PLANNING COMMISSION AGENDA
March 28, 2024

How Can Members of the Public Observe the Meeting?

The meeting may be viewed via Spectrum Channel 3 and 22, AT&T U-verse Channel 99, and/or El Segundo TV at YouTube.com.

How Can Members of the Public Participate in the Meeting and/or Provide Public Comments?

For Public Communications, members of the public may provide comments in the Lobby and/or Council Chamber. For in person comments, please fill out a Speaker Card located in the Chamber Lobby. *The time limit for comments is five (5) minutes per person. Before speaking to the Commission, please state: your name and residence or the organization you represent. Please respect the time limits.*

Members of the public may also provide comments electronically by sending an email to the following address prior to the start of the meeting: planning@elsegundo.org. ***Please include the meeting date and item number in the subject line***. If you would like to request that your emailed comment be read into the record, please include that request at the top of your email, limit your comments to 150 words or less, and email your comments at least 30 minutes prior to the start of the meeting. Depending on the volume of communications, the emails may be read to Commission at the appropriate time. Please note that all emailed comments are public records subject to disclosure under the Public Records Act.

Additional Information:

Unless otherwise noted in the agenda, the public can only comment on City-related business that is within the jurisdiction of the Planning Commission and/or items listed on the agenda during the public communications portions of the meeting. Additionally, the public can comment on any public hearing item on the agenda during the public hearing portion of such item. The time limit for comments is five (5) minutes per person.
Before speaking to the Planning Commission, please state your name and residence and the organization you represent, if desired. Please respect the time limits.

DATE:	Thursday, March 28, 2024
TIME:	5:30 p.m.
PLACE:	City Council Chamber, City Hall 350 Main Street, El Segundo, CA 90245
VIDEO:	El Segundo Cable Channel 3 (Live). Replayed Friday following Thursday's meeting at 1:00 pm and 7:00 pm on Channel 3. (Schedule subject to change)

All files related to this agenda are available for public review by appointment in the Planning Division office, Monday through Thursday 7:00 am to 5:00 pm and on Fridays until 4:00 pm, beginning at 7:00 am on the Monday prior to the Planning Commission meeting.
The Planning Commission, with certain statutory exceptions, can only discuss, deliberate, or take action upon properly posted and listed agenda items.

Unless otherwise noted in the agenda, the public can only comment on City-related business that is within the subject-matter jurisdiction of the Planning Commission and items listed on the Agenda during the public communications portion of the meeting. Additionally, the public can comment on any public hearing item on the agenda during the public hearing portion of such item. The time limit for comments is generally five minutes per person.

Playing of video or use of visual aids may be permitted during meetings if they are submitted to the Community Development Director a minimum of two working days before the meeting and they do not exceed five minutes in length. Written materials distributed to the Planning Commission within 72 hours of the Planning Commission meeting are available for public inspection immediately upon distribution in the Community Development Department and on the City's website, www.elsegundo.org.

REASONABLE ACCOMMODATIONS: In compliance with the Americans with Disabilities Act and Government Code Section 54953(g), the City Council has adopted a reasonable accommodation policy to swiftly resolve accommodation requests. The policy can also be found on the City's website at https://www.elsegundo.org/government/departments/city-clerk. Please contact the City Clerk's Office at (310) 524-2308 to make an accommodation request or to obtain a copy of the policy.

A. Call to Order

B. Pledge of Allegiance

C. Roll Call

D. Public Communications (Related to matters within the Planning Commission's subject matter jurisdiction or items on the agenda only—5 minutes per person; 30 minutes total). Individuals who received value of $50 or more to communicate to the Planning Commission on another's behalf, and employees speaking on their employer's behalf, must so identify themselves before addressing the Commission. Failure to do so is a misdemeanor. While all comments are welcome, the Brown Act does not allow the Commission to discuss, deliberate, or take action on any item not on the agenda. The Commission may respond to comments after public communications is closed.

E. Written Communications (other than what is included in agenda packets)

F. Consent Calendar

All items are to be adopted by one motion without discussion. If a request for discussion of an item is made, the items should be considered individually under the next agenda heading.

1. Approval of Planning Commission Meeting Minutes

- March 14, 2024

RECOMMENDED ACTION: Approve the minutes.

G. Continued Business

H. New Public Hearings

2. Environmental Assessment No. EA-1344: General Plan Amendment No. GPA 33-01, Zone Change No. ZC 23-01, and Zone Text Amendment No. ZTA 23-01 Implementing Housing Element Program No. 6 (Provision of Adequate Sites) and Program No. 9 (El Segundo Municipal Code ("ESMC") Amendments), to Increase the Allowable Density and Adopt New Objective Development Standards in the R-3 Zone and Housing Element Sites Inventory Sites (PS)

Applicant: City of El Segundo

Project Description: This item includes the following applications:

- General Plan Amendment to:
  - Establish descriptions for a new Mixed-Use Overlay (MU-O) designation and a new Housing Overlay (H-O) designation in the General Plan Land Use Element;
  - Change the description of the Multi-Family Residential LU designation to increase the maximum permitted density;
  - Update the General Plan Build-out projections exhibit to reflect the anticipated residential development in the proposed overlay districts; and
  - Change the General Plan Land Use Map to show the new overlay districts;

- A Zone Change to rezone certain properties from “General Commercial (C-3),” “Corporate Office (CO),” “Parking (P),” and “Multi-Family Residential (R-3)” to “Mixed-Use Overlay (MU-O)”, “Housing Overlay (H-O),” and an accompanying Zoning map change.

- A Zone Text Amendment to:
  - Add the “Mixed-Use Overlay (MU-O)” and “Housing Overlay (H-O)” to ESMC Section 15-3-1;
  - Amend ESMC Article 15-4D Multi-Family Residential (R-3) Zone to change the maximum permitted density to 30 dwelling units/acre and update other development standards in the R-3 Zone;
  - Add new ESMC Article 15-7(C) Mixed Use Overlay (MU-O), including development standards for higher density (up to 75 dwelling units per acre) mixed-use commercial and residential projects;
  - Add new ESMC Article 15-7(D) Housing Overlay (H-O), including development standards for higher density (up to 65 dwelling units per acre) residential projects;
  - Amend ESMC Section 15-25-4 Site Plan Review Findings to streamline and ensure approval of multi-family residential projects; and
  - Amend ESMC Title 14 (Subdivisions) to permit subdivisions involving up to 10-lots or units ministerially, without discretion or public hearings, consistent with newly adopted state legislation.

- Environmental Assessment for an Addendum to the Environmental Impact Report for the El Segundo General Plan and an exemption for associated actions.

Environmental Determination: The proposed amendments to the General Plan, Zoning Map, and ESMC were analyzed for their environmental impacts under the California Environmental Quality Act ("CEQA”) and the regulations promulgated thereunder (14 Cal. Code of Regulations §15000 *et seq.,* the “CEQA Guidelines”). The City prepared an Addendum to the previously certified final Environmental Impact Report (“FEIR”) for the General Plan pursuant to CEQA Guidelines § 15164. As indicated in the Addendum, only minor changes or additions to the FEIR are necessary, and none of the conditions described in CEQA Guidelines § 15162 exist to require a subsequent EIR or negative declaration. Also, the proposed zone text amendments to the Subdivision, Site Plan Review, and certain affordable housing application procedures are exempt from the requirements of CEQA, pursuant to CEQA Guidelines § 15061(b)(3), because they consist only of minor revisions to existing zoning regulations and related procedures and do not have the potential for causing a significant effect on the environment.

RECOMMENDED ACTION: Adopt Resolution No. 2935, recommending the City Council adopt an Addendum to the El Segundo General Plan FEIR, approve a General Plan Amendment, and adopt a Zone Change and a Zone Text Amendment Implementing Housing Element Program No. 6 (Provision of Adequate Sites) and Program No. 9 (ESMC Amendments).

I. New Business

3. **Selection of a Planning Commission Member to Deliver a Presentation to the City Council on the Planning Commission's Work. (ES)**

J. **Report from Community Development Director or designee**

K. **Report from the City Attorney's office**

L. **Planning Commissioners' Comments**

M. **Adjournment**—next regular scheduled meeting for April 11, 2024, at 5:30 p.m.

POSTED: Jazmin Farias 3/22/2024 9:06 a.m.
(Signature) (Date and time)

MINUTES OF THE
EL SEGUNDO PLANNING COMMISSION
Regularly Scheduled Meeting

March 14, 2024

A. Call to Order

Chair Keldorf called the meeting to order at 5:31 p.m.

B. Pledge of Allegiance

Chair Keldorf led the pledge.

C. Roll Call

Present: Chair Keldorf
Present: Vice Chair Hoeschler
Present: Commissioner Newman
Present: Commissioner Maggay
Present: Commissioner Inga

Also present: Michael Allen, AICP, Community Development Director
Also present: Eduardo Schonborn, AICP, Planning Manager
Also present: Joaquin Vazquez, City Attorney
Also present: Paul Samaras, AICP, Principal Planner
Also present: Jazmin Farias, Planning Technician

D. Public Communications

None.

E. Written Communications (other than what is included in Agenda packets)

None.

F. Consent Calendar

1. **Approval of Planning Commission Meeting Minutes:**

    - February 22, 2024

    MOTION: Approve the minutes.

    Moved by Commissioner Newman, second by Commissioner Inga. Motion carried, 5-0, by the following vote:

Ayes: Keldorf, Hoeschler, Newman, Maggay, and Inga.

G. Continued Business—Public Hearing

2. El Segundo South Campus Specific Plan ("ESSCSP") Amendment and Vesting Tentative Tract Map No. 83236 (Environmental Assessment No. EA-1348, Specific Plan Amendment No. SPA 23-01, and Subdivision No. SUB 23-02 for Vesting Tentative Tract Map No. 83236). (JF)

Planning Technician Jazmin Farias presented the staff report regarding the proposed Project to amends the ESSCSP by modifying the development standards regarding permitted uses, setback requirements, and parking requirements within Phase 1 (Raytheon Campus) area. The Project also includes subdividing two existing contiguous lots to allow a 7-lot tract map subdivision. She specified that the site is currently developed with a commercial retail center (a.k.a. Chargers Commons) and no new development is proposed as part of this Project/request. Applicant was present to answer any questions.

- Vice Chair Hoeschler inquired if "100% off-site parking" means that the lots have no physical parking on-site, but they will use the adjacent surface parking lots that are being provided via lots 2 and 3. Jazmin advised that this is correct and through the recordation of CC&R's it will be ensured that the surface parking lots (lot 2 and 3) will continue to serve the existing commercial center.
- Commissioner Maggay inquired why the lot which host the medical office was excluded from the project and wants to ensure there is enough parking on-site for all uses. Planning Manager Eduardo Schonborn advised that the medical office building still functions as part of "Phase 1"; however, since it is currently a separate parcel and no changes are being proposed, it is not included in the tentative tract map. He added that the adjacent parking lots (lot 2 and 3) will continue to serve the existing commercial center which includes the medical office. Phase 1 has enough parking on-site for the existing commercial center as this was approved prior to its development; this application will not tamper with required parking count on-site.
- Chair Keldorf inquired if the proposed application interfered with existing Development Agreements for the site. Staff advised that the proposed amendments do not affect any existing Development Agreements on file.

Chair Keldorf opened public communications.

- Commissioner Maggay inquired why the subdivision was proposed. Applicant Lionel Uhry advised that it is a financial benefit to have the option to sell each lot.

Chair Keldorf closed public communications.

MOTION: Adopt Resolution No. 2948, approving a subdivision to create seven land parcels for an existing commercial retail center (Chargers Commons Commercial Center) and adopt Resolution No. 2947, recommending City Council approve an amendment to the ESSCSP modifying permitted uses, setback requirements, and parking requirements.

Moved by Commissioner Newman, second by Commissioner Inga.
Motion carried, 5-0, by the following vote:
Ayes: Keldorf, Hoeschler, Newman, Maggay, and Inga.

H. New Public Hearings

3. An Ordinance Amending the Driveway and Curb Cut Standards in the El Segundo Municipal Code (ESMC) Title 15. (Environmental Assessment No. EA-1358 and Zone Text Amendment No. ZTA 24-01) (PS)

Planning Manager Eduardo Schonborn provided a brief introduction of the proposed project. Specifically, he stated that the ZTA request is a result of the "Beach Cities" project that was considered by the Commission in September 2023. The project included an adjustment that was denied by the Commission, but included direction that the applicant work with staff to submit a ZTA; and before them is the ZTA proposal.

Principal Planner Paul Samaras presented the staff report regarding the proposed amendments to ESMC Section 15-15-5(N) (Driveway and Curb Cuts) to reduce the required minimum distance between driveway curb cuts on the same property from 24 feet to 10 feet, but only for driveways that are signalized and located along a major or secondary arterial street (as identified in the City's General Plan Circulation Element), subject to approval by the Community Development Director and City Engineer. Applicant was present to answer any questions.

- Vice Chair Hoeschler inquired if the site has a traffic signal in place. Paul stated that traffic signal is part of the development of the property, and it will not interfere with existing traffic signals nearby.
- Commissioner Newman inquired why a minimum 10-foot distance between driveway curb cuts is being proposed. Paul advised that a minimum 10-foot distance is being proposed to better serve pedestrian safety/access.

Chair Keldorf opened public communications.

- Applicant Alex Rose, advised that the ZTA proposal is a replication of signalized intersection for an existing site at the other end of Rosecrans Avenue. The existing site which has this similar curb cut

distance was constructed in 1988 prior to the minimum 24-foot code provision which came into effect after that development. He added that, a minimum 10-foot distance between curb cuts is being proposed to facilitate landscape design and to provide pedestrian refuge.

Chair Keldorf closed public communications.

MOTION: Adopt Resolution No. 2949, recommending City Council approve an amendment to the ESMC Section 15-15-5(N) driveway and curb cut standards.

Moved by Commissioner Newman, second by Commissioner Inga.
Motion carried, 5-0, by the following vote:
Ayes: Keldorf, Hoeschler, Newman, Maggay, and Inga.

I. New Business

None.

J. Report from Community Development Director or designee

Community Development Director stated that the welcome sign project was approved and awarded a contract; no timing has been provided for the start time.

Planning Manager Eduardo Schonborn reminded the Commissioners of forthcoming Planning Commission meetings to ensure we have quorum as they will touch on important topics.

K. Report from City Attorney's Office

None.

L. Planning Commissioners' Comments

Commissioner Inga shared that he attended training for Planning Commissioners, and he really enjoyed it and learned a lot.

M. Adjournment—the meeting adjourned at 6:11 p.m.
The next meeting is scheduled for March 28, 2024 at 5:30 pm.

_____
Michael Allen, Community Development Director

_____
Michelle Keldorf, Planning Commission Chair

CITY OF EL SEGUNDO

Planning Commission Agenda Statement

Meeting Date: March 28, 2024
Agenda Heading: Public hearing
Item Number: H.2

TITLE:

General Plan Amendment, Zone Change, and Zone Text Amendment Implementing Housing Element Program No. 6 (Provision of Adequate Sites) and Program No. 9 (El Segundo Municipal Code (ESMC) Amendments), to Increase the Allowable Density and Adopt New Objective Development Standards in the R3 Zone and Housing Element Sites Inventory Sites.

RECOMMENDATION:

It is recommended the Planning Commission:

1. Adopt Resolution No. 2935, recommending the City Council adopt an Addendum to the El Segundo General Plan certified Final Environmental Impact Report (FEIR), approve a General Plan Amendment, and adopt a Zone Change and a Zone Text Amendment Implementing Housing Element Program No. 6 (Provision of Adequate Sites) and Program No. 9 (El Segundo Municipal Code (ESMC) (Amendments);

BACKGROUND:

On November 15, 2022, the City Council adopted the City's 2021-2029 Housing Element (Attachment No. 1). The California Department of Housing and Community Development (HCD) reviewed and conditionally approved the Housing Element on January 17, 2023 (Attachment No. 2). In order to fully certify the Housing Element, HCD required that the City complete the rezoning required under Program No. 6 and continue to timely and effectively implement all Housing Element programs. The City has completed or made substantial progress on all Housing Element programs, since it was adopted by City Council. The subject general plan amendment, zone change, and zone text amendment are intended to implement the required rezoning under Program No. 6 and complete some of the ESMC amendments required under Program No. 9.

Specifically, this item includes the following applications:

- General Plan Amendment to:
    - Establish descriptions for a new Mixed-Use Overlay (MU-O) designation and a new Housing Overlay (H-O) designation in the General Plan Land Use Element;

  - Change the description of the Multi-Family Residential LU designation to increase the maximum permitted density;
  - Update the General Plan Build-out projections exhibit to reflect the anticipated residential development in the proposed overlay districts; and
  - Change the General Plan Land Use Map to show the new overlay districts;

- A Zone Change to rezone certain properties from "General Commercial (C-3)," "Corporate Office (CO)," "Parking (P)," and "Multi-Family Residential (R-3)" to "Mixed-Use Overlay (MU-O)", "Housing Overlay (H-O)," and an accompanying Zoning map change.

- A Zone Text Amendment to:
  - Add the "Mixed-Use Overlay (MU-O)" and "Housing Overlay (H-O)" to ESMC Section 15-3-1;
  - Amend ESMC Article 15-4D Multi-Family Residential (R-3) Zone to change the maximum permitted density to 30 dwelling units/acre and update other development standards in the R-3 Zone;
  - Add new ESMC Article 15-7(C) Mixed Use Overlay (MU-O), including development standards for higher density (up to 75 dwelling units per acre) mixed-use commercial and residential projects;
  - Add new ESMC Article 15-7(D) Housing Overlay (H-O), including development standards for higher density (up to 65 dwelling units per acre) residential projects;
  - Amend ESMC Section 15-25-4 Site Plan Review Findings to streamline and ensure approval of multi-family residential projects; and
  - Amend ESMC Title 14 (Subdivisions) to permit subdivisions involving up to 10-lots or units ministerially, without discretion or public hearings, consistent with newly adopted state legislation.

- Environmental Assessment for an Addendum to the Environmental Impact Report for the El Segundo General Plan.

The proposed requests are described in detail in the following sections of this report.

DISCUSSION:

Program 6 – Provision of Adequate Sites (Rezoning)

Housing Element Program 6 (Provision of Adequate Sites) consists of rezoning actions to facilitate construction of an adequate number of residential units to meet the City's RHNA (Regional Housing Needs Allocation) requirements. The City's RHNA is presented in Table No. 1 below.

Table No. 1: Housing Element RHNA Allocation

Income Category	5th Cycle Carryover	6th Cycle RHNA	Total RHNA	Percent
Very Low Income	18	189	207	39.7%
Low Income	11	88	99	19.0%
Moderate Income	0	84	84	6.1%
Above Moderate Income	0	131	131	25.1%
Total	29	492	521	100.0%

The City's RHNA for the current planning period is 521 units at various affordability levels, which includes 29 units carried over from the previous planning period (2013-2021). Program 6 of the Housing Element sets five objectives/actions (including rezoning) to be completed at specified timeframes to facilitate construction for the required RHNA. The objectives, timelines, and a status description are provided in Table No. 2 below.

Table No. 2: Program 6, Objectives and Timeline

	Objective	Timeline	Status
1	Rezone adequate sites to accommodate the 29-unit RHNA shortfall carry over from the 5th cycle Housing Element.	By October 15, 2022	Completed in April 2022 Pacific Coast Commons project: 263 units, including 29 low income and 3 very low income
2	Rezone adequate sites as Mixed-Use Overlay and Housing Overlay for the 6th cycle RHNA shortfall of 279 units.	By summer 2023	In progress with this amendment. Anticipated completion in May 2024
3	Develop objective design standards for residential development consistent with SB 330 in conjunction with the establishment of Mixed-Use Overlay and Housing Overlay	By summer 2023	In progress with this amendment. Anticipated completion in May 2024
4	Amend the ESMC to provide by right approval of projects on rezoned sites for lower income RHNA if the project provides 20 percent of the units as affordable housing for lower income households.	By October 15, 2023	In progress with this amendment. Anticipated completion in May 2024
5	Update Downtown Specific Plan (DSP) and Smoky Hollow Specific Plan (SHSP) to increase housing capacity by 300 units	By October 15, 2024	DSP in progress. Anticipated completion in May 2024 SHSP in progress. Anticipated completion in October 2024

A detailed description and status report on the objectives covered by this amendment follows below.

Objective No. 2

Program 6, objective Nos. 2-4 are in progress and the subject of the current request. The Housing Element Sites Inventory identifies four sites to be rezoned as Mixed-Use Overlay and five sites to be rezoned as Housing Overlay. The two overlay areas are shown in Figure Nos. 1 and 2 below.

Figure No. 1: Mixed-Use Overlay Map



Figure No. 2 – Housing Overlay Map



The two overlays will permit higher densities compared to the current zoning for those sites. The proposed densities will facilitate construction of approximately 528 additional residential units during the planning period. The proposed densities and the potential number of units generated is shown in Table No. 3 below.

Table No. 3: Mixed-Use and Housing Overlay Densities

Overlay	Proposed Density	Net Additional Units
Mixed-Use	75 units per acre	335
Housing	65 units per acre	193
Total		528

The total numbers of units above are estimates, because it is assumed that all the sites will be redeveloped during the planning period. However, the increased density alone is not sufficient to incentivize redevelopment without addressing the physical constraints of the sites and the other development standards.

Objective No. 3

Objective No. 3 calls for establishing objective development standards to facilitate construction at the proposed densities. The objective development standards are part of the zone text amendment (See Attachment No. 1F - draft ordinance) and will be included in two new overlay articles in the ESMC.

Staff engaged an architecture and planning consulting firm to study the proposed overlay area physical characteristics and use their design experience to develop the proposed standards. Overall, the proposed standards relax the requirements to facilitate construction at the intended densities. For illustrative purposes, some of the proposed standards are discussed below:

1. Height. The current maximum height is 40 feet and 32 feet for pitched roofs for the sites along Pacific Coast Highway and 26 feet for flat roofs for the site at Franklin and Maryland Street. In the Mixed-Use Overlay, the proposed maximum height limit is increased to 58 feet for pitched roofs and 52 feet for flat roofs. The proposed increase in the maximum height limit is necessary, because based the current height limits, it would be physically infeasible to develop these sites at the proposed MU-O density.

2. Parking requirements. The current requirement in the R-3 zone is 2 spaces per unit, plus 1/3 guest space per unit. In both overlays, the proposed minimum parking requirement is reduced to one space per unit. The proposed reduction is necessary because, based on the current requirements, it would be both physically and financially infeasible to develop these sites at the proposed H-O and MU-O densities.

3. Other standards. Other amendments include changes to required setbacks, lot coverage, open space, landscaping, etc. As stated above, the overall intent of the proposed standards is to facilitate development at the proposed higher densities. As mentioned above, the complete list of development standards for each overlay are part of draft ordinance (See Attachment No. 1F - draft ordinance).

Objective No. 4

Objective No. 4 requires an amendment to the ESMC to ministerially approve residential or mixed-use projects that include 20 percent of the units as affordable housing for lower income households (required by Assembly Bill AB 1397). This action complements the overlay rezoning and objective standard adoption, in that it provides an incentive for the inclusion of affordable housing units in development projects located in the Mixed-Use and Housing overlays. Avoiding the discretionary process for qualifying projects will substantially reduce the time, cost, and uncertainty associated with the public hearing and environmental review process. As a result, this incentive will help the City meet its RHNA requirements in the lower income categories.

Program No. 9 - El Segundo Municipal Code (ESMC) Amendments

Housing Element Program 9 consists of ESMC amendments related to 12 distinct topic areas intended to remove constraints on various housing types and to encourage more housing construction. Several amendments were completed in 2023, while a few are pending and are part of the subject request.

Completed Amendments

Three amendments were completed in March 7, 2023 and addressed the following topics:

1. Density Bonus. This amendment established procedures for reviewing and approving density bonus applications consistently with State Density Bonus Law.

2. Transitional and Supportive Housing. This amendment added transitional and supportive housing to the list of permitted uses in the City's residential zones.

3. Micro-Unit Housing. This amendment established a definition, standards, and review processes for Micro-Unit developments.

Six amendments were completed on December 19, 2023 and addressed the following topics:

4. Residential Care Facilities. This amendment added residential care facilities for seven or more persons to the list of permitted uses in the City's residential zones.

5. Emergency Shelters. This amendment updated the standards for emergency shelters to make them more objective and consistent with State Law.

6. Low Barrier Navigation Center (LBNC). This amendment added LBNCs to the list of permitted uses in the City's Light Manufacturing (M-1) zone and established development and operational standards.

7. Employee Housing. This amendment added employee housing to the list of permitted and conditionally permitted uses in the City's Single-Family Residential (R-1) zone.

8. Reasonable Accommodation. This amendment established application requirements and procedures for reasonable accommodation requests for individuals with disabilities.

9. Senior Housing. This amendment added senior housing facilities to the list of permitted uses in the City's Multi-Family Residential (R-3) zone.

Pending Amendments

Three amendments are still pending, two of which are part of the subject request. The third amendment will be brought for consideration and adoption separately in Q3 2024.

1. R-3 zone density. This amendment is part of the current request and will increase the maximum density of the R-3 zone (and the General Plan Multi-Family Land Use Designation) to 30 dwelling units per acre. This density is considered by the State to be sufficiently high to feasibly include units that are affordable for lower income households in multi-family developments. The current permitted density in the R-3 zone is 27 dwelling units per acre on properties up to 15,000 square feet in size and 18 dwelling units per acre on properties greater than 15,000 square feet in size. The proposed density will apply to all R-3 zoned properties (outside of the new overlays) regardless of size. Staff estimates that this density increase will result in an additional capacity of approximately 367 units in the R-3 zone.

2. Site Plan Review findings. This amendment is part of the current request and will revise the site plan review application findings to make them objective and provide more certainty in application outcomes. The intent of this amendment is to streamline the application process for future multi-family development projects.

3. Parking requirements. This amendment will reduce the parking requirements for multi-family residential units citywide outside the R-3 zone and the MU-O and HO overlays. The current requirement in the R-3 zone is 2 spaces per unit, plus 1/3 guest space per unit. This amendment would revise the requirement to a sliding scale based on unit size or bedroom count. This amendment will be completed separately in Q3/Q4 2024.

Other Amendments

SB 684: Ten-lot Residential Subdivisions

This amendment is not part of a Housing Element program, but it is included in this overall request to make the ESMC consistent with the recently enacted Senate Bill 684 regarding the streamlined processing of small residential subdivisions. The subject bill requires cities to process residential subdivision applications for up to 10 lots by-right, without discretion or public hearings. This amendment revises ESMC Title 14 (Subdivision Regulations) Chapter 1 (General Provisions; definitions) to exempt qualifying subdivision requests from tentative or parcel map, public hearings, and public notification; and to process such requests ministerially.

Findings

To recommend approval of the proposed General Plan Amendment, Zone Change, and Zone Text Amendments, the Planning Commission must make the following findings:

General Plan Amendment

1. The amendment must be consistent with the General Plan.

   The proposed general plan amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment increases the density and permitted height only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on vast majority of properties in the northwest quadrant of the City. Further, the Overlay sites are located near existing buildings with similar heights or in zones where similar building heights are allowed.

The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it preserves and protects existing Single-Family Residential uses. The proposed amendment does not alter designation of any existing Single-Family Residential properties; it affects only properties designated as Commercial or Multi-Family Residential.

The proposed general plan amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and proposed densities are adequate to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

In addition, the proposed amendment is consistent with Housing Element Program No. 9: El Segundo Municipal Code Amendments (ESMC). The proposed amendment increases the permitted maximum density in the Multi-Family Residential land use designation to 30 dwelling units per acre, which is adequate pursuant to Government Code section 65583.2(c)(3) to facilitate the development of low-and very low-income housing. It is also consistent with and directly implements Housing Element Goal 3 to provide adequate sites and opportunities for construction of new housing and Program No. 9 to amend the maximum density in the R-3 zone to 30 units per acre.

Lastly, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment is direct implementation of the Fair Housing Program objective to rezone adequate sites to allow high density residential development to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

2. The amendment is necessary to serve the public health, safety, and general welfare.

   The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new zoning overlays that allow high density residential development on nine specific sites. Four of those sites currently have a commercial General Plan Land Use designation and will allow high density residential uses in combination with other permitted commercial uses. Five of the sites currently have a Multi-Family Residential General Plan

Land Use designation and will allow high density residential uses in a manner that is compatible with surrounding uses. Further, the Overlay sites are located near existing buildings with similar heights or in zones where similar building heights are allowed.

In addition, the proposed amendment will increase the permitted maximum density in the Multi-Family Residential land use designation to 30 dwelling units per acre, which helps focus the increased density in the City's multi-family residential neighborhoods and preserves those areas with a Single-Family Residential Land Use designation.

Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will rezone an adequate number of sites to meet the 6th cycle RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of the California Environmental Quality Act (CEQA). It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the Environmental Impact Report (EIR) for the General Plan.

Zone Change

1. The amendment must be consistent with the General Plan.

   The proposed amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment increases the density and permitted height only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on many properties in the northwest quadrant of the City. Further, the Overlay sites are located near existing buildings with similar heights or in zones where similar building heights are allowed.

The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it will preserve and protect existing Single-Family Residential uses. The proposed amendment does not alter the zoning of any existing Single-Family Residential (R-1) properties; it affects only properties zoned Commercial or Multi-Family Residential (R-3).

The proposed general plan amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and proposed densities are adequate to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

Further, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment direct implements the Fair Housing Program objective to rezone adequate sites to allow high density residential development and meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

2. The amendment is necessary to serve the public health, safety, and general welfare.

   The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new zoning overlays that allow high density residential development on nine specific sites. Four of those sites currently have a commercial zoning designation and will allow high density residential uses in combination with other permitted commercial uses. Five of the sites are currently zoned Multi-Family Residential (R-3) and will allow high density residential uses in a manner that is compatible with surrounding uses.

   Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will rezone an adequate number of sites to meet the 6th cycle RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of the California Environmental Quality Act (CEQA). It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the Environmental Impact Report (EIR) for the General Plan.

3. There are changed conditions since the existing zoning became effective to warrant other or additional zoning.

There are changed conditions since the existing zoning became effective to warrant the addition of the proposed Mixed-Use and Housing Overlays. In 2019, the California enacted the Housing Crisis Act of 2019 (SB 330), which declared a housing crisis in California. This and other laws adopted recently imposed obligations on cities to facilitate housing production, including strict requirements on local housing elements. For the 6th cycle Regional Housing Needs Allocation (RHNA), El Segundo's allocation is 521 housing units, including 279 affordable housing units. The City conducted an analysis of the feasibility of facilitating construction of 521 under existing zoning and determined that it would infeasible. Consequently, on November 15, 2022, the City adopted its 2021-2029 Housing Element, which includes Program No. 6 to rezone an adequate number of sites allow high density residential development. The proposed amendment directly implements Housing Element Program No. 6, which is critical in meeting the City's RHNA obligations.

4. The benefits of the proposed change of zone will clearly outweigh any potential adverse effects to adjoining property or the area.

The proposed zone change will help the City meets its General Plan Housing Element Goal No. 3 to provide opportunities for new housing construction in a variety of locations and a variety of densities. The proposed Mixed-Use and Housing overlays provide an opportunity and variety of locations for the construction of new housing units at high densities. The City provides existing locations that permit construction of single-family, low density residential developments in its Single-Family Residential (R-1) and Two-Family Residential (R-2) zones. It also provides locations that permit construction of multi-family, medium density residential developments in its Multi-Family Residential (R-3) zone. Thus, the proposed overlays will address the need for high density residential locations in the City.

The proposed zone change directly implements Housing Element Program No. 6 to provide adequate sites to meet the assigned RHNA of 521 housing units, including 279 affordable housing units at the moderate, low, and very low income categories. In addition, the zone change helps address the need for housing for various population groups, which is identified in the Housing Element.

Further, the proposed zone change directly addresses a Department of Housing and Community Development (HCD) requirement that will result in full certification of City's Housing Element, with all the accompanying benefits of certification, such as the ability to qualify for HCD and other State grant funding.

There is no evidence in the record to suggest that there will be significant adverse effects as a result of the proposed zone change.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of the California Environmental Quality Act (CEQA). It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the Environmental Impact Report (EIR) for the General Plan.

Zone Text Amendment

1. The amendment must be consistent with the General Plan.

   The proposed general plan amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment will establish density, height, and other standards, to facilitate high density residential developments only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on vast majority of properties in the northwest quadrant of the City.

   The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it will preserve and protect existing Single-Family Residential uses. The proposed amendment does not alter the standards or designation of any existing Single-Family Residential properties; it affects only properties designated as Commercial or Multi-Family Residential.

   The proposed zone text amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and proposed densities are adequate to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income,

18 low income, and 77 moderate income units. The proposed amendment also amends the ESMC to provide by right approval of projects on rezoned sites for lower income RHNA if the project provides 20 percent of the units as affordable housing for lower income households.

In addition, the proposed amendment is consistent with Housing Element Program No. 9: El Segundo Municipal Code Amendments (ESMC). The proposed amendment will increase the permitted maximum density in the Multi-Family Residential (R-3) zone to 30 dwelling units per acre, which is adequate pursuant to Government Code section 65583.2(c)(3) to facilitate the development of low- and very low-income housing. The proposed amendment will also revise the findings for site plan review applications to ensure that the findings are objective and provide certainty in outcomes, which will help streamline and encourage construction of new housing.

Further, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment directly implements the Fair Housing Program objective to rezone adequate sites and establish standards for high density residential development to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

2. The amendment is necessary to serve the public health, safety, and general welfare.

   The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new overlays in the ESMC that allow high density residential development. The amendment establish development standards for the two new overlays that will allow high density residential uses designed in a manner that is compatible with surrounding uses.

   In addition, the proposed amendment will increase the permitted maximum density in the Multi-Family Residential (R-3) zone to 30 dwelling units per acre, which helps focus the increased density in the City's multi-family residential neighborhoods and preserves the character of those areas zoned Single-Family Residential (R-1).

   Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will help establish two new high density residential overlays on an adequate number of sites and it will

streamline the Site Plan Review process to meet the 6th cycle RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

The proposed amendment is also necessary in that it is a requirement for the City to comply with State Housing Element Law and to maintain a certified Housing Element.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of the California Environmental Quality Act (CEQA). It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the Environmental Impact Report (EIR) for the General Plan.

Strategic Plan Consistency

The proposed amendments are consistent with City Council Strategic Plan Goal No. 5 to Champion Economic Development and Fiscal Sustainability. Specifically, the proposed amendments address the Council's priority to identify areas within the community that are appropriate for housing, while preserving "the small-town charm and single-family neighborhoods." In addition, the proposed amendments update the City's land use regulations to encourage housing development and entitlement projects. Lastly, creating a Mixed-Use Overlay provides an additional type of development, and more opportunity for greater use of property and redevelopment.

ENVIRONMENTAL REVIEW

Addendum

The proposed project was analyzed for its environmental impacts and an Addendum to the previously adopted Environmental Impact Report (EIR) for the General Plan was prepared pursuant to CEQA Guidelines Section 15164. Under CEQA, an Addendum to a previously certified EIR is appropriate if minor changes or additions to the EIR are necessary to reflect the proposed modifications to the project in the environmental analysis and none of the conditions described in Section 15162 of the CEQA Guidelines calling for the preparation of a subsequent EIR or negative declaration have occurred (CEQA Guidelines §15164). Generally, the conditions described in Section 15162 have not occurred if the proposed modifications do not result in any new significant impacts or a substantial increase in the severity of previously identified significant impacts. The Addendum need not be circulated for public review (CEQA Guidelines §15164[c]); however, an addendum must be considered by the decision-making body before making a decision on the project (CEQA Guidelines §15164[d]).

This Addendum to the previously-certified EIR demonstrates that the environmental analysis, impacts, and mitigation measures identified in the 1992 EIR for the General Plan remain substantively unchanged despite the proposed project revisions. It supports the finding that the proposed project does not raise any new issues and does not exceed the significance level of impacts identified in the previous Environmental Impact Report. The mitigation measures listed in the certified EIR for the General Plan, are sufficient to reduce the identified environmental impacts to a less than significant level.

In addition, the proposed zone text amendments to the Subdivision, Site Plan Review, and certain affordable housing application procedures are exempt from the requirements of the California Environmental Quality Act (CEQA Section 15061), because they consist only of minor revisions to existing zoning regulations and related procedures and do not have the potential for causing a significant effect on the environment.

ORIGINATED BY: Paul Samaras, AICP, Principal Planner
REVIEWED BY: Eduardo Schonborn, AICP, Planning Manager
APPROVED BY: Michael Allen, AICP, Director of Community Development for M.A.

ATTACHED DOCUMENTS

1. Planning Commission Resolution No. 2935
   - Exhibit A – Addendum to the Environmental Impact Report for the 1992 General Plan
   - Exhibit B – Amendment to General Plan Land Use Designations
   - Exhibit C – Amendment to General Plan Land Use Plan Northwest Quadrant subsection
   - Exhibit D – Amendment to 1992 General Plan Summary of Existing Trends Build-out
   - Exhibit E – General Plan Land Use Map Changes
   - Exhibit F – Ordinance
     - Ord. Exhibit A – Zoning Map Changes

RESOLUTION NO. 2935

A RESOLUTION OF THE EL SEGUNDO PLANNING COMMISSION RECOMMENDING THE CITY COUNCIL ADOPT AN ADDENDUM TO THE PREVIOUSLY CERTIFIED EIR FOR THE EL SEGUNDO GENERAL PLAN, APPROVE A GENERAL PLAN AMENDMENT, AND ADOPT A ZONE CHANGE AND ZONE TEXT AMENDMENT IMPLEMENTING HOUSING ELEMENT PROGRAM NO. 6 (PROVISION OF ADEQUATE SITES) AND PROGRAM NO. 9 (EL SEGUNDO MUNICIPAL CODE AMENDMENTS)

(Environmental Assessment No. EA-1344, General Plan Amendment No. GPA 23-01, Zone Change No. ZC 23-01, and Zone Text Amendment No. ZTA 23-01)

The Planning Commission of the City of El Segundo does resolve as follows:

SECTION 1: The Planning Commission finds and declares that:

A. On November 15, 2022, the City Council adopted a general plan amendment approving the City's updated 2021-2029 Housing Element;

B. On January 17, 2023 the Department of Housing and Community Development ("HCD") indicated in correspondence to the City that the Housing Element was consistent with State Housing Law, however, it conditioned certification of the Housing Element on completion of the rezoning identified in Program No. 6 (Provision of Adequate Sites) and on making sufficient progress on the implementation of all other Housing Element programs;

C. On March 22, 2023, the City initiated an application for Environmental Assessment No. EA 1344, General Plan Amendment No. GPA 23-01, Zone Change No. ZC 23-01, and Zone Text Amendment No. ZTA 23-01 to adopt an addendum to the previously certified the environmental impact report ("EIR") for the El Segundo General Plan, approve a general plan amendment, and adopt a zone change and zone text amendment implementing Housing Element Program No. 6 (Provision Of Adequate Sites) and Program No. 9 (El Segundo Municipal Code ("ESMC") (Amendments);

D. The City reviewed the project's environmental impacts under the California Environmental Quality Act (Public Resources Code §§ 21000, *et seq.*, "CEQA") and the regulations promulgated thereunder (14 Cal. Code of Regulations §§15000, *et seq.*, the "CEQA Guidelines");

E. On March 14, 2024, notice of a public hearing on the proposed amendments to ESMC Title 14 (Subdivision), ESMC Title 15, the General Plan Land Use Element, the General Plan Land Use Map, and the Zoning Map was

published in the *El Segundo Herald* and mailed to all property owners within 300 feet of the proposed overlay districts; and

F. On March 28, 2024, the Planning Commission held a duly noticed public hearing to receive public testimony and other evidence regarding the proposed ordinance, including, without limitation, information provided to the Planning Commission by City staff and public testimony; and,

G. This Resolution and its findings are made based upon the evidence presented to the Commission at its March 28, 2024, hearing including, without limitation, the staff report submitted by the Community Development Department and the totality of the evidence in the administrative record.

