**	**0.2104**	**0.0897**	**1.3400e-003**		**0.0170**	**0.0170**		**0.0170**	**0.0170**	**0.0000**	**243.6337**	**243.6337**	**4.6700e-003**	**4.4700e-003**	**245.0815**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.8619e+006	277.6856	0.0245	5.0700e-003	279.8079
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	210026	31.3236	2.7600e-003	5.7000e-004	31.5630
Strip Mall	22008	3.2823	2.9000e-004	6.0000e-005	3.3074
Unenclosed Parking with Elevator	205943	30.7145	2.7100e-003	5.6000e-004	30.9493
Total		**343.0060**	**0.0303**	**6.2600e-003**	**345.6276**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.76922e+006	263.8635	0.0233	4.8200e-003	265.8802
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	199693	29.7824	2.6300e-003	5.4000e-004	30.0100
Strip Mall	20653.9	3.0804	2.7000e-004	6.0000e-005	3.1039
Unenclosed Parking with Elevator	187365	27.9439	2.4600e-003	5.1000e-004	28.1575
Total		**324.6702**	**0.0286**	**5.9300e-003**	**327.1516**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.2735	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Unmitigated	2.3114	0.0470	3.9344	1.3100e-003		0.0762	0.0762		0.0762	0.0762	7.5332	5.8674	13.4007	0.0409	0.0000	14.4222

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3310					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0380	5.6300e-003	0.3449	1.1300e-003		0.0563	0.0563		0.0563	0.0563	7.5332	0.0000	7.5332	0.0352	0.0000	8.4136
Landscaping	0.1082	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Total	**2.3114**	**0.0470**	**3.9344**	**1.3200e-003**		**0.0762**	**0.0762**		**0.0762**	**0.0762**	**7.5332**	**5.8674**	**13.4007**	**0.0409**	**0.0000**	**14.4222**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3310					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1082	0.0414	3.5896	1.9000e-004		0.0199	0.0199		0.0199	0.0199	0.0000	5.8674	5.8674	5.6400e-003	0.0000	6.0086
Total	**2.2735**	**0.0414**	**3.5896**	**1.9000e-004**		**0.0199**	**0.0199**		**0.0199**	**0.0199**	**0.0000**	**5.8674**	**5.8674**	**5.6400e-003**	**0.0000**	**6.0086**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	40.2178	0.8272	0.0201	66.8746
Unmitigated	47.3287	1.0338	0.0250	80.6272

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.7329 / 18.1142	41.7587	0.9391	0.0227	72.0027
City Park	0 / 2.62126	1.3683	1.2000e-004	2.0000e-005	1.3787
Condo/Townhouse	2.73647 / 1.72517	3.9770	0.0894	2.1600e-003	6.8574
Strip Mall	0.155552 / 0.0953385	0.2247	5.0800e-003	1.2000e-004	0.3884
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**47.3287**	**1.0338**	**0.0250**	**80.6272**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	22.9863 / 18.1142	35.2981	0.7515	0.0182	59.5077
City Park	0 / 2.62126	1.3683	1.2000e-004	2.0000e-005	1.3787
Condo/Townhouse	2.18918 / 1.72517	3.3617	0.0716	1.7300e-003	5.6674
Strip Mall	0.124442 / 0.0953385	0.1897	4.0700e-003	1.0000e-004	0.3207
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**40.2177**	**0.8272**	**0.0201**	**66.8746**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.3969	0.6735	0.0000	28.2354
Unmitigated	45.5877	2.6942	0.0000	112.9416

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	202.86	41.1788	2.4336	0.0000	102.0186
City Park	0.19	0.0386	2.2800e-003	0.0000	0.0956
Condo/Townhouse	19.32	3.9218	0.2318	0.0000	9.7161
Strip Mall	2.21	0.4486	0.0265	0.0000	1.1114
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**45.5877**	**2.6942**	**0.0000**	**112.9416**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	50.715	10.2947	0.6084	0.0000	25.5047
City Park	0.0475	9.6400e-003	5.7000e-004	0.0000	0.0239
Condo/Townhouse	4.83	0.9805	0.0579	0.0000	2.4290
Strip Mall	0.5525	0.1122	6.6300e-003	0.0000	0.2779
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**11.3969**	**0.6735**	**0.0000**	**28.2354**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	0.02	6	268	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (175 - 300 HP)	2.6400e-003	7.3800e-003	6.7300e-003	1.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	1.2246	1.2246	1.7000e-004	0.0000	1.2289
Total	**2.6400e-003**	**7.3800e-003**	**6.7300e-003**	**1.0000e-005**		**3.9000e-004**	**3.9000e-004**		**3.9000e-004**	**3.9000e-004**	**0.0000**	**1.2246**	**1.2246**	**1.7000e-004**	**0.0000**	**1.2289**