SECTION 2: *Factual Findings and Conclusions*. The Planning Commission further finds and concludes that:

A. Government Code Section 65583 establishes the required contents and analysis in the General Plan Housing Elements in local jurisdictions.

B. Government Code Section 65584 mandates HCD to provide a determination of a region's existing and projected housing needs. It also mandates the Southern California Association of Governments ("SCAG") to allocate the housing needs among local jurisdictions in the SCAG region in the Regional Housing Needs Assessment ("RHNA") process;

C. The RHNA allocation for El Segundo during the 2021-2029 period is 521 dwelling units that are affordable to households of different income levels, including 131 units at above moderate income, 84 at moderate income, 99 at low income, and 207 at very low income;

D. Program 6 (Provision of Adequate Sites) of the 2021-2029 Housing Element calls for specific rezoning actions, establishment of objective development standards, and streamlining of residential development projects containing affordable units, to help the City meet its RHNA allocation goal;

E. Program 9 (ESMC Amendments) calls for specific amendments to the municipal code that will remove constraints from and incentivize the construction of housing, including transitional and supportive housing, micro-unit housing, residential care facilities, emergency shelters, low barrier navigation centers, employee housing senior housing, and housing for individuals with disabilities. The program also calls for increasing the maximum permitted density in the R-3 zone and revising the site plan review application findings to make them objective and provide more certainty in application outcomes;

F. The proposed General Plan Amendment will create a new Mixed-Use Overlay designation that applies to four sites covering 4.47 acres. The overlay applies over—and in addition to—the existing Corporate Office, General Commercial, and Parking land use designations for the sites (Exhibit B). The maximum permitted density in the Mixed-Use Overlay designation is 75 dwelling units per acre and will result in the construction of up to 335 additional dwelling units (Exhibit D);

G. The proposed General Plan Amendment will create a new Housing Overlay designation that applies to five sites covering 5.56 acres. The overlay applies over—and in addition to—the existing Multi-Family Residential land use designation for the sites. The maximum permitted density in the Mixed-Use Overlay designation is 65 dwelling units per acre and will result in the construction of up to 193 additional dwelling units (Exhibit D);

H. The proposed General Plan Amendment will change the maximum permitted density in the Multi-Family Residential land use designation from 27 dwelling units per acre to 30 dwelling units per acre;

I. The proposed Zone Change will apply a new Mixed-Use Overlay to four sites covering 4.47 acres. The overlay will apply over—and in addition to—the existing Corporate Office (CO), General Commercial (C-3), and Parking (P) zoning for the sites (Exhibit F);

J. The proposed Zone Change will apply a new Housing Overlay to five sites covering 5.56 acres. The overlay will apply over—and in addition to—the existing Multi-Family Residential (R-3) zoning for the sites (Exhibit F);

K. The proposed Zone Text Amendment will:

1. add the Mixed-Use Overlay (MU-O) and Housing Overlay (HO) to ESMC Section 15-3-1 (Designation of Zone Names);

2. amend ESMC Article 15-4D Multi-Family Residential (R-3) zone to change the maximum permitted density to 30 dwelling units per acre and update other development standards in the R-3 zone.

3. add a new ESMC Article 15-7(C) Mixed Use Overlay (MU-O) incorporating development standards for higher density mixed-use commercial and residential projects;

4. add a new ESMC Article 15-7(D) Housing Overlay (H-O) incorporating development standards for higher density residential projects;

5. amend ESMC Section 15-25-4 Site Plan Review Findings to streamline and ensure approval of multi-family residential projects; and

6. amend ESMC Title 14 (Subdivisions) to permit subdivisions involving up to 10-lots or units ministerially, without discretion or public hearings.

SECTION 3: *General Plan Amendment Findings*. As required under Government Code § 65454 and ESMC § 15-27-3 and based on the findings set forth in Section 2, the Planning Commission finds:

A. That the amendment is consistent with the General Plan.

The proposed general plan amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment increases the density and permitted height only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on vast majority of properties in the northwest quadrant of the City. Further, the Overlay sites are located near existing buildings with similar heights or in zones where similar building heights are allowed.

The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it preserves and protects existing Single-Family Residential uses. The proposed amendment does not alter designation of any existing Single-Family Residential properties; it affects only properties designated as Commercial or Multi-Family Residential.

The proposed general plan amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and proposed densities are adequate to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

In addition, the proposed amendment is consistent with Housing Element

Program No. 9: El Segundo Municipal Code Amendments. The proposed amendment increases the permitted maximum density in the Multi-Family Residential land use designation to 30 dwelling units per acre, which is adequate pursuant to Government Code section 65583.2(c)(3) to facilitate the development of low-and very low-income housing. It is also consistent with and directly implements Housing Element Goal 3 to provide adequate sites and opportunities for construction of new housing and Program No. 9 to amend the maximum density in the R-3 zone to 30 units per acre.

Lastly, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment is direct implementation of the Fair Housing Program objective to rezone adequate sites to allow high density residential development to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

B. The amendment is necessary to serve the public health, safety, and general welfare.

The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new zoning overlays that allow high density residential development on nine specific sites. Four of those sites currently have a commercial General Plan Land Use designation and will allow high density residential uses in combination with other permitted commercial uses. Five of the sites currently have a Multi-Family Residential General Plan Land Use designation and will allow high density residential uses in a manner that is compatible with surrounding uses. Further, the Overlay sites are located near existing buildings with similar heights or in zones where similar building heights are allowed.

In addition, the proposed amendment will increase the permitted maximum density in the Multi-Family Residential land use designation to 30 dwelling units per acre, which helps focus the increased density in the City's multi-family residential neighborhoods and preserves those areas with a Single-Family Residential Land Use designation.

Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will rezone an adequate number of sites to meet the 6th cycle

RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of CEQA. It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the Environmental Impact Report (EIR) for the General Plan.

SECTION 4: *Environmental Assessment*. The Planning Commission finds and determines as follows:

A. The proposed amendments to the General Plan, the Zoning Map, and ESMC contemplated herein were analyzed for their environmental impacts and an Addendum to the previously certified EIR for the General Plan was prepared pursuant to CEQA Guidelines Section 15164. Under CEQA, an Addendum to a previously certified EIR is appropriate if minor changes or additions to the EIR are necessary to reflect the proposed modifications to the project in the environmental analysis and none of the conditions described in Section 15162 of the CEQA Guidelines calling for the preparation of a subsequent EIR or negative declaration have occurred (CEQA Guidelines §15164). Generally, the conditions described in Section 15162 have not occurred if the proposed modifications do not result in any new significant impacts or a substantial increase in the severity of previously identified significant impacts. The Addendum need not be circulated for public review (CEQA Guidelines §15164(c)); however, an addendum must be considered by the decision-making body before making a decision on the project (CEQA Guidelines §15164(d)).

B. This Addendum to the previously-certified EIR demonstrates that the environmental analysis, impacts, and mitigation measures identified in the 1992 EIR for the General Plan remain substantively unchanged despite the proposed project revisions. It supports the finding that the proposed project does not raise any new issues and does not exceed the significance level of impacts identified in the previously certified EIR. The mitigation measures listed in the certified EIR for the General Plan, are sufficient to reduce the identified environmental impacts to a less than significant level.

C. To evaluate the potential environmental impacts of the Ordinance and the need for additional environmental review, the City conducted an initial study. Based on the findings of the initial study, an addendum was prepared. The Initial Study/Addendum dated March 2024, is incorporated herein by this reference, as though fully set forth.

D. Based on the findings and information yielded by the initial

study/addendum, the Planning Commission finds as follows:

1. There are no substantial changes relative to the amendments proposed herein that will require preparation of a subsequent or supplemental EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects.

   The proposed amendments would approve minor changes and additions to the General Plan described and analyzed in the previously certified final EIR ("FEIR"). There are no substantial changes resulting from the Ordinance that require major revisions to the FEIR. As detailed in the Initial Study/Addendum, the Ordinance will not result in any new or increased environmental effects beyond those that were previously identified in the FEIR. In addition, all applicable mitigation measures set forth in the FEIR would continue to be implemented.

2. No substantial changes have occurred with respect to the circumstances under which the project is undertaken that would require preparation of a subsequent or supplemental EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

   There are no substantial changes with regard to the facts, data, and mitigation measures included in the FEIR. The proposed amendments will not result in a General Plan that is substantially different from the plan evaluated in the FEIR, and the environmental circumstances applicable to the city have not changed substantially.

3. There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous FEIR was certified as complete, that shows any of the following: (i) The project will have one or more significant effects not discussed in the previous FEIR; (ii) Significant effects previously examined will be substantially more severe than shown in the previous FEIR; (iii) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or (iv) Mitigation measures or alternatives which are considerably different from those analyzed in the previous FEIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

E. No subsequent environmental review is required pursuant to Section 15162 of the CEQA Guidelines. Therefore, the proposed amendments to the General Plan, the Zoning Map, and ESMC contemplated herein, are within the scope of the project covered by the General Plan FEIR and, pursuant to Section 15168(c)(2) of the CEQA Guidelines, no further environmental review is required.

F. The proposed zone text amendments to the Subdivision, Site Plan Review, and certain affordable housing application procedures are exempt from the requirements of CEQA, pursuant to CEQA Guidelines Section 15061(b)(3), because they consist only of minor revisions to existing zoning regulations and related procedures and do not have the potential for causing a significant effect on the environment.

SECTION 5: *Zone Change Findings.* As required under ESMC § 15-27-3 and based on the findings set forth in Section 2, the Planning Commission finds:

A. The amendment is consistent with the General Plan.

The proposed zoning amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment increases the density and permitted height only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on many properties in the northwest quadrant of the City. Further, the Overlay sites are located near existing buildings with similar heights or in zones where similar building heights are allowed.

The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it will preserve and protect existing Single-Family Residential uses. The proposed amendment does not alter the zoning of any existing Single-Family Residential (R-1) properties; it affects only properties zoned Commercial or Multi-Family Residential (R-3).

The proposed general plan amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and

proposed densities are adequate to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

Further, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment direct implements the Fair Housing Program objective to rezone adequate sites to allow high density residential development and meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

B. The amendment is necessary to serve the public health, safety, and general welfare.

The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new zoning overlays that allow high density residential development on nine specific sites. Four of those sites currently have a commercial zoning designation and will allow high density residential uses in combination with other permitted commercial uses. Five of the sites are currently zoned Multi-Family Residential (R-3) and will allow high density residential uses in a manner that is compatible with surrounding uses.

Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will rezone an adequate number of sites to meet the 6th cycle RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of the California Environmental Quality Act (CEQA). It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the Environmental Impact Report (EIR) for the General Plan.

C. There are changed conditions since the existing zoning became effective to warrant other or additional zoning.

There are changed conditions since the existing zoning became effective to warrant the addition of the proposed Mixed-Use and Housing Overlays. In

2019, the California enacted the Housing Crisis Act of 2019 (SB 330), which declared a housing crisis in California. This and other laws adopted recently imposed obligations on cities to facilitate housing production, including strict requirements on local housing elements. For the 6th cycle RHNA, El Segundo's allocation is 521 housing units, including 279 affordable housing units. The City conducted an analysis of the feasibility of facilitating construction of 521 under existing zoning and determined that it would infeasible. Consequently, on November 15, 2022, the City adopted its 2021-2029 Housing Element, which includes Program No. 6 to rezone an adequate number of sites allow high density residential development. The proposed amendment directly implements Housing Element Program No. 6, which is critical in meeting the City's RHNA obligations.

D. The benefits of the proposed change of zone will clearly outweigh any potential adverse effects to adjoining property or the area.

The proposed zone change will help the City meets its General Plan Housing Element Goal No. 3 to provide opportunities for new housing construction in a variety of locations and a variety of densities. The proposed Mixed-Use and Housing overlays provide an opportunity and variety of locations for the construction of new housing units at high densities. The City provides existing locations that permit construction of single-family, low density residential developments in its Single-Family Residential (R-1) and Two-Family Residential (R-2) zones. It also provides locations that permit construction of multi-family, medium density residential developments in its Multi-Family Residential (R-3) zone. Thus, the proposed overlays will address the need for high density residential locations in the City.

The proposed zone change directly implements Housing Element Program No. 6 to provide adequate sites to meet the assigned RHNA of 521 housing units, including 279 affordable housing units at the moderate, low, and very low income categories. In addition, the zone change helps address the need for housing for various population groups, which is identified in the Housing Element.

Further, the proposed zone change directly addresses an HCD requirement that will result in full certification of City's Housing Element, with all the accompanying benefits of certification, such as the ability to qualify for HCD and other State grant funding.

There is no evidence in the record to suggest that there will be significant adverse effects as a result of the proposed zone change.

Finally, the potential environmental impacts generated by the proposed

amendment were analyzed consistent with the requirements of CEQA. It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the previously certified EIR for the General Plan.

SECTION 6: *Zone Text Amendment Findings.* As required under ESMC § 15-27-3 and based on the findings set forth in Section 2, the Planning Commission finds:

A. The amendment is consistent with the General Plan.

The proposed general plan amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment will establish density, height, and other standards, to facilitate high density residential developments only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on vast majority of properties in the northwest quadrant of the City.

The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it will preserve and protect existing Single-Family Residential uses. The proposed amendment does not alter the standards or designation of any existing Single-Family Residential properties; it affects only properties designated as Commercial or Multi-Family Residential.

The proposed zone text amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and proposed densities are adequate to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units. The proposed amendment also amends the ESMC to provide by right approval of projects on rezoned sites for lower income RHNA if the project provides 20 percent of the units as affordable housing for lower income households.

In addition, the proposed amendment is consistent with Housing Element Program No. 9: El Segundo Municipal Code Amendments (ESMC). The proposed amendment will increase the permitted maximum density in the Multi-Family Residential (R-3) zone to 30 dwelling units per acre, which is adequate pursuant to Government Code section 65583.2(c)(3) to facilitate the development of low-and very low-income housing. The proposed amendment will also revise the findings for site plan review applications to ensure that the findings are objective and provide certainty in outcomes, which will help streamline and encourage construction of new housing.

Further, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment directly implements the Fair Housing Program objective to rezone adequate sites and establish standards for high density residential development to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

B. The amendment is necessary to serve the public health, safety, and general welfare.

The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new overlays in the ESMC that allow high density residential development. The amendment establish development standards for the two new overlays that will allow high density residential uses designed in a manner that is compatible with surrounding uses.

In addition, the proposed amendment will increase the permitted maximum density in the Multi-Family Residential (R-3) zone to 30 dwelling units per acre, which helps focus the increased density in the City's multi-family residential neighborhoods and preserves the character of those areas zoned Single-Family Residential (R-1).

Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will help establish two new high density residential overlays on an adequate number of sites and it will streamline the Site Plan Review process to meet the 6th cycle RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

The proposed amendment is also necessary in that it is a requirement for the City to comply with State Housing Element Law and to maintain a certified Housing Element.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of CEQA. It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the previously certified EIR for the General Plan.

SECTION 7: *Recommendations*.

A. The Planning Commission recommends that the City Council adopt and approve an Addendum to the previously approved General Plan EIR, as set forth in Exhibit A to this Resolution which is incorporated herein by this reference;

B. The Planning Commission recommends that the City Council approve General Plan Amendment No. GPA 23-01 at set forth in Exhibits B-E below:

Exhibit B: General Plan Land Use Designation Descriptions
Exhibit C: General Plan Land Use Plan Excerpts (NW Quadrant)
Exhibit D: General Plan Land Use Plan Existing Trends Buildout
Exhibit E: General Plan Map Changes; and

C. The Planning Commission recommends that the City Council adopt the Ordinance attached as Exhibit F which would implement Zone Change No. ZC 23-01 and Zone Text Amendment No. ZTA 23-01.

SECTION 8: The amendments to ESMC Title 14 and ESMC Title 15 as identified herein shall apply to all development applications submitted after the effective date of the adoption of said ordinance and to all development applications that have not been deemed complete prior to the effective date of the adoption of said ordinance

SECTION 9: *Reliance on Record.* Each and every one of the findings and determination in this Resolution are based on the competent and substantial evidence, both oral and written, contained in the entire record relating to the project. The findings and determinations constitute the independent findings and determinations of the Planning Commission in all respects and are fully and completely supported by substantial evidence in the record as a whole.

SECTION 10: *Limitations*. The Planning Commission's analysis and evaluation of the project is based on information available at the time of the decision. It is inevitable that in evaluating a project that absolute and perfect knowledge of all possible aspects of the project will not exist. In all instances, best efforts have been made to form accurate assumptions.

SECTION 11: This Resolution will remain effective unless and until superseded by a subsequent resolution.

SECTION 12: The Commission secretary is directed to mail a copy of this Resolution to any person requesting a copy.

PASSED AND ADOPTED this ____ day of _____ 2024.

_____
Chair Michelle Keldorf
City of El Segundo Planning Commission

ATTEST:

_____
Michael Allen, Secretary and
Community Development Director

Keldorf	-
Hoeschler	-
Newman	-
Maggay	-
Inga	-

APPROVED AS TO FORM:
Mark D. Hensley, City Attorney

By: _____
Joaquin Vazquez, Assistant City Attorney

EXHIBIT "A" TO PLANNING COMMISSION RESOLUTION NO. 2935

GENERAL PLAN AND ZONING AMENDMENTS

General Plan Program EIR Addendum

Prepared for
City of El Segundo

March 2024

ESA

GENERAL PLAN AND ZONING AMENDMENTS

General Plan Program EIR Addendum

Prepared for
City of El Segundo

March 2024

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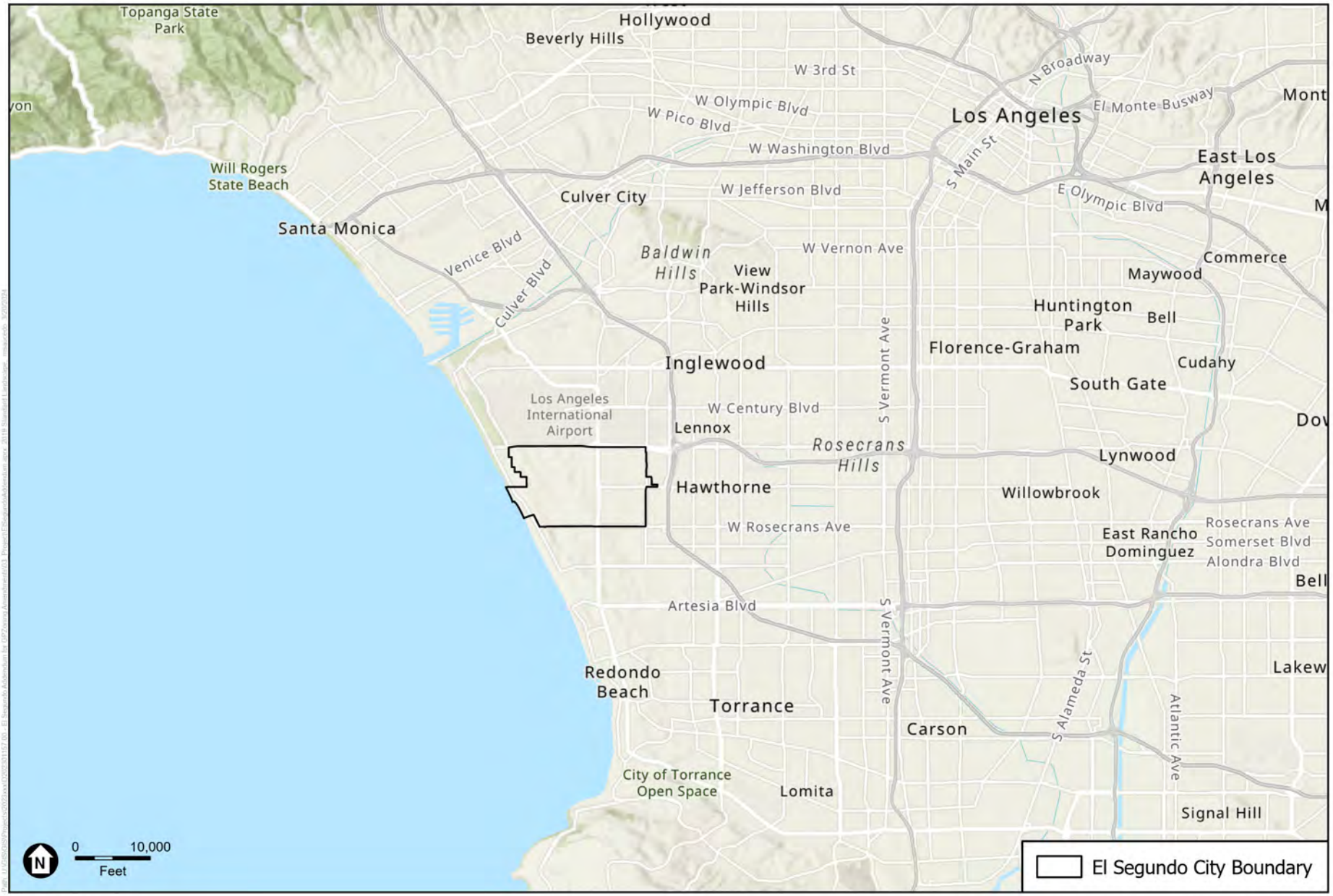
CHAPTER 1
Background

1.1 Purpose of this Addendum to the Certified Program EIR

The City of El Segundo's (City) adopted General Plan provides the long-term goals and policies necessary to guide growth and development within the city. The city encompasses 5.46 square miles (3,494.4 acres) in the South Bay Region of Los Angeles County, approximately 20 miles southwest of downtown Los Angeles. The city is bordered on the north by the Los Angeles International Airport (LAX); on the west by the Pacific Ocean; to the south by the city of Manhattan Beach; and to the east by the 405 Freeway. These barriers isolate El Segundo's residential and downtown communities from other South Bay communities. **Figure 1**, *Regional Location*, depicts El Segundo's regional location and city boundaries respectively.

The focus of this Addendum to the El Segundo General Plan Program Environmental Impact Report (Addendum), as described further below, is on the potential environmental effects associated with General Plan and Zoning Amendments (Project or amendments) necessary to implement the 2021–2029 Housing Element (Housing Element) that was adopted by City Council on November 15, 2022. On January 17, 2023, after the City made some minor technical changes to the Housing Element, the California Department of Housing and Community Development (HCD) issued a conditional approval letter but delayed full certification of the Housing Element until the City completes the rezoning described in Program 6 of the Housing Element, which is the subject of this Addendum.

A majority of the sites identified for future development are currently designated and zoned as multifamily. The remaining sites are currently designated as downtown commercial, general commercial, corporate office, Smoky Hollow, parking, public facility, and Downtown Specific Plan and are presently zoned as general commercial, corporate office, downtown, Smoky Hollow – East, and public facilities.



SOURCE: ESA, 2024

City of El Segundo General Plan and Zoning Amendments

Figure 1
Regional Location

ESA

1.2 CEQA Authority for an Addendum

The California Environmental Quality Act and CEQA Guidelines establish the type of environmental documentation that is required when changes to a project occur after an EIR is certified. Section 15164(a) states that:

> *"The lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred."*

According to CEQA Guidelines Section 15162, once an EIR has been certified, no subsequent or supplemental EIR shall be prepared for a project unless the lead agency determines that one or more of the following occurs:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken, which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
    a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
    b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
    c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment but the project proponents decline to adopt the mitigation measure or alternative.

The analysis in this Addendum evaluates the proposed General Plan and Zoning Code Amendments to determine whether any new significant environmental impacts, which were not previously identified in the prior CEQA documentation for the General Plan, would result or whether previously identified significant impacts would be substantially more severe. Chapter 3 of this Addendum provides an analysis of the impacts of the Project compared with the impacts of the General Plan as analyzed in Certified PEIR. It has been determined by the analysis herein, that none of the conditions requiring preparation of a subsequent EIR has occurred and that the Project would not result in additional significant impacts or a substantial increase in the severity

of previously identified significant impacts. Thus, pursuant to CEQA, this Addendum is the appropriate documentation to address the proposed General Plan and Zoning Code Amendments.

1.3 Background

This document is an Addendum to the Certified City of El Segundo General Plan Program Environmental Impact Report (Certified PEIR) (SCH #91041092) prepared for the City of El Segundo General Plan, which was adopted December 1992. The Certified PEIR provided a programmatic level of environmental impact analysis for a broad array of environmental topics for the entire General Plan area. The Certified PEIR analyzed the impacts of an estimated buildout scenario of residential units and nonresidential uses. The Certified PEIR determined the General Plan would cause significant and unavoidable impacts to the following resource areas: geology (increased exposure to seismic hazards), noise (increases in ambient noise levels), and transportation and circulation (impacts at intersections and along roadway segments).

The General Plan covers an area of approximately 3,495 acres and includes goals, objectives, and policies for ten elements including Land Use; Economic Development; Circulation; Housing; Open Space and Recreation; Conservation; Air Quality; Noise; Public Safety; and Hazardous Materials & Waste Management Element. The Certified PEIR analyzed the implementation of the 1992 General Plan that provides the long-term goals and policies necessary to guide growth and development within the city.

The Land Use Element of El Segundo General Plan sets forth the city's policies for regulation of land uses within the city's jurisdiction. These policies, together with zoning regulations for implementing the General Plan, establish the location, amount, and distribution of land to be allocated for various land uses within the city. The El Segundo General Plan and El Segundo Municipal Code (ESMC) provide for a range of residential land use development densities. The Certified PEIR assumed that full buildout of the General Plan could increase the density and intensity of existing land uses by allowing up to approximately 7,787 new residential units and an increase of approximately 28.7 million square feet of non-residential uses. The additional development assumed in the General Plan was anticipated to occur over a 20-year period, ending in 2010.

In addition to the General Plan, the City has approved projects that have resulted in an increase in buildout through General Plan amendments and/or approvals of Specific Plans, including the Smoky Hollow Specific Plan, Downtown Specific Plan, Pacific Coast Commons Specific Plan (PCCSP) and 540 East Imperial Specific Plan (540 EISP), described below. These projects, which included environmental analyses, increased the allowable density and population within the city, thereby increasing the city's anticipated buildout.

The Smoky Hollow Specific Plan was approved in 2018. Smoky Hollow is a light industrial/ manufacturing region located in central El Segundo, generally bounded by Standard Street to the west, El Segundo Boulevard to the south, Pacific Coast Highway to the east, and Grand Avenue to the north. The Specific Plan area encompasses approximately 94.3 acres. Residential units other than accessory caretaker units are not permitted in the Smoky Hollow Specific Plan area. The Plan includes a Medium Density Residential (MDR) Overlay Zone. The MDR Overlay Zone

is considered a "floating zone" that can be activated once a need is identified. The MDR Overlay Zone may be used in place of current Smoky Hollow Specific Plan zoning designations.

In 2000, the City adopted a Downtown Specific Plan to enhance the Downtown environment. The Plan area is a distinct district approximately two blocks by five blocks in size and is currently developed with commercial, residential, and public uses. The current zoning allows for a maximum of 276 dwelling units within the Plan area. As of September 2021, there are approximately 83 residential units in the Plan area. The city's residential sites inventory includes a number of properties in the Downtown Specific Plan area with a total capacity of 26 units.[1] The City is in the process of updating the Downtown Specific Plan. The Draft Plan will allow additional residential units in the Main Street, Richmond Street and Grand Avenue Districts. The City projects an increase of 300 residential units in these areas.

The PCCSP was approved in 2022. The PCCSP includes approximately 6.4 gross acres and allows up to 263 new housing units and 11,252 square feet of new commercial/retail uses. The Specific Plan identifies five land use districts, including two mixed-use districts allowing residential development, PCC Mixed-Use 1 (PCC MU-1) and PCC Mixed-Use 2 (PCC MU-2).

The 540 EISP, located in the northern portion of the city, was approved in January 2012. The 5.65-acre project site was comprised of six lots and the Specific Plan allows the development of 58 units. The 540 EISP included residential development with a mix of 24 single-family dwelling units and 34 multiple-family dwelling units.

For the Housing Element Update, the regional housing needs assessment (RHNA) allocation ("fair share" of the regional total) from Southern California Association of Governments (SCAG) for El Segundo was a total of 492 units. The city had a shortfall of 29 units from the 5th Cycle Housing Element period, which are carried over to the current cycle. Therefore, the total requirement for the city during the 6th Cycle Housing Element period is 521 units.

The city has not experienced the projected growth assumed in the General Plan. As indicated in the 2021–2029 Housing Element, according to the Department of Finance (DOF) Housing Estimates, there are 7,463 dwelling units in El Segundo, an increase of 53 units (0.72 percent) since 2010. The Housing Element includes a residential site inventory, which identifies sites for future housing development and an evaluation of the adequacy of those sites to fulfill the city's share of the regional housing needs. The Housing Element identifies candidate sites, which are part of the Project, which is described in detail below.

On November 15, 2022, the City Council adopted a revised 2021–2029 Housing Element. On January 17, 2023, after the City made some minor technical changes to the Housing Element, HCD issued a conditional approval letter but delayed full certification of the Housing Element until the City completes the rezoning described in Program 6 of the Housing Element. The Project, which is described below, would implement Program 6 of the Housing Element and thereby allow the City to obtain HCD certification of the Housing Element.

[1] City of El Segundo, *City of El Segundo 2021–2029 Housing Element*, November 2022, page 39.

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CHAPTER 2
Project Description

The city's 6th Cycle RHNA allocation for the 2021–2029 Housing Element is a total of 521 units, which includes 29 units from the 5th Cycle Housing Element period. General Plan and Zoning amendments are necessary in order to increase the opportunities for housing development to occur in the city. The proposed General Plan and Zoning Amendments would implement Program 6 of the Housing Element in order for the City to receive HCD certification of the Housing Element.

The Housing Element includes a site inventory that identifies parcels that could accommodate the necessary housing over the next eight years. To provide land for the identified housing and to meet the RHNA allocation, the City has identified areas where density can be increased. In addition, the City has determined that the creation of overlay districts can be used to help achieve the goal of increasing housing opportunities. To implement the proposed approaches, amendments to the General Plan and ESMC would be required.

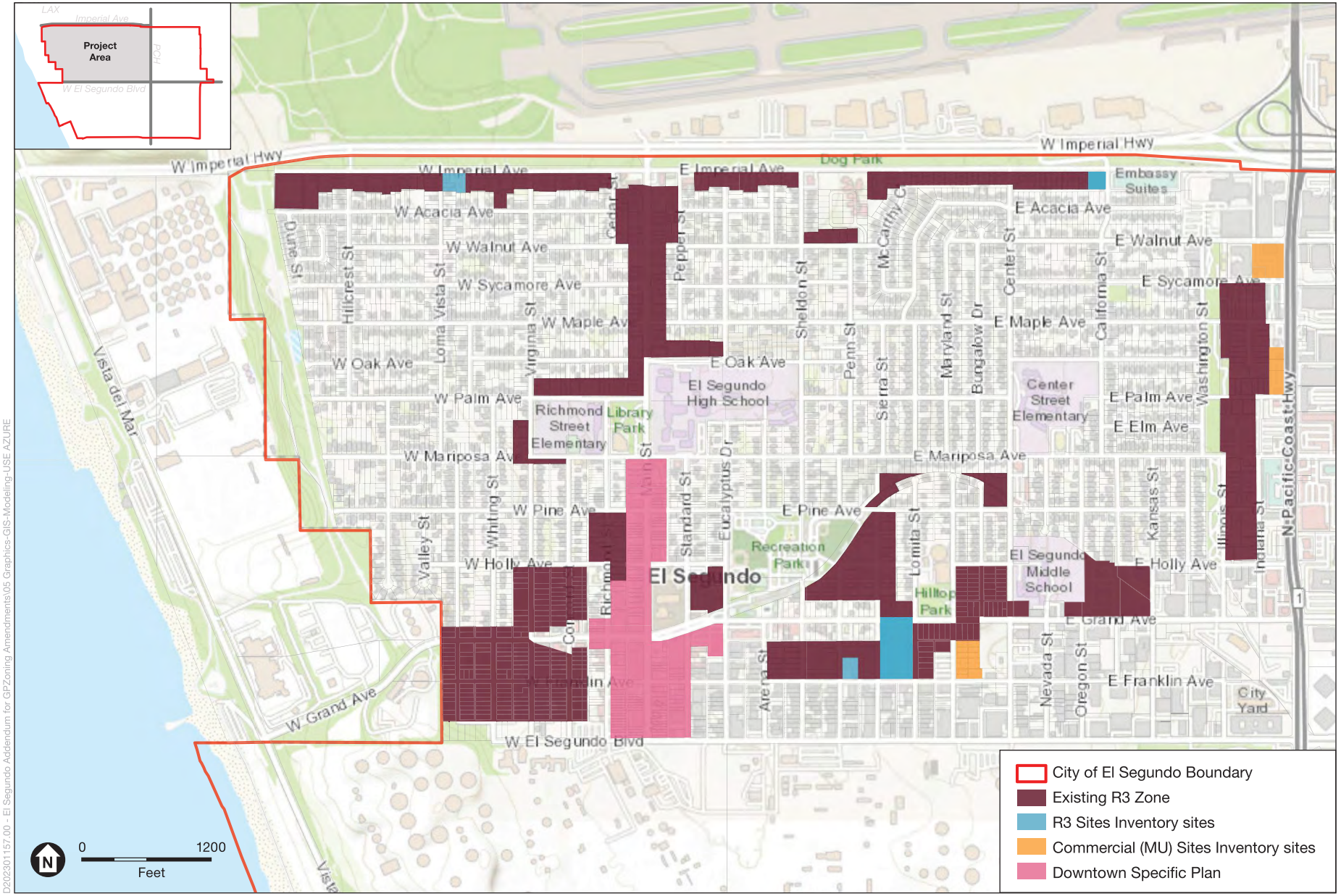
The City identified four approaches to increase the opportunities for housing development in the city to achieve the 6th cycle RHNA allocation of 521 units, which comprise the Project. The proposed approaches include:

- Development of a Mixed-Use Overlay[2]
- Development of a Housing Overlay[3]
- Increase in Density in R-3 Zone
- Update to the Downtown Specific Plan

These approaches combined, which are described below, would result in a projected buildout of 1,195 units, thereby exceeding the 521 units allocated in the 6th Cycle. **Table 1**, *Acreage and Net Increase in Units Provided by Four Approaches*, provides a summary of the acreage affected and the potential net increase in units for each approach. **Figure 2**, *Proposed Areas for General Plan and Zoning Amendments*, shows the locations within the northwestern quadrant of the city where the General Plan and zoning designations are proposed. In addition, with the development of a Mixed-Use Overlay, approximately 64,077 square feet of resident serving commercial square footage is projected.

[2] The sites identified for the Mixed-Use Overlay are shown in Table 5-5 of the Housing Element, pages 58 to 61.

[3] The sites identified for the Housing Overlay are shown in Table 5-7 of the Housing Element, pages 67 to 68.



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SOURCE: City of El Segundo and ESA, 2023

Figure 2
Proposed Areas for General Plan and Zoning Amendments

ESA

TABLE 1
ACREAGE AND NET INCREASE IN UNITS PROVIDED BY FOUR APPROACHES

Approach	Acreage	Existing Units/Acre	Proposed Units/Acre	Net Increase
Mixed Use Overlay[1]	4.47 acres	—	75 units/acre	335 units
Housing Overlay	5.1 acres	27 units/acre	65 units/acre	193 units
Increase in Density in R-3 Zone	122.2 acres	27 units/acre	30 units/acre	367 units
Downtown Specific Plan				300 units
Total		—	—	1,195 units
6th Cycle RHNA Allocation				521 units[2]
Surplus				674 units

1. The Mixed-Use Overlay would allow up to 64,077 square feet of commercial floor area.
2. If the accessory dwelling units and entitled projects are considered, the surplus would be 916 units above the remaining RHNA obligation of 279 units.

Source: City of El Segundo, 2023

As shown in Table 1, the projected increase in housing associated with the four approaches is greater than the allocated 521 units to provide a buffer given the uncertainty of where redevelopment would occur as well as considering the overall land use pattern in the city and to provide for housing opportunities beyond the 2021–2029 timeframe.[4] Assuming 2.53 persons per household,[5] the Project's 1,195 residential units would accommodate 3,024 individuals at full occupancy of all units.

2.1 Development of Mixed-Use Overlay

The methodology used by the City to identify candidate sites for the Mixed-Use Overlay (MU-O) is described in the Housing Element. The City considered various factors, including the age of existing development, lot size, locational advantages, environmental constraints and adequate infrastructure, and development trends. The City selected four candidate rezone sites, comprised of 14 parcels, and totaling approximately 4.47 acres. These parcels would be rezoned to include a newly created overlay, MU-O.

Currently, the sites are zoned for commercial, parking, and office uses but are considered underutilized based on low existing Floor Area Ratio (FAR) and lack of investments or improvements for many years. These parcels are primarily used for parking. Assuming a density of 75 units per acre, up to 335 residential units could be developed on these parcels. In addition, since the overlay would allow for mixed-use development, approximately 64,077 square feet of resident serving commercial square footage is projected. A general purpose of the MU-O is to co-locate housing with commercial uses to reduce trips, thereby reducing vehicle miles traveled (VMT) as well as emissions.

4 The Housing Element considers accessory dwelling units and entitled projects. With the inclusion of these, the City has a remaining RHNA of 279 units.

5 Based on the generation factor used in the 2021 Housing Element, page 11.

2.2 Development of Housing Overlay

In the last few years, the City has begun to see intensification of the R-3 neighborhoods. Given the interest in redeveloping the older neighborhoods and based on an economic study regarding the feasibility of redevelopment, the City identified areas in which a Housing Overlay (HO) that allows for an increase in density could be applied. While the City identified a total of 723 R-3 parcels totaling about 400 acres that could be rezoned, based on further analysis, four areas comprised of seven parcels totaling approximately 5.56 acres have been identified as having near-term redevelopment potential. Five of these parcels are currently developed with nonconforming, nonresidential uses built during 1950s and 1960s. The nonconforming uses are not permitted to expand, and these parcels cannot be redeveloped with nonresidential uses.

Based on an economic study evaluating the R-3 properties, the HO would allow up to 65 units per acre.[6] (The economic study is provided as Attachment A to this Addendum.) As indicated these properties are zoned R-3, which allows 27 units per acre. With the increase to 65 units per acre, the HO would allow a net increase of 38 units per acre. Assuming a density of 65 units per acre, up to 330 units could be developed, resulting in a net increase of 193 units. The City would amend the Zoning Code to create the HO and associated development standards, such as lot area per unit, parking, height, setback, and lot coverage to ensure that the maximum density can be achieved.

2.3 Increase in Density in R-3 Zone

The city's Multi-Family Residential designation allows multiple dwelling units in either a condominium or apartment configuration. The maximum density for multifamily residential is 27 dwelling units per acre[7] on properties equal to or less than 15,000 square feet and 18 dwelling units per acre on properties greater than 15,000 square feet.

Program 9, Removing Governmental and Other Constraints, in the Housing Element identifies that the City will increase the allowable density in the R-3 zone from 27 units per acre to 30 units per acre. This increase will apply to the R-3 parcels that were not identified for the HO.

The City estimates there are approximately 122 acres of land zoned R-3 that was not identified for the HO. The increase in density in the R-3 zone will allow a net increase of 3 units per acre. Assuming a density of 30 units per acre on the remaining 122 acres of land, 367 additional residential units will be allowed. To accommodate the density increase, the City will amend the Zoning Code to revise relevant development standards, such as lot area per unit, parking, height, setback, and lot coverage to ensure that the maximum density can be achieved.

6 El Segundo R-3 Redevelopment Potential, prepared by Economic & Planning Systems, Inc., September 2022.

7 The R-3 zone allows 1 unit per 1,613 square feet of lot area on properties that are less than 15,000 square feet, which allows 9 units on a 15,000-square-foot parcel resulting in 27 units per acre.

2.4 Update of the Downtown Specific Plan

The City is in the process of updating the Downtown Specific Plan, which covers 26.3 acres along Main Street between Mariposa Avenue and El Segundo Boulevard. The Draft Plan will allow residential units in the Main Street, Richmond Street and Grand Avenue Districts. The City projects an increase of 300 residential units in these areas. While the Downtown Specific Plan is going through a separate process, including preparation of an environmental document in compliance with CEQA, the City is considering the potential units in this process.

2.4.1 Entitlements

The discretionary actions required for the Project include, but are not limited to the following:

- Consideration of the Addendum to the Certified Program EIR
- Approval and adoption of the proposed General Plan Amendments
- Approval and adoption of the proposed Zoning Amendments

The City of El Segundo is the lead agency and approvals of other public agencies are not required at this time.

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CHAPTER 3
Environmental Analysis

This section addresses each of the environmental issues discussed in the Certified PEIR to determine if the Project has the potential to create new significant impacts or a result in a substantial increase in the severity of a significant impact as compared to the Certified PEIR. Since there have been changes to the CEQA Checklist questions since the certification of the PEIR, the questions in the current CEQA Checklist are used to ensure all issue areas are considered. The order of the issues below matches the order in the Certified PEIR. Topics that were scoped *out* in the Certified PEIR's Initial Study are included in this analysis.

As with the Certified PEIR, the analysis below is a program-level analysis. A program analysis addresses a series of actions that can be characterized as one large project and are related either: (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental impacts which can be mitigated in similar ways (CEQA Guidelines Section 15168).

This Addendum does not evaluate project-specific impacts of future developments. Potential environmental impacts associated with future development facilitated by the General Plan and Zoning amendments would be assessed on a site-by-site basis at the time the development is proposed and mitigation measures, if necessary, would be implemented to reduce significant impacts through the application and environmental review process.

3.1 Geology, Soils, and Seismicity

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
GEOLOGY and Soils—Would the project:		
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:		
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (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 risks to life or property?	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒

3.1.1 Environmental Setting

Faulting and Seismicity

Several active and potentially active faults traverse the southern California region, including the and San Andreas, Newport-Inglewood, Cucamonga, Whittier-Elsinore, San Jacinto, San Fernando, Sierra Madre, Verdugo, and Malibu Coast-Santa Monica-Hollywood fault zones. The most likely source of strong earthquake shaking within the city would be a major earthquake (up to a magnitude of 8.25) on the San Andreas fault located to the northeast of the city. Maximum potential earthquakes postulated for other faults classified as active in the region are of the 7.0 magnitude originating from the Newport-Inglewood fault (5 miles to the west), and the Whittier-Elsinore fault (18 miles to the northwest).

Terrain and Soils

The city is relatively flat, and thus the risk of land sliding is low. The soils in the northwestern quadrant of the city, where the parcels identified for new housing are located, belong to two major groups: the Oakley and the Ramona-Placentia associations. Oakly association soils are

made up of gray and dark gray loam, silty sands, silt loam, or clay loam. These soils are associated with high water tables and are composed of loosely bound grains formed by wind processes. Ramon-Placentia association soils are made up of brown to reddish-brown heavy loam, loam, or sandy loam. Subsoils consist of similarly colored clay and clay loam. Given the high-water table in this portion of the city, liquefaction is likely.

Paleontological Resources

Numerous fossil sites have been recorded from exposed rock units in and near El Segundo. Therefore, there is potential and sensitivity for paleontological resources in the area.

3.1.2 Discussion

Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

   ii) Strong seismic ground shaking?

   iii) Seismic-related ground failure, including liquefaction?

   iv) Landslides?

The Certified PEIR evaluated the potential for future development in the city to incrementally expose people to land sliding, ground shaking, and associated hazards that commonly occur in a seismically active area and concluded that even with the implementation of Public Safety Element Policies PS1-1.1 and PS1-1.2, this impact would remain significant and unavoidable (Certified PEIR pages 4.1-23 to 4.1-24).

The city is relatively flat; future development facilitated by the proposed General Plan and Zoning Amendments would be in areas that are predominately flat. Therefore, the potential for seismically induced landslides to occur is low. Future development under the Project would incrementally contribute to the number of people who could be exposed to ground shaking and associated hazards (i.e., seismically related ground failure, including liquefaction) that commonly occur in a seismically active area. The City has adopted the California Building Code (CBC) by reference pursuant to ESMC Chapter 13-1-1). The CBC includes provisions for construction in seismically active areas, and on different types of soils. All future development facilitated by the proposed General Plan and Zoning Amendments would be required to adhere to requirements contained in the CBC and ESMC. Adherence to regulatory codes, such as the CBC and ESMC would ensure that all future development under the Project would be constructed to adequately withstand strong seismic ground shaking through proper engineering and design. Furthermore, the City requires the preparation of geotechnical reports to address potential geologic impacts

associated with the development of a site prior to issuance of a building permit. Thus, unlike the conclusion reached in the Certified PEIR, potential impacts related to seismic hazards associated with fault rupture, strong seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides would be less than significant. Therefore, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

b) Result in substantial soil erosion or the loss of topsoil?

The Certified PEIR evaluated the potential for future development in the city to expose soils to erosion during construction and determined with the implementation of Public Safety Element Policies PS1-1.2, PS2-1.1, and PS2-1.2, these impacts would be reduced to a less-than-significant level (Certified PEIR pages 4.1-21 to 4.1-22). In addition, Mitigation Measure 4.2-3 (under Hydrology and Water Quality) requires that an erosion and sedimentation control plan be prepared and submitted to the City prior to grading.

Ground-disturbance activities (e.g., excavation and grading) associated with future development facilitated by the proposed General Plan and Zoning Amendments could expose soils to erosion during construction. Erosion potential depends largely on the characteristics of soils disturbed, the quantity of disturbance, and the length of time soils are subject to conditions that would be affected by erosion processes. Areas of ground disturbance 1 acre or greater in size would be required to comply with the National Pollution Discharge Elimination System (NPDES) Construction General Permit, which involves implementation of erosion- and sediment-control best management practices (BMPs) as detailed in a stormwater pollution prevention plan (SWPPP) prepared for the development. The BMPs would prevent erosion from occurring and would retain any eroded soils within property boundaries. Thus, with compliance with the applicable requirements as well as Mitigation Measure 4.2-3, potential impacts related to erosion or the loss of topsoil would remain less than significant. As a result, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

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?

The Certified PEIR evaluated the potential for future development in the city to be located on soils or bedrock with expansive or non-cohesive properties and concluded that with the implementation of Public Safety Element Policies PS1-1.1 and PS1-1.2, these impacts would be reduced to a less-than-significant level (Certified PEIR pages 4.1-22 to 4.1-23).

Strong seismic ground shaking could result in liquefaction of poorly consolidated and saturated soils. Liquefaction occurs when water-saturated sediments are subjected to extended periods of

shaking. The potential exists within the city to encounter expansive soils or soils that are unstable or would become unstable as a result of new development. These conditions could result in on-site or off-site lateral spreading or subsidence. Soils in the western portion of the city are underlain with dune sands, and thus may be prone to settlement. However, if unstable or expansive soils are encountered, adherence to regulatory codes, such as the CBC and ESMC and incorporation of recommendations of a City-approved site-specific geotechnical report, would ensure that these soils are properly engineered to support new structures. Thus, potential impacts related to unstable or expansive soils would remain less than significant. Therefore, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

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?

The northwestern quadrant of the city is served by existing sewer infrastructure. As with all current development, future development facilitated by the proposed General Plan and Zoning Amendments would connect to the existing system; septic tanks would not be required. No impact would occur, and no mitigation would be required.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Certified PEIR evaluated the potential for future development in the city to destroy unique paleontological resources and concluded that with the implementation of Mitigation Measure 4.11-5, which requires that a paleontologist be present onsite during initial mass grading and all subsequent soil disturbances for projects over 2 acres in size, these impacts would be reduced to a less-than-significant level (Certified PEIR page 4.11-9).

Future development facilitated by the proposed General Plan and Zoning Amendments would be located on sites that have previously been developed. However, if construction occurs in native soils, the potential exists to destroy paleontological resources. Future development under the Project would be required to implement mitigation requiring that a paleontologist be present onsite during ground disturbing activities to monitor the presence of paleontology resources. Thus, potential impacts related to paleontological resources would remain less than significant. As a result, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

3.2 Hydrology and Water Quality

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
HYDROLOGY AND WATER QUALITY—Would the project:		
a) Violate any water quality standards or waste discharge requirements?	☐	☒
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 off-site;	☐	☒
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?	☐	☒

3.2.1 Environmental Setting

Groundwater

The city is underlain by the West Coast Groundwater Basin, a relatively small groundwater basin underlying the southwestern portion of the Los Angeles Central Plain. The basin is adjudicated, and thus the amount of groundwater extracted is limited by court judgment. Natural replenishment of the Basin's groundwater supply is limited to the underflow from the Central Basin, which bounds the West Coast Basin on the east, and limited local precipitation.

Surface Water

The city is located within the Los Angeles Coastal Plain, adjacent to Santa Monica Bay. Surface water flowing through the city is not concentrated within any natural occurring streams or channels. Urbanization has led to the collection of natural surface waters in a storm water drainage system.

Flooding

The Federal Emergency Management Agency (FEMA) is responsible for administration of the National Flood Insurance Program (NFIP) which creates flood zone insurance maps called a

Flood Insurance Rate Map (FIRM) that identify flood hazards within a community. A majority of the city, including the northwestern quadrant of the city, where the parcels identified for new housing are located, is located within an area of an annual chance flood of 0.2 percent (Zone X). The only portion of the city subject to inundation by the 1 percent annual flood chance (100-year flood) is a 0.8-mile frontage along the Pacific Ocean.[8]

3.2.2 Discussion

Would the project:

a) Violate any water quality standards or waste discharge requirements?

The Certified PEIR evaluated the potential for future development in the city to violate water quality standards and concluded that with the issuance of permits required and regulated by the Regional Water Quality Control Board (RWQCB) this impact would be less than significant. In addition, the Certified PEIR evaluated the potential for future development in the city to result in increased erosion from construction activities and increased site runoff and determined that with the implementation of mitigation that requires the preparation and implementation of an erosion and sedimentation control plan this impact would be reduced to a less-than-significant level (Certified PEIR pages 4.2-10 to 4.2-11).

Future development facilitated by the proposed General Plan and Zoning Amendments would occur on developed and underutilized parcels, with limited development on vacant parcels. Future development under the Project would adhere to all applicable federal, state, and local regulations related to stormwater runoff, erosion, and water quality. As discussed above in Section 3.1, *Geology, Soils, and Seismicity*, in lieu of an erosion and sedimentation control plan, ground-disturbance activities (e.g., excavation and grading) associated with demolition of existing development and construction of new development would be required to comply with the NPDES Construction General Permit. The Construction General Permit requires the preparation of a site-specific SWPPP that incorporates BMPs to reduce impacts to water quality associated with erosion and pollution in stormwater discharge. The SWPPP would provide equal or better protection measures than the erosion and sedimentation control plan required by mitigation found in the Certified PEIR. Therefore, future development facilitated by the proposed General Plan and Zoning Amendments would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, and this impact would remain less than significant. As such, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

[8] Federal Emergency Management Agency, Flood Insurance Rate Maps 06037C1766 and 06037C1767, Effective April 21, 2021, https://msc.fema.gov/portal/search#searchresultsanchor, accessed February 7, 2024.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The city is located within the West Coast Groundwater Basin. Construction of future development facilitated by the proposed General Plan and Zoning Amendments could encounter groundwater during earthwork and excavation. It is also possible that dewatering systems may be necessary for individual projects. The northwestern quadrant of the city is primarily developed with existing urban uses and future development in the area would occur as infill development and would not likely result in large excavation areas or large amounts of dewatering. Furthermore, future development facilitated by the proposed General Plan and Zoning Amendments would not change large areas that are currently undeveloped and available for rainwater infiltration. Therefore, construction and operation of development would have a minimal impact on groundwater recharge in the area and would not substantially decrease groundwater supplies through substantial increases in impervious surfaces.

Future development facilitated by the proposed General Plan and Zoning Amendments would generate water demand. The city receives its water from the West Basin Municipal Water District (WBMWD) and does not pump any groundwater. As discussed in greater detail in Section 3.6, *Utilities*, West Basin purchases imported water from the Metropolitan Water District (MWD) of Southern California and wholesales the imported water to cities and private companies in southwest Los Angeles County, including the city. Therefore, the project would not have the potential to decrease groundwater supplies from an increase in demand.

For these reasons, future development facilitated by the proposed General Plan and Zoning Amendments would not decrease existing groundwater supply; substantially interfere with groundwater recharge; nor conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. Therefore, the impact with respect to groundwater would be less than significant, and no mitigation would be required.

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?

The Certified PEIR evaluated the potential for future development in the city to result in changes to the amount of surface water generated and concluded that with the implementation of Conservation Element Policies CN2-11 and CN5-8 this impact would be less than significant (Certified PEIR pages 4.2-9 to 4.2-10).

There are no streams or rivers in the northwestern quadrant of the city. As future development facilitated by the proposed General Plan and Zoning Amendments would occur on developed and underutilized parcels, future grading and vegetation removal would not result in the exposure of large amounts of soil to erosion during construction activities. All future development would be required to comply with requirements that address stormwater runoff control. New development would be required to adhere to water quality and runoff regulations including those set forth by the NPDES Construction General Permit and ESMC Chapter 5-4. As such, development projects are required to implement BMPs for construction activities as specified by the California Storm Water Best Management Practices Handbook, and/or the City's Minimum Best Management Practices and Storm Water BMP Manual.

During operation, future development facilitated by the proposed General Plan and Zoning Amendments would be required by existing NPDES and ESMC regulations to control pollutants, pollutant loads, and runoff volume by (1) minimizing the impervious surface area and (2) controlling runoff through infiltration, bioretention, and/or rainfall harvest and use. Furthermore, given that the northwestern quadrant of the city is primarily built-out, future development under the Project would not be expected to result in an substantial increase in impervious surface area, substantial change to drainage patterns, or substantial change to groundwater infiltration.

For these reasons, the impact related to the alteration of drainage patterns would remain less than significant. As such, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

As discussed above, the northwestern quadrant of the city is located within an area of an annual chance flood of 0.2 percent (Zone X), and thus is not at a substantial risk for flooding. The risk of tsunami is present given the city's proximity to the Pacific Ocean. However, this tsunami hazard area does not extend into any part of the city that is developed. Furthermore, the city does not contain large bodies of water that would be subject to seiche. Accordingly, the risk associated with the release of pollutants due to project inundation would be less than significant, and no mitigation would be required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As discussed above under Items (a) and (d), construction of future development would be required to comply with the NPDES Construction General Permit and regulations contained in ESMC Chapter 5-4 for any project activities. Therefore, construction and operation of future development facilitated by the proposed General Plan and Zoning Amendments would not conflict with implementation of any water quality control plan. As discussed above under Item (b), construction and operation of future development under the Project would not substantially deplete groundwater supplies or interfere with groundwater recharge and would

therefore not conflict with implementation of any sustainable groundwater management plan. For these reasons, the impact with respect to a potential conflict with or potential obstruction of a water quality control plan or sustainable groundwater management plan would be less than significant, and no mitigation is required.

3.3 Biotic Resources

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
BIOLOGICAL RESOURCES—Would the project:		
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game 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 Game or U.S. Fish and Wildlife Service?	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒

3.3.1 Environmental Setting

El Segundo is largely developed and supports very little native habitat. Ornamental landscaping and naturalized exotic species including grasses and thistles are the most common forms of vegetation in El Segundo. Portions of the city's older residential areas contain mature trees and shrubs, which provide limited habitat for native and introduced species which have adapted to urban environments, including birds and small mammals.

3.3.2 Discussion

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 Game 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 Game or U.S. Fish and Wildlife Service?

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Certified PEIR evaluated the potential for future development in the city to result in the loss of remaining ruderal fields found within the city and concluded that with the implementation of Open Space and Recreation Element Policy OS1-5.3 and Conservation Element Policies CN4-1 through CN4-4 and mitigation recommending that the City investigate the feasibility of implementing a restoration plan for remaining portions of the city's sand dune ecosystem in coordination with City of Los Angeles restoration efforts, these impacts would be reduced to a less-than-significant level (Certified PEIR page 4.3-11).

The sites that have been identified for new housing are located in urbanized areas that have been previously developed. None of the sites is located on or near areas mapped as wetlands. As the areas where potential development may occur have already been disturbed through urban development, no significant changes are anticipated in the diversity or number of species of plants or animals, or in the deterioration of existing wildlife habitat. No riparian habitat, wetlands, wildlife corridors or nurseries would be affected. Furthermore, existing applicable federal, state, and/or local policies would prevent development in areas that support sensitive or special status species, federally protected wetlands, or migration corridors. For these reasons, impacts on biological resources, including candidate, sensitive, or special-status species; riparian habitat or other sensitive natural community; federally protected wetlands a (including, but not limited to marsh, vernal pool, coastal, etc.); or native resident or migratory fish or wildlife species, corridors, or nurseries would remain less than significant. As there are no sand dunes located in the northwestern quadrant of the city, where the parcels identified for new housing are located, the mitigation measure identified in the Certified PEIR discussed above does not apply. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The city does not have a tree preservation ordinance for trees on private property. In the event future development facilitated by the proposed General Plan and Zoning Amendments would require the removal of trees on city property, as part of the approval process, the developer would be required to comply with city policies related to tree removal and replacement. Therefore, future development under the Project would not conflict with tree preservation policies or ordinances. No impact would occur, and no mitigation would be required.

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?

No Habitat Conservation Plan or Natural Community Conservation Plan applies to any portion of the city. The sites identified for new housing are located within a developed, urban area. The areas are void of native plant or animal life and provide limited cover and foraging habitat, thus future development facilitated by the proposed General Plan and Zoning Amendments would not significantly impact biological resources. As a result, future development under the Project would not 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 would occur, and no mitigation would be required.

3.4 Land Use

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
LAND USE AND LAND USE PLANNING—Would the project:		
a) Physically divide an established community?	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒

3.4.1 Environmental Setting

The City of El Segundo, which is located in the southern portion of Los Angeles County approximately 20 miles southwest of downtown Los Angeles, has a land area of 5.4 square miles. The city is bordered on the north by LAX; on the west by the Pacific Ocean; to the south by the City of Manhattan Beach; and to the east by the 405 Freeway. These barriers isolate El Segundo's residential and downtown communities from other South Bay communities.

As stated in the Land Use Element, the city has distinct and identifiable areas, which include residential areas, the Civic Center, older industrial areas, and office and commercial uses. The western boundary of the city includes 0.8 miles of shoreline along the Santa Monica Bay. Except

for the shoreline area, the city is fully developed with urbanized uses. The city has a very strong residential base with a mixture of single-family, two-family, and multifamily residential dwellings. The city's housing stock of 7,463 units is characterized by a relatively even balance between single and multifamily residences.

As discussed in the Housing Element, the jobs-housing balance is a general measure of a community's employment opportunities with the needs of its residents. A balanced community would have a match between employment and housing opportunities so that most of the residents could also work in the community. The city has a high job-population ratio of approximately 4.2:1.[9] This large employment base indicates a need to continually seek ways to add housing in the community.

3.4.2 Discussion

Would the project?

a) Physically divide an established community?

All of the sites identified for future development are in already established neighborhoods. No changes to the street grid would occur. As a result, future development facilitated by the proposed General Plan and Zoning Amendments would not physically divide an established community. This impact would be less than significant, and no mitigation would be required.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The Certified PEIR evaluated impacts associated with considerable growth in some parts of the city due to the proposed density and intensity standards and concluded that with the implementation of mitigation requiring that a specific plan be prepared for any site currently designated Heavy Industrial to reduce potential impacts associated with unanticipated growth and that the City monitor market absorption of general commercial uses to avoid the overbuilding of this type of use, these impacts would be reduced to a less-than-significant level(Certified PEIR pages 4.4-17 to 4.4-18).

As discussed above, the city has a high job-population ratio. The Housing Element addresses the RHNA allocation and the city's need for additional housing. The Project would result in General Plan and Zoning Amendments to properties in the residential portion of the city. The sites that were identified in the Housing Element Sites Inventory are properties that have the potential for redevelopment and areas where lots could be consolidated. In addition, sites were selected based on proximity to services, such as schools, parks, retail, and transit.

[9] As discussed in the Housing Element (page 10), comparing the number of jobs in El Segundo in 2020 (over 70,000) to the 2018 ACS population estimates (16,850) indicates a high job-population ratio of approximately 4.2:1.

None of the sites identified for future development facilitated by the proposed General Plan and Zoning Amendments is designated Heavy Industrial and future development under the Project would not result in a substantial amount of new commercial development, and thus the mitigation included in the Certified PEIR does not apply to the Project. Project and site-specific concerns would be evaluated and addressed as development projects for specific sites are proposed. Future development facilitated by the proposed General Plan and Zoning Amendments would follow the city's standard procedures for review, including analysis for consistency with the General Plan and compliance with applicable development standards in the city's Municipal Code. Future projects would be evaluated to ensure compatibility with the neighborhood context. In addition, future development under the Project would have to comply with all applicable federal, state, and local goals, policies, and regulations. These plans, policies, and regulations are intended to avoid, reduce, or minimize potential environmental impacts. Therefore, the impact related to conflicts with land use plans, policies, and regulations would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

3.5 Population and Housing

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
POPULATION AND HOUSING—Would the project:		
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☒

3.5.1 Environmental Setting

The 1992 General Plan buildout projections, which were for 2010, were 7,850 residential units and 17,287 residents. As indicated in the Housing Element, as of 2020, DOF determined that the city's population was 16,777, an increase of less than 1 percent in the ten years since the 2010 U.S. Census. However, the 2020 U.S. Census indicates a population of 17,272 people.[10] Based on the DOF Housing Estimates, there are 7,463 dwelling units in El Segundo, an increase of 53 units (0.72 percent) since 2010. Between 2010 and 2018, the average persons per household in El

[10] U.S. Census Bureau, QuickFacts: El Segundo and Los Angeles County, U.S. Census Bureau QuickFacts: Los Angeles County, California; El Segundo city, California; United States, accessed February 2024.

Segundo increased from 2.34 to 2.53 persons per household.[11] According to SCAG, population in the city is expected to increase to 17,200 by 2045, an increase of 1.6 percent.[12,13]

3.5.2 Discussion

Would the project:

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

The Certified PEIR evaluated impacts associated with the increase in housing units and population resulting from implementation of the General Plan. The Certified PEIR indicated that the level of housing growth projected under the General Plan did not meet the city's housing needs and would result in a potentially significant impact. However, with the implementation of Air Quality Element Policies AQ9-1.1 through AQ9-1.3 and Land Use Element Policy LU4-4.5 and mitigation that encourages the development of military housing in the city, these impacts would be reduced to a less-then-significant level (Certified PEIR pages 4.5-13 to 4.5-14).

Based on the average household size in the city of 2.53 persons per household, the additional 1,195 units that could be constructed as a result of the proposed General Plan and Zoning Amendments could accommodate 3,024 individuals at full occupancy of all units, which would be an increase of 17.5 percent over the 2020 U.S. Census population for the city. It is assumed this growth would occur over about 20 to 25 years.

The proposed General Plan and Zoning Amendments are necessary to implement the city's 2021–2029 Housing Element, which sets forth the city's policies and detailed programs for meeting existing and future housing needs as determined by the RHNA process. As shown in Table 1, the projected increase in housing associated with the Project is greater than the allocated 521 units in order to provide a buffer given the uncertainty of where redevelopment would occur. The sites were identified in consideration of the overall land use pattern in the city and to provide for housing opportunities beyond the 2021–2029 timeframe.[14]

As discussed above, SCAG projects that the population in the city is expected to increase to 17,200 by 2045. However, although residential development facilitated by the proposed General Plan and Zoning Amendments would result in a higher future population than projected by SCAG, the increase that would occur under the Project is in response to SCAG 6th Cycle RHNA housing numbers allocated to the city. California's housing element law requires that each city

[11] Housing Element, page 11.

[12] Southern California Association of Governments (SCAG), *Connect SoCal Demographics and Growth Forecast Technical Report*, May 7, 2020, https://www.connectsocal.org/Documents/Draft/dConnectSoCal_Demographics-And-Growth-Forecast.pdf, accessed February 7, 2024.

[13] The SCAG 2045 projections do not account for growth that would occur as a result of the 6th Cycle RHNA allocation given the timing of the regional updates.

[14] The Housing Element considers accessory dwelling units and entitled projects. With the inclusion of these, the City has a remaining RHNA of 279 units.

and county develop local housing programs designed to meet its fair share of existing and future housing needs for all income groups. This effort is coordinated when preparing the state-mandated Housing Element of the city's General Plan. This fair share allocation concept seeks to ensure that each jurisdiction accepts responsibility for the housing needs of, not only its resident population, but for all households that might reasonably be expected to reside within the jurisdiction, particularly lower income households. This assumes the availability of a variety and choice of housing accommodations appropriate to their needs, as well as mobility among households within the region.

The Project would provide an opportunity for the development of housing to accommodate the existing and future need, but no development is proposed at this time. Therefore, the Project would accommodate planned population growth rather than inducing population growth, and for this reason the impact associated with population growth would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The sites that would be amended to MU-O are zoned for commercial, parking, and office uses. These parcels are considered underutilized and have lacked improvements for many years. No displacement of people or housing would occur on these properties. Future development of some of the sites that would be amended to HO and properties in which the density for the R-3 would increase could displace residents and housing. However, future development facilitated by the proposed General Plan and Zoning Amendments would result in a net increase in housing. In addition, Government Code Section 65863 (No Net Loss Law) ensures that development opportunities remain available to accommodate a jurisdiction's RHNA, especially for lower- and moderate- income households. For these reasons, future development facilitated by the proposed General Plan and Zoning Amendments would not result in any displacement. No impact would occur, and no mitigation would be required.

3.6 Utilities

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
UTILITIES AND SERVICE SYSTEMS—Would the project:		
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water 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?	☐	☒

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
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?	☐	☒

3.6.1 Environmental Setting

Water

Water service in the city is provided by the El Segundo Water Division, which is a partner of WBMWD. WBMWD provides wholesale potable water to 17 cities, serving approximately 900,000 people. WBMWD imports water, both potable surface water and recycled water, to supplement local groundwater supplies of its members. Additionally, WBMWD injects a blend of desalinated brackish water, recycled water and imported water into the West Coast Groundwater Barrier to protect the groundwater supplies of its members from seawater intrusion. WBMWD currently imports potable water from State Water Project and Colorado River via pipelines and aqueducts owned and operated by the MWD.[15]

Wastewater

Wastewater in the northwestern quadrant of the city is collected and conveyed through a network of sewer lines for treatment at the Hyperion Treatment Plant (HTP). The HTP is part of a joint outfall system commonly known as the Hyperion Sanitary Sewer System, which consists of the wastewater collection system, the HTP, and two upstream wastewater treatment plants: Donald C. Tillman Water Reclamation Plant, Los Angeles–Glendale Water Reclamation Plant, and their associated outfalls, all of which are owned and operated by the City of Los Angeles. Approximately 85 percent of the sewage and commercial/industrial wastewater treated by the system comes from the City of Los Angeles while the remaining 15 percent comes from the contract cities and agencies.[16]

The HTP has the capacity to treat approximately 450 million gallons per day (mgd) of wastewater for full secondary treatment level and currently treats 275 mgd. As such, the HTP is presently operating at approximately 61 percent of its total capacity. The City has an agreement with the City of Los Angeles that permits an average flow of 2.75 mgd of wastewater to the HTP for treatment and disposal. Approximately 2.66 mgd of sewage is generated in the city's existing sewer service area, with a total of 1.17 mgd conveyed to the HTP and the remainder conveyed to facilities owned and operated by the Sanitation District of Los Angeles County.[17]

[15] Downtown Specific Plan EIR, page IV.N.1-2.
[16] Downtown Specific Plan EIR, page IV.N.2-2.
[17] Downtown Specific Plan EIR, page IV.N.2-3.

Solid Waste

Solid waste management in the northwestern quadrant of the city, which includes collection and disposal services and landfill operation, is provided by various agencies and private companies. EDCO, a private company, provides services, including solid waste, green waste, recycling, and bulky item pickup, to single family and duplex residents. Trash and recycling services for multifamily and businesses is the responsibility of the property owner.

Non-hazardous solid waste generated within the El Segundo is transported to Los Angeles County landfills. Collectively, the 10 Class III located within Los Angeles County have a maximum daily permitted capacity of 45,297 tons per day, an average daily disposal intake of 19,291 tons per day, and an estimated remaining permitted total capacity of 142.67 million tons. The Scholl Canyon landfill, Burbank Landfill Site No. 3 and the Calabasas landfill are the closest landfills to the city with the Scholl Canyon and Burbank Site No. 3 facilities located 30 and 32 miles to the northeast, respectively, and the Calabasas facility located 35 miles to the northwest. Combined these three landfills have a permitted daily capacity of 7,140 tons per day, an average daily disposal intake of 2,486 tons per day, and a remaining permitted total capacity of 9.81 million tons.[18]

Beginning in 1989 with the passage of the California Integrated Waste Management Act [Assembly Bill (AB) 939], there have been numerous pieces of legislation to reduce solid waste disposal in landfill. More recently, in 2011, AB 341 was adopted establishing a policy goal that 75 percent of statewide solid waste should be reduced, recycled, or composted by 2020. This is an expansion of previous state goals to divert 50 percent of community-wide waste. In addition, Senate Bill (SB) 1383 requires all businesses and multifamily properties to arrange for organic waste recycling services (i.e., food waste and green waste). As required by the State, these regulations were adopted in an ordinance by the City of El Segundo in December 2021. The California Green Building Standards Code (CALGreen) requires that 65 percent of construction and demolition (C&D) waste from new construction must be diverted from landfills and either recycled or salvaged for reuse.

Electricity, Natural Gas, and Telecommunications Infrastructure

Electrical power is provided to the city by Southern California Edison (SCE). Electricity is distributed through a network of transmission lines, distribution lines, distribution transformers, and substation transformers. The city is urbanized and fully developed; existing land uses are supplied with electricity through existing distribution lines and transformers, electric polies, and meters throughout the city.

Southern California Gas Company (SoCalGas) provides natural gas services in the city. Natural gas is supplied to the region through a system of interstate pipelines. SoCalGas provides natural gas to the city through existing gas mains located under the streets and in public rights-of-way. Land uses in the city receive natural gas through existing gas mains, onsite distribution lines, and meters.

[18] Downtown Specific Plan EIR, page IV.N.3-2.

A variety of products and telecommunication services are available within the city, including internet and wireless services, television using digital fiber optic technology, and satellite technology. The majority of landline telephone facilities are located in county- or city-owned rights-of-way and on private easements. Telecommunications lines are either copper wire or fiber optic cable and are routed overhead on utility poles and underground.

3.6.2 Discussion

Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Future development facilitated by the proposed General Plan and Zoning Amendments would connect to existing water, wastewater, stormwater, electric, natural gas, and telecommunications distribution and conveyance infrastructure in the northwestern quadrant of the city. While it is expected that existing utility infrastructure in the area has enough capacity to serve future development under the Project, in some cases, new and existing infrastructure may need to be constructed and/or relocated to increase capacity and/or better serve individual sites, and its construction could result in adverse environmental effects. However, all future development would be required to comply with the city's requirements for construction, including but not limited to, grading permits and encroachment permits. Therefore, future development facilitated by the proposed General Plan and Zoning Amendments would not result in additional impacts related to the relocation or construction of new or expanded utility infrastructure. The impact with respect to utility infrastructure would be less than significant, and no mitigation would be required.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

The Certified PEIR evaluated impacts associated with water supply. With the implementation of water conservation policies found in the Conservation Element and Mitigation Measure 4.6-5(a) requiring the use of dual plumbing systems in large new developments and high-rise structures and the consideration of reclaimed water as a new source of water supply, these impacts would be reduced to a less-than-significant (Certified PEIR pages 4.6-14 to 4.6-15).

Future development facilitated by the proposed General Plan and Zoning Amendments would add up to 1,195 new housing units and up to 3,024 residents over time in the northwestern quadrant of the city over time. In addition, approximately 64,077 square feet of resident-serving commercial use would be provided by the Project. Based on a demand factor of 42 gallons per capita per day (gpcd), future residential development facilitated by the proposed General Plan and Zoning Amendments could result in a total demand of approximately 127,000 gallons per day (gpd) or 142.3 acre-feet per year (AFY). In addition, based on a commercial (residential serving retail) demand factor of 40.54 gallons per year per square foot (gpy/sf), the resident serving commercial

uses associated with the Project could result in a total demand of about 2.60 million gallons annually or 8.0 AFY by 2029. As a result, overall water demand would be approximately 150.2 AFY by 2029. However, the city's total requirement during the 6th Housing Element period, for which the amendments are being implemented, is 521 units. Thus, it is assumed that the total demand would not occur until about 2040.

Table 2, *Projected Water Demand – WBMWD*, shows WBMWD's projected water demand between 2025 and 2045. The amount of water demanded by future growth facilitated by the proposed General Plan and Zoning Amendments represents approximately 0.10 percent of the projected demand within the WBMWD's service area for year 2030 and 0.09 percent of the projected demand within the WBMWD's service area for years 2035 through 2045. Therefore, the Project would not result in a substantial increase in water demand. Furthermore, WBMWD is projected to improve its supplies and supply reliability in the future by increasing recycled water supplies as well as investing in desalinated ocean water supply. Finally, the water demand estimate associated with future development facilitated by the proposed General Plan and Zoning Amendments is conservative in that it does not consider future water conservation requirements (such as the SB x7-7), and nor does it reflect compliance with Title 24 water efficiency standards.

TABLE 2
PROJECTED WATER DEMAND – WBMWD

	2025	2030	2035	2040	2045
Demand Totals	146,190	150,160	160,450	165,660	165,760

SOURCE: WBMWD, 2021

For these reasons, the impact of the Project on water supply would remain less than significant with the implantation of the mitigation measure. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

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?

The Certified PEIR evaluated impacts associated with wastewater generation. With the implementation of Land Use Element Policy LU7-1.2 regarding public facilities and Mitigation Measure 4.6-7(a) requiring that future development projects must comply with the provisions of all interim or future agreements or ordinances regarding sewer capacity, these impacts would be reduced to a less-than-significant (Certified PEIR pages 4.6-16 to 4.6-18).

As wastewater generation equals roughly 90 percent of water demand, future development facilitated by the proposed General Plan and Zoning Amendments would generate approximately

0.12 mgd.[19] As with water demand, it should be noted that the Project's wastewater generation estimate is conservative as it does not consider future water conservation requirements, nor does it reflect current water efficiency standards as discussed above.

As discussed above, the City has an agreement with the City of Los Angeles that permits an average flow of 2.75 mgd of wastewater to the HTP for disposal and treatment. The average yearly flow within the city was measured at 2.66 mgd, with a total of 1.17 mgd conveyed to the HTP and the remainder conveyed to other facilities owned and operated by the Sanitation District of Los Angeles County. As a result, approximately 1.58 mgd of the city's allotted capacity at the HTP remains available. As the maximum wastewater flow that would be generated by future development facilitated by the proposed General Plan and Zoning Amendments (0.12 mgd) only represents approximately 8 percent of the city's remaining allotted capacity at the HTP, enough capacity exists to serve future development under the Project in addition to other future growth in the city. Therefore, the impact of future development facilitated by the proposed General Plan and Zoning Amendments on wastewater treatment capacity would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

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?

The Certified PEIR evaluated impacts associated with solid waste generation. With the implementation of Mitigation Measure 4.6-9 requiring source reduction requirements, these impacts would be reduced to a less-than-significant (Certified PEIR pages 4.6-19 to 4.6-21).