11.0 Vegetation

APPENDIX G

HEALTH RISK ASSESSMENT DATA

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Sensitive Receptors within 1,000 meters



Construction Cancer Risk



Construction Chronic Hazard Index



Construction $PM_{2.5}$ Concentrations



Operational Sensitive Receptors



Operational Cancer Risk



Operational Chronic Hazard Index



Operational Acute Hazard Index



Operational $PM_{2.5}$ Concentrations



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APPENDIX H

NOISE DATA

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TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road south of US-101 NB Off-Ramp
NOTES: Menlo Uptown - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9900 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	109.2	228.1

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30860 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
137.5	294.1	632.6	1362.2

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32360 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.47

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
141.3	303.4	653.2	1406.8

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road north of US-101 SB Off-Ramp
NOTES: Menlo Uptown - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14720 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	70.2	140.0	296.1

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31350 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
138.3	297.1	639.6	1377.4

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22550 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
111.3	238.6	513.5	1105.8

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive east of Marsh Road
NOTES: Menlo Uptown - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30330 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	60.8	130.5	280.8

TABLE Existing-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive west of Marsh Road
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22010 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	105.4	226.8

TABLE Existing-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bay Road east of Marsh Road
NOTES: Menlo Uptown - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19410 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	60.1	128.9	277.4

TABLE Existing-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive north of Constitution Drive
NOTES: Menlo Uptown - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3970 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	72.7

TABLE Existing-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Constitution Drive
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5460 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	89.7

TABLE Existing-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chrysler Drive
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6560 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	80.2	172.4

TABLE Existing-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Jefferson Drive
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4680 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	81.0

TABLE Existing-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Jefferson Drive east of Chrysler Drive
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5950 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.47

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	95.0

TABLE Existing-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street south of Bayfront Expressway
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35670 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
54.6	115.3	247.4	532.3

TABLE Existing-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Chilco Street
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8140 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	85.1	169.9	359.5

TABLE Existing-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street north of Constitution Drive
NOTES: Menlo Uptown - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5650 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	73.4	156.3

TABLE Existing-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive east of Chilco Street
NOTES: Menlo Uptown - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9520 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	102.7	220.9

TABLE Existing-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chilco Street
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9010 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	99.0	213.0

TABLE Existing-20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road north of Bayfront Expressway
NOTES: Menlo Uptown - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30180 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
63.9	129.7	275.6	591.8

TABLE Existing-21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road south of Bayfront Expressway
NOTES: Menlo Uptown - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 44670 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
80.5	167.3	357.4	768.4

TABLE Existing-22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Willow Road
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21760 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
77.8	152.8	321.8	689.8

TABLE Existing-23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Hamilton Avenue east of Willow Road
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21460 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	103.7	223.0

TABLE Existing-24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive north of Bayfront Expressway
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43650 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
65.4	133.3	283.4	608.6

TABLE Existing-25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive south of Bayfront Expressway
NOTES: Menlo Uptown - Existing

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 64390 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
82.4	171.5	366.6	788.4

TABLE Existing-26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive east of Marsh Road
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22910 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	50.5	108.3	232.9

TABLE Existing-27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive west of Marsh Drive
NOTES: Menlo Uptown - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19320 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	96.7	208.0

TABLE Existing with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road south of US-101 NB Off-Ramp
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10100 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	110.5	231.1

TABLE Existing with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31420 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
139.1	297.7	640.2	1378.7

TABLE Existing with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32720 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
142.3	305.7	658.0	1417.2

TABLE Existing with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road north of US-101 SB Off-Ramp
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.07

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	70.9	141.7	299.8

TABLE Existing with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 31720 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	139.4	299.4	644.6	1388.2

TABLE Existing with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22640 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
111.6	239.3	514.8	1108.7

TABLE Existing with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive east of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30420 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	60.9	130.7	281.4

TABLE Existing with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive west of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22100 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	105.7	227.5

TABLE Existing with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bay Road east of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19490 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.48

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	60.2	129.2	278.1

TABLE Existing with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive north of Constitution Drive
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4550 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	79.5