Future development facilitated by the proposed General Plan and Zoning Amendments would add up to 1,195 new housing units and up to 3,024 residents over time in the northwestern quadrant of the city. In addition, approximately 64,077 square feet of resident-serving commercial use would be provided by the Project. Based on default CalEEMod solid waste generation rates, future development under the Project would generate approximately 3.0 tons of solid waste per day (Attachment C, CalEEMod Outputs).[20] The Project would continue to be subject to the requirements set forth in AB 341 and SB 1383. Therefore, it is estimated that a minimum of 75 percent of this solid waste would be diverted from landfills and that organic waste recycling services (i.e., food waste and green waste) would be provided. Due to the types of waste that would be generated and required compliance with diversion requirements, future development facilitated by the proposed General Plan and Zoning Amendments is not expected to generate waste in excess of these standards.

[19] Wastewater generation = (150.2 AFY or 0.13 mgd) X 0.90 = 0.12 mgd.

[20] Note that CalEEMod reports the estimated solid waste generation of the Project as 950.3 tons per year. In the Countywide Integrated Waste Management Plan 2020 Annual Report, the Los Angeles County, Department of Public Works uses an average daily disposal rate based on 312 days per year (6 days per week average). 950.3 tons per year / 312 days per year = 3.0 tons per day.

As discussed above, there are three landfills within approximately 35 miles of the city: Scholl Canyon landfill; Burbank Landfill Site No. 3; and Calabasas landfill. Collectively, these nearby landfills have a permitted daily capacity of 7,140 tons per day and an average daily intake of 2,486 tons per day. As such, the amount of solid waste that could potentially be generated within the Project area would represent 0.04 percent of the daily permitted capacity and 0.12 percent of the remaining daily capacity after accounting for the existing average daily intake for the three closest landfills. Furthermore, all 10 existing Class III landfills within Los Angeles County have a collective maximum daily permitted capacity of 45,297 tons per day, an average daily disposal intake of 19,291 tons per day, and an estimated remaining permitted total capacity of 142.67 million tons. As such, there would be adequate infrastructure capacity within the county to dispose of solid waste generated by future development facilitated by the proposed General Plan and Zoning Amendments. Therefore, the impact of the Project on solid waste disposal capacity would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

3.7 Public Services

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
PUBLIC SERVICES—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 government 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 following public services:		
i) Fire protection?	☐	☒
ii) Police protection?	☐	☒
iii) Schools?	☐	☒
iv) Parks?	☐	☒
v) Other public facilities?	☐	☒

3.7.1 Environmental Setting

Fire Protection

The El Segundo Fire Department (ESFD) provides fire protection, emergency medical and life safety services in the city. The ESFD is made up of 42 fire suppression personnel including three battalion chiefs, nine captain, nine engineers, 15 firefighter/paramedics, and 6 firefighters. There are 14 firefighters on duty 24 hours a day, 7 days a week. The city has two fire stations: Fire Station 1, located at 314 Main Street and Fire Station 2, located at 2261 E. Mariposa Avenue. Fire Station 1 has six staff members, a Battalion Chief vehicle, a Fire engine, and an ambulance. Fire

Station 2 has eight staff members, a fire engine, a ladder truck, an ambulance, and an urban search and rescue vehicle.[21]

The city is divided into two districts for fire response, with Pacific Coast Highway as the dividing line. Station 1 responds to calls west of Pacific Coast Highway, serving the residential community, Chevron Refinery, El Segundo Beach and light industrial businesses located in the Smoky Hollow area. Fire Station 2 serves the commercial and industrial businesses east of Pacific Coast Highway. Depending on the nature of the emergency request, units may cross over into the other district and coordinate resources to assist in response activities. As the sites identified for new housing are in the northwestern quadrant of the city, west of Pacific Coast Highway, they are within the coverage area of Fire Station 1.

Police Protection

The El Segundo Police Department (ESPD) is located at 348 Main Street, adjacent to Fire Station 1. The ESPD provides police protection services to the city through its Administrative Services and Field Operations bureaus. The ESPD currently has 88 authorized positions, of which 57 are sworn officers. The ESPC's desired level of sworn officers is 72 and the desired level of officer-to-resident ratio would be 4.3 officers for every 1,000 residents.[22]

The Administrative Bureau, which is managed by a Police Captain with support from professional, manages multiple Divisions, including investigative, training, community engagement, and police records. The Field Operations Bureau consists of the Patrol Division and the Special Operations Division. The Patrol Division uses the Area command Program, which divides the city into two geographic patrol areas bisected by Pacific Coast Highway. The area west of Pacific Coast Highway is designated the West Command and the area east of Pacific Coast Highway is designated the East Command. As the northwestern quadrant of the city is located west of Pacific Coast Highway, it is within the area covered by the West Command.

Schools

The El Segundo Unified School District (ESUSD) provides kindergarten through twelfth grade public education services in El Segundo. In addition to the ESUSD public schools, there are private and charter schools within the city. The ESUSD has a current enrollment of 3,400 students at six schools. Schools located in the northwestern quadrant of the city include Richmond Street Elementary School, Center Street Elementary School, El Segundo Middle School, and El Segundo High School. Presently, all these schools, except for Richmond Street Elementary, are operating at capacity. In January 2024, ESUSD celebrated the opening of the new Richmond Street School Classroom Building, which was constructed to ensure adequate school facilities for students in the district.[23]

[21] Downtown Specific Plan EIR, pages IV.K.1-2 to IV.K.1-3.

[22] Downtown Specific Plan EIR, page IV.K.2-2.

[23] El Segundo Unified School District, *ESUSD Celebrates Opening of New Richmond Street School Classroom Building*, 2024, accessed February 2024, https://www.elsegundousd.net/article/1409952.

Parks

The city's Recreation and Parks Department is responsible for developed park land that provides a wide variety of attractions and amenities including 16 parks, athletic fields, recreational water amenities, a skate park, dog park and community garden. In addition to these facilities, the city also owns the Lakes at El Segundo, which is operated by Topgolf. In 2022, the property was renovated to provide a ten-hole public golf course. The adjacent property is a Topgolf facility that includes a three-story lighted driving range with a restaurant and private event center. The driving range functions as the municipal driving range pursuant to a lease agreement with the City.[24]

Parks located in the northwestern quadrant of the city include Acacia Park, Library Park, Recreation Park, Sycamore Park, Hill Top Park, and Holly Kansas Park.

The California Department of Parks and Recreation typically uses a ratio of 3.0 acres per 1,000 residents as a standard of park space within communities. According to the State Parks, there are 79.9 acres of city-owned/operated parks space in the city.[25] With the County-owned El Segundo Beach, there is a total of 107.6 acres of qualified park space. Using the 2020 Census count of 17,272 residents, the city has approximately 4.6 acres of qualified city-owned park space per 1,000 residents and approximately 6.2 acres of total qualified park space per 1,000 residents with the inclusion of El Segundo Beach.[26]

Libraries

The El Segundo Public Library (ESPL) is located at 111 West Mariposa Street. The ESPL partners with ESUSD to provide services at four El Segundo school libraries, including El Segundo High School, El Segundo Middle School, Center Street Elementary School, and Richmond Street Elementary School. The ESPL offers a digital library with eBooks and audiobooks, as well as online resources including databases, newspapers, magazines, reading sources, and general reference guides. History collections are provided in the ESPL's History Room. The Arts and Culture Advisory Committee and ESPL promote public art, events, and cultural programming in the community. In 2022/2023, the ESPL had 126,858 visitors; 162,873 items borrowed; 271 community programs; 11,128 program attendance; 42,803 Wi-Fi sessions; and 4,204 room reservations.[27] Library benchmarks include input measures (square feet per capita, physical items per capita, and internet terminals per 1,000) and an output measure (annual circulation per capita). ESPL exceeds all input and output measures as compared to the Los Angeles County Library system and the median of all California public libraries.[28]

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24 Downtown Specific Plan EIR, page IV.K.4-6.

25 Downtown Specific Plan EIR, page IVK4-7; Parks for All Californians: Park Access Tool, https://www.parksforcalifornia.org/parkaccess/?search=city-0622412&overlays1=parks%2Cnoparkaccess&overlays2=parks%2Cparksper1000, accessed February 2024.

26 Downtown Specific Plan EIR, page IV.K.4-7.

27 Downtown Specific Plan EIR, pages IV.K.5-2 to IV.K.5-3.

28 Downtown Specific Plan EIR, page IV.K.5-3, Table IV.K.5-1.

3.7.2 Discussion

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 government 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 following public services:

   i) Fire protection?

   ii) Police protection?

   iii) Schools?

   iv) Parks?

   v) Other public facilities?

The Certified PEIR evaluated impacts associated with the provision of public services, including fire and police protection, schools, parks and libraries. Consistency with Land Use Element Policies LU7-1.1 and LU7-1.5, Public Safety Element Policies PS5-1.1 through PS5-1.3, and Open Space and Recreation Element objectives OS1-1 through OS1-5 and payment of required development fees (Mitigation Measure 4.7-9) by project proponents would reduce impacts to these services to a less-than-significant level (Certified PEIR pages 4.7-16 to 4.7-19).

Fire Protection

Future development facilitated by the proposed General Plan and Zoning Amendments would add up to 1,195 new housing units and up to 3,024 residents over time in the northwestern quadrant of the city. As required by applicable regulations, future development under the Project would include adequate fire prevention features, such as automatic sprinkler systems for mid-rise buildings and manual fire alarms as required by ESMC Chapter 9 and currently adopted National Fire Protection Association standards (NFPA 13 and 72). Incorporation of these required fire prevention features would reduce demand for fire protection services. Furthermore, future development facilitated by the proposed General Plan and Zoning Amendments would be required to comply with fire flow requirements found in the 2022 California Fire Code.

For these reasons, the impact of future development facilitated by the proposed General Plan and Zoning Amendments on fire protection services would remain less than significant; no new or expanded fire protection facilities are anticipated to be needed serve the Project. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

Police Protection

Future development facilitated by the proposed General Plan and Zoning Amendments would add up to 1,195 new housing units and up to 3,024 residents over time in the northwestern quadrant of the city. Future development under the Project would incorporate crime prevention measures into

project design as well as implement comprehensive safety and security measures, including adequate and strategically positioned functional and thematic lighting to enhance public safety. Visually obstructed and infrequently accessed "dead zones" would be limited and, where possible, security controlled to limit public access. Building and layout design would also include crime prevention features, such as nighttime security lighting and secure parking facilities. These preventative and proactive security measures would decrease the amount of service calls the ESPD would receive.

Demands are met by ESPD through the allocation of available resources by ESPD management to meet varying needs throughout the city, as well as through the allocation of city resources between ESPD and other city departments, which is accomplished through the City's annual programming and budgeting processes. Through implementation of these existing management and regulatory processes, the demand for police protection is identified and addressed to the satisfaction of the City's elected leadership. Additionally, the ESPD would review designs of new development and provide guidance on design features that would minimize the opportunity for crime, which would minimize demand on police protection services.

For these reasons, the impact of future development facilitated by the proposed General Plan and Zoning Amendments on police protection services would remain less than significant; no new or expanded police protection facilities are anticipated to be needed to serve the Project. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

Schools

Future development facilitated by the proposed General Plan and Zoning Amendments would add up to 1,195 new housing units and up to 3,024 residents over time in the northwestern quadrant of the city. Based on the ESUSD student generation factors, the General Plan and Zoning Amendments could result in a total of 377 students, consisting of 160 elementary school students (grades K–6), 90 middle school students (grades 7–8), and 127 high school students (grades 9–12).[29] While most schools are currently at capacity, ESUSD, through their long-range planning efforts, seeks to meet the district goal of maintaining appropriate resources and services by addressing facility maintenance and improvement needs on an ongoing basis.[30] For example, a new two-story classroom addition was completed in January 2024 at Richmond Street Elementary School.

In addition, it is very likely that some of the students generated by the future development would already be enrolled in ESUSD schools. In addition, the number of students that could attend ESUSD schools may be overestimated as some students may enroll in private schools, charter schools, or participate in home-schooling.

[29] ESUSD student generation factors provided in the El Segundo Unified School District, Residential and Commercial/Industrial Development School Fee Justification Study, May 11, 2020. For multi-family units the factors are 0.1338 for elementary students, 0.0752 for middle school students, and 0.1063 for high school students.

[30] El Segundo Unified School District, *El Segundo USD Long-Range Facilities Master Plan 2018–2028*, November 1, 2018.

The Education Code Section 17620 allows school districts to assess fees on new residential and commercial construction within their respective boundaries. Pursuant to California Government Code Section 65995, the payment of these fees by a developer serves to fully mitigate all potential project impacts on school facilities from implementation of a project to less-than-significant levels. Sections 65996(a) and (b) state that such fees collected by school districts provide full and complete school facilities mitigation under CEQA.

Future development would be required to pay school facility fees that are assessed for each new square foot of new residential and commercial space. Pursuant to SB 50 (the Leroy Green School Facilities Program), the payment of these fees constitutes full mitigation of potential significant impacts on schools. Therefore, with the payment of the applicable school fees the impact of future development facilitated by the proposed General Plan and Zoning Amendments on schools would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

Parks

Future development facilitated by the proposed General Plan and Zoning Amendments would add up to 1,195 new housing units and up to 3,024 residents over time in the northwestern quadrant of the city. At full buildout, the addition of 3,024 residents that could result from the Project General Plan and Zoning Amendments would result in a ratio of 3.9 acres of city-owned qualified park space per 1,000 residents and a ratio of 5.3 acres of total qualified park space per 1,000 residents. As such, there would still be adequate park space within the city according to State Park standards and future development facilitated by the proposed General Plan and Zoning Amendments would not result in a substantial reduction in existing standards of service for parks. Accordingly, the need for new or physically altered park facilities to maintain an acceptable service ratio would not occur.

While there are no specific developments proposed at this time, the development standards for the HO and MU Overlay would require the provision of residential common recreational facilities/areas. In addition, future development facilitated by the proposed General Plan and Zoning Amendments would be subject to the city's Development Impact Fee, which would support park improvements as well as fund capital costs for other new and existing infrastructure. Pursuant to the Development Impact Fee Program, an applicant would pay its fair share of the Development Impact Fee based on the fee category and adopted Development Impact Fee rates. The Development Impact Fee paid by the Project would be available to the City to use for such updates and improvements at its discretion.

While future development facilitated by the proposed General Plan and Zoning Amendments would increase demand on parks, provision of on-site open space, as applicable, and payment of development fees would ensure that the potential impact remains less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

Libraries

Future development facilitated by the proposed General Plan and Zoning Amendments would add up to 1,195 new housing units and up to 3,024 residents over time in the northwestern quadrant of the city. The increase in population would result in an increase in demand for library services. As indicated above, ESPL exceeds all input and output measures as compared to the Los Angeles County Library system and the median of all California public libraries. Even with the increase in population that would occur with the development of new housing, ESPL would still meet its benchmarks (e.g., square feet per capita and annual circulation per capita). In addition, to address the potential impact to libraries, future development under the Project would be subject to the city's Development Impact Fee, which would be available to the City to use for updates and improvements, if necessary, at their discretion. Compliance would offset any incremental need for funding of capital improvements to maintain adequate library facilities and service resulting from future development facilitated by the proposed General Plan and Zoning Amendments and this impact would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

3.8 Transportation/Circulation

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
TRANSPORTATION—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 Section 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?	☐	☒

3.8.1 Environmental Setting

Existing Street System

Regional access to the city is provided by the Century Freeway (Interstate 105 [I-105]), the San Diego Freeway (I-405), Pacific Coast Highway (CA-1) and Imperial Highway. Local access within the northwestern quadrant of the city, where the parcels identified for new housing are located, is provided by several major streets, including Pacific Coast Highway, Washington Street, California Street, Center Street, Sheldon Street, Main Street, and Virginia Street in the north–south direction and Imperial Avenue, Maple Avenue, Mariposa Avenue, Grand Avenue, and El Segundo Boulevard in the east–west direction.

Transit Service

The northwestern quadrant of the city is served by local and regional bus lines. The Metro 232 local bus route runs along the eastern edge of the Project Area and includes multiple stops on

Pacific Coast Highway. The Beach Cities Transit Line (Route 109) runs through the Project area and includes stops on Grand Avenue, Main Street, and Imperial Highway.

Existing Bicycle and Pedestrian Facilities

The City of El Segundo provides marked Class II bicycle lanes along Grand Avenue and Imperial Highway. The northwestern quadrant of the city includes a mature network of streets and extensive pedestrian facilities, including sidewalks, crosswalks, and pedestrian safety features.

Approximately 10- to 16-foot sidewalks are provided on arterials throughout the northwestern quadrant of the city. Narrower sidewalks are present on most collector and local streets in the Project area.

3.8.2 Discussion

Would the project:

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The intention of this threshold is to ensure that proposed development does not conflict with nor preclude the City from implementing adopted plans, programs, ordinances, or policies. A project would not result in an impact merely based on whether a project would not implement an adopted plan, program, ordinance, or policy. Under CEQA, a project is considered consistent with an applicable plan if it is consistent with the overall intent of the plan and would not preclude the attainment of its primary goals. A project does not need to be in perfect conformity with each policy. In addition, any inconsistency with an applicable policy, plan, or regulation is only a significant impact under CEQA if the policy, plan, or regulation were adopted for the purpose of avoiding or mitigating an environmental effect and if the inconsistency itself would result in a direct physical impact on the environment.

Applicable plans addressing the circulation system in the city, including transit, roadway, bicycle, and pedestrian facilities, are the El Segundo Circulation Element (2004) and the South Bay Bicycle Master Plan (2011). The El Segundo Circulation Element includes policies supportive of alternative modes of transportation such as walking, biking, and transit while the South Bay Bicycle Master Plan provides objectives and programs to expand the bikeway network, increase mobility through bicycle-transit integration, and provide convenient and consistent bicycle parking facilities (e.g., bike racks, bicycle lockers, etc.). The proposed General Plan and Zoning Amendments would facilitate residential and residential serving retail development on sites that are presently served by existing pedestrian, bicycle, and transit facilities. As development facilitated by the Project would be limited to the boundaries of each infill site it would not interfere with planned physical improvements in adjacent rights-of-way to further expand citywide pedestrian and bicycle networks. Finally, physical development associated with the proposed General Plan and Zoning Amendments would not preclude the City from working with Metro and other transit agencies to expand and improve public transit service within and adjacent to the city as it does not propose changes to inter-agency coordination. In fact, the increase in

density/intensity on individual sites under the Project would encourage the expansion of transit in the area by generating more potential transit riders.

For these reasons, development facilitated by the proposed General Plan and Zoning Amendments would be consistent with the overall intent of the applicable plans addressing the city's circulation system. The impact with respect to a potential conflict with a program, plan, ordinance, or policy addressing the circulation system would be less than significant, and no mitigation would be required.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

On September 27, 2013, SB 743 was signed into law, building on legislative changes from SB 375, AB 32, and AB 1358. SB 743 began the process to modify how impacts to the transportation system are assessed for purposes of CEQA compliance. SB 743 created a shift in transportation impact analysis under CEQA from a focus on automobile delay, as measured by level of service (LOS) and similar metrics, to a focus on reducing vehicles miles traveled (VMT).

The City of El Segundo adopted VMT impact thresholds and analysis guidelines. The threshold of significance for the city is 24.5 VMT per service population. Furthermore, the Governor's Office of Planning and Research (OPR) indicated that by adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Generally, retail development including stores smaller than 50,000 square feet might be considered local serving.

Kimley-Horn conducted a VMT analysis for the Project, which is provided in Attachment B-1 of this Addendum. The assessment includes a quantitative analysis of future residential land uses based on the city's service population threshold and a qualitative analysis of future local-serving retail based on OPR's guidance which has been incorporated into the city's VMT analysis guidelines.

Residential

The VMT per service population was calculated for each of the Project's four residential land use categories (Downtown Specific Plan, Mixed-Use Overlay, HO, and R-3 Density Increase) based on a weighted average of the number of dwelling units planned for within each of the Census Block Groups representing that land use category. When the number of units were not specified for specific land use categories, it was assumed that an even distribution of dwelling units was spread throughout the parcels comprising that category.

Table 3, *Vehicle Miles Traveled per Service Population by Land Use Category*, summarizes the VMT per service population for the Project by land use category for each Census Block Group and overall. As shown in Table 3, every land use category results in a VMT per service population less than the city's threshold of 24.5 VMT per service population.

TABLE 3
VEHICLE MILES TRAVELED PER SERVICE POPULATION BY LAND USE CATEGORY

Block Group	Number of Units	% of Total Units	VMT per Service Population
Downtown Specific Plan			
060376201022	150	50%	22.8
060376201021	150	50%	19.2
Total	***300***	***100%***	***21.0***
Mixed-Use Overlay			
060376200011	137	41%	18.9
060376200012	101	30%	11.4
060376200021	98	29%	18.6
Total	***335***	***100%***	***16.5***
Housing Overlay (R-3)			
060376200021	158	82%	18.6
060376201013	21	11%	12.8
060376200011	14	7%	18.9
Total	***193***	***100%***	***18.0***
R-3 Density Increase			
060376201023	32	9%	13.8
060376201022	58	16%	22.8
060376200021	54	15%	18.6
060376200011	28	8%	18.9
060376200012	45	12%	11.4
060376200022	26	7%	21.9
060376201013	69	19%	12.8
060376201011	34	9%	15.0
060376200013	21	6%	12.7
Total	***367***	***100%***	***16.5***

SOURCE: Kimley-Horn, 2024

Local-Serving Retail

The City of El Segundo's VMT analysis guidelines specifically address some of the key issues surrounding how local serving land uses should be evaluated in terms of their VMT impact. The city's threshold for significance is "a net increase." This means that if a proposed local-serving use results in additional VMT, it would result in a finding of significance.

Local serving land uses primarily serve pre-existing needs (i.e., they do not generate new trips because they meet existing demand). As a result, local-serving uses are presumed to reduce trip lengths when a new store or service is proposed. Essentially, the assumption is that someone will travel to a newly constructed local serving land use because of its proximity, rather than the

proposed use fulfilling an unmet need (i.e., the person had an existing need that was met by the local serving use located further away and is now traveling to the new establishment because it is closer to the person's origin location). This results in a trip on the roadway network becoming shorter, rather than a new trip being added to the roadway network, which would result in an impact to the overall transportation system. Conversely, residential and office land uses often generate new trips given that they introduce new participants to the transportation system. The city's VMT analysis guidelines provide for a general threshold of 50,000 square feet as an indicator as to whether a retail land use can be considered local serving or not. Since it is expected that no single store within the four land use categories would exceed 50,000 square feet, it is presumed that the proposed local serving retail uses would not result in a net increase in VMT.

Summary

In summary, all four residential land use categories would result in a VMT per service population that is less than the city's threshold. In addition, as it is assumed that no single store within the four land use categories would exceed 50,000 square feet, the proposed retail uses would not result in a net increase in VMT. For these reasons, future development facilitated by the proposed General Plan and Zoning Amendments would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). The impact with respect to VMT would be less than significant, and no mitigation would be required.

Level of Service

As discussed above, the State has changed the transportation impact analysis under CEQA from a focus on automobile delay to a focus on reducing VMT as a way of evaluating transportation impacts with metrics that support the reduction of greenhouse gas (GHG) emissions, development of multimodal transportation networks and diversification of land uses. However, since the Certified PEIR evaluated LOS as that was the metric at the time, Kimley-Horn conducted a LOS analysis for the Project, which is provided in Attachment B-2 of this Addendum. In addition, while now considered a non-CEQA analysis, the LOS analysis is required by the City as part of the development application process. The Certified PEIR concluded that the growth projected in the General Plan Update would result in a significant unavoidable traffic impact. The mitigation measures in the Certified PEIR were to add policies to the Circulation Element to pursue implementation of all policies in the Circulation Element such that all roadways are upgraded and maintained at an acceptable LOS and that new projects should mitigate project-related impacts on the circulation system so as to maintain an acceptable LOS. These policies are contained in the Circulation Element.

LOS ranges from LOS A, representing uncongested, free-flowing conditions, to LOS F, representing congested, over-capacity conditions. The city's standard for peak hour intersection operation is LOS D, which is considered fair, with delays substantial during portions of the rush hours, but enough lower volume to prevent excessive back-ups.

The LOS analysis prepared by Kimley-Horn evaluated 20 intersections. The majority of the evaluated intersections operate at LOS A, B, or C, with the exception of Pacific Coast Highway/SR-1 at Grand Avenue, which operates at LOS E during the PM peak and Main Street

at Maple Avenue, which operates at LOS E during the AM peak. Assuming full buildout of all the identified properties, the projected growth would result in 6,238 daily trips, with 476 and 511 trips occurring during the AM and PM peak-hours, respectively. With the additional traffic that would occur over time as a result of the Project, the LOS at the intersections would remain the same in terms of the LOS. However, while the intersection of Main Street and Maple Avenue would remain at LOS E in the AM peak hour, at full buildout of the projected units the additional traffic would cause an average vehicle delay to increase by 13.4 seconds per vehicle. In addition, the ICU would increase by 2.8 percent, which is above the LOS threshold of 2 percent for intersections operating deficiently without the addition of the project.[31] Therefore, a significant impact would occur at the Main Street and Maple Avenue intersection.

The LOS analysis is conducted at a program-level as the operational details of any future projects are unknown. While the general locations for the additional residential units are identified, the timing of development, the actual number of units, as well as the specific location are unknown. Based on a trigger analysis that was conducted to determine the volume of traffic that would trigger the deficiency, it was determined that the deficiency at the Main Street and Maple Avenue intersection would occur after 221 units that affect that intersection are constructed. Installation of a traffic signal at the intersection would improve the LOS operations of the intersection to LOS A. However, the Circulation Element includes a number of policies regarding the operation of the circulation system, implementation of improvements, and preparation of a detailed project-specific traffic analysis. Policy C1-1.14 requires that a full evaluation of potential traffic impacts associated with new development be prepared prior to project approval. The policy also requires that improvements be implemented prior to or in conjunction with project development. Objective C3-1 ensures that potential circulation system impacts are considered and Policy C3-1.1 requires that all new development mitigate project-related impacts such that roadways and intersections are upgraded and maintained at acceptable levels of service. Since these objectives and policies are in the Circulation Element, and future development would be required to be consistent with the city's General Plan, these measures would ensure that if improvements are necessary based on a detailed project-specific analysis, that improvements would be implemented. Such improvements would be conditions of approval. While the conclusions of the LOS analysis indicate the potential for a significant impact to occur, the sequencing and locations of project-specific information is not available. Given that the Circulation Element contains the goals, policies, and objectives to ensure that the system operates adequately, no new or substantially more severe impact would occur under the Project than anticipated by the Certified PEIR.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed General Plan and Zoning Amendments would not result in changes to the circulation network. The residential and commercial uses that would be developed would not result in incompatible uses in the area. Future development facilitated by the Project would

[31] If a development project is forecast to result in the increase of intersection volume/capacity ratio (V/C) of 0.02 or greater at any intersection that is forecast to operate at LOS E or F, the effect shall be considered significant.

require that access to individual sites be designed to city standards and to provide adequate sight distance, sidewalks, crosswalks, and pedestrian movement controls that meet the city's requirements to protect pedestrian safety. Street trees and other potential impediments to adequate driver and pedestrian visibility would be required to be minimal and the City would require that pedestrian entrances separated from vehicular driveways provide access from the adjacent streets. As a result, development facilitated by the Project would not substantially increase hazards or conflicts due to a geometric design feature. The impact with respect to design hazards would be less than significant, and no mitigation would be required.

d) Result in inadequate emergency access?

Major streets in the northwestern quadrant of the city would continue to provide access to the Project area. All these roadways have been designed to accommodate emergency vehicles travel; as such, adequate emergency access to individual project sites would be provided. Furthermore, as future development facilitated by the proposed General Plan and Zoning Amendments would be limited to the boundaries of each infill site it would not interfere with the operation of surrounding roadways. For these reasons, development facilitated by the Project would not result in inadequate emergency access. The impact with respect to emergency access would be less than significant, and no mitigation would be required.

3.9 Air Quality

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
AIR QUALITY—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?	☐	☒

3.9.1 Environmental Setting

The city is located within the South Coast Air Basin (Air Basin), which is an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west, and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Air Basin consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside Counties, in addition to the San Gorgonio Pass area in Riverside County. The Air Basin is currently designated as non-attainment for ozone, respirable particulate matter (PM10), and fine particulate matter (PM2.5).

Environmental Science Associates prepared a screening analysis for the Project, which is provided in Attachment C of this Addendum. The analysis evaluated at a program level the potential air quality, energy, GHG emissions and noise impacts that could occur from the potential buildout resulting from the general plan and zoning amendments.

3.9.2 Discussion

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

The Certified PEIR determined that construction emission impacts would be mitigated to a less-than-significant level. The city's Air Quality Element includes policies to reduce construction-related emissions. Air Quality Element Policies AQ10-1.2 and AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. With regard to operation, the Certified PEIR determined that operational emissions associated with implementation of the General Plan would potentially conflict with the attainment goals of the Air Quality Management Plan (AQMP) and impacts would be significant and unavoidable (Certified PEIR pages 4.9-27 to 4.9-29).

CEQA Guidelines Section 15125 requires an analysis of a project's potential conflict with applicable governmental plans and policies. In accordance with the SCAQMD's CEQA Air Quality Handbook, two criteria were used to evaluate the Project's potential to conflict with the SCAQMD's 2022 AQMP.

Criterion No. 1

The first criterion evaluates the potential for a project to result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP. The SCAQMD numerical significance thresholds for construction and operational emissions are designed for the analysis of individual projects and not for long-term planning documents, such as the Project. Emissions are dependent on the exact size, nature, and location of an individual land use type, combined with reductions in localized impacts from the removal of existing land use types, as applicable (i.e., conversion of commercial or light industrial uses).

Construction

Construction of future development facilitated by the proposed General Plan and Zoning Amendments would generate air pollutant emissions through the use of heavy-duty construction equipment. Details necessary to provide a meaningful quantitative estimate of construction emissions would be speculative, as specific sites, buildings and uses to be constructed or modified, construction schedules, and quantities of earthmoving are unknown. Because this information is unknown, construction emissions modeling is not feasible and would be speculative.

Nonetheless, construction of development that would occur as a result of the Project would be limited in extent and duration and would emit air pollutants on short-term and temporary basis. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation, which was approved by California Air Resources Board (CARB) in June 2020 and mandates zero-emission vehicle sales requirements for truck manufacturers and a one-time reporting requirement for large entities and fleets.[32] The regulation is designed to accelerate widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition, trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 California Code of Regulations [CCR], Section 2485). In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and cranes, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by the CARB on July 26, 2007, reduces emissions by requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR Section 2449). The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Emission reduction measures generally consistent with the city's General Plan PEIR and Air Quality Element Policies AQ10-1.2 and AQ10-1.3 could include the use of construction equipment certified to meet the United States Environmental Protection Agency (USEPA) and CARB Tier 4 Final emissions standards, which substantially reduces exhaust emissions of oxides of nitrogen (NO_X), PM10, and PM2.5. Emissions of volatile organic compounds (VOCs) could be reduced through the use of low-VOC containing architectural coatings. As such, construction emissions from future development facilitated by the proposed General Plan and Zoning Amendments would be reduced to below project-level significance and not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards.

Operation

The Project would allow for an increase in residential units and non-residential square footage that would occur as infill development. Although operational details of any future projects are unknown, future development facilitated by the proposed General Plan and Zoning Amendments would result in air pollutant emissions from building energy demand from new residential and commercial (residential-serving retail) uses and ongoing transportation emissions from vehicles traveling to and from the new residential and commercial (residential-serving retail) uses.

Operational emissions from buildout of the residential units and associated non-residential floor area over time would not generate air pollutant emissions that would exceed the project-level significance thresholds and not result in an increase in the frequency or severity of existing air

[32] California Air Resources Board (CARB), Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks, accessed February 2023.

quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards.

Based on the above, the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to conflicts with or obstruction of the AQMP.

Criterion No. 2

With respect to the second criterion for determining consistency with AQMP growth assumptions, the projections in the AQMP for achieving air quality goals are based on anticipated growth regarding population and housing. Determining whether or not a project exceeds the assumptions reflected in the AQMP involves the evaluation of consistency with applicable population, housing, and employment growth projections and appropriate incorporation of AQMP control measures.

Construction

Future development facilitated by the proposed General Plan and Zoning Amendments would be required to comply with CARB's requirements to minimize short-term emissions from on-road and off-road diesel equipment, including the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling to no more than 5 minutes at a location (Title 13 CCR Section 2485) and SCAQMD regulations such as Rule 403 for controlling fugitive dust and Rule 1113 for controlling VOC emissions from architectural coatings. Compliance with these measures and requirements would be consistent with and meet or exceed the AQMP compliance requirements for control strategies intended to reduce emissions from construction equipment and activities.

Construction of future development facilitated by the proposed General Plan and Zoning Amendments would facilitate an increase in short-term employment compared to existing conditions. Although any future construction facilitated by the Project would generate construction workers, it would be unlikely to create a substantial number of new construction jobs; construction-related jobs generated by the future development under the Project would likely be filled by employees within the construction industry in the greater Los Angeles County region. Construction industry jobs generally have no regular place of business, as construction workers commute to job sites throughout the region, which may change several times a year. Moreover, these jobs would be temporary, lasting only through the duration of construction. As such, the Project would not result in an unanticipated increase in population or jobs in the city.

Operation

The operation of future development facilitated by the proposed General Plan and Zoning Amendments would be required to comply with CARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, and applicable building energy standards including the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and CALGreen (Title 24, Part 11). The AQMP also includes land use and transportation strategies that are intended to reduce VMT and resulting regional mobile-source emissions.

Future development facilitated by the proposed General Plan and Zoning Amendments would provide opportunities for building energy conservation to meet and exceed required building energy standards to conserve energy and reduce associated emissions. The 2021–2029 Housing Element encourages improved building energy strategies such as passive and/or active solar heating and cooling systems to improve energy efficiency.[33] In addition, the city's Air Quality Element includes policies to reduce building energy demand. Air Quality Element Policy AQ12-1.2 includes provisions to incorporate energy conservation features in the design of new projects that would help to reduce building emissions. The Air Quality Element also includes policies to reduce transportation-related emissions. Air Quality Element Policy AQ9-1.1 directs the City to consider multifamily housing development proposals to reduce VMT, which is the intent of the Project. The Project would promote mixed-use development as residential serving retail uses would be allowed with residential uses. Mixed-use development encourages reduced vehicle trips and VMT as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations of the proposed housing opportunity sites would also encourage reduced VMT as people would live close to existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers within and around the city including the HTP to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east. Thus, the Project would result in a land use pattern that would allow development that would reduce transportation-related emissions.

The AQMP is based on population, employment and VMT forecasts informed by SCAG. A project might be in conflict with the AQMP if the development's growth is greater than that anticipated in the local general plan and SCAG's growth projections. As discussed above, the Project accommodates for population growth by increasing residential density in existing infill locations and allowing for increased multifamily housing units. The city is generally built out; thus, densification of existing infill sites with increased multifamily housing units accommodates growth in an efficient manner, since mixed-use infill development encourages reduced vehicle trips and VMT.

Based on the above, the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to conflicts with or obstruction of AQMP control measures or anticipated growth.

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?

Construction

As discussed above, construction of future development facilitated by the proposed General Plan and Zoning Amendments would generate air pollutant emissions through the use of heavy-duty construction equipment. However, details necessary to provide a meaningful quantitative estimate of construction emissions would be speculative, as specific sites, buildings and uses to be

[33] City of El Segundo, *2021–2029 Housing Element*, Chapter 5, Section C, p. 72.

constructed or modified, construction schedules, and quantities of earthmoving are unknown. Construction would be limited in extent and duration and would emit air pollutants on short-term and temporary basis. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation, which is designed to accelerate widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. Trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 CCR Section 2485). In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and cranes, as well as many other self-propelled off-road diesel vehicles requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR Section 2449). The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Air Quality Element Policies AQ10-1.2 and AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. The use of construction equipment certified to meet the USEPA and CARB Tier 4 Final emissions standards would substantially reduce exhaust emissions of NO_X, PM10, and PM2.5. Emissions of VOCs could be reduced through the use of low-VOC containing architectural coatings. As such, construction emissions from future development facilitated by the proposed General Plan and Zoning Amendments could be reduced to below project-level significance and not result in an increase in a cumulatively considerable increase in nonattainment pollutants. Thus, construction associated with the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to a cumulatively considerable increase in nonattainment pollutants.

Operation

With regard to operation, future development facilitated by the proposed General Plan and Zoning Amendments would result in up to 1,195 multifamily dwelling units and approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses. Operational emissions from buildout of these units over time would generate approximately 6,238 average daily trips. Operational emissions were estimated using the California Emissions Estimator Model (CalEEMod) (Version 2022.1). The analysis assumes that full buildout would occur in 2040 with a linear buildout distribution over the interim modeled years 2030 and 2035. **Table 4**, *Estimated Maximum Daily Regional Operational Emissions (pounds per day)*, provides the results of the regional criteria pollutant emission calculations for VOC, NO_X, carbon monoxide (CO), sulfur dioxide (SO_2), PM10, and PM2.5. As shown in Table 4, future development under the Project would not generate air pollutant emissions that would exceed the project-level significance thresholds and would not result in a cumulatively considerable increase in nonattainment pollutants. Thus, operation of future development facilitated by the proposed General Plan and Zoning Amendments would not result in new significant environmental effects or a substantial

increase in the severity of previously identified significant effects related to a cumulatively considerable increase in nonattainment pollutants.

TABLE 4
ESTIMATED MAXIMUM DAILY REGIONAL OPERATIONAL EMISSIONS (POUNDS PER DAY)

Operational Year	VOC	NO_X	CO	SO_2	PM10	PM2.5
2030 (398 dwelling units; 21,360 retail sq.ft.)	17.8	6.3	81.6	0.2	15.3	4.0
2035 (797 dwelling units; 42,720 retail sq.ft.)	34.3	10.8	154	0.3	30.7	8.1
2040 (1,195 dwelling units; 64,077 retail sq.ft.)	50.2	14.8	216	0.4	46.0	12.0
SCAQMD Significance Threshold	55	55	550	150	150	55
Exceeds Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

NOTE: CalEEMod output files are provided in Attachment C to this Addendum.
SOURCE: CalEEMod (Version 2022.1); ESA 2023

c) Expose sensitive receptors to substantial pollutant concentrations?

Localized Emissions

Construction

Construction of future projects that would occur as a result of the amendments would generate localized air pollutant emissions from the use of heavy-duty construction equipment. Fugitive dust emissions would result from demolition and earthmoving activities. Details necessary to provide a meaningful quantitative estimate of construction emissions would be speculative, as specific sites, buildings and uses to be constructed or modified, construction schedules, and quantities of earthmoving are unknown. Because this information is unknown, construction emissions modeling is not feasible and would be speculative.

Temporary construction associated with future development facilitated by the proposed General Plan and Zoning Amendments would not be concentrated in any one location and would occur over an extended timeframe and, thus, would not expose any one sensitive receptor location to substantial localized emissions. Construction emissions would also be controlled via compliance with applicable regulations and General Plan policies and programs. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation,[34] which accelerates the widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition, trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 CCR Section 2485). Heavy-duty construction equipment fleets would also be required to comply with the In-Use Off-Road Diesel-Fueled Fleets Regulation, which reduces emissions by requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR Section 2449).

[34] CARB, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks, accessed February 2023.

The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

The city's Air Quality Element includes policies to reduce construction-related emissions. Air Quality Element Policies AQ10-1.2 and AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. Emission reduction measures generally consistent with the city's General Plan PEIR and Air Quality Element policies could include the use of construction equipment certified to meet the USEPA and CARB Tier 4 Final emissions standards, which substantially reduces exhaust emissions of diesel particulate matter.

Regulatory compliance along with implementation of General Plan policies and programs would be effective in reducing construction emissions from future development to a level below the significance thresholds. Future development facilitated by the proposed General Plan and Zoning Amendments would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to localized construction emissions.

Operation

Operation of future residential projects that would occur as a result of the proposed General Plan and Zoning Amendments would generate localized air pollutant emissions from on-site combustion of natural gas from building energy demand, and landscaping equipment. As previously, indicated, the specific size, location, timing, and operation of such future projects are unknown and quantification of localized operational emissions from individual projects would not be feasible and would be speculative.

Nonetheless, the future development of multifamily dwelling units and residential serving commercial (i.e., ground-floor retail) uses within the various identified areas located throughout the city would not include uses that would generate substantial sources of operational emissions. These uses are not associated with large stationary sources of emissions such as industrial-sized boilers. Further, any miscellaneous trucks, such as moving trucks and parcel delivery trucks, would be subject to the five-minute regulatory idling limitation and would be required to comply with the applicable provisions of the CARB 13 CCR Section 2025 (Truck and Bus regulation) to minimize and reduce PM and NO_X emissions from existing diesel trucks. Operation of future residential and retail uses would result in minimal emissions from maintenance or other ongoing activities and use of architectural coatings and household cleaning products.

The city's Air Quality Element includes policies to reduce operational-related emissions. Air Quality Element Policy AQ12-1.2 includes a provision to incorporate energy conservation features in the design of new projects that would help to reduce emissions from building energy demand while Air Quality Element Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is the intent of the amendments.

Regulatory compliance along with implementation of General Plan policies and programs would be effective in reducing operational emissions from future development and associated non-residential development to a level below the significance thresholds. Future development facilitated by the proposed General Plan and Zoning Amendments would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to localized operational emissions.

Carbon Monoxide Hotspots

The SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the South Coast Air Basin. These include (a) Wilshire Boulevard and Veteran Avenue; (b) Sunset Boulevard and Highland Avenue; (c) La Cienega Boulevard and Century Boulevard; and (d) Long Beach Boulevard and Imperial Highway. In the 2003 AQMP CO attainment demonstration, the SCAQMD notes that the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day.[35] This intersection is located near the on- and off-ramps to Interstate 405 in West Los Angeles. The evidence provided in Table 4-10 of Appendix V of the 2003 AQMP shows that the peak modeled CO concentration due to vehicle emissions (i.e., excluding background concentrations) at these four intersections was 4.6 parts per million (ppm) (1-hour average) and 3.2 ppm (8-hour average) at Wilshire Boulevard and Veteran Avenue.[36]

Based on the future development of up to 1,195 multifamily dwelling units and approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses that would occur as a result of the Project, future development facilitated by the proposed General Plan and Zoning Amendments would generate approximately 6,238 average daily trips,[37] which is approximately 6.2 percent of the 100,000 vehicles per day modeled at the intersection of Wilshire Boulevard and Veteran Avenue in the 2003 AQMP. However, the addition of 6,238 average daily trips would not occur at any one intersection or roadway as the trips would be spread throughout the city at different intersections and roadways as the proposed amendment areas are located in various locations. Generally, the sites identified for new housing are located: south of Imperial Avenue between the HTP and California Street; along Main Street between Imperial Avenue and Palm Avenue; the area east of Constitution Park, Washington Park and Freedom Park, west of Pacific Coast Highway, south of Walnut Avenue and north of Holly Avenue; and at various locations south of Mariposa Avenue, north of El Segundo Boulevard, east of the HTP and west of Kansas Street.

The city's Circulation Element shows projected daily traffic volumes from buildout of land uses per the Land Use Element. Projected daily traffic volumes along the arterial roadways in the vicinity of the proposed locations would range from approximately 1,700 to 24,900. Projected daily traffic volumes along Pacific Coast Highway would be up to approximately 81,100. Thus,

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35 South Coast Air Quality Management District, *Final 2003 Air Quality Management Plan*, Appendix V, pages V 4-24, August 2003. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2003-air-quality-management-plan/2003-aqmp-appendix-v.pdf?sfvrsn=2, accessed March 2023.

36 The 8-hour average is based on a 0.7 persistence factor, as recommended by the SCAQMD.

37 Kimley Horn, *City of El Segundo Density Increase Trip Generation*, August 27, 2023.

operation of future development facilitated by the proposed General Plan and Zoning Amendments would not result in 100,000 vehicles per day at local intersections and this comparison demonstrates that the Project would not contribute to the formation of CO hotspots and that no further CO analysis is required. Future development facilitated by the proposed General Plan and Zoning Amendments would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to CO hotspots.

Toxic Air Contaminants

The Project would result in increased density and increased number of housing units and supporting residential serving retail uses at existing infill sites. Although construction and operational details of any future projects are unknown, the growth that would occur as a result of the Project would result in emissions of toxic air contaminants (TACs) from temporary use of construction equipment and ongoing miscellaneous truck trips such as parcel delivery trucks.

During construction activities, temporary TAC emissions would be associated with diesel particulate matter emissions from heavy construction equipment. According to the Office of Environmental Health Hazard Assessment (OEHHA), health effects from TACs are described in terms of individual cancer risk based on a residential or lifetime exposure period (i.e., 30-year and 70-year, respectively). Temporary construction of the multifamily dwelling units and residential serving commercial uses would not be concentrated in any one location and, thus, would not expose any one sensitive receptor location to substantial TAC emissions.

Construction TAC emissions would also be controlled via compliance with applicable regulations and General Plan policies and programs. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation,[38] which accelerates the widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition, trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 CCR Section 2485). Heavy-duty construction equipment fleets would also be required to comply with the In-Use Off-Road Diesel-Fueled Fleets Regulation, which reduces emissions by requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR Section 2449). The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

SCAQMD recommends that operational health risks be assessed for substantial sources of operational diesel particulate matter (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units) and has provided guidance for analyzing mobile source diesel emissions.[39]

[38] CARB, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks, accessed February 2023.

[39] SCAQMD, *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, August 2003, http://www.aqmd.gov/docs/default-source/ceqa/handbook/mobile-source-toxics-analysis.doc?sfvrsn=2.

Future development facilitated by the proposed General Plan and Zoning Amendments would result in an increase in the number of housing units and supporting residential serving retail uses and would not include uses that would generate substantial sources of operational diesel particulate matter. Further, any miscellaneous trucks, such as moving trucks and parcel delivery trucks, would be subject to the five-minute regulatory idling limitation and would be required to comply with the applicable provisions of the CARB 13 CCR Section 2025 (Truck and Bus regulation) to minimize and reduce PM and NO_X emissions from existing diesel trucks. Therefore, operations of the future units and supporting commercial floor area would not be considered a substantial source of diesel particulate matter. Operation of future residential and retail uses would result in minimal emissions of TAC from maintenance or other ongoing activities and use of architectural coatings and household cleaning products.

The city's Air Quality Element includes policies to reduce construction- and operational-related emissions. Air Quality Element Policies AQ10-1.2 and AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. Emission reduction measures generally consistent with the city's General Plan PEIR and Air Quality Element policies could include the use of construction equipment certified to meet the USEPA and CARB Tier 4 Final emissions standards, which substantially reduces exhaust emissions of diesel particulate matter. Air Quality Element Policy AQ12-1.2 includes a provision to incorporate energy conservation features in the design of new projects that would help to reduce emissions from building energy demand while Air Quality Element Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is an intent of the Project.

Regulatory compliance along with implementation of General Plan policies and programs, as well as other emissions reduction measures as needed, would be effective in reducing construction and operational emissions from future development facilitated by the proposed General Plan and Zoning Amendments likely to a level below the significance thresholds. Future development under the Proposed project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to TAC emissions.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Potential activities that may emit odors during construction include the use of architectural coatings and solvents, as well as the combustion of diesel fuel in on-and off-road equipment. SCAQMD Rule 1113 would limit the amount of VOCs in architectural coatings and solvents. In addition, future development facilitated by the proposed general plan amendments would comply with the applicable provisions of the CARB Air Toxics Control Measure regarding idling limitations for diesel trucks. Through mandatory compliance with SCAQMD Rules, no construction activities or materials are expected to create objectionable odors affecting a substantial number of people. Furthermore, as discussed above, construction emissions from projects facilitated by the Project could be reduced to below project-level significance for other pollutants, such as those designated as attainment or maintenance (i.e., CO and SO_2). Thus,

construction resulting from future development facilitated by the proposed general plan amendments would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to other emissions such as those leading to odors.

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include:

- Agriculture (farming and livestock)
- Wastewater Treatment Plant
- Food Processing Plants
- Chemical Plants
- Composting
- Refineries
- landfills
- Dairies
- Fiberglass Molding

The operation of future development facilitated by the proposed general plan amendments would not include any uses identified by the SCAQMD associated with substantial odors. Furthermore, operational emissions from projects facilitated by the Project could be reduced to below project-level significance for other pollutants, such as those designated as attainment or maintenance (i.e., CO and SO_2). Thus, operation of future development facilitated by the proposed General Plan and Zoning Amendments would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to other emissions such as those leading to odors.

3.10 Noise

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
NOISE—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 two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☒

3.10.1 Environmental Setting

Noise in El Segundo comes from transportation sources, including freeways, arterials, and roadways; LAX; and non-transportation sources, such as industrial activities, commercial activities, and various community activities. The city is also bounded to the north by I-105. The noise environment in El Segundo is dominated by airport and vehicular traffic including vehicular generated noise along I-105, Imperial Highway, Pacific Coast Highway, and other primary and secondary arterials. In addition, several other sources contribute to the total noise environment. These noise sources include construction activities, power tools and gardening equipment, loudspeakers, auto repair, radios, children playing and dogs barking.

Environmental Science Associates prepared a screening analysis for the Project, which is provided in Attachment C of this Addendum. The analysis evaluated at a program level the potential air quality, energy, GHG emissions and noise impacts that could occur from the potential buildout resulting from the general plan and zoning amendments.

3.10.2 Discussion

Would the project:

a) Generate 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?

Construction

The Certified PEIR evaluated the potential to result in construction noise impacts and determined that with the implementation of Noise Element Policies N-21.1, N-31.1, N-31.3, N-31.4, and N-31.5, these impacts would be reduced to a less-than-significant level (Certified PEIR pages 4.10-23 to 4.10-24).

Construction of future development facilitated by the proposed General Plan and Zoning Amendments would occur as infill primarily on developed sites. Although construction details of future projects are unknown, construction of housing projects would require the use of construction equipment that typically is associated with temporary noise, such as cranes, dozers, and forklifts. Depending on the type and model of equipment used for construction, typical hourly average noise levels for heavy construction equipment range from approximately 65 to 86 dBA L_{eq} at a distance of 50 feet from the equipment.[40] Equipment such as pile drivers and vibratory rollers generate higher noise levels; however, such equipment would not likely be necessary for the future development projects. Actual exposure levels would depend on the number and types of equipment, the intensity of the construction activity, the distance of sensitive receptors to the noise source, and any intervening structures, topography, and noise absorption characteristics of the ground that might affect noise attenuation.

[40] Federal Highway Administration, *Roadway Construction Noise Model User's Guide*.

Construction of future development facilitated by the Project would be required to comply with the ESMC including generally prohibiting construction between the hours of 6 p.m. and 7 a.m. Monday through Saturday, or at any time on Sunday or a federal holiday. In addition, Noise Element Policy N1-2.1 and Program N1-2.1B include provisions for implementing construction noise reduction measures such as noise suppression equipment and/or the use of temporary barriers.

The use of temporary barriers, as provided in the Noise Element Policy N1-2.1 and Program N1-2.1B would be capable of reducing noise by 10 dBA or more for barriers that block the line-of-sight from the noise-generating construction equipment and noise sensitive receptors. Noise reductions can also be achieved with equipment enclosures, noise-attenuating or noise absorbing sound blankets, and other similar measures. Implementation of Noise Element policies and programs to reduce construction noise, as well as other noise reduction measures as needed, would be effective in reducing construction noise from future development to a level below the FTA guidelines for construction equipment noise.

Therefore, with adherence to the ESMC and Noise Element policies, including the city's Community Noise Equivalent Level (CNEL) index standards, the impact related to a temporary increase in construction noise would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

Operations

The Certified PEIR evaluated the implementation of Noise Element Policies N-11.4 through N-11.9, N-21.1, and N-31.1, this impact would be reduced to a less-than-significant level (Certified PEIR pages 4.10-18 to 4.10-23).

The proposed General Plan and Zoning Amendments would result in an increase in the number of housing units at infill sites. Although operational details of any future projects are unknown, the amendments would promote mixed-use development as residential serving retail uses would be contemplated with the development of residential uses. Mixed-use development encourages reduced vehicle trips as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips.

Future development facilitated by the proposed General Plan and Zoning Amendments (up to 1,195 multifamily dwelling units and approximately 64,077 square feet of residential serving commercial uses) could generate up to approximately 6,238 average daily trips.[41] These trips would occur on roadways spread throughout the city as the sites identified for new housing are in various locations. Generally, the areas are located: south of Imperial Avenue between the HTP and California Street; along Main Street between Imperial Avenue and Palm Avenue; the area east of Constitution Park, Washington Park and Freedom Park, west of Pacific Coast Highway,

[41] Kimley Horn, *City of El Segundo Density Increase Trip Generation*, August 27, 2023.

south of Walnut Avenue and north of Holly Avenue; and at various locations south of Mariposa Avenue, north of El Segundo Boulevard, east of the HTP and west of Kansas Street.

A doubling of sound energy corresponds to a 3 dBA increase in noise level. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. Thus, a general doubling of traffic volumes would be required to increase traffic noise levels by 3 dBA, assuming a similar mix of passenger vehicles and heavy-duty trucks. To increase traffic noise levels by 5 dBA, traffic volumes would have to increase by more than triple, assuming a similar mix of passenger vehicles and heavy-duty trucks.

The sites identified for new housing are in urban areas and are generally developed properties. Thus, the sites already generate vehicle traffic on local roadways from existing residential, school, commercial, and light industrial uses as well as from employment centers within and around the city including the HTP to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east. Because future development facilitated by the proposed General Plan and Zoning Amendments would be scattered throughout the northwestern quadrant of the city, development resulting from the amendments would not result in a concentrated increase in vehicle traffic volumes in any one location or on any one roadway. Thus, the Project would not result in a tripling of the existing vehicle traffic volumes on local roadways.

As discussed above, the city's General Plan PEIR determined that traffic generated noise would be a significant impact but would be mitigated to less than significant with implementation of General Plan Noise Element policies and programs. The city's General Plan Noise Element Policy N1-1.8 includes provisions for continuing to develop zoning, subdivision, and development controls to prevent future encroachment of noise-sensitive uses into present or planned industrial or transportation system noise-impacted zones. The Noise Element Policy N1-1.9 and Program N1-1.9A include provisions for reviewing all new development projects in the city for conformance with California Noise Insulation Standards to ensure interior noise will not exceed acceptable levels.

As a result, the impact related to a permanent increase in traffic noise would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

b) Generate excessive groundborne vibration or groundborne noise levels?

Construction

Future development facilitated by the proposed General Plan and Zoning Amendments would result in construction at existing infill sites. Although construction details of future projects are unknown, construction of future projects would require the use of construction equipment that typically are associated with temporary groundborne vibration, such as dozers, caisson drilling, and jackhammers. The FTA guidelines show that a vibration level of up to 0.20 inches per second (in/sec) PPV would not result in construction groundborne vibration damage for non-engineered

timber and masonry buildings, which are typically residential structures. A groundborne vibration level of 0.4 in/sec PPV is associated with severe human annoyance potential.

According to the FTA *Transit Noise and Vibration Impact Assessment Manual*, temporary groundborne vibration levels for construction equipment, such as dozers and caisson drilling, would be up to 0.191 in/sec at a reference distance of 15 feet and 0.089 in/sec at a reference distance of 25 feet from the equipment.[42] Equipment such as pile drivers and vibratory rollers generate higher groundborne vibration levels; however, such equipment would not likely be necessary for the future development projects. With a buffer distance of at least 15 feet from adjacent structures, which is generally achievable at infill project site locations, construction equipment used for future projects would not be anticipated to generate groundborne vibration levels that would exceed the thresholds for building damage or annoyance. Furthermore, ESMC Section 7-2-10 prohibits construction between the hours of 6 p.m. and 7 a.m. Monday through Saturday, or at any time on Sunday or a federal holiday. Thus, construction, and any associated groundborne vibration, would not normally occur during evening and nighttime hours or on Sundays or federal holidays, when people tend to be more sensitive to vibration impacts. Therefore, no new or substantially more severe impact would occur than anticipated by the Certified PEIR.

Operations

Operation of the future residential and commercial (residential serving retail) uses resulting from the project typically do not include substantial sources of groundborne vibration. According to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), stationary equipment such as pumps and compressors generate groundborne vibration levels of 0.5 in/sec PPV at 1 foot.[43] This vibration level drops to approximately 0.009 in/sec PPV at 15 feet and 0.004 in/sec PPV at 25 feet. Furthermore, any future project that includes stationary equipment would locate such equipment on building rooftops or within or near buildings such that the equipment would not generate groundborne vibration off-site. Therefore, groundborne vibration from the operation of such mechanical equipment would not generate excessive groundborne vibration in excess of significance thresholds.

Caltrans has studied the impacts of propagation of vehicle vibration on sensitive land uses and notes that "heavy trucks, and quite frequently buses, generate the highest earthborne vibrations of normal traffic."[44] Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that "vibrations measured on freeway shoulders (5 m [meters] from the centerline of the nearest lane) have never exceeded 2 mm/s [millimeters per second], with the worst combinations of heavy trucks."[45] "This amplitude coincides with the

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42 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-4, September 2018.

43 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), *1999 ASHRAE Applications Handbook*, 1999, http://www.hvac.amickracing.com/Miscellaneous/HVAC_Applications_Handbook-ASHRAE.pdf, accessed September 25, 2023.

44 California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

45 Caltrans, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

maximum recommended 'safe level' for ruins and ancient monuments (and historic buildings)."[46] A vibration level of 2 mm/s is approximately 0.08 in/sec PPV. Vehicles traveling along freeways and state routes would cause infrequent and inconsistent vibration events that would attenuate quickly after onset. Sensitive receptors would likely be located further away than 15 meters from a roadway or highway and would therefore experience levels lower than 0.08 in/sec. Furthermore, future development facilitated by the proposed General Plan and Zoning Amendments, which would include residential and commercial (residential serving retail) uses, would generally not result in substantial truck trips and would primarily generate passenger vehicle trips, which generate substantially less groundborne vibration levels. Thus, operation of future development under the Project would not generate excessive groundborne vibration in excess of significance thresholds. Therefore, no new or substantially more severe impact would occur than anticipated by the Certified PEIR.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The Certified PEIR evaluated the potential for increases in vehicular traffic noise due to future development in the city to combine with aircraft noise to raise ambient noise levels to unacceptable levels and determined that even with the implementation of Noise Element Policies N-11.1 through N-11.3, N-31.1, and N-31.3, this impact would remain significant and unavoidable (Certified PEIR page 4.10-25).

The project would result in the development of residential uses that would be located close to or within the Planning Boundary/Airport Influence Area (AIA) for LAX as designated within the Airport Land Use Plan (ALUP). The FAA is required to provide noise exposure and land use information from noise exposure maps prepared under Title 14 Code of Federal Regulations (CFR) Part 150. The FAA Part 150 Noise Exposure Map for LAX shows that the 65 dBA CNEL noise contour would include portions of the existing R3 Zone generally north of Mariposa Avenue and west of California Street.[47] The 70 dBA CNEL noise contour would include the northern most portions of the existing R3 zone generally north of Walnut Avenue and west of California Street. The 75 dBA CNEL noise contour would not include any of the identified areas for the proposed General Plan and Zoning Amendments.

Pursuant to ALUP Policies G-1 and N-3, the compatibility of proposed land uses is determined by consulting the land use compatibility table provided in Section V of the ALUP. The land use compatibility table identifies land uses by category, including residential, commercial, and industrial land use. The Project would allow for the future development of residential and commercial (residential serving retail) uses. The compatibility criteria in the ALUP land use

46 Caltrans, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

47 Federal Aviation Administration (FAA), Airport Noise Compatibility Planning Information, Los Angeles International Airport (LAX), Part 150 Noise Exposure Map, February 12, 2016, https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps, accessed September 25, 2023.

compatibility table guidelines provide the following recommendations for residential uses within the 65 to 70 and 70 to 75 dBA CNEL noise contours:

> *Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR [noise level reduction] of at least 25 dB to 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.*[48]

Therefore, for future proposed housing within the 65 to 70 and 70 to 75 dBA CNEL noise contours, enhanced building noise level reduction measures should be used. The city's Noise Element Policy N1-1.9 and Program N1-1.9A requires new habitable residential uses to include noise reduction measures for airport-related noise, such as dual pane windows and insulation, to ensure conformance with California Noise Insulation Standards (California Code of Regulations Title 24) and to ensure interior noise would not exceed acceptable levels. However, as the use of NLR criteria would not eliminate adverse effects regarding exterior noise, the potential impact related to the exposure of future residents and workers to excessive noise from aircraft operations would remain significant and unavoidable. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR.

3.11 Cultural Resources

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
CULTURAL RESOURCES—Would the project:		
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒

3.11.1 Environmental Setting

The City of El Segundo was incorporated in 1917. The city has very distinct and identifiable areas, with a strong residential base that includes a mixture of single-family, two-family, and multifamily residential structures. The Civic Center is located in the Downtown. Near the Downtown is the Smoky Hollow area, which is an older industrial area containing mostly older one- and two-story buildings. A specific plan was adopted for the area and Smoky Hollow is undergoing transition.

[48] FAA, Airport Noise Compatibility Planning Information, Los Angeles International Airport (LAX), Part 150 Noise Exposure Map, February 12, 2016, https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps, accessed September 25, 2023.

Areas south of El Segundo Boulevard and west of Pacific Coast Highway are mostly occupied by the Chevron Refinery, which occupies approximately one-third of the city. The Refinery also occupies a portion of the coastal zone, along with an SCE generating station. The beach area is publicly owned and accessible.

Areas of the city east of Pacific Coast Highway consist of a combination of industrial, office, and commercial uses. This area contains the large areas of development consisting of a mixture of office and research and development uses, as well as the U.S. Air Force Base.

3.11.2 Discussion

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

The Certified PEIR evaluated the potential for future development to disturb historic resources and determined that with the implementation of Land Use Element policies pertaining to historic sites this impact would be reduced to a less-than-significant level (Certified PEIR page 4.11-8).

The northwestern quadrant of the city does not contain any historical resources listed on the National Register of Historic Places (National Register) and California Register of Historical Resources (California Register) although some sites within this portion of the city are located on the local El Segundo Register of Cultural Resources (El Segundo Register); none of the sites identified for new housing is located on the national, state, or local registers. However, it is possible that some of the properties identified for new housing may be individually eligible for listing on the California Register as historical resources and/or as part of a group of properties appearing to be collectively eligible for listing in the California Register as a historic district. Thus, future development facilitated by the proposed General Plan and Zoning Amendments may cause a substantial adverse change in the significance of an historical resource may occur, thus resulting in potentially significant impact.

While anticipated building heights resulting from the increased density would result in an increase in building heights from two stories to four stories, the overlays would require building modulation and top floor square footage limitation. In addition, site plan review would be required for projects with more than 10 units. As part of the site plan review, the design of the building would be evaluated to determine consistency with General Plan policies. Land Use Element Policy LU2-1.1 requires that new development adjacent to a building of cultural, historical, or architectural significance be designed with a consistent scale and similar use of materials. In addition, Land Use Element Policy LU2-2.2 requires that the City take an active role in assisting individual owners or groups in documenting and preserving building of potential cultural, historical, or architectural significance. With the implementation of existing design review procedures, any potential impact to historic resources would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

The Certified PEIR evaluated the potential for future development to disturb prehistoric archaeological resources and determined that with the implementation of Mitigation Measure 4.11-3(b) requires that any discovered finds be evaluated by the archaeologist in accordance with standard practice and applicable regulations, this impact would be reduced to a less-than-significant level (Certified PEIR pages 4.11-8 to 4.11-9).

No known prehistoric or historic-era archaeological resources are located within the northwestern quadrant of the city and the potential for future development facilitated by the proposed General Plan and Zoning Amendments to encounter and impact these resources is low given the level of disturbance in the area from the mid-twentieth century. However, it is possible that unanticipated discoveries could be encountered during ground-disturbing activities associated with future development under the Project. If such unanticipated discoveries were encountered, impacts to encountered resources could be potentially significant. However, Mitigation Measure 4.11-3(a) and (b) in the city's adopted MMRP requires the presence of a certified archaeologist onsite during soil disturbance activities and that any finds be evaluated by the archaeologist in accordance with standard practice and applicable regulations. With implementation of the mitigation measure impacts to archaeological resources would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Future development facilitated by the General Plan and Zoning Amendments that includes construction-related ground disturbance (e.g., demolition, grubbing/clearing, grading, excavation, trenching, and boring/drilling) could impact, or disturb, human remains. Anticipated development in the city would occur through activities such as infill development on vacant property and through redevelopment, which could result in damage to prehistoric and historic archaeological resources. However, treatment of human remains is regulated by California Health and Safety Code Section 7050.5 and by Public Resources Code Section 5097.98. California Health and Safety Code Section 7050.5 requires that the County Coroner be contacted immediately in the event human remains are discovered to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the County Coroner is required to contact the NAHC within 24 hours to relinquish jurisdiction and the required procedures would be followed. For these reasons, the impact associated with the disturbance of human remains would be less than significant, and no mitigation would be required.

3.12 Aesthetics/Visual Quality

Issues	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
AESTHETICS—Would the project:		
a) Have a substantial adverse effect on a scenic vista?	☐	☒
b) Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒
c) 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 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 that would adversely affect daytime or nighttime views in the area?	☐	☒

3.12.1 Environmental Setting

Scenic Vistas and Scenic Resources

Typical scenic vistas include views of mountains and hills, uninterrupted open spaces, and water features. The General Plan does not identify any scenic vistas or resources in the city. The General Plan includes an Open Space designation applied to areas that are preserved as usable or visual open space both publicly and privately owned. As indicated in the Open Space Element, open space provides visual relief from urban development and helps shape the urban form.

Visual Character

As stated in the Land Use Element, the city has distinct and identifiable areas. These distinct areas include residential areas, the Civic Center, older industrial areas, and office and commercial uses. The western boundary of the city includes 0.8 miles of shoreline along the Santa Monica Bay. Except for the shoreline area, the city is fully developed with urbanized uses.

Light and Glare

The city is an urban environment with existing sources of light and glare, such as streetlights and parking lights, walkway lights, lighted recreational facilities, and light emitted from residential and nonresidential buildings. The city is surrounded by other urbanized development on all sides. Many of the city's residential neighborhoods are surrounded or flanked with commercial, light manufacturing uses, and highway uses which may create greater lighting effects.

3.12.2 Discussion

Would the project:

a) Have a substantial adverse effect on a scenic vista?

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 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?

The Certified PEIR evaluated the potential for future development to alter views and degrade the visual quality of the city due to the intensification of development on older underutilized properties and concluded that with the implementation of Conservation, Open Space and Recreation, and Land Use Element policies and mitigation requiring the City to monitor the Century Freeway Project and take appropriate steps to provide or insure the provision of landscape buffers and wide setbacks between the freeway and any new developments proposed in the area, this impact would be reduced to a less-than-significant level (Certified PEIR pages 4.12-19 to 4.12-20).

The proposed General Plan and Zoning Amendments do not propose or authorize any projects. The Project sets forth the General Plan and Zoning Amendments necessary to meet existing and future housing needs as determined by the RHNA process. While anticipated building heights resulting from the increased density would result in an increase in building height from two stories to four stories, the overlays would require building modulation and top floor square footage limitation. In addition, site plan review would be required for projects with more than 10 units. As part of the site plan review, the design of the building would be evaluated to ensure consistency with the requirements and compatibility with the neighborhood. Future development facilitated by the proposed General Plan and Zoning Amendments would be required to adhere to all city design guidelines and standards including the Zoning Ordinance, general plan policies, and any additional specific development guidelines for a particular area.

No sites are proposed in Open Space designated areas. All future projects would be developed on sites that are currently zoned for residential, office, commercial, and mixed-use areas. No areas currently designated as open space would be converted to urban uses and no future development facilitated by the proposed General Plan and Zoning Amendments would not be permitted to encroach on open space areas.

All future projects would be treated as individual projects and may be subject to specific environmental analysis. The Project would not permit or promote development in areas that are not currently developed with existing uses. There are no policies or programs proposed that would directly affect scenic vistas or the visual character of the city.

Based on the above, future development facilitated by the proposed General Plan and Zoning Amendments would not have a substantial adverse effect on a scenic vista nor would it conflict with applicable zoning and other regulations governing scenic quality, and thus impact with

respect to scenic vistas and visual character would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

b) Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

There are no state scenic highways in the vicinity of the city. As such, future development facilitated by the proposed General Plan and Zoning Amendments would not substantially damage scenic resources within the viewshed of a designated state scenic highway. No impact would occur, and no mitigation would be required.

d) Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

The Certified PEIR evaluated the potential for future development to increase light and glare in the city and concluded that with the implementation of mitigation requiring new developments to use minimally reflective glass and select all other materials with attention to minimizing reflective glare and that all exterior lighting be designed and located to avoid intrusive effects on residential development and other sensitive receptors, this impact was reduced to a less-than-significant level(Certified PEIR page 4.12-20).

As previously stated, the Project itself does not propose or authorize any projects. Future development facilitated by the proposed General Plan and Zoning Amendments would occur in areas that are currently urbanized and commonly experience the impacts of existing light sources. Additionally, speculating about the precise nature of potential future development under the Project in accordance with the overlay standards would not yield any meaningful information. Future development facilitated by the proposed General Plan and Zoning Amendments would likely replace or intensify existing development and would therefore not introduce additional light and glare impacts in an existing urban setting. Future development under the Project would be designed and constructed in accordance with the El Segundo Zoning Ordinance to prevent spillover light effects or the use of materials that would create new glare. Further, the CBC has several development standards to control lighting. In accordance with the CBC, the future development facilitated by the proposed General Plan and Zoning Amendments would require minimum light intensities for pedestrian pathways, circulation ways, parking lots, and paths of egress for safety and wayfinding. Section 130.3 stipulates sign lighting controls with any outdoor sign that is on during both day and nighttime hours must include a minimum 65 percent dimming at night. All exterior lighting associated with future development under the Project would comply with the CBC. Therefore, the impact with respect to light and glare would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

3.13 Public Health and Safety (Risk of Upset)

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
HAZARDS AND HAZARDOUS MATERIALS—Would the project:		
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒
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 two 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 to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒

3.13.1 Environmental Setting

Hazardous Materials

Hazardous materials encompass a wide range of substances, some of which are naturally occurring and some of which are manufactured. Examples of hazardous materials include pesticides, herbicides, petroleum products, metals (e.g., lead, mercury, arsenic), asbestos, and chemical compounds used in manufacturing. Hazardous materials are used for a variety of purposes, including service industries, various small businesses, medical uses, schools, and households. Many chemicals used in household cleaning, construction, dry cleaning, film processing, landscaping, and automotive maintenance and repair are considered hazardous. Small-quantity hazardous waste generators include facilities such as automotive repair, dry cleaners, and medical offices. Hazardous materials could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed.

Hazardous Materials Sites

According to the EnviroStor database maintained by the California Department of Toxic Substances Control, there are several "active" sites where an investigation and/or remediation is currently in progress within the northwestern quadrant of the city, where sites identified for new housing are located.[49] Based on the GeoTracker database maintained by the California State Water Resources Control Board, there are no "open" cleanup sites within the Project area although there are several "closed" sites indicating that closure letter or other formal decision document has been issued for the site.[50] Based on the database of Superfund sites maintained by USEPA, there are no Superfund sites or National Priorities List (NPL) sites located within the northwestern quadrant of the city.[51]

Methane, Oil, and Gas

The northwestern quadrant of the city is located within the El Segundo oil field, which is an active oil drilling field. The northern border of the oil field transects east/west along Mariposa Avenue. Two active oil and gas wells are located within the Project area.[52] Both wells are located on the same block bound by Grand Avenue to the north, Central Street to the east, Franklin Avenue to the south, and Maryland Street to the west. In addition, there are several plugged wells located throughout the northwestern quadrant of the city.

The approximately 900-acre Chevron Oil Refinery is located directly south of the northwestern quadrant of the city. Two crude oil pipelines, one gasoline pipeline, and one natural gas pipeline run along the Pacific Coast Highway (Highway 1) along the eastern edge of the Project area. Additionally, one jet fuel pipeline runs through the Project area along Washington Street and the western edge of Freedom Park.

Airports

LAX is located approximately 500 feet north of the northwestern quadrant of the city on the north side of Imperial Highway. The AIA generally extends east/west from the Pacific Coast 9 miles to I-110 and is based on the ALUP 65 CNEL noise contour.[53] A portion of the Project area is located within the ALUP, and thus sites within the area are subject to ALUP requirements, including requirements for safety and noise. There are no additional public use airports located within 2 miles of the area.

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49 Department of Toxic Substance Control, EnviroStor Database, https://www.envirostor.dtsc.ca.gov/public/, accessed February 22, 2024.

50 State Water Resources Control Board, GeoTracker Database, https://geotracker.waterboards.ca.gov/, accessed February 22, 2024.

51 United States Environmental Protection Agency, Search for Superfund Sites Where You Live. https://www.epa.gov/superfund/search-superfund-sites-where-you-live, accessed February 22, 2024.

52 California Department of Conservation, Well Finder. https://www.conservation.ca.gov/calgem/Pages/Wellfinder.aspx, accessed February 22, 2024.

53 County of Los Angeles, *Los Angeles County Airport Land Use Commission Comprehensive Land Use Plan*, December 1, 2004.

Fire Hazards

The northwestern quadrant of the city is heavily urbanized and is not subject to wildfire. According to CAL FIRE data, the city is not located in a Very High Fire Hazard Severity Zone.[54]

3.13.2 Discussion

Would the project:

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

Although hazardous materials, including fuel, lubricants, and cleaning products, would be used on individual parcels during construction, compliance with local, state, and federal regulations would minimize risks associated with the routine transport, use, or disposal of hazardous materials during construction. Future development facilitated by the proposed General Plan and Zoning Amendments would consist of residential uses with some commercial (residential serving retail) use. This type of development would not involve the routine transport, use, or disposal of hazardous materials, other than cleaning products and maintenance materials. Due to the nature of these materials and the quantities that are typically used in residential and commercial (residential serving retail) buildings such as those that would be constructed under the Project, future development facilitated by the proposed General Plan and Zoning Amendments would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Therefore, the impact with respect to the routine transport, use, or disposal of hazardous materials would be less than significant, and no mitigation would be required.

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?

As discussed in Item (a) above, the transport of hazardous materials during project construction and operation would be conducted in accordance with all applicable local, state, and federal regulations. Due to the relatively small amounts of hazardous materials involved during construction and operation, and compliance with applicable transport regulations, the risk of future development facilitated by the proposed General Plan and Zoning Amendments creating a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be low. As a result, the impact with respect to the release of hazardous materials from the use or transport of hazardous materials would be less than significant, and no mitigation would be required.

[54] California Department of Forestry and Fire Protection, CAL FIRE Fire Hazard Severity Zones Viewer, https://egis.fire.ca.gov/FHSZ/, accessed February 22, 2024.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

As discussed in Section 3.7, *Public Services*, the Richmond Street Elementary School, Center Street Elementary School, El Segundo Middle School, and El Segundo High School are all located within the northwestern quadrant of the city, and some of the sites that were identified for new housing are located within 0.25 miles of these facilities. Future development facilitated by the proposed General Plan and Zoning Amendments would be required to comply with applicable federal, state, and local environmental regulations related to new construction and hazardous materials storage, use, and transport. In addition, various federal, state, and local regulations and guidelines pertaining to abatement of, and protection from, exposure to asbestos, lead, and other hazardous materials have been adopted for demolition activities and would apply to all new development. All demolition or renovation that could result in the release of lead and/or asbestos must be conducted according to Cal/OSHA standards. Compliance with these existing regulations would ensure that schools and the public would not be exposed to any unusual or excessive risks related to hazardous materials during construction and operational activities. Therefore, the impact with respect to hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school would be less than significant, and no mitigation would be required.

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?

The Certified PEIR evaluated the potential risks associated with contaminated soil and groundwater and determined that with the implementation of Mitigation Measures 4.13-3(a) through 4.13-3(c) requiring that a Phase I Environmental Site Assessment (ESA) be performed to confirm or deny the presence of any soil or groundwater contamination on a proposed development site and that if contamination is identified, that remediation and disposal procedures be conducted by qualified personnel, in accordance with all applicable regulations and in coordination with all applicable regulatory agencies, this impact would be reduced to a less-than-significant level (Certified PEIR pages 4.13-21 to 4.13-22).

In addition, the Certified PEIR evaluated the potential to expose construction workers and the public to health hazards associated with development adjacent to oil production facilities, storage facilities, and abandoned wells and determined that with the implementation of Mitigation Measure 4.13-5(b) requiring that the California Department of Conservation Division of Oil and Gas and Geothermal Resources, now known as the Geologic Energy Management Division (CalGEM), be contacted prior to the construction of new projects adjacent to existing oil wells to confirm the status of the wells, and if construction over an abandoned well is unavoidable, that an approved gas venting system be placed over the well to prevent the buildup of gas and possible explosion, this impact would be reduced to a less-than-significant level (Certified PEIR pages 4.13-22 to 4.13-23).