TABLE Existing with Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Constitution Drive
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5730 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	92.7

TABLE Existing with Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chrysler Drive
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6930 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	83.2	178.8

TABLE Existing with Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Jefferson Drive
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5050 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	85.2

TABLE Existing with Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Jefferson Drive east of Chrysler Drive
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6320 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	98.9

TABLE Existing with Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street south of Bayfront Expressway
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35940 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
54.8	115.9	248.6	535.0

TABLE Existing with Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Chilco Street
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8410 SPEED (MPH): 50 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	86.6	173.5	367.3

TABLE Existing with Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street north of Constitution Drive
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5970 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	76.0	162.1

TABLE Existing with Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive east of Chilco Street
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9790 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	104.6	225.1

TABLE Existing with Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chilco Street
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9060 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	99.4	213.8

TABLE Existing with Project-20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road north of Bayfront Expressway
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30450 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
64.2	130.4	277.2	595.4

TABLE Existing with Project-21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road south of Bayfront Expressway
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 44870 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
80.7	167.7	358.4	770.7

TABLE Existing with Project-22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Willow Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21830 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
77.9	153.1	322.5	691.2

TABLE Existing with Project-23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Hamilton Avenue east of Willow Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21530 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	103.9	223.5

TABLE Existing with Project-24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive north of Bayfront Expressway
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43850 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	65.6	133.6	284.2	610.5

TABLE Existing with Project-25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive south of Bayfront Expressway
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 64560 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
82.6	171.8	367.3	789.8

TABLE Existing with Project-26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive east of Marsh Road
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23000 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.34

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	50.7	108.6	233.5

TABLE Existing with Project-27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive west of Marsh Drive
NOTES: Menlo Uptown - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19400 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	97.0	208.5

TABLE Near Term -01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road south of US-101 NB Off-Ramp
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10330 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	58.4	112.1	234.5

TABLE Near Term -02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36430 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
153.3	328.4	706.6	1521.5

TABLE Near Term -03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37500 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
155.8	334.7	720.6	1552.1

TABLE Near Term -04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road north of US-101 SB Off-Ramp
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15090 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	71.2	142.2	301.0

TABLE Near Term -05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 34850 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
148.4	318.8	686.3	1478.1

TABLE Near Term -06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25740 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.47

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
121.4	260.6	560.8	1207.8

TABLE Near Term -07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive east of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33520 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.0	139.5	300.2

TABLE Near Term -08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive west of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25200 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	53.8	115.3	248.2

TABLE Near Term -09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bay Road east of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21770 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	64.8	139.1	299.4

TABLE Near Term -10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive north of Constitution Drive
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8640 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	56.8	121.7

TABLE Near Term -11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Constitution Drive
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6500 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	100.8

TABLE Near Term -12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chrysler Drive
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6810 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	82.2	176.8

TABLE Near Term -13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Jefferson Drive
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4990 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	84.5

TABLE Near Term -14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Jefferson Drive east of Chrysler Drive
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6200 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	97.6

TABLE Near Term -15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street south of Bayfront Expressway
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 39720 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
58.5	123.8	265.7	571.9

TABLE Near Term -16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Chilco Street
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9300 SPEED (MPH): 50 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	91.6	185.0	392.6

TABLE Near Term -17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street north of Constitution Drive
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6810 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.94

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	82.8	176.9

TABLE Near Term -18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive east of Chilco Street
NOTES: Menlo Uptown - Near Term

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10680 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.48

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	51.7	110.8	238.5

TABLE Near Term -19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chilco Street
NOTES: Menlo Uptown - Near Term

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9010 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.74

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	99.0	213.0

TABLE Near Term -20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road north of Bayfront Expressway
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35860 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
70.6	145.0	308.9	663.8

TABLE Near Term -21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road south of Bayfront Expressway
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 47640 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.89

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
83.7	174.4	373.0	802.0

TABLE Near Term -22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Willow Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25250 SPEED (MPH): 50 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
84.2	167.8	354.9	761.5

TABLE Near Term -23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Hamilton Avenue east of Willow Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26020 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	55.0	117.8	253.5

TABLE Near Term -24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive north of Bayfront Expressway
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 46620 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
68.0	139.0	296.0	635.9

TABLE Near Term -25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive south of Bayfront Expressway
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 67400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
84.8	176.7	377.9	812.8

TABLE Near Term -26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive east of Marsh Road
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26100 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.89