As discussed above, a search of the EnviroStor database found that there are several "active" sites where an investigation and/or remediation is currently in progress located within the northwestern quadrant of the city. Furthermore, while a search of the GeoTracker database revealed that there were no "open" cleanup sites in the Project area, the search did reveal the presence of several cases that were completed and closed. Any project that involved these properties would require additional CEQA review and would be evaluated for its impact on the environment from known contamination, based on the nature of the project. Any future activities at sites listed on DTSC's EnviroStor Database list would be subject to site-specific mitigation protocols administered by DTSC and other jurisdictional agencies in conformance with federal, state, regional, and local regulations.

As discussed above, the northwestern quadrant of the city is located within the El Segundo oil field, which is an active drilling field. Two active oil and gas wells are located within the Project area on the same block bound by Grand Avenue to the north, Central Street to the east, Franklin Avenue to the south, and Maryland Street to the west. In addition, there are several plugged wells located throughout the northwestern quadrant of the city. As a result, there is the potential for unidentified soil, soil vapor, and/or groundwater contamination to be present on the sites identified for new housing. Thus, construction activity that disturbs soil or groundwater could have the potential to result in the release of hazardous materials, which could adversely affect construction workers and/or neighboring properties. To address such possible concerns, it is common for a Phase I ESA to be conducted prior to excavation and construction activity. The purpose of the Phase I ESA is to identify recognized environmental conditions (RECs) associated with soil and groundwater contamination. Based on the results of the Phase I ESA, a Phase II ESA (subsurface investigation) may be warranted to determine whether any identified RECs involve contamination exceeding regulatory action levels. If contamination exceeding action levels is identified, additional subsurface investigations and/or remediation with regulatory oversight from an appropriate agency may be warranted. Remedial actions would typically involve removal and proper disposal, capping, or treatment of contaminated soil or groundwater, construction of vapor barriers, or other engineering controls.

Mitigation in the Certified PEIR requiring that a Phase I ESA be performed on a proposed development site, and that if contamination is identified, that remediation and disposal procedures be conducted would apply to future development facilitated by the proposed General Plan and Zoning Amendments. Similarly, mitigation in the Certified PEIR requiring that CalGEM be contacted prior to the construction of new projects adjacent to existing oil wells to confirm the status of the wells, and that if construction over an abandoned well is unavoidable, that an approved gas venting system be placed over the well to prevent the buildup of gas and possible explosion would also apply. With these measures in place, the impact with respect to development on previously contaminated sites would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

As discussed above in Section 3.10, *Noise*, the Certified PEIR evaluated the potential for increases in vehicular traffic noise due to future development in the city to combine with aircraft noise to raise ambient noise levels to unacceptable levels and determined that even with the implementation of Noise Element Policies N1-1.1 through N1-1.3, N1-3.1, and N1-3.3, this impact would remain significant and unavoidable. The city's Noise Element Policy N1-1.9 and Program N1-1.9A requires new habitable residential uses to include noise reduction measures for airport-related noise, such as dual pane windows and insulation, to ensure conformance with California Noise Insulation Standards (California Code of Regulations Title 24) and to ensure interior noise would not exceed acceptable levels. However, as these measures would not eliminate adverse effects regarding exterior noise, the potential impact related to the exposure of future residents to excessive noise from aircraft operations would remain significant and unavoidable. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

With respect to safety hazards, the northwestern quadrant of the city's proximity to LAX means it is regulated under CFR 14 Part 77, Safe, Efficient Use, and Preservation of navigable Airspace, which establishes requirements to provide notice to the Federal Aviation Administration (FAA) of certain proposed construction or alteration of structures, and outlines the standards used to determine obstructions to air navigation. Future development facilitated under the proposed General Plan and Zoning Amendments would increase the height of future structures within the Project area from approximately 32 feet and two stories up to 47 to 58 feet and four stories in height. This increase in height would not encroach into the navigable airspace of LAX. Therefore, the impact with respect to safety hazards would be less than significant, and no mitigation would be required.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The El Segundo Emergency Operations Plan (EOP), adopted by the City in 2003, and updated in 2019 establishes policies and structures for City government management of emergencies and disasters. Future development facilitated by the proposed General Plan and Zoning Amendments would not interfere with the city's adopted EOP because any future project would be reviewed by the city to ensure that it would not create barriers to evacuation plans and that emergency access can be met. As a result, the impact with respect to the potential to physically interfere with the city's EOP would be less than significant, and no mitigation would be required.

g) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

As discussed above, the northwestern quadrant of the city is heavily urbanized and is not located in a Very High Fire Hazard Severity Zone. Future development facilitated by the proposed General Plan and Zoning Amendments would not be subject to any more risk than other development in the city as it is not located within a Very High Fire Hazard Severity Zone. No impact would occur, and no mitigation would be required.

3.14 Agricultural Resources

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
AGRICULTURAL AND FOREST RESOURCES—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?	☐	☒

3.14.1 Environmental Setting

The city is an urban environment designated for residential, commercial, and manufacturing uses and is essentially built out. There is no land within the city designated or zoned for agricultural use, farmland, forest, or timber production nor are there any existing agricultural, farmland, forest or timber production uses. Pursuant to the Farmland Mapping and Monitoring Program, the city is designated as Urban and Built-Up Land and Non-Agricultural or Natural Vegetation.[55]

[55] California Department of Conservation, California Important Farmland Finder, 2024, https://maps.conservation.ca.gov/DLRP/CIFF/, accessed February 7, 2024.

3.14.2 Discussion

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?

The city is an urban environment designated for residential, commercial, and manufacturing uses and is essentially built out. There is no land within the city designated or zoned for agricultural use, farmland, forest, or timber production nor are there any existing agricultural, farmland, forest or timber production uses. Therefore, future development facilitated by the proposed General Plan and Zoning Amendments would have no effect of agricultural resources. No impact would occur, and no mitigation would be required.

3.15 Mineral Resources

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
MINERAL RESOURCES—Would the project:		
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☒

3.15.1 Environmental Setting

The city is partially underlain by the El Segundo Oil Field, where over 14 million barrels of oil and condensate were produced locally between 1935 and 1992. Production has steadily declined since 1967. According to the Department of Conservation, there are no active mines in El Segundo, and the city is not shown as containing mineral resources.[56]

[56] City of El Segundo, *City of El Segundo Housing Element Update Negative Declaration (SCH# 2021110413)*, November 2021.

3.15.2 Discussion

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?

The Certified PEIR evaluated the potential for future development in the city to result in the loss, or partial loss, of access to mineral resources, particularly petroleum resources and concluded that no impact would occur as access to undeveloped regional oil fields would not be affected by the elimination of an area the size of the proposed developments in the city (Certified PEIR page 4.1-23).

No portion of the city is delineated as a mineral resource or mineral resource recovery site in the city's General Plan. There are no active mines or mineral resource extraction occurring in the city and all of the sites identified for new housing are currently developed with land uses that are not related to mining or mineral extraction. Due to lack of resources available and the urban nature of the city, no impact would continue to occur with respect to these criteria. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

3.16 Recreation

Issues:	*Potentially Significant Impact Not Identified in the "Approved Project"*	*Same or Less Impact than Identified in the "Approved Project*
RECREATION – Would the project:		
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?	☐	☒

3.16.1 Environmental Setting

The city's Recreation and Parks Department is responsible for developed park land that provides a wide variety of attractions and amenities including 16 parks, athletic fields, recreational water amenities, a skate park, dog park and community garden. In addition to these facilities, the city also owns the Lakes at El Segundo, which is operated by Topgolf. In 2022, the property was renovated to provide a ten-hole public golf course. The adjacent property is a Topgolf facility that includes a three-story lighted driving range with a restaurant and private event center. The driving range functions as the municipal driving range pursuant to a lease agreement with the City. Parks located in the northwestern quadrant of the city, where the parcels identified for new housing are

located, include Acacia Park, Library Park, Recreation Park, Sycamore Park, Hill Top Park, and Holly Kansas Park.

3.16.2 Discussion

Would the project:

a) 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?

The Certified PEIR evaluated impacts associated with increased demand on parks and concluded that with the implementation of Open Space and Recreation Element objectives OS1-1 through OS1-5, impacts to parks and recreation facilities would be reduced to a less-than-significant level (Certified PEIR page 4.7-18).

Future development facilitated by the proposed General Plan and Zoning Amendments would add new housing units in the northwestern quadrant of the city, which in turn would also increase the use of the city's parks and recreational facilities. As indicated above in Section 3.7, *Public Services*, new development projects in the city are required to pay development impacts fees to offset the costs of the City to provide police, fire, library, and parks services and facilities. Pursuant to this Development Impact Fee Program, developers of residential and mixed-use projects resulting would pay a fair share of impact fees based on the fee category and adopted Development Impact Fee rates. In addition, potential environmental impacts to parks and recreation facilities associated with future development under the Project would be assessed on a site-by-site basis at the time the development is proposed. Mitigation measures, if necessary, would be implemented to reduce significant impacts through the application and environmental review process of each project.

For these reasons, while future development facilitated by the proposed General Plan and Zoning Amendments would increase the use of existing neighborhood and regional parks or other recreational facilities, payment of development fees would ensure that the potential impact to these facilities would remain less than significant. Thus, no new or substantially more severe impact would occur than anticipated by the Certified PEIR. No additional mitigation would be required.

3.17 Other CEQA Topics

The following impact discussions were not required topics of analysis when the 1992 General Plan PEIR was certified, and the General Plan approved in 1992. Current CEQA analysis includes the evaluation of potential environmental impacts resulting from wasteful energy consumption, GHG emissions, potential effects on tribal cultural resources, and potential to expose individuals or property to wildfires. The following analysis is provided for discussion purposes. None of the following constitutes information of substantial importance, which was not known and could not

have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete. Therefore, any potential impacts do not require a subsequent or supplemental EIR pursuant to CEQA Guidelines Section 15162. (See *Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal.App.4th 1301, 1319-1320; *Fort Mojave Indian Tribe v. Department of Health Services* (1995) 38 Cal.App.4th 1574, 1605-1606.)

3.17.1 Energy

The Certified PEIR did not include an energy section. However, energy use was evaluated in the Certified PEIR in Section 4.6, *Utilities*. Environmental Science Associates prepared a screening analysis for the Project, which is provided in Attachment C of this Addendum. The analysis evaluated at a program level the potential air quality, energy, GHG emissions and noise impacts that could occur from the potential buildout resulting from the general plan and zoning amendments.

Environmental Setting

Electricity

Electricity is provided to the city by SCE. SCE provides electric power to more than 15 million persons, within a service area encompassing approximately 50,000 square miles. SCE derives electricity from varied energy resources including fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers.

Natural Gas

SoCalGas provides natural gas resources to the city and most of Southern and Central California from the United States/Mexico border to the city of Visalia, California. SoCalGas receives gas supplies from several sedimentary basins in the Western United States and Canada, including supply basins located in New Mexico (San Juan Basin), West Texas (Permian Basin), the Rocky Mountains, and Western Canada as well as local California supplies.

Thresholds of Significance

Issue VI, Energy, of the CEQA Guidelines Appendix G states that a project would have a significant energy-related impact if it resulted in either of the following:

a) Wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operations; or

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Discussion

a) Wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operations?

The Certified PEIR, in Section 4.6, *Utilities*, evaluated the potential for future development in the city to result in a significant increase in the consumption of natural gas and electricity. The Certified PEIR concluded that the net increase in the natural gas and electricity due to future development in the city would result in a less-than-significant impact (Certified PEIR pages 4.6-7 to 4.6-13).

Future development facilitated by the proposed General Plan and Zoning Amendments would increase the number of housing units within the northwestern quadrant of the city, where the parcels identified for new housing are located. Although construction and operational details of any future projects are unknown, the energy demand would increase from new residential and commercial (residential serving retail) uses and temporary transportation fuel demand from construction equipment and ongoing transportation fuel demand from vehicles traveling to and from the new residential and commercial (residential serving retail) uses.

The 2021–2029 Housing Element contemplates opportunities for energy conservation to meet and exceed required building energy standards to conserve energy and improve affordability of housing energy costs. The Housing Element encourages improved building energy strategies such as passive and/or active solar heating and cooling systems to improve energy efficiency. The Housing Element also encourages the use of daylight strategies such as properly designed and located skylights and solar tubes, thereby reducing lighting electricity costs and energy consumption. The City would continue to require the incorporation of energy conserving (e.g., Energy Star or equivalent) appliances, fixtures, and other devices into the design of new residential units as required by the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and CALGreen (Title 24, Part 11), and applicable ESMC requirements. The City would also continue to review new subdivisions to ensure that each lot optimizes proper solar access and orientation to the extent possible. The Housing Element encourages water saving features including the use of plant materials in residential landscaping adapted to the climate in the El Segundo area and the use of mulch to retain soil moisture to reduce irrigation water demand. The City would also continue to require the incorporation of low-flow plumbing fixtures into the design of all new residential units.

In addition, the City implements a Green Building Program that encourages developers to incorporate green building design in construction activities through the use of “green” building materials, which can be accomplished by measures outlined in the city’s Home Remodeling Green Building Guidelines. The five components of green design included in the program are:

- Implementing sustainable site planning;
- Safeguarding water and water efficiency;
- Ensuring energy efficiency and employing renewable energy;

- Using conservation of materials and resources; and
- Providing indoor environmental quality

Incorporating building energy efficiency measures into future development facilitated by the proposed General Plan and Zoning Amendments would align with building electrification as a major focal point of state agencies and electric utilities in reaching the state's renewable energy and GHG reduction goals. Building electrification may potentially strain the electricity grid as the demand for electricity increases. However, building energy efficiency measures would lessen the potential for the Project to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience.

With respect to transportation fuel demand, future development facilitated by the proposed General Plan and Zoning Amendments would promote mixed-use development through the creation of a Mixed-Use Ordinance and some of the housing would be located within proximity to non-residential uses. Mixed-use development and proximity to non-residential uses encourages reduced vehicle trips and VMT as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations of the future development allowed under the Project would also encourage reduced VMT as people would be able to live close to existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers within and around the city including the HTP to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east.

The Air Quality Element includes policies to reduce building energy demand. Air Quality Element Policy AQ12-1.2 includes provisions to incorporate energy conservation features in the design of new projects while Air Quality Element Policy AQ12-1.4 states that new construction does not preclude the use of solar energy systems by uses and buildings on adjacent properties. The Conservation Element includes policies to reduce water demand. Conservation Element Policy CN2-4 requires implementation of water conservation measures as necessary to ensure sufficient water supplies while Conservation Element Policy CN2-5 requires new construction and development to install water-conserving fixtures and appliances to reduce water demand. Furthermore, Conservation Element Policy CN2-7 requires new construction and development to incorporate water conserving landscape design and management. The Air Quality Element also includes policies to reduce transportation-related fuel demand. Air Quality Element Policy AQ9-1.1 directs the City to consider multifamily housing development proposals in areas designated as Smoky Hollow Mixed-Use to reduce VMT, which is an intent of the Project.

As outlined above, the proposed General Plan and Zoning Amendments provides for development of housing with mixed-uses located at infill locations to reduce VMT, generally consistent with relevant General Plan policies to reduce energy and transportation fuel demand. In addition, the General Plan includes policies to reduce energy demand. As such, the Project would not result in wasteful, inefficient, or unnecessary consumption of energy. This impact would be less than significant, and no mitigation is required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Future development facilitated by the proposed General Plan and Zoning Amendments would be required to comply with applicable building energy standards including the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and CALGreen (Title 24, Part 11). As discussed above, the City implements a Green Building Program that encourages developers to incorporate green building designs that may exceed code requirements. In addition, the Housing Element encourages opportunities for energy and water conservation and reduced VMT. Further, incorporating building energy efficiency measures into future development under the Project would align with building electrification as a major focal point of state agencies and electric utilities in reaching the state's renewable energy and GHG reduction goals. Building energy efficiency measures would lessen the potential for future development facilitated by the proposed General Plan and Zoning Amendments to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience. In addition, policies in the city's General Plan promote energy and water efficiency, reduced VMT, and protection of solar energy systems. Thus, the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to renewable energy or energy efficiency plan. This impact would be less than significant, and no mitigation is required.

3.17.2 Greenhouse Gas Emissions

Environmental Setting

Global temperatures are moderated by naturally occurring atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse, allowing solar radiation (sunlight) into the Earth's atmosphere but prevent heat from escaping, thus warming the Earth's atmosphere. GHGs, as defined under California's AB 32, include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition. GHG emissions from human activities are the most significant driver of observed climate change since the mid-20th century. Global climate change refers to changes in average climatic conditions over the entire Earth, including temperature, wind patterns, precipitation, and storms.

Environmental Science Associates prepared a screening analysis for the Project, which is provided in Attachment C of this Addendum. The analysis evaluated at a program level the potential air quality, energy, greenhouse gas emissions and noise impacts that could occur from the potential buildout resulting from the general plan and zoning amendments.

Thresholds of Significance

Under existing CEQA Guidelines, as described under Issue VI, Greenhouse Gas Emissions, of the Appendix G Environmental Checklist Form, a greenhouse gas emissions impact is considered significant if future development facilitated by the proposed General Plan and Zoning Amendments would do any of the following:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Discussion

The City has not adopted a numeric threshold for the analysis of GHG impacts. If future development facilitated by the proposed General Plan and Zoning Amendments does not conflict with the applicable regulatory plans and policies to reduce GHG emissions, then the Project would result in a less-than-significant impact with respect to GHG emissions. The above checklist questions are addressed in a combined discussion below.

GHG Emissions and City Policies and Programs

Future development that would be facilitated by the proposed General Plan and Zoning Amendments would result in construction at infill sites. Although construction details of any future projects are unknown, construction of future projects would likely require the use of construction equipment that that would typically emit GHGs from combustion of fossil fuels in diesel and gasoline-powered equipment and vehicles and from the use of electricity that is generated partially from sources that emit GHGs. Construction of future projects resulting from the Project would be limited in extent and duration and would emit GHGs on a short-term and temporary basis. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation, which was approved by CARB in June 2020 and mandates zero-emission vehicle sales requirements for truck manufacturers and a one-time reporting requirement for large entities and fleets. The regulation is designed to accelerate widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition, trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 CCR Section 2485). Additionally, construction equipment and vehicles would be required to use fuels that comply with the CARB Low Carbon Fuel Standard, which reduces the carbon content of fuels and fuel production, which is a strategy that would assist California in meeting the 2030 GHG emissions reduction target enacted through SB 32.

The operation of future development facilitated by the proposed General Plan and Zoning Amendments would result in an increase in the number of housing units at infill sites. Although operational details of any future projects are unknown, development resulting from the Project would result in GHG emissions from building energy demand from new residential and

commercial (residential serving retail) uses and ongoing transportation GHG emissions from vehicles traveling to and from the new residential and commercial (residential serving retail) uses.

The 2021–2029 Housing Element contemplates opportunities for building energy conservation to meet and exceed required building energy standards to conserve energy and reduce associated GHG emissions. The 2021–2029 Housing Element encourages improved building energy strategies such as passive and/or active solar heating and cooling systems to improve energy efficiency. The 2021–2029 Housing Element also encourages the use of daylight strategies such as skylights and solar tubes to reduce GHG emissions from lighting electricity. The City would continue to require the incorporation of energy conserving (e.g., Energy Star or equivalent) appliances, fixtures, and other devices into the design of new residential units as required by the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and CALGreen (Title 24, Part 11), and applicable ESMC requirements. The 2021–2029 Housing Element encourages water saving features including the use of water efficient residential landscaping to reduce irrigation water demand and associated GHG emissions. The City will also continue to require the incorporation of low-flow plumbing fixtures into the design of all new residential units to reduce indoor water demand and associated GHG emissions.

The City implements a Green Building Program that encourages developers to incorporate green building design in construction activities through the use of "green" building materials, which can be accomplished by measures outlined in the city's Home Remodeling Green Building Guidelines. The five components of green design included in the program are:

- Implementing sustainable site planning;
- Safeguarding water and water efficiency;
- Ensuring energy efficiency and employing renewable energy;
- Using conservation of materials and resources; and
- Providing indoor environmental quality

Incorporating building energy efficiency measures into future development facilitated by the proposed General Plan and Zoning Amendments would align with building electrification as a major focal point of state agencies and electric utilities in reaching the state's GHG reduction goals. Incorporation of building energy efficiency measures would lessen the potential for the Project to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience.

With respect to transportation-related GHG emissions, future development facilitated by the proposed General Plan and Zoning Amendments would promote mixed-use development through the creation of a Mixed-Use Overlay resulting in residential serving retail uses in the development of residential uses. Mixed-use development encourages reduced vehicle trips and VMT as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations where increases in housing would occur will also encourage reduced VMT as people would be able to live close to

existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers. Thus, the Project would promote strategies that would reduce transportation-related GHG emissions.

The city's Air Quality Element includes policies to reduce building energy demand. Air Quality Element Policy AQ12-1.2 includes provisions to incorporate energy conservation features in the design of new projects that would help to reduce GHG emissions while Air Quality Element Policy AQ12-1.4 states that new construction not preclude the use of solar energy systems by uses and buildings on adjacent properties. The city's Conservation Element includes policies to reduce water demand and associated GHG emissions. Conservation Element Policy CN2-4 requires implementation of water conservation measures as necessary to ensure sufficient water supplies while Conservation Element Policy CN2-5 requires new construction and development to install water-conserving fixtures and appliances to reduce water demand. Furthermore, Conservation Element Policy CN2-7 requires new construction and development to incorporate water conserving landscape design and management. The city's Air Quality Element also includes policies to reduce transportation-related GHG emissions. Air Quality Element Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is an intent of the Project. Projects facilitated by the proposed General Plan and Zoning Amendments would be required to comply with applicable building energy standards including the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and CALGreen (Title 24, Part 11). Code requirements would include solar ready buildings and vehicle parking space that includes electric vehicle supply equipment. As discussed above, the City implements a Green Building Program that encourages developers to incorporate green building designs that may exceed code requirements.

GHG Emissions and 2022 Scoping Plan for Achieving Carbon Neutrality

The CARB 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan) outlines the strategies the state will implement to achieve carbon neutrality by reducing GHGs to meet the anthropogenic target and by expanding actions to capture and store carbon through the state's natural and working lands and using a variety of mechanical approaches. The major element of the 2022 Scoping Plan is the decarbonization of every sector of the economy. This requires rapidly moving to zero-emission transportation for cars, buses, trains, and trucks; phasing out the use of fossil gas for heating; clamping down on chemicals and refrigerants; providing communities with sustainable options such as walking, biking, and public transit to reduce reliance on cars; continuing to build out solar arrays, wind turbine capacity, and other resources to provide clean, renewable energy to displace fossil-fuel fired electrical generation; scaling up new options such as renewable hydrogen for hard-to-electrify end uses and biomethane where needed.

The 2022 Scoping Plan presents a non-exhaustive list of impactful GHG reduction strategies that can be implemented by local governments within the three priority areas (see Appendix D of the 2022 Scoping Plan, Priority GHG Reduction Strategies for Local Government Climate Action Priority Areas). An assessment of the Project relative to the GHG reduction strategies in the three priority areas is provided below. As discussed below, future development facilitated by the proposed General Plan and Zoning Amendments would support relevant and applicable

strategies. Based on the discussions below, the Project would not conflict with applicable 2022 Scoping Plan strategies and regulations to reduce GHG emissions.

Transportation Electrification

The priority GHG reduction strategies for local government climate action related to transportation electrification are discussed below and would support the Scoping Plan action to have 100 percent of all new passenger vehicles to be zero-emission by 2035 (see Table 2-1 of the 2022 Scoping Plan).

The CARB approved the Advanced Clean Cars II rule which codifies Executive Order N-79-20 and requires 100 percent of new cars and light trucks sold in California be zero-emission vehicles by 2035. The State has also adopted AB 2127, which requires the CEC to analyze and examine charging needs to support California's EVs in 2030 and to support decision-makers allocation of resources to install new electric vehicle chargers where they are needed most.

Future development facilitated by the proposed General Plan and Zoning Amendments would not conflict with this strategy as individual projects would be required to comply with the applicable requirements of the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and CALGreen (Title 24, Part 11). The CALGreen Code was updated in 2022 to include new mandatory measures for residential and non-residential uses including requirements for electric vehicle supply equipment and electric vehicle ready spaces. As such, future development facilitated by the proposed General Plan and Zoning Amendments would support the electrification of transportation-related sources of emissions and would reduce vehicle and equipment emissions. Thus, the Project would not conflict with this strategy.

Vehicle Miles Traveled Reduction

The priority GHG reduction strategies for local government climate action related to VMT reduction are discussed below and would support the Scoping Plan action to reduce VMT per capita 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045.

Future development facilitated by the proposed General Plan and Zoning Amendments would not conflict with the strategy to reduce VMT. Although operational details of any future projects are unknown, the Project would allow for mixed-use development as residential serving retail uses would be contemplated with the development of residential uses. Mixed-use development encourages reduced vehicle trips as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations where increases in housing would occur will encourage reduced VMT as people would be able to live close to existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers within and around the city including the HTP to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east. As such, the Project would not conflict with this strategy.

Building Decarbonization

The priority GHG reduction strategies for local government climate action related to electrification are discussed below and would support the Scoping Plan actions regarding meeting increased demand for electrification without new fossil gas-fire resources and all electric appliances beginning in 2026 (residential) and 2029 (commercial) (see Table 2-1 of the 2022 Scoping Plan).

California's transition away from fossil fuel–based energy sources will bring GHG emissions associated with building energy use down to zero as California's electric supply becomes 100 percent carbon free. California has committed to achieving this goal by 2045 through SB 100, the 100 Percent Clean Energy Act of 2018. SB 100 strengthened the state's RPS by requiring that 60 percent of all electricity provided to retail users in California come from renewable sources by 2030 and that 100 percent come from carbon-free sources by 2045. The land use sector will benefit from RPS because the electricity used in buildings will be increasingly carbon-free, but implementation does not depend (directly, at least) on how buildings are designed and built.

Future development facilitated by the proposed General Plan and Zoning Amendments would be required to comply with applicable state and city requirements for building energy efficiency and electrification and would adhere to applicable CALGreen (Title 24) requirements for energy efficiency and electrification of new buildings. Additionally, incorporating building energy efficiency measures into future development allowed under the Project would align with building electrification of state agencies and electric utilities and lessen the potential for the Project to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience. Thus, the Project would not conflict with this strategy.

Summary

As outlined above, the 2021–2029 Housing Element includes provisions for building energy and water efficiency and provides for housing opportunity sites with mixed-uses located at existing infill locations to reduce VMT, generally consistent with relevant General Plan policies to reduce building energy and transportation GHG emissions. As such, future development facilitated by the proposed General Plan and Zoning Amendments would not generate GHG emissions that may have a significant impact on the environment and not conflict with an applicable plan, policy, or regulation for reducing GHG emissions. Thus, the future development under the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to GHG emissions and conflicts with an applicable plan, policy, or regulation for reducing GHG emissions.

3.17.3 Tribal Cultural Resources

Environmental Setting

The city is located within but not necessarily limited to a geographical area of interest identified by one California Native American tribe, the Gabrieleño Band of Mission Indians – Kizh Nation.

Native American territorial occupation of the area is traditionally assigned to the Gabrielino, or Tongva. The Gabrielino once occupied the entire Los Angeles Basin and the San Fernando Valley, including the watersheds of the San Gabriel, Santa Ana, and Los Angeles Rivers.[57] AB 52 (Gatto. Native Americans: California Environmental Quality Act) and CEQA Public Resources Code Section 21080.31, subdivisions (b), (d)), requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project.

California Government Code Section 65352.3 (adopted pursuant to the requirements of SB 18) requires local governments to contact, refer plans to, and consult with tribal organizations prior to making a decision to adopt or amend a general or specific plan, or to designate open space that includes Native American Cultural Places. The tribal organizations eligible to consult have traditional lands in a local government's jurisdiction, and are identified, upon request, by the Native American Heritage Commission (NAHC). As noted in the California OPR's Tribal Consultation Guidelines (2005), "the intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to cultural places."

In compliance with the requirements of AB 52 and SB 18, the City of El Segundo Community Development Department provided formal notification of the Project on October 11, 2023. Letters were sent via certified mail to the following California Native America tribes on the city's AB 52 contact list:

- Gabrielino-Tongva Tribe
- Gabrielino /Tongva Nation
- Gabrielino Tongva Indians of California Tribal Council
- Gabrieleno/Tongva San Gabriel Band of Mission Indians
- Gabrieleno Band of Mission Indians – Kizh Nation
- Santa Rosa Band of Cahuilla Indians
- Soboba Band of Luiseno Indians

Tribal Chairman Andrew Salas, on behalf of the Gabrieleño Band of Mission Indians – Kizh Nation, was the only tribal representative who responded to the Project notification conducted by the City. Chairman Salas stated that the tribe agrees with the Housing Element, and the tribe requested that they be consulted on all future projects within the Project area.

Thresholds of Significance

Under existing CEQA Guidelines, as described under Issue XVIII, Tribal Cultural Resources, of the Appendix G Environmental Checklist Form, a greenhouse gas emissions impact is considered

[57] Downtown Specific Plan EIR, page IV.M-3.

significant if future development facilitated by the proposed General Plan and Zoning Amendments would do any of the following:

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Discussion

As discussed in Section 3.11, *Cultural Resources*, no known archaeological resources are located within the northwestern quadrant of the city and the potential for future development facilitated by the proposed General Plan and Zoning Amendments to encounter and impact these resources is low given the level of disturbance in the area from the mid-twentieth century. However, it is possible that unanticipated discoveries could be encountered during ground-disturbing activities associated with future development under the Project. If such unanticipated discoveries were encountered, impacts to encountered resources could be potentially significant. However, Mitigation Measure 4.11-3(a) and (b) in the city's adopted MMRP requires the presence of a certified archaeologist onsite during soil disturbance activities and that any finds be evaluated by the archaeologist in accordance with standard practice and applicable regulations. With implementation of the mitigation measures, the impact to tribal cultural resources would be less than significant.

3.17.4 Wildfires

Environmental Setting

According to the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone maps and the city's General Plan Public Safety Element, the city does not contain Fire Hazard Severity Zones.[58] Due to the city's urban setting, the potential for wildland fire hazards is extremely limited. The closest state-designated fire hazard zone is at the Ballona Wetlands, more than 2.5 miles from the city and open space areas around the Inglewood Oil Fields and Kenneth Hahn State Recreation Area, more than 5 miles away from the city. Both Very High Fire Hazard Severity Zones are separated from the city by urbanized development, including LAX and I-405.

[58] California Department of Forestry and Fire Services, Fire Hazard Severity Zone Viewer, http://egis.fire.ca.gov/FHSZ/, accessed February 2024.

Thresholds of Significance

Issue XX, Wildfire, of the Appendix G Environmental Checklist Form, states that a significant impact would occur 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; or

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.

Discussion

The northwestern quadrant of the city, where the parcels identified for new housing are located, is urban in nature and is not located in a Very High Fire Hazard Severity Zone. Future development facilitated by the proposed General Plan and Zoning Amendments would not occur in an area that is designated as high risk for the occurrence of wildfires. For this reason, there would be no impact associated with respect to wildfire hazards, and no mitigation would be required.

CHAPTER 4
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Attachment A

El Segundo R-3 Redevelopment Potential

DRAFT MEMORANDUM

To: Michael Allen, City of El Segundo

From: Darin Smith and Roderick Hall

Subject: El Segundo R-3 Redevelopment Potential; EPS #224032

Date: September 29, 2022

The Economics of Land Use

With funding from the 2019-20 Budget Act, the California Department of Housing and Community Developed established the Local Early Action Planning (LEAP) Grant Program to provide one-time funding for local jurisdictions to accelerate housing production as part of their preparation for the 6th cycle Regional Housing Needs Allocation (RHNA). As a recipient of the LEAP Grant Program, the City of El Segundo retained Economic & Planning Systems, Inc. (EPS) to analyze the potential to rezone multifamily properties (R-3 zoning category) in the City of El Segundo to promote their redevelopment and production of new housing in the city, including affordable units.

More specifically, EPS has been hired to:

1. Provide economic analysis of the value of existing R-3 properties based on current rents as compared to the value of the underlying land if developed at various densities and with various affordability standards,

2. Work with City staff to incorporate into the memo a discussion of the proportion of existing units that would need to be replaced under SB 330, and incorporate those replacement requirements into the economic analysis, and

3. Collaborate with staff to identify development regulations that apply to the R-3 properties today that may need to be amended to enhance the feasibility of their redevelopment (parking ratios, setbacks, height limits, etc.).

For context, in 2019, the State of California passed SB 330, the "Housing Crisis Act of 2019," which limits the demolition of lower-cost and rent-stabilized apartments by requiring their one-for-one replacement as well as providing displaced tenants monetary assistance for relocation and the right to return to the replacement units.

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To test the financial feasibility of the replacement requirements, EPS, with guidance from the City, set up five replacement scenarios, distinguished by share of replacement requirements and type of affordability restriction. The analysis estimates under what rezoning conditions a project subject to the SB 330 replacement requirements is likely to be financially feasible, including the ratio of replacement units to market-rate units.

For this analysis EPS builds on our own previous work assessing the viability of an inclusionary housing program in El Segundo. EPS' understanding of the real estate market conditions in El Segundo and the City's potential inclusionary housing requirements informed the programmatic assumptions for the scenarios tested.

Summary and Key Findings

This analysis has led to the following conclusions:

1) **Even without SB 330 replacement requirements, rezoning would still need to occur to spur redevelopment.** According to our analysis, in order for a developer to feasibly acquire and redevelop a typical existing R-3 property, the land would need to be upzoned from 27 units per acre (the current maximum under R-3 zoning) to at least 68 units per acre.

2) **For a given property, the applicable SB 330 replacement requirements determine the minimum standard.** SB 330 requires that existing units that are or have been occupied by lower-income households must be replaced and offered at below market rate rents in any redeveloped apartment property. The share of replacement requirements for a given new project ultimately depends on how many such units need to be replaced, which may range from zero to 100 percent. The higher the share of existing units that need to be replaced, the higher the overall project density required to ensure the developer can acquire the land and feasibly construct the new housing units. EPS estimates that the required densities for feasibility will range from 68 with no existing units needing replacement to 117 units per acre if all existing units need to be replaced.

3) **Increased density allowances would need to be accompanied by other zoning changes to ensure practicability.** To achieve the higher densities required to incentivize redevelopment of existing R-3 properties, El Segundo will need to allow higher building heights (currently limited to 32 feet), and may also need to change lot coverage limits, setback requirements, required parking ratios, and other development regulations.

Background

In 2021 El Segundo completed an update of its Housing Element with the objective of better achieving the City's various housing goals. As part of these goals, there is interest to analyze the potential to rezone multifamily properties, specifically R-3 zoned properties in the city to promote redevelopment and the production of new housing in the city, particularly affordable units. However, SB 330, the "Housing Crisis Act of 2019," aims in part to discourage the demolition and redevelopment of existing lower-income rental housing units by requiring their one-for-one replacement as well as providing displaced tenants monetary assistance for relocation and the right to return to the replacement units. These additional requirements affect the feasibility of redeveloping existing housing for newer units at higher values, thus impacting the effectiveness of zoning and code requirements for residential parcels.

If the City, the proposing developer, the existing property owner, or a tenants organization have reliable data indicating the specific mix of incomes among current or recent tenants, SB 330 requires this information to dictate the replacement requirements for redeveloping the property. In the case of vacant units or any unit where the income of the last occupant is not known, the law establishes a "rebuttable presumption" that a given property's units were occupied by lower income household in the same proportion of lower income renter households to all rental households in the City. In El Segundo, data from the City's most recently adopted Housing Element indicates this rebuttable presumption would mean that roughly 13 percent of existing units are presumed to be occupied by "very low income" households earning below 50 percent of Area Median Income (AMI) and 12 percent of existing units are presumed to be occupied by "low income" households earning between 50 and 80 percent of AMI. The remaining units are presumed to be occupied by households earning greater than 80 percent of AMI, and thus would not require replacement under SB 330.

Residential Rezoning Feasibility Analysis

Value of Existing Rental Housing

When determining the feasibility of a development project on a parcel that already has an existing use on it (as would be the case for virtually all current R-3 properties in El Segundo), an initial question is always "is the value of the existing use greater than the parcel's value as land for redevelopment?" Simply stated, a property owner has the option to either maintain an existing use that generates cash flow, invest additional dollars into the property in hopes of increasing its market value and corresponding cash flow, or demolish the existing use and develop something of higher value from the ground up. The financially prudent property owner will choose whichever option yields the greatest revenues relative to the risks involved. For this reason, it is important to understand the value of the existing housing being considered for demolition, subject to the State's new replacement requirement.

Utilizing documents shared by city staff, EPS's own knowledge, and data obtained from CBRE and CoStar, EPS developed a generic set of building characteristics (e.g., size, density, and rent) reflecting the average size and character of projects within the study area. There are 577 residential units in the area, which equates to an overall density of 32 units per acre. Additionally, we have estimated the value of the existing units in the R-3 area using CoStar rent data that indicates the average unit size for a one-bedroom (1 BR) unit is 694 sq. ft and the average rent for 1 BRs within the study area is $2,200. It is important to note that while these current rents are considered below-market-rate rents (market rate rent is around $2,925 for a similar unit), that does not infer that units are deed-restricted or rent-stabilized.

From the gross rent collected, estimated operating expenses and vacancies are deducted to calculate the Net Operating Income (NOI). The NOI is then divided by a "capitalization rate" that results in an amount that an investor would be willing to pay today for the rights to collect the NOI from a project for the foreseeable future. In this analysis, EPS assumes that an investor would apply a capitalization rate of 4.25 percent, meaning that the total unit value is roughly 23 times its annual NOI. The capitalization rate is based on current market standards and the relatively low market risk of lower-cost housing (essentially always in demand in and around El Segundo). As shown on **Table 1** below, if someone were to purchase those existing units based on their current cash flow, EPS estimates they would be worth about $403K on average. At an average existing density of 32 units per acre (which exceeds the actual R-3 zone density max), we estimate those existing apartments equate to about $12.9M of existing value per acre.

Table 1 Value of Rental Housing Before Redevelopment

Item	Amount
Value of Existing Units	
Rent/Unit/Month	$2,200
Rent/Unit/Year	$26,400
- Operating Expenses and Vacancy Losses at 35%	-$9,240
= Net Operating Income	$17,160
/ Capitalization Rate	4.25%
= Market Value/Unit	$403,765
x Units/Acre (as built)	32
= Total Value/Acre	$12,920,471

Sources: City of El Segundo; CoStar; CBRE; EPS

The owners of those properties would need to be paid at least that much to sell those buildings for development, so a future developer would need to expect their new project to yield at least that much in "residual land value," meaning the difference between what the project is worth once built and what it costs to build it (excluding land costs).

New Development Feasibility and Residual Land Values

As noted above, the existing apartment buildings in the R-3 zone average 32 units per acre, despite the fact that current R-3 zoning regulations limit density to 27 units per acre. If the City were to consider increasing the allowable density in the R-3 zone, EPS explicitly assumes here that future development regulations would limit building heights to no greater than seven (7) stories. At this height, buildings could be constructed with wood frame housing over one or two levels of structured and/or underground parking, even at densities exceeding 100 units per acre. This building prototype has proven feasible in high value urban areas throughout California over the past decade, whereas taller buildings requiring concrete and steel framing have been feasible in only the highest value locations.

CoStar data for the R-3 area in El Segundo suggests that the average unit size is a one-bedroom (1 BR) unit of between 600 and 700 square feet of rentable space. Based on construction cost data from Marshall & Swift which then were vetted with locally active developers, EPS estimates that a 1 BR unit of this size in El Segundo would cost about $266,000 to build, excluding land acquisition costs, as shown on **Table 2**.

Table 2 New Development Cost Estimates

Description	Factor	Unit	Amount
ASSUMPTIONS			
Unit Type		Bedroom	1
Unit Square feet		sq. ft./unit	650
Common Area		% of unit	15%
Gross Square Feet Per Unit		sq. ft.	748
Parking Ratio		space/unit	1
COST ESTIMATE			
Direct			
Vertical	$190	/gross building area	$142,025
Parking Type			Structured
Parking Cost Per Space			$33,000
Contractor Contingency	5%	of other direct costs	$8,751
Subtotal			**$183,776**
Indirect	45%	direct costs	**$82,699**
Total (Per Unit)			**$266,476**
Total (Per Sq. Ft.)			$356

Sources: CoStar; Marshall & Swift; El Segundo area developers; EPS

As stated above, market-rate rents for recently constructed 1 BR units have been roughly $2,925 per month, according to CoStar. Assuming the new units on the R-3 properties could achieve these market rents, and then deducting the operating expenses and vacancies and factoring in return-on-investment criteria typical of new construction, EPS estimates that newly constructed market-rate units would be worth roughly $456,000 (see **Table 4** for details). Subtracting the $266,476 estimated development cost from this estimated unit value yields a "residual land value" of $189,825 per market-rate unit, reflecting the maximum amount that a developer could potentially pay for the land on a per-developable-unit basis. Because this figure of residual land value per developable unit ($189,825) is less than half the market value of the existing units ($403,765), a developer would have to be allowed to build more than twice as many market-rate units as currently exist in order to pay the current property owner more than the existing buildings are worth. Details on specific scenarios follow.

Redevelopment Scenarios including SB 330 Requirements

EPS has identified five illustrative replacement scenarios that reflect the feasibility of redeveloping the property as well as the impact of SB 330. In order to preserve affordability for tenants occupying units that are demolished for replacement, the SB 330 legislation outlines rent restrictions for the replacement units. The restrictions vary depending on the type of affordability the original property offered, by three primary types: (1) income-restricted affordable units, (2) rent-stabilized units, or (3) vacant units. EPS understands that there are currently no income-restricted affordable units or rent-stabilized units located within the study area, thus all scenarios are modeled under the requirements set forth by SB 330 for vacant units. Those requirements

state that a property with unoccupied units would be replaced with new units that mirror the demographics of the overall city rental inventory, including the overall proportion of low- and very-low-income renters. The scenarios are outlined in **Table 3.**

Table 3 Redevelopment and Replacement Scenarios

Scenario	Pre-Demolition Assumption	SB 330 Replacement Requirement Assumptions
Scenario 1	Existing buildings average 32 units/acre and an average unit size of 1 BR. 1 BR unit was occupied by household paying $2,200 per month ($26,400 annually) in rent. The unit rent is below current market-rates for new construction; however, it is not deed-restricted or rent stabilized.	-0% of existing units were occupied by lower-income households, so no existing units must be replaced with other income-restricted units. -All newly built units are rented at market rates
Scenario 2 (Rebuttable presumption)		-25% of existing units were occupied by lower-income households and thus must be replaced, mirroring the demographics of the overall city inventory. 13% of units with rents at 50% AMI, 12% of units with rents at 80% AMI. -All new units other than replacement units are rented at market rates
Scenario 3		-50% of existing units were occupied by lower-income households and thus must be replaced; 25% of units with rents at 50% AMI, 25% of units with rents at 80% AMI. - All new units other than replacement units are rented at market rates.
Scenario 4		-75% of existing units were occupied by lower-income households and thus must be replaced; 37.5% of units with rents at 50% AMI, 37.5% of units with rents at 80% AMI. - All new units other than replacement units are rented at market rates
Scenario 5		-100% of existing units were occupied by lower-income households and thus must be replaced; 50% of units with rents at 50% AMI, 50% of units with rents at 80% AMI. - All new units other than replacement units are rented at market rates

Determining Potential Rezoning Standards

In each redevelopment and replacement scenario, the total existing value per acre remains the same at $12.9 million. However, the residual land value for each scenario is determined by the number of market-rate units to be included and the number of affordable units to be replaced under SB 330 if the property were redeveloped. Thus, the amount of density required to achieve and exceed the $12.9 million per acre threshold varies depending on the SB 330 replacement requirements scenario (i.e., 25% of existing units, 50% of existing units, etc.) and the number of market-rate units developed (i.e., 70 market-rate units, 77 market-rate units, etc.).

Table Table 4 below summarizes the parameters of the replacement scenarios and required density for rezoning based on the total units required to achieve development feasibility. Under Scenario 1 with no replacement requirements, EPS estimates that rezoning to around 68 units per acre might be sufficient for some properties to be redeveloped, but as replacement requirements increase, that required density goes up quickly to 78, 93, 108, and 123 units/acre with Scenarios 2, 3, 4, and 5, respectively. Thus, we estimate that for these R-3 properties to turn over for redevelopment under SB 330 replacement requirements, El Segundo would have to at least triple the existing density.

- **No Replacement Requirement (Scenario 1)**: Under SB 330, a property with no existing units currently or recently occupied by lower-income households would not be required to replace any units. Thus, any redevelopment that occurred on a property would be 100 percent market-rate units. The NOI from such market-rate units could support a residual land value of roughly $189,000 per unit, and the new project would need to be built with densities at or exceeding 68 units per acre to be financially feasible.

- **25% Replacement Requirement (Scenario 2)**: Under SB 330, a hypothetical one-acre, 32-unit property with 25 percent of its units leased to lower income households would be required to provide eight replacement units at affordable rent levels within the newly developed building. Four of the replacement units should offer rents affordable to households earning 50 percent of AMI, another four replacement units should offer rents affordable to households earning 80 percent of AMI, and the remaining replacement units can be set to market rate rents. For the purposes of this analysis, EPS assumes that existing affordable units were priced at rents affordable to "low-income" or "very low-income" households, or households earning roughly 80 or 50 percent of AMI for Los Angeles County, respectively. Assumed rent is based on the California Tax Credit Allocation Committee's 2022 income limits for a two-person household, less utility costs, and sums to $1,930 and $1,126 per month, respectively. The weighted average of these rent levels is $33,389 per year, while the net operating income is $21,703 (annual weight rent average less operating expenses and vacancy losses). The weighted average residual land value per unit is diminished relative to Scenario 1 because eight units are offered at less than market rate rents, so the number of units required to achieve the $12.9 million per-acre value threshold increases to 77.

- **50% Replacement Requirement (Scenario 3)**: In this scenario, half of the existing 32 units are assumed to require replacement and affordable rents, so the average residual land value decreases further, and the new project would require a density of roughly 91 units per acre.

- **75% Replacement Requirement (Scenario 4)**: If three-quarters of the existing 32 units required replacement at below market-rate rents, EPS estimates that the required density for feasibility would be 104 units per acre.

- **100% Replacement Requirement (Scenario 5)**: If all 32 units within the existing property must be replaced at affordable rent levels, the new project may require densities of roughly 117 units per acre.

Table 4 Replacement Development Cost Assumptions

Item	SB 330 Replacement Scenario				
	Scenario 1 0% of Exisiting Units	Scenario 2 25% of Existing Units (Rebuttable Presumption)	Scenario 3 50% of Existing Units	Scenario 4 75% of Existing Units	Scenario 5 100% of Existing Units
Value of Existing Units					
Rent/Unit/Month	$2,200	$2,200	$2,200	$2,200	$2,200
Rent/Unit/Year	$26,400	$26,400	$26,400	$26,400	$26,400
- Operating Expenses and Vacancy Losses at 35%	-$9,240	-$9,240	-$9,240	-$9,240	-$9,240
= Net Operating Income	$17,160	$17,160	$17,160	$17,160	$17,160
/ Capitalization Rate	4.25%	4.25%	4.25%	4.25%	4.25%
= Market Value/Unit	$403,765	$403,765	$403,765	$403,765	$403,765
x Units/Acre (as built)	32	32	32	32	32
= Total Value/Acre	$12,920,471	$12,920,471	$12,920,471	$12,920,471	$12,920,471
Proceeds from New Units					
Market Rate Rent/Unit/Month	$2,925	$2,925	$2,925	$2,925	$2,925
x % Market-Rate	68.1	69.3	74.6	79.9	85.1
Low Income Rent/Unit/Month	$1,930	$1,930	$1,930	$1,930	$1,930
x % Low Income	*0.0%*	4	8	12	16
Very Low Income Rent/Unit/Month	$1,126	$1,126	$1,126	$1,126	$1,126
x Very Low Income	*0.0%*	4	8	12	16
Weighted Avg. Rent/Unit/Year	$35,100	$33,365	$32,139	$31,228	$30,519
- Operating Expenses and Vacancy Losses	-$12,285	-$11,678	-$11,678	-$11,678	-$11,678
= Net Operating Income	$22,815	$21,687	$20,462	$19,550	$18,841
/ Return on Cost Requirement	5.00%	5.00%	5.00%	5.00%	5.00%
= Market Value/Unit	$456,300	$433,746	$409,234	$390,998	$376,822
- Development Costs/Unit (excl. Land)	$266,475	$266,475	$266,475	$266,475	$266,475
= Residual Land Value/New Unit	$189,825	$167,271	$142,759	$124,523	$110,347
x Total New Units	68.1	77.3	90.6	103.9	117.1
= Total Residual Land Value	$12,920,471	$12,930,017	$12,933,973	$12,937,930	$12,921,690
Density Increase Required					
Total New Units Required for Feasibility	**68**	**77**	**91**	**104**	**117**
/ Existing Density as Built	32	32	32	32	32
= Proportionate Density Increase vs. Existing	213%	242%	283%	325%	366%
/ Current R-3 Maximum Density	27	27	27	27	27
= Proportionate Density Increase vs. Current R-3 Max	252%	286%	336%	385%	434%

Sources: City of El Segundo; CoStar; CBRE; EPS

Note that none of this analysis addresses other challenges associated with redeveloping existing housing. Those challenges include finding a willing seller, assembling enough properties for an efficient building, and paying tenant relocation costs, plus of course facing political headwinds to displace existing residents. Those factors are difficult to account for in a pro forma, and probably mean EPS's results above reflect the lower end of the zoning capacity the City would need to enable on R-3 properties under each replacement scenario.

Relocation Costs

SB 330 requires tenant relocation assistance if any existing units are occupied when the site redevelopment entitlement and construction commences, and the amount required to be paid by the developer depends upon how many households being relocated and the rents they must pay in the units to which they are relocated. For a period of 3.5 years or 42 months, the developer is required to pay the difference between the rent previously paid in the existing units and the rent charged by the owners of the unit to which the displaced renters are relocated. For example, in the "rebuttable presumption" scenario (Scenario 2) if an existing household was currently paying $2,200 per month in rent and is moved to a newer market-rate unit charging $2,900 per month, then a developer would need to pay $700 (the difference) for 42 months for a total of $29,400 in relocation costs per household as shown in **Table 5**. However, the rezoning potential EPS showcases for each replacement scenario are not inclusive of relocation costs. The added costs are hundreds of thousands of additional costs for a project, which would mean that still more additional density may be required to ensure feasibility for a development.

Table 5 Relocation Assistance Cost Illustrations

Item	Scenario 2 25% Replacement	Scenario 3 50% Replacement	Scenario 4 75% Replacement	Scenario 5 100% Replacement
Original Rent (per month)	$2,200	$2,200	$2,200	$2,200
New Rent[2]	$ 2,900	$ 2,900	$ 2,900	$ 2,900
Difference	$700	$700	$700	$700
Months	42	42	42	42
Relocation Assistance per Household	$29,400	$29,400	$29,400	$29,400
Households	8	16	24	32
Total Relocation Assistance Payment	**$235,200**	**$470,400**	**$705,600**	**$940,800**

[1] Based on the average one-bedroom rent paid by tenants in the market.

Sources: CoStar; EPS

Development Regulations Modifications

While parcels of land may be zoned for the same use, they are not always the same size or shape. Under current residential development This means that there is a potential for additional density depending upon other requirements such as height restrictions, setbacks, and parking ratios to name a few. The modification of development regulations will vary from scenario to scenario as different densities will require different materials to be used and different requirements as it relates to the location of parking. See **Table 6** for a more detailed description of key development regulations that the City may need to modify to ensure development feasibility.

Table 6 Multifamily (R-3) Zoning Development Regulations

Development Regulation	Current R-3 Standard	Potential Change Required
Lot Area	A minimum of seven thousand (7,000) square feet.	City may consider increasing minimum lot size for projects being developed at higher density, so that buildings will be efficiently and attractively configured. For example, a 0.5-acre (21,780 square foot) site may achieve these goals. Increased minimum lot sizes may require property assembly, which may slow or discourage redevelopment.
Height	The height of all buildings or structures with a pitched roof shall not exceed thirty two feet (32') and two (2) stories. Buildings or structures with a flat roof must not exceed twenty six feet (26') and two (2) stories.	Building heights may need to allow up to seven (7) total stories or roughly eighty five feet (85') to achieve required densities for redevelopment feasibility.
Building Area (<= 15,000 sq. ft.)	One unit for every one thousand six hundred thirteen (1,613) square feet of lot area is allowed. A fraction of a lot greater than one thousand seventy five (1,075) square feet will allow an additional unit.	Depending on SB 330 replacement requirements for a given building, maximum densities may need to increase to roughly 120 units per acre.
Building Area (>15,000 sq. ft.)	One (1) unit for every two thousand four hundred twenty (2,420) square feet of lot area is allowed. A fraction of a lot greater than one thousand six hundred thirteen (1,613) square feet will allow an additional unit.	Depending on SB 330 replacement requirements for a given building, maximum densities may need to increase to roughly 120 units per acre.
Minimum/Maximum Unit Sizes	No current requirement in code.	City could set minimum or maximum unit sizes to address interests in or concerns about micro-units, family-friendly units, etc. Details would depend on policy goals.
Lot Coverage	All buildings, including detached accessory buildings, shall not cover more than fifty three percent (53%) of the area of the lot.	Higher density buildings may require lot coverage of up to eighty five (85%) to achieve efficient building and structured parking layouts.
Parking	2 spaces per unit, plus 1 visitor space for every 3 units	Lower parking ratios such as 1 space per bedroom help to keep construction costs down and are increasingly accepted by the market. Alternatively or in addition, developers could be allowed to build fewer parking spaces if they provide Transportation Demand Management services and approaches like transit passes for tenants, bikeshare/rideshare services, unbundled parking pricing, etc.

Source: City of El Segundo; EPS

Attachment B
Transportation

B-1 VMT Analysis

Kimley»Horn

Memorandum

To: Michael Allen, AICP
City of El Segundo

From: Chris Gregerson, P.E., T.E., AICP
Mike Schmitt, AICP CTP, PTP, RSP_1

Re: DRAFT **Vehicle Miles Traveled (VMT) Assessment**
Housing Element Update, City of El Segundo

Date: February 23, 2024

This memorandum documents SB 743 compliant analysis completed for the City of El Segundo's Housing Element Update ("Project" or "proposed Project") located in El Segundo, CA. The City's Housing Element calls for increasing the density of specific zoning categories such as the R-3 category (multi-family residential) and rezoning certain commercial properties to a high-density Mixed-Use Overlay zone (commercial and residential).

With the passage of SB 743, Vehicle Miles Travelled (VMT) has become an important indicator for determining if a new development will result in a "significant transportation impact" under the California Environmental Quality Act (CEQA). This memorandum summarizes the VMT analysis and resultant findings for the increased densities associated with the City's Housing Element.

Background and Project Land Use Assumptions

The City of El Segundo is updating the City's Housing Element (HE). The City's HE calls for increasing the density of specific zoning categories for residential uses. This Project analyzes the density increase associated with four rezoning categories including:

- Increasing the density of the R-3 zoning category (multi-family residential) from 27 dwelling units per acre to 30 dwelling units per acre in multiple neighborhoods
- Increasing the number of units allowed in other R-3 zoned locations using the housing overlay
- Using a high-density mixed use overlay at 75 dwelling units per acre at several locations
- The increase in housing units associated with the City's Downtown Specific Plan[1]

Land Use Assumptions by Category

The density increases associated with the above categories resulted in a total number of additional units assumed within the City by 1,195. The breakdown for each land use category is as follows:

- Increasing the density of the R-3 zoning category results in 367 additional dwelling units
- Increasing the number of units allowed in other R-3 zoned locations using the housing overlay results in 193 additional dwelling units
- Using a high-density mixed use overlay at 75 dwelling units per acre at several locations results in 335 additional dwelling units
- The increase in housing units associated with the City's Downtown Specific Plan results in 300 additional dwelling units

[1] *El Segundo Downtown Specific Plan*. City of El Segundo. May 2023.

Purpose of Vehicle Miles Traveled (VMT) Analysis

SB 743 is part of a long-standing policy effort by the California legislature to improve California's sustainability and reduce greenhouse gas emissions through denser infill development, a reduction in single occupancy vehicles, improved mass transit, and other actions. Recognizing that the current environmental analysis techniques are, at times, encouraging development that is inconsistent with this vision, the legislature has taken the extraordinary step to change the basis of environmental analysis for transportation impacts from Level of Service (LOS) to Vehicle Miles Travelled (VMT). VMT is understood to be a good proxy for evaluating Greenhouse Gas (GHG) and other transportation related impacts that the State is actively trying to address. While the use of VMT to determine significant transportation impacts has only been considered recently, it is by no means a new performance metric and has long been used as a basis for transportation system evaluations and as an important metric for evaluating the performance of Travel Demand Models.

In January 2019, the Natural Resources Agency finalized updates to the CEQA Guidelines including the incorporation of SB 743 modifications. The Guidelines' changes were approved by the Office of Administrative Law and are now in effect. Specific to SB 743, Section 15064.3(c) states, "A lead agency may elect to be governed by the provisions of this section immediately. The provisions apply statewide as of July 1, 2020."

To help aid lead agencies with SB 743 implementation, the Governor's Office of Planning and Research (OPR) produced the Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018) that provides guidance about the variety of implementation questions they face with respect to shifting to a VMT metric. Key guidance from this document includes:

- VMT is the most appropriate metric to evaluate a project's transportation impact.
- OPR recommends tour- and trip-based travel models to estimate VMT, but ultimately defers to local agencies to determine the appropriate tools.
- OPR recommends measuring VMT for residential and office projects on a "per rate" basis.
- OPR states that by adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Generally, retail development including stores smaller than 50,000 square feet might be considered local serving.
- OPR recommends that if a project generates 110 or fewer daily trips, the project would lead to a less-than-significant transportation impact.
- Lead agencies have the discretion to set or apply their own significance thresholds.

The City of El Segundo's VMT thresholds consider the VMT performance of residential and employment-based non-residential components of a project using the efficiency metric of VMT per service population. Service population is defined as the total employment and residential population within a specified geographic region. For retail and other customer-focused components of a project, the regional change in VMT is analyzed. The City of El Segundo's VMT thresholds of significance are summarized below for each of these components:

- Residential – Below baseline (existing) citywide average VMT per service population
- Employment-based land uses (e.g., office) – Below baseline (existing) citywide average VMT per service population
- Customer-based non-residential land uses (e.g., retail) – No net increase in VMT

Methodology and Assumptions

Based on the land use information provided by the City, for the purposes of the SB 743 analysis and the determination of transportation related significant impacts, the following land uses were analyzed as a part of the Project:

- Residential
- Local-serving Retail

For the residential land uses, the City's VMT Analysis Tool[2] was used as the principal tool to determine the VMT efficiency of the Project. The City's VMT Analysis Tool is an online sketch planning tool that provides the VMT per service population for each parcel within the City based on the Census Block Group that parcel is located in. The VMT per service population is calculated at the Census Block Group level using data from the Replica big data platform. Replica aggregates location-based data throughout the United States to the Census Block Group level to provide a wide variety of metrics on travel behavior. Replica uses data from cell phones, in-dash navigation units, Census data, and other sources, to synthesize anonymous trips that are not replications of actual trips, but rather provide an average day's travel behavior along roadways. Replica provides information on travel behavior at a geographic level specified by the user (Census Block Group, ZIP Code, City, County, etc.) for a specific period of time. The data used to determine the City's VMT per service population for each of the Census Block Groups in the City, as well as the threshold of comparison for significant impacts, was based on data collected in Fall 2019 (pre-COVID, September through November).

Alternatively, the local-serving retail land-uses typically redistribute existing trips rather than generate new trips, which is why the retail components of the Project were analyzed qualitatively in a subsequent section of this memorandum.

The City of El Segundo has adopted VMT impact thresholds and analysis guidelines that were used as the basis of the analysis contained herein. The threshold of significance for the City of El Segundo is 24.5 VMT per service population.

Quantitative Analysis

The following details the quantitative analysis completed:

Residential Land Uses

As noted above, the VMT per service population for the residential land uses was computed using the City's VMT Analysis Tool. Specifically, The VMT per service population was calculated for each of the four land use categories (Downtown Specific Plan, Mixed-Use Overlay, Housing Overlay, and R-3 Density Increase) based on a weighted average of the number of dwelling units planned for within each of the Census Block Groups representing that land use category. When the number of units were not specified for specific land use categories, it was assumed that an even distribution of dwelling units was spread throughout the parcels comprising that category.

Table 1 summarizes the VMT per service population for the Project by land use category for each Census Block Group and overall. The threshold for comparison was determined using the City's VMT analysis guidelines and VMT Analysis Tool which states the threshold is the citywide average of 24.5 VMT per service population.

[2] *El Segundo TREDLiteVMT*. https://tredlite.kimley-horn.com/sites/elsegundo/calculator?step=1. Accessed February 10, 2024.

Table 1 – Vehicle Miles Traveled (VMT) per Service Population by Land Use Category

Block Group	Number of Units	% of Total Units	VMT per Service Pop
Downtown Specific Plan			
060376201022	150	50%	22.8
060376201021	150	50%	19.2
Total	**300**	**100%**	**21.0**
Mixed-Use Overlay			
060376200011	137	41%	18.9
060376200012	101	30%	11.4
060376200021	98	29%	18.6
Total	**335**	**100%**	**16.5**
Housing Overlay (R-3)			
060376200021	158	82%	18.6
060376201013	21	11%	12.8
060376200011	14	7%	18.9
Total	**193**	**100%**	**18.0**
R-3 Density Increase			
060376201023	32	9%	13.8
060376201022	58	16%	22.8
060376200021	54	15%	18.6
060376200011	28	8%	18.9
060376200012	45	12%	11.4
060376200022	26	7%	21.9
060376201013	69	19%	12.8
060376201011	34	9%	15.0
060376200013	21	6%	12.7
Total	**367**	**100%**	**16.5**

As shown in Table 1, every land use category results in a VMT per service population less than the City's threshold, resulting in a less than significant impact.

Qualitative Analysis

Local-Serving Retail and Service Land Uses

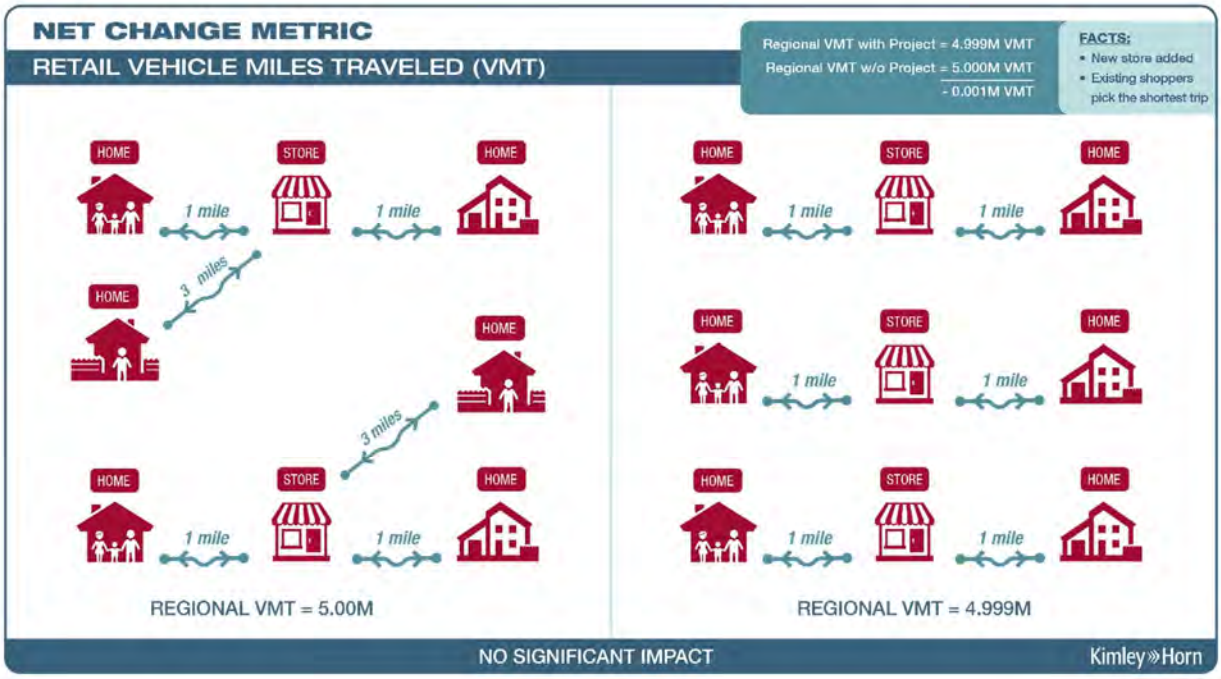
As described previously, the local-serving retail land uses were analyzed qualitatively. The City of El Segundo's VMT Analysis Guidelines specifically addresses some of the key issues surrounding how local serving land uses should be evaluated in terms of their VMT impact. As described, the threshold for significance is "a net increase." This means that if a proposed local-serving use results in additional VMT, it would result in a finding of significance.

However, local serving land uses primarily serve pre-existing needs (i.e., they do not generate new trips because they meet existing demand). Because of this, local-serving uses can be presumed to reduce trip lengths when a new store or service is proposed. Essentially, the assumption is that someone will travel

to a newly constructed local serving land use because of a its proximity, rather than the proposed use fulfilling an unmet need (i.e., the person had an existing need that was met by the local serving use located further away and is now traveling to the new establishment because it is closer to the person's origin location). This results in a trip on the roadway network becoming shorter, rather than a new trip being added to the roadway network, which would result in an impact to the overall transportation system. Conversely, residential and office land uses often generate new trips given that they introduce new participants to the transportation system. The City of El Segundo's VMT Analysis Guidelines provides for a general threshold of 50,000 square-feet as an indicator as to whether a retaion land use can be considered local serving or not. Based on the understanding that no single store within the four land use categories will exceed 50,000 square feet, it is presumed that the proposed local serving retail uses will not result in a net increase in VMT and would therefore not result in a significant impact.

Exhibit 1 has been provided to visually demonstrate the basis of this finding. Note that the numbers provided are for illustrative purposes as the analysis technique used is qualitative.

Exhibit 1 – Illustration of the VMT Reducing Effect of Local Serving Retail



Findings

Based on the results of this analysis, the following findings are made:

- All four land use categories result in a VMT per service population less than the City's threshold, **resulting in a less than significant impact**.
- It is understood that when evaluating the proposed Project's retail land uses, no single store within the four land use categories will exceed 50,000 square feet. **Therefore, it is presumed that the proposed retail uses will not result in a net increase in VMT and would therefore not result in a significant impact.**

B-2 LOS Analysis

Kimley»Horn

Memorandum

To: Michael Allen, AICP
City of El Segundo

From: Tyler Mickelson, EIT
Chris Gregerson, P.E., T.E., AICP

Re: DRAFT **Local Transportation Analysis**
Housing Element Update, City of El Segundo

Date: March 14, 2024

This memorandum documents the local transportation analysis (LTA) completed for the City of El Segundo's Housing Element Update ("Project" or "proposed Project") located in El Segundo, California. The City's Housing Element calls for increasing the density of specific zoning categories such as the R-3 category (multi-family residential) and rezoning certain commercial properties to a high-density Mixed-Use Overlay zone (commercial and residential). The study area is shown in **Exhibit 1**.

This memorandum summarizes the local transportation analysis and resultant findings for the increased densities associated with the City's Housing Element Update.

Background and Project Land Use Assumptions

The City of El Segundo is updating the City's Housing Element (HE). The City's HE calls for increasing the density of specific zoning categories for residential uses. This Project analyzes the density increase associated with four rezoning categories including:

- Increasing the density of the R-3 zoning category (multi-family residential) from 27 dwelling units per acre to 30 dwelling units per acre in multiple neighborhoods
- Increasing the number of units allowed in other R-3 zoned locations using the housing overlay
- Using a high-density mixed use overlay at 75 dwelling units per acre at several locations
- The increase in housing units associated with the City's Downtown Specific Plan[1]

Land Use Assumptions by Category

The density increases associated with the above categories resulted in a total number of additional units assumed within the City by 1,195. The breakdown for each land use category is as follows:

- Increasing the density of the R-3 zoning category results in 367 additional dwelling units
- Increasing the number of units allowed in other R-3 zoned locations using the housing overlay results in 193 additional dwelling units
- Using a high-density mixed use overlay at 75 dwelling units per acre at several locations results in 335 additional dwelling units
- The increase in housing units associated with the City's Downtown Specific Plan results in 300 additional dwelling units

The general locations for the R-3 zoned residential areas, the high-density mixed-use overlay, and the downtown specific plan area are shown in **Exhibit 2**.

[1] *El Segundo Downtown Specific Plan*. City of El Segundo. May 2023.

Methodology and Assumptions

Analysis Scenarios
In accordance with guidelines provided by the City and the Los Angeles County CMP, the study facilities were evaluated for the AM and PM peak-hours for the following analysis scenarios:

- Existing Conditions
- Existing Conditions Plus Project

Study Locations
The following study locations were established in consultation with City staff and were analyzed for the AM and PM peak-hours for the scenarios outlined above:

1. Pacific Coast Highway/SR-1 @ E Walnut Avenue
2. Pacific Coast Highway/SR-1 @ E Maple Avenue
3. Pacific Coast Highway/SR-1 @ E Mariposa Avenue
4. Pacific Coast Highway/SR-1 @ E Grand Avenue
5. Pacific Coast Highway/SR-1 @ E El Segundo Boulevard
6. Main Street @ Imperial Avenue
7. Main Street @ Maple Avenue
8. Main Street @ Mariposa Avenue
9. Main Street @ Pine Avenue
10. Main Street @ Grand Avenue
11. Main Street @ El Segundo Boulevard
12. W Grand Avenue @ Whiting Street
13. W Grand Avenue @ Concord Street
14. E Grand Avenue @ Eucalyptus Drive
15. E Grand Avenue @ Center Street
16. E Grand Avenue @ Kansas Street
17. Maryland Street @ E Grand Avenue
18. Maryland Street @ E Franklin Avenue
19. Center Street @ E Mariposa Avenue
20. Center Street @ E Pine Avenue

Intersection Analysis
In accordance with the City of El Segundo General Plan Circulation Element[2] signalized intersection operation is evaluated using the Intersection Capacity Utilization (ICU) methodology. This methodology provides a comparison of the theoretical hourly vehicular capacity of an intersection to the number of vehicles actually passing through that intersection during a given hour. The ICU calculations assume a per-lane capacity of 1,600 vehicles per hour (vph) with a clearance interval of 0.1 seconds. Intersection analyses for unsignalized intersections are completed using the Highway Capacity Manual (HCM) methodology, which returns a delay value, expressed in terms of average seconds of delay per vehicle.

Operating conditions for both ICU and HCM methodologies are expressed in terms of "Level of Service" which is also referred to by its acronym, LOS. The ICU calculation returns a volume-to-capacity (V/C) ratio that translates into a corresponding Level of Service, ranging from LOS A, representing uncongested, free-flowing conditions; to LOS F, representing congested, over-capacity conditions.

[2] *City of El Segundo General Plan.* City of El Segundo. December 1992.

A summary description of each Level of Service and the corresponding volume/capacity (v/c) ratio or delay is provided in .

Table 1 – Level of Service Description

Level of Service	Signalized: ICU	Unsignalized: HCM [1]	Description
	V/C Ratio	Delay (sec)	
A	0.00 - 0.60	≤10	EXCELLENT – No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.61 - 0.70	> 10 and ≤ 15	VERY GOOD – An occasional approach phase is fully utilized; drivers begin to feel somewhat restricted within groups of vehicles.
C	0.71 - 0.80	> 15 and ≤ 25	GOOD – Occasionally, drivers may have to wait through more than one red light; back-ups may develop behind turning vehicles.
D	0.81 - 0.90	> 25 and ≤ 35	FAIR – Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive back-ups.
E	0.91 - 1.00	> 35 and ≤ 50	POOR – Represents the most vehicles that the intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.00	> 50	FAILURE – Back-ups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

LOS = Level of Service; ICU = Intersection Capacity Utilization; HCM = Highway Capacity Manual; V/C = volume-to-capacity
[1]Source: Source: Highway Capacity Manual, 6th Edition

Performance Criteria

The City of El Segundo General Plan identifies the vision, goals and policies associated with circulation and transportation with the jurisdiction of the City. Thus, the purpose of this analysis is to analyze the Project and determine if it would have result in conditions that are contrary to the goals and policies outlined in the General Plan, and if so, recommend improvements or modifications that would bring the Project in conformance with established policy.

The City of El Segundo Level of Service standard for peak hour intersection operation is Level of Service "D". Intersections on an LA County Congestion Management Plan (CMP) facility establish Level of Service "E" as acceptable during the peak hours.

Significance Thresholds

For non-CMP intersections, if traffic caused by a development project is forecast to result in an intersection Level of Service change from LOS D or better to LOS E or F, the development effect shall be considered significant. If a development project is forecast to result in the increase of intersection volume/capacity ratio (V/C) of 0.02 or greater at any intersection that is forecast to operate at LOS E or F, the effect shall be considered significant.

For CMP intersections, a project-related traffic effect would be considered significant when the addition of project traffic increases traffic demand on a CMP facility by 2-percent of capacity (increase of V/C ≥ 0.02), causing LOS F (V/C ≥ 1.0). If the facility is already at LOS F, a significant effect occurs when the a project increases traffic demand on a CMP facility by 2-percent of capacity (increase of V/C ≥ 0.02).

Existing Conditions Analysis

Exhibit 3 depicts the study intersections, traffic control, and lane geometries, while peak-hour turning movement volumes for Existing Conditions are summarized in **Exhibit 4**. The intersection turning movement volumes were collected on February 13, 2024, and the traffic count sheets are provided in **Attachment A**.

Using the volumes presented in **Exhibit 4**, ICU for signalized intersections and average vehicle delay for unsignalized intersections were estimated for the study intersections using the respective methodologies via Synchro© software. Resulting ICU and vehicle delays with their associated level of service results are presented in **Table 2**, while the analysis output sheets can be found in **Attachment B**.

As shown in **Table 2**, all study intersections operate acceptable under existing conditions with the exception of the unsignalized Main Street intersection with Maple Avenue (Intersection #7), which operates at LOS E during the AM peak-hour.

Kimley»Horn

Table 2 – Existing Intersection LOS Summary

ID	Intersection	Control	Threshold	Peak	Existing		
				Hour	Delay [sec]	ICU (%)	LOS
1	Pacific Coast Highway/SR-1 @ Walnut Avenue	Signal	E	AM	-	53.7	A
				PM	-	49.8	A
2	Pacific Coast Highway/SR-1 @ Maple Avenue	Signal	E	AM	-	60.0	B
				PM	-	61.0	B
3	Pacific Coast Highway/SR-1 @ Mariposa Avenue	Signal	E	AM	-	58.8	A
				PM	-	71.6	C
4	Pacific Coast Highway/SR-1 @ Grand Avenue	Signal	E	AM	-	56.8	A
				PM	-	69.7	B
5	Pacific Coast Highway/SR-1 @ El Segundo Boulevard	Signal	E	AM	-	62.0	B
				PM	-	96.5	E
6	Main Street @ Imperial Avenue	Signal	D	AM	-	72.0	C
				PM	-	64.9	B
7	Main Street @ Maple Avenue	AWSC	D	AM	35.7	-	E
				PM	16.6	-	C
8	Main Street @ Mariposa Avenue	Signal	D	AM	-	55.7	A
				PM	-	60.5	B
9	Main Street @ Pine Avenue	AWSC	D	AM	12.1	-	B
				PM	13.0	-	B
10	Main Street @ Grand Avenue	Signal	D	AM	-	47.4	A
				PM	-	56.0	A
11	Main Street @ El Segundo Boulevard	AWSC	D	AM	9.6	-	A
				PM	13.2	-	B
12	W Grand Avenue @ Whiting Street	AWSC	D	AM	8.7	-	A
				PM	9.5	-	A
13	W Grand Avenue @ Concord Street	AWSC	D	AM	8.8	-	A
				PM	9.0	-	A
14	E Grand Avenue @ Eucalyptus Drive	AWSC	D	AM	11.2	-	B
				PM	11.2	-	B
15	E Grand Avenue @ Center Street	AWSC	D	AM	12.5	-	B
				PM	13.0	-	B
16	E Grand Avenue @ Kansas Street	Signal	D	AM	-	37.3	A
				PM	-	44.6	A
17	Maryland Street @ E Grand Avenue	TWSC	D	AM	18.5	-	C
				PM	13.8	-	B
18	Maryland Street @ E Franklin Avenue	AWSC	D	AM	7.3	-	A
				PM	7.2	-	A
19	Center Street @ E Mariposa Avenue	AWSC	D	AM	12.6	-	B
				PM	12.7	-	B
20	Center Street @ E Pine Avenue	AWSC	D	AM	10.0	-	B
				PM	9.4	-	A

Trip Generation

As mentioned previously, the Project is an update to the City's Housing Element which proposes density increases for certain residential zones within the Housing Element. These increases are expected to result in a total of 1,195 additional housing units built over the next 20 years.