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	55.1	118.1	254.1

TABLE Near Term -27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive west of Marsh Drive
NOTES: Menlo Uptown - Near Term

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21690 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	104.4	224.6

TABLE Near Term with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road south of US-101 NB Off-Ramp
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10530 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.53

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	59.0	113.4	237.5

TABLE Near Term with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36990 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.55

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
154.8	331.8	713.8	1537.1

TABLE Near Term with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37860 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
156.8	336.9	725.2	1562.0

TABLE Near Term with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road north of US-101 SB Off-Ramp
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15370 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	71.9	143.9	304.6

TABLE Near Term with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35220 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
149.4	321.0	691.1	1488.5

TABLE Near Term with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25830 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
121.7	261.2	562.1	1210.6

TABLE Near Term with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive east of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33610 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.1	139.7	300.7

TABLE Near Term with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive west of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25290 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	53.9	115.6	248.8

TABLE Near Term with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bay Road east of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21850 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.0	139.5	300.2

TABLE Near Term with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive north of Constitution Drive
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9220 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	59.2	127.1

TABLE Near Term with Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Constitution Drive
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6770 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.03

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	103.5

TABLE Near Term with Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chrysler Drive
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7180 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	85.2	183.1

TABLE Near Term with Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Jefferson Drive
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5360 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	88.7

TABLE Near Term with Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Jefferson Drive east of Chrysler Drive
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6570 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	101.5

TABLE Near Term with Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street south of Bayfront Expressway
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 39990 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
58.7	124.4	266.9	574.5

TABLE Near Term with Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Chilco Street
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9750 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	94.1	190.7	405.0

TABLE Near Term with Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street north of Constitution Drive
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7130 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	85.4	182.4

TABLE Near Term with Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive east of Chilco Street
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10950 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	52.6	112.7	242.5

TABLE Near Term with Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chilco Street
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9060 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	99.4	213.8

TABLE Near Term with Project-20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road north of Bayfront Expressway
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 36130 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
70.9	145.7	310.5	667.1

TABLE Near Term with Project-21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road south of Bayfront Expressway
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 47840 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
83.9	174.9	374.0	804.3

TABLE Near Term with Project-22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Willow Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25320 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
84.3	168.1	355.6	762.9

TABLE Near Term with Project-23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Hamilton Avenue east of Willow Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26090 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.89

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	55.1	118.0	254.0

TABLE Near Term with Project-24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive north of Bayfront Expressway
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 46820 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.39

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
68.1	139.4	296.8	637.7

TABLE Near Term with Project-25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive south of Bayfront Expressway
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 67570 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
84.9	177.0	378.6	814.2

TABLE Near Term with Project-26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive east of Marsh Road
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 26190 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	55.2	118.3	254.6

TABLE Near Term with Project-27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive west of Marsh Drive
NOTES: Menlo Uptown - Near Term with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21770 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	104.7	225.2

TABLE Cumulative without Project -01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road south of US-101 NB Off-Ramp
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10340 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	58.4	112.1	234.7

TABLE Cumulative without Project -02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40860 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 75.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
165.3	354.4	762.7	1642.5

TABLE Cumulative without Project -03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 41920 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
167.7	360.5	776.2	1671.8

TABLE Cumulative without Project -04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road north of US-101 SB Off-Ramp
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	82.0	167.1	355.3

TABLE Cumulative without Project -05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38610 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
158.8	341.3	734.8	1582.6

TABLE Cumulative without Project -06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27230 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
126.0	270.5	582.2	1253.9

TABLE Cumulative without Project -07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive east of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35000 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	66.8	143.5	308.9

TABLE Cumulative without Project -08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive west of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25790 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	54.6	117.1	252.0

TABLE Cumulative without Project -09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bay Road east of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22620 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	66.5	142.7	307.2

TABLE Cumulative without Project -10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive north of Constitution Drive
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8710 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	57.1	122.4

TABLE Cumulative without Project -11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Constitution Drive
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10860 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	66.0	141.7

TABLE Cumulative without Project -12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chrysler Drive
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11070 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	53.0	113.5	244.2

TABLE Cumulative without Project -13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Jefferson Drive
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8270 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 59.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	55.1	118.2

TABLE Cumulative without Project -14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Jefferson Drive east of Chrysler Drive
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10420 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	64.2	137.9

TABLE Cumulative without Project -15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street south of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45110 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
63.4	134.7	289.2	622.5

TABLE Cumulative without Project -16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Chilco Street
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13570 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	61.9	114.2	236.2	504.1

TABLE Cumulative without Project -17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street north of Constitution Drive
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9720 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	104.6	224.1

TABLE Cumulative without Project -18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive east of Chilco Street
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18300 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	73.8	158.6	341.4

TABLE Cumulative without Project -19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chilco Street
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11380 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	53.9	115.6	248.8

TABLE Cumulative without Project -20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road north of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 51300 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.21

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
87.6	183.1	391.7	842.6

TABLE Cumulative without Project -21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road south of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 64200 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
100.8	212.2	454.7	978.4

TABLE Cumulative without Project -22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Willow Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40190 SPEED (MPH): 50 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
109.8	226.4	482.7	1037.5

TABLE Cumulative without Project -23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Hamilton Avenue east of Willow Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38530 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	71.2	153.0	329.4

TABLE Cumulative without Project -24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive north of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 59640 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.7	163.2	348.5	749.2

TABLE Cumulative without Project -25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive south of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 82050 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
95.7	201.1	430.7	926.6

TABLE Cumulative without Project -26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive east of Marsh Road
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27590 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	57.1	122.5	263.6

TABLE Cumulative without Project -27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive west of Marsh Drive
NOTES: Menlo Uptown - Cumulative without Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22830 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	50.4	108.0	232.4

TABLE Cumulative with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road south of US-101 NB Off-Ramp
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10540 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	59.0	113.5	237.6

TABLE Cumulative with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 41420 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
166.8	357.7	769.7	1657.5

TABLE Cumulative with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 NB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 42280 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
168.7	362.6	780.6	1681.3

TABLE Cumulative with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Marsh Road north of US-101 SB Off-Ramp
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19680 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	82.7	168.6	358.7

TABLE Cumulative with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp east of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38980 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 76.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	159.8	343.5	739.5	1592.7

TABLE Cumulative with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: US-101 SB Off-Ramp west of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27320 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
126.3	271.1	583.5	1256.7

TABLE Cumulative with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive east of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 35090 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	67.0	143.8	309.5

TABLE Cumulative with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Scott Drive west of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 25880 SPEED (MPH): 25 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	54.8	117.4	252.6

TABLE Cumulative with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bay Road east of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22700 SPEED (MPH): 30 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	66.6	143.0	307.9

TABLE Cumulative with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive north of Constitution Drive
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9290 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	0.0	59.5	127.7

TABLE Cumulative with Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Constitution Drive
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11130 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	0.0	67.1	144.1

TABLE Cumulative with Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chrysler Drive
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11440 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	54.1	116.0	249.7

TABLE Cumulative with Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chrysler Drive south of Jefferson Drive
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8640 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 60.09

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	56.8	121.7

TABLE Cumulative with Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Jefferson Drive east of Chrysler Drive
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10790 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.06

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	65.7	141.1

TABLE Cumulative with Project-15
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street south of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45830 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
64.1	136.1	292.3	629.1

TABLE Cumulative with Project-16
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Chilco Street
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13840 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
62.4	115.5	239.2	510.7

TABLE Cumulative with Project-17
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Chilco Street north of Constitution Drive
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10040 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	0.0	106.8	229.0

TABLE Cumulative with Project-18
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive east of Chilco Street
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18570 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	74.5	160.2	344.8

TABLE Cumulative with Project-19
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Constitution Drive west of Chilco Street
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11430 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	54.1	116.0	249.5

TABLE Cumulative with Project-20
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road north of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 51570 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	87.9	183.7	393.1	845.5

TABLE Cumulative with Project-21
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Willow Road south of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 64400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	101.0	212.6	455.7	980.4

TABLE Cumulative with Project-22
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Bayfront Expressway west of Willow Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40260 SPEED (MPH): 50 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
109.9	226.6	483.3	1038.7

TABLE Cumulative with Project-23
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Hamilton Avenue east of Willow Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38600 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	71.3	153.2	329.8

TABLE Cumulative with Project-24
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive north of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 59840 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.8	163.5	349.2	750.9

TABLE Cumulative with Project-25
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: University Drive south of Bayfront Expressway
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 82220 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 71.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
95.9	201.3	431.3	927.9

TABLE Cumulative with Project-26
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive east of Marsh Road
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27680 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	57.2	122.8	264.2

TABLE Cumulative with Project-27
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/21/2020
ROADWAY SEGMENT: Florence Street-Bohannon Drive west of Marsh Drive
NOTES: Menlo Uptown - Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22910 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	50.5	108.3	232.9