The number of trips anticipated to be generated by the proposed Project was approximated using data provided in the Institute for Transportation Engineers (ITE) *Trip Generation Manual 11th Edition*. Trip data for ITE Land Use Code 221 (Multifamily Housing (Mid-Rise)) was used to represent residential development in the mixed-use overlay, housing overlay, and Downtown Specific Plan, while trip data for ITE Land Use Code 220 (Multifamily Housing (Low-Rise)) was used to represent the remainder of the R-3 density increases throughout the City. The number of daily, AM peak-hour, and PM peak-hour trips generated by the proposed project are presented in **Table 3**.

Table 3 – Project Trip Generation

ITE Land Use Code	Land Use	Size	Units	Daily Trips	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
221	Mixed Use Overlay	335	Dwelling Units	1,551	136	31	105	131	80	51
221	Housing Overlay	193	Dwelling Units	874	73	17	56	76	46	30
220	R3 Density Increase	367	Dwelling Units	2,428	147	35	112	187	118	69
221	Downtown Specific Plan	300	Dwelling Units	1,385	120	28	92	117	71	46
Total Project Trips		**1,195**	**Dwelling Units**	**6,238**	**476**	**111**	**365**	**511**	**315**	**196**

As shown in **Table 3**, the proposed Project is estimated to generate 6,238 daily trips, with 476 and 511 trips occurring during the AM and PM peak-hours, respectively.

Trip Distribution

The trips generated by the proposed Project were distributed to the surrounding roadway network based on existing traffic data, prevailing traffic, general knowledge of the study area, and regional travel patterns. The trip distribution percentages developed are illustrated in **Exhibit 5** and the project trip assignment is shown in **Exhibit 6**. The following distribution percentages were found for the proposed Project:

- 50-percent of Project traffic is expected to travel to/from the north/northeast via the Pacific Coast Highway (SR-1) and I-105/Imperial Highway
- 17-percent of Project traffic is expected to travel to/from the south via the Pacific Coast Highway/SR-1
- 12-percent are expected to travel to/from the east via El Segundo Boulevard
- 8-percent are expected to travel to/from the east via Grand Avenue
- 5-percent are expected to travel to/from the east via Mariposa Avenue
- 5-percent are expected to travel to/from the east via Maple Avenue
- 3-percent are expected to travel to/from the west via Grand Avenue

Existing plus Project Conditions

AM and PM peak-hour traffic volumes associated with the proposed Project were added to the Existing traffic volumes and LOS for the study intersections was determined using methodologies consistent with Existing Conditions. Existing plus Project peak-hour traffic volumes are presented in **Exhibit 7**. The analysis worksheets for this scenario are provided in **Attachment C**.

Using the volumes presented in **Exhibit 7**, ICU for signalized intersections and average vehicle delay for unsignalized intersections were estimated for the study intersections using the respective methodologies via Synchro© software. Resulting ICU and vehicle delays with their associated level of service results are presented in **Table 4.** As shown in **Table 4**, all study intersections operate acceptable under existing conditions with the exception of the unsignalized Main Street intersection with Maple Avenue (Intersection #7), which operates at LOS E during the AM peak-hour. The Project is anticipated to cause average vehicle delay at this intersection to increase by 13.4 seconds per vehicle. In addition, the ICU of this intersection under Existing plus Project Conditions would increase by 2.8-percent which is above the defined threshold of 2-percent for intersections operating deficiently without the addition of the Project. Therefore, the deficiency at this study intersection is considered a Project induced deficiency.

Table 4 – Existing plus Project Intersection LOS Summary

ID	Intersection	Control	Peak Hour	Existing			Existing Plus Project				
				Delay [sec]	ICU (%)	LOS	Delay [sec]	Δ Delay [sec]	ICU(%)	Δ ICU [%]	LOS
1	Pacific Coast Highway/SR-1 @ Walnut Avenue	Signal	AM	-	53.7	A	-	-	55.3	1.6	A
			PM	-	49.8	A	-	-	58.5	8.7	A
2	Pacific Coast Highway/SR-1 @ Maple Avenue	Signal	AM	-	60	B	-	-	62.6	2.6	B
			PM	-	61	B	-	-	64.8	3.8	B
3	Pacific Coast Highway/SR-1 @ Mariposa Avenue	Signal	AM	-	58.8	A	-	-	61.5	2.7	B
			PM	-	71.6	C	-	-	74.4	2.8	C
4	Pacific Coast Highway/SR-1 @ Grand Avenue	Signal	AM	-	56.8	A	-	-	58.9	2.1	A
			PM	-	69.7	B	-	-	71.9	2.2	C
5	Pacific Coast Highway/SR-1 @ El Segundo Boulevard	Signal	AM	-	62	B	-	-	63.7	1.7	B
			PM	-	96.5	E	-	-	98.9	2.4	E
6	Main Street @ Imperial Avenue	Signal	AM	-	72	C	-	-	75.2	3.2	C
			PM	-	64.9	B	-	-	67.9	3.0	B
7	Main Street @ Maple Avenue	AWSC	AM	35.7	54.9	**E**	49.1	13.4	57.7	2.8	**E**
			PM	16.6	-	C	19.5	2.9	-	-	C
8	Main Street @ Mariposa Avenue	Signal	AM	-	55.7	A	-	-	62.4	6.7	B
			PM	-	60.5	B	-	-	65.1	4.6	B
9	Main Street @ Pine Avenue	AWSC	AM	12.1	-	B	13.2	1.1	-	-	B
			PM	13	-	B	14.2	1.2	-	-	B
10	Main Street @ Grand Avenue	Signal	AM	-	47.4	A	-	-	50.6	3.2	A
			PM	-	56	A	-	-	59.5	3.5	A
11	Main Street @ El Segundo Boulevard	AWSC	AM	9.6	-	A	10.1	0.5	-	-	B
			PM	13.2	-	B	14.0	0.8	-	-	B
12	W Grand Avenue @ Whiting Street	AWSC	AM	8.7	-	A	8.8	0.1	-	-	A
			PM	9.5	-	A	9.7	0.2	-	-	A
13	W Grand Avenue @ Concord Street	AWSC	AM	8.8	-	A	9.1	0.3	-	-	A
			PM	9	-	A	9.3	0.3	-	-	A
14	E Grand Avenue @ Eucalyptus Drive	AWSC	AM	11.2	-	B	11.9	0.7	-	-	B
			PM	11.2	-	B	11.7	0.5	-	-	B
15	E Grand Avenue @ Center Street	AWSC	AM	12.5	-	B	14.3	1.8	-	-	B
			PM	13	-	B	14.6	1.6	-	-	B
16	E Grand Avenue @ Kansas Street	Signal	AM	-	37.3	A	-	-	41.1	3.8	A
			PM	-	44.6	A	-	-	47.0	2.4	A
17	Maryland Street @ E Grand Avenue	TWSC	AM	18.5	-	C	17.0	-1.5	-	-	C
			PM	13.8	-	B	15.7	1.9	-	-	C
18	Maryland Street @ E Franklin Avenue	AWSC	AM	7.3	-	A	7.4	0.1	-	-	A
			PM	7.2	-	A	7.3	0.1	-	-	A
19	Center Street @ E Mariposa Avenue	AWSC	AM	12.6	-	B	13.6	1.0	-	-	B
			PM	12.7	-	B	13.6	0.9	-	-	B
20	Center Street @ E Pine Avenue	AWSC	AM	10	-	B	10.6	0.6	-	-	B
			PM	9.4	-	A	9.8	0.4	-	-	A

Recommended Improvements

Based on the intersection analysis criteria listed in the City of El Segundo's General Plan, the proposed Project causes a Project-induced deficiency to occur at the unsignalized Main Street intersection with Maple Avenue (Intersection #7). The project causes the deficient LOS E operation of the intersection to degrade during the AM peak-hour by increasing the volume to capacity (V/C) ratio of the intersection by 0.086, which is greater than the defined General Plan threshold of 0.02.

In order to remove the Project-induced deficiency at the Main Street intersection with Maple Avenue (Intersection #7), it is recommended that the City install a traffic signal at the intersection. A traffic signal at this location would improve the LOS operations of the intersection to LOS A with an ICU of 57.7% in the AM peak-hour.

A peak-hour signal warrant analysis was completed to confirm the appropriateness of the recommended improvement. The results of the signal warrant confirmed that under Existing plus Project Conditions, the intersection does meet Warrant 3A, the peak-hour signal warrant[3]. The signal warrant analysis worksheet for the Main Street intersection with Maple Avenue (Intersection #7) is included in **Attachment D.**

Trigger Analysis

A trigger analysis was completed for the recommended improvement at the Main Street intersection with Maple Avenue. A Project-induced deficiency at this intersection occurs when the addition of the traffic associated with the proposed Project increases the intersection's V/C ratio by 0.02 or more. Therefore, this deficiency would trigger when the project adds 22 trips to the intersection (1,110*0.02=22.2). As shown in **Exhibit 6**, the proposed Project is anticipated to add 119 AM peak-hour trips to the intersection. Therefore, the addition of 22 of the 119 trips anticipated to travel through this intersection during the AM peak-hour equates to approximately 18.5-percent of Project build out (22 divided by 119 equals 18.5-percent) or 221 units.

Conclusions

Based on the analysis provided herein, the following conclusions are provided:

- As shown in **Table 3**, the proposed Project is estimated to generate 6,238 daily trips, with 476 occurring during the AM peak-hour and 511 occurring during the PM peak-hour.
- As shown in **Table 4**, all study intersections operate at acceptable LOS under Existing Conditions and Existing plus Project conditions with the exception of Main Street intersection with Maple Avenue (Intersection #7), which operates at LOS E during the AM peak-hour under both analysis scenarios.
- The proposed Project was determined to induce the deficiency at Main Street intersection with Maple Avenue. The addition of the proposed Project was determined to cause the intersection's V/C ratio to degrade during the AM peak-hour by 0.086, which is greater than the City's General Plan threshold of 0.02.
    - It is recommended that a traffic signal be installed at the Main Street intersection with Maple Avenue to remove the Project-induced deficiency. It was determined that the peak-hour signal warrant is satisfied for the AM peak-hour under Existing plus Project Conditions.
- The deficiency at this intersection would trigger when the Project is at 18.5-percent of build out or 221 units are constructed.

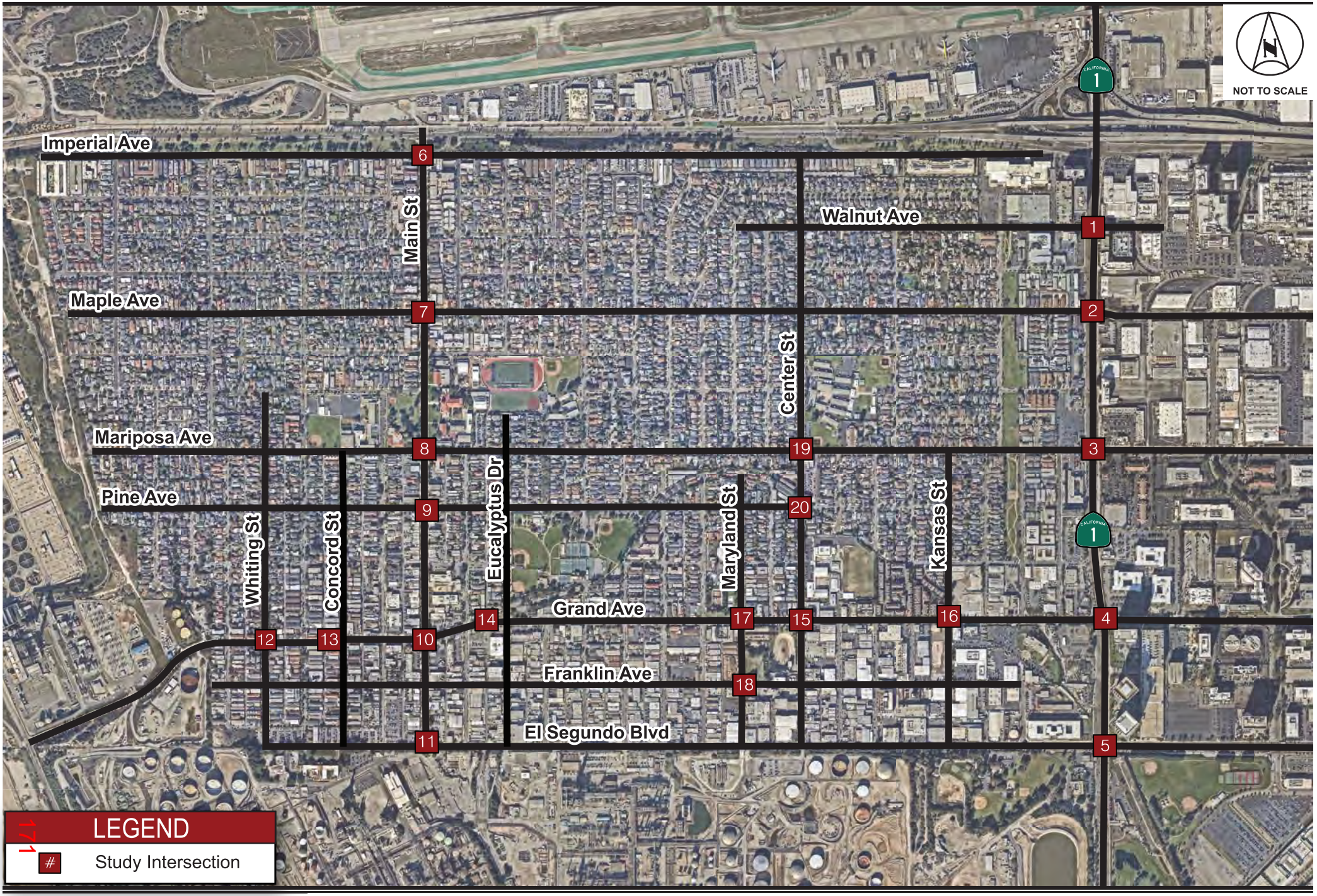
[3] *California Manual on Uniform Traffic Control Devices.* State of California Department of Transportation. January 2024.

Attachments

Exhibit 1 – Project Vicinity Map
Exhibit 2 – Project Land Uses Location Map
Exhibit 3 – Study Intersections, Traffic Control, and Lane Geometry
Exhibit 4 – Existing Conditions Peak-Hour Traffic Volumes
Exhibit 5 – Project Trip Distribution
Exhibit 6 – Project Peak-Hour Trip Assignment
Exhibit 7 – Existing plus Project Peak-Hour Traffic Volumes

Attachment A – Traffic Count Data Sheets
Attachment B – Existing Conditions Analysis Worksheets
Attachment C – Existing plus Project Analysis Worksheets
Attachment D – Signal Warrant Analysis Worksheets

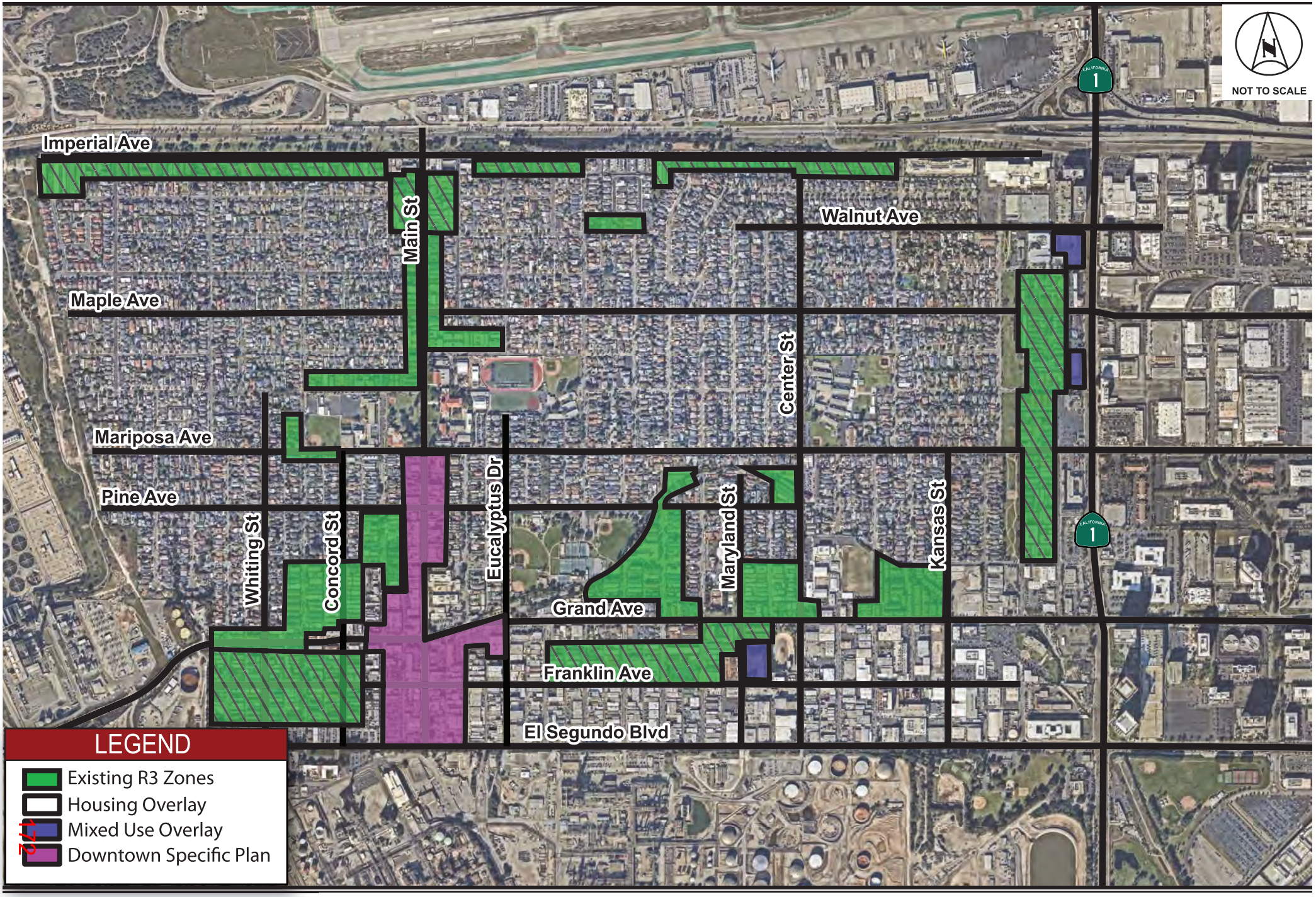
El Segundo - Housing Element Update



Kimley»Horn

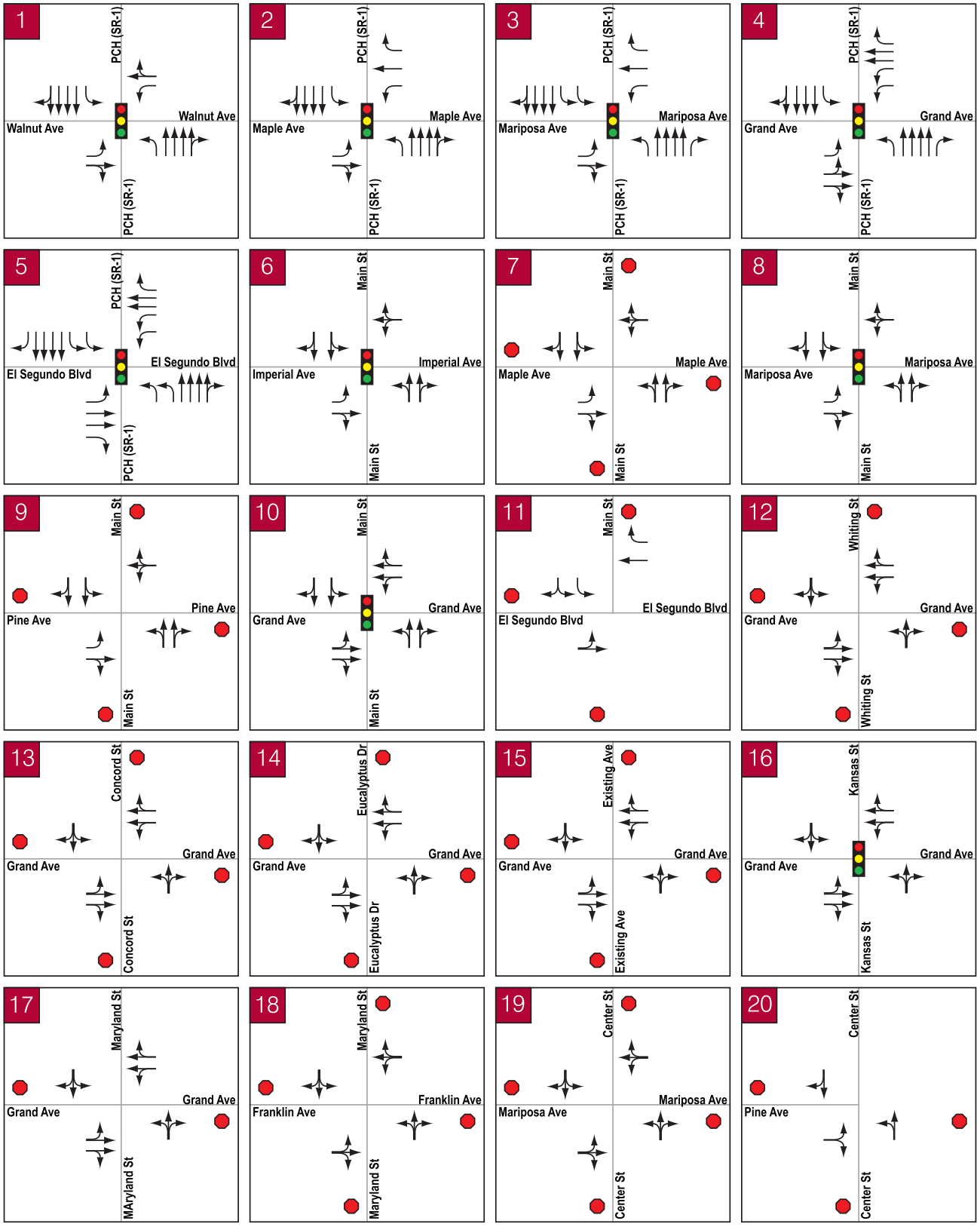
Exhibit 1
Project Vicinity Map

El Segundo - Housing Element Update



Kimley»Horn

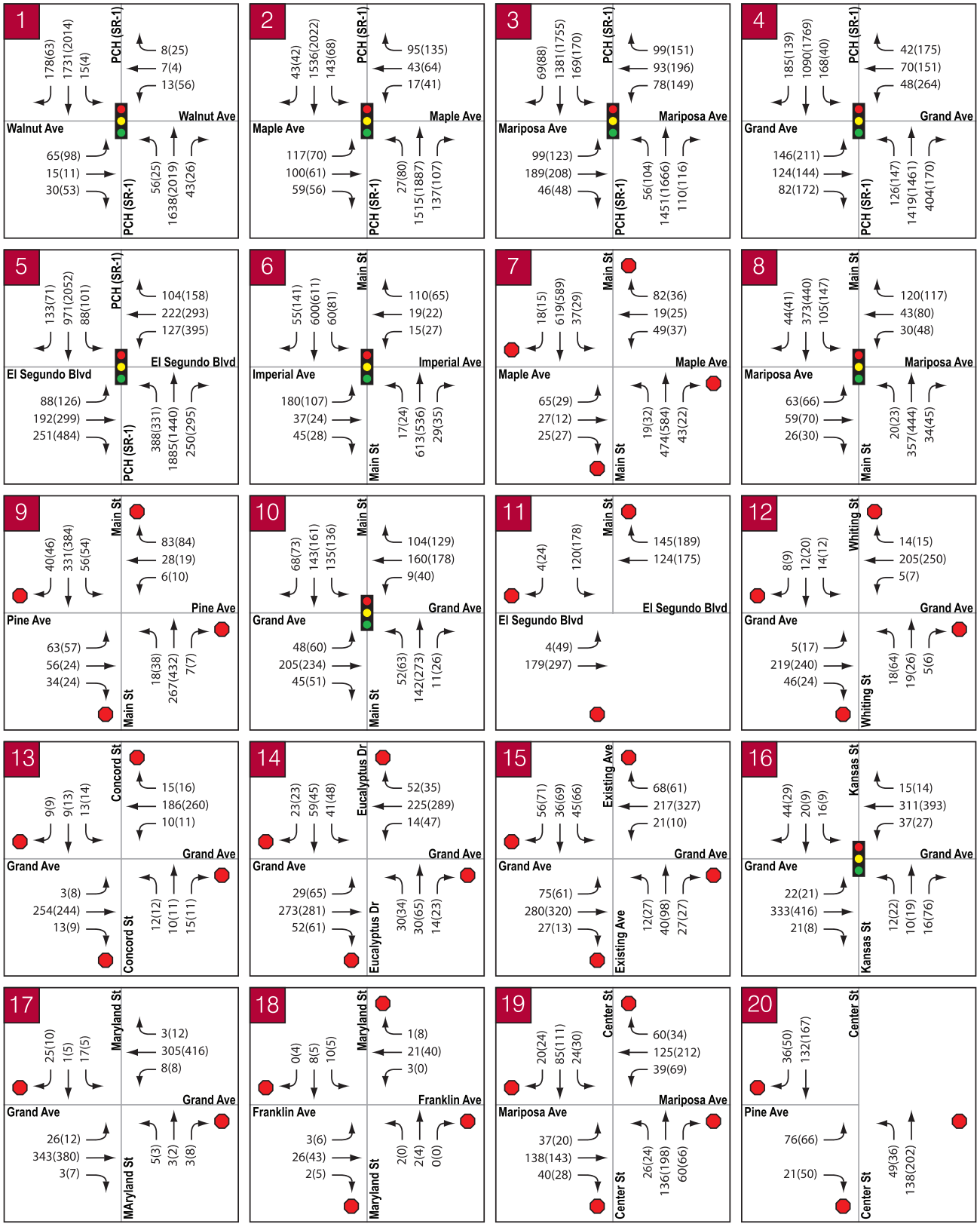
Exhibit 2
Project Locations Map



LEGEND

- # Study Intersection
- Stop Controlled Approach
- Signalized Intersection

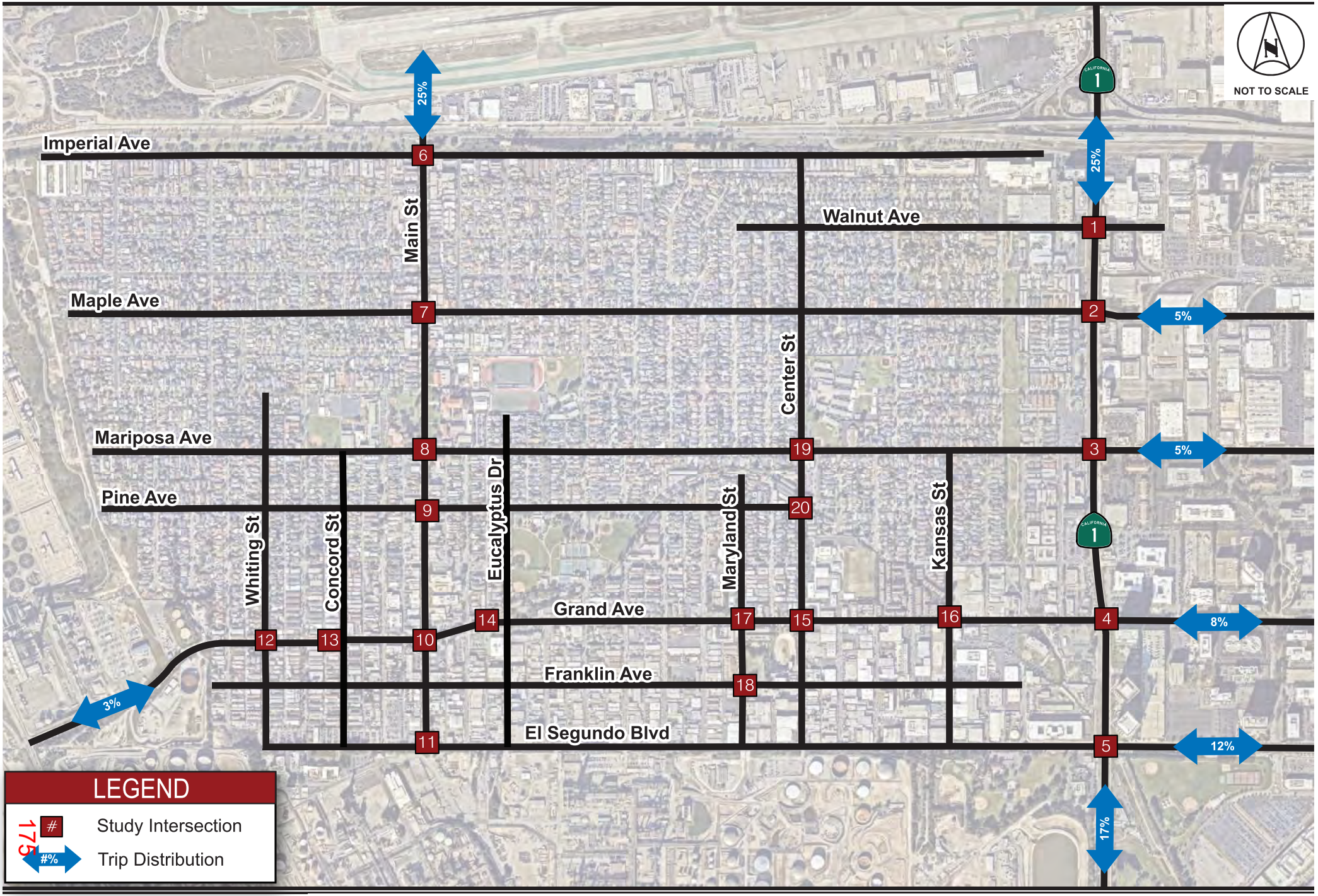
NOT TO SCALE



LEGEND

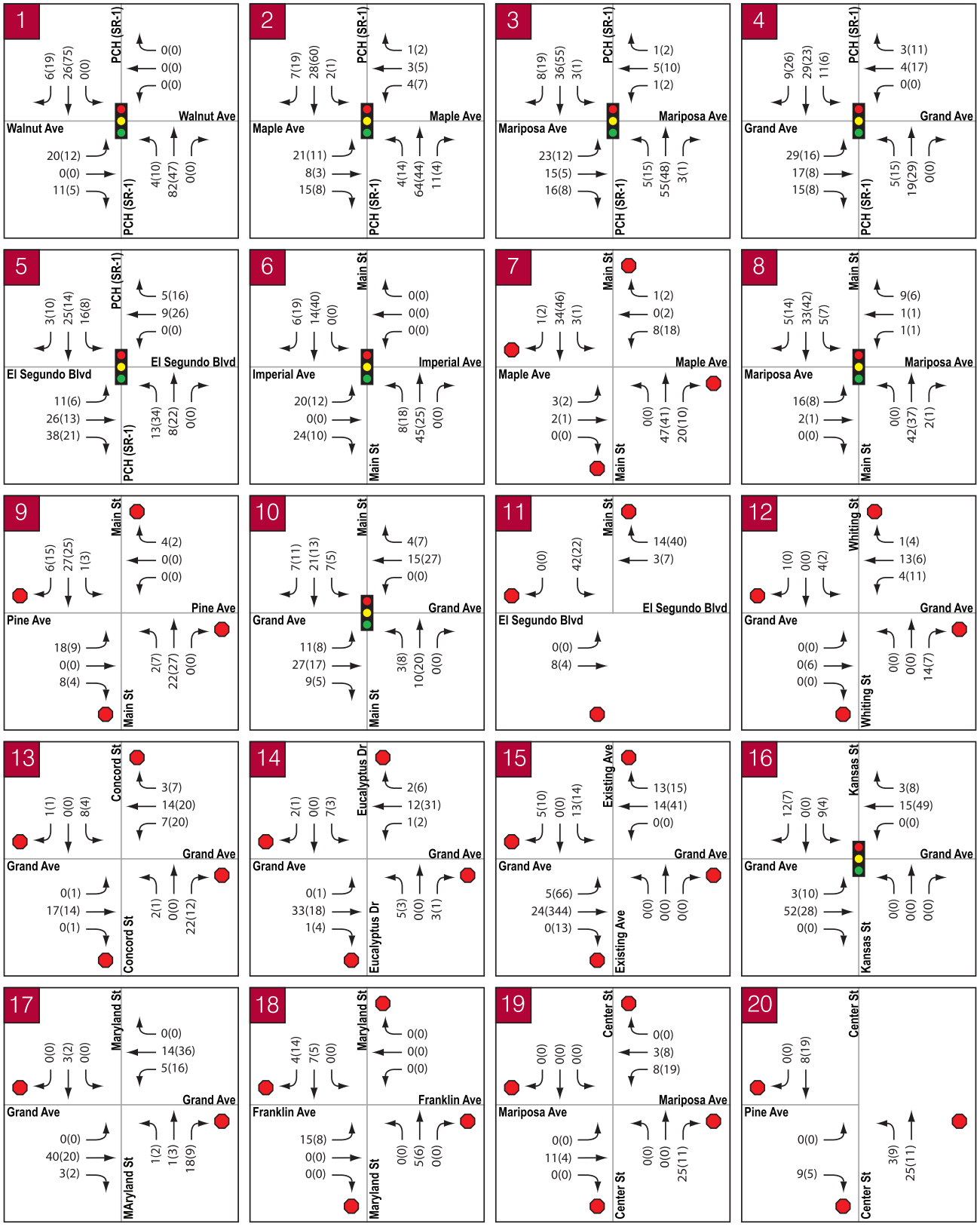
- # Study Intersection
- Stop Controlled Approach
- Signalized Intersection
- XX(YY) AM(PM) Peak Hour Volume

NOT TO SCALE



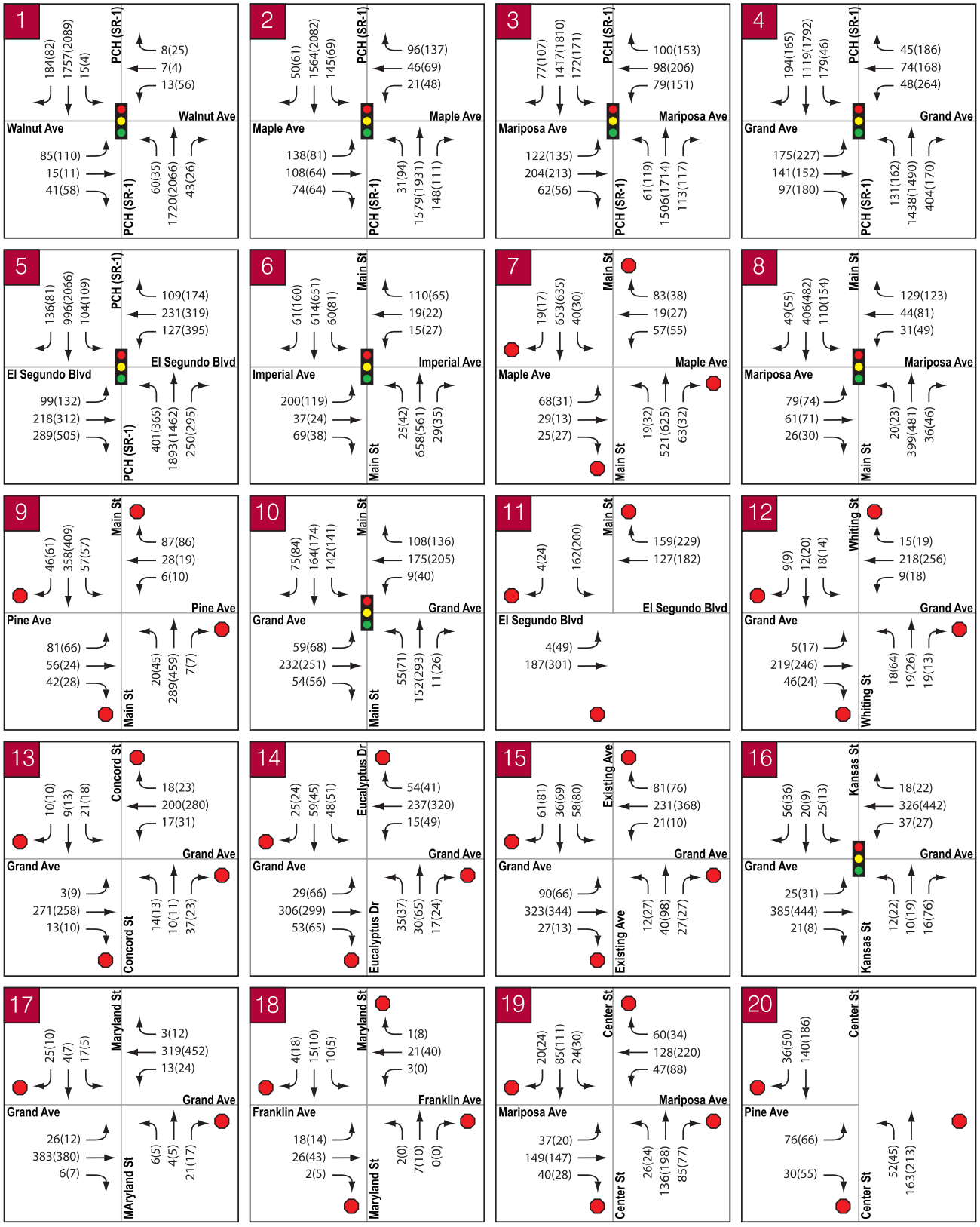
Kimley»Horn

Exhibit 5
Project Trip Distribution



Kimley»Horn

Exhibit 6
Project Peak-Hour Trip Assignment



LEGEND

- # Study Intersection
- Stop Controlled Approach
- Signalized Intersection
- XX(YY) AM(PM) Peak Hour Volume

NOT TO SCALE

Kimley»Horn

Exhibit 7

Existing Plus Project Peak-Hour Traffic Volumes

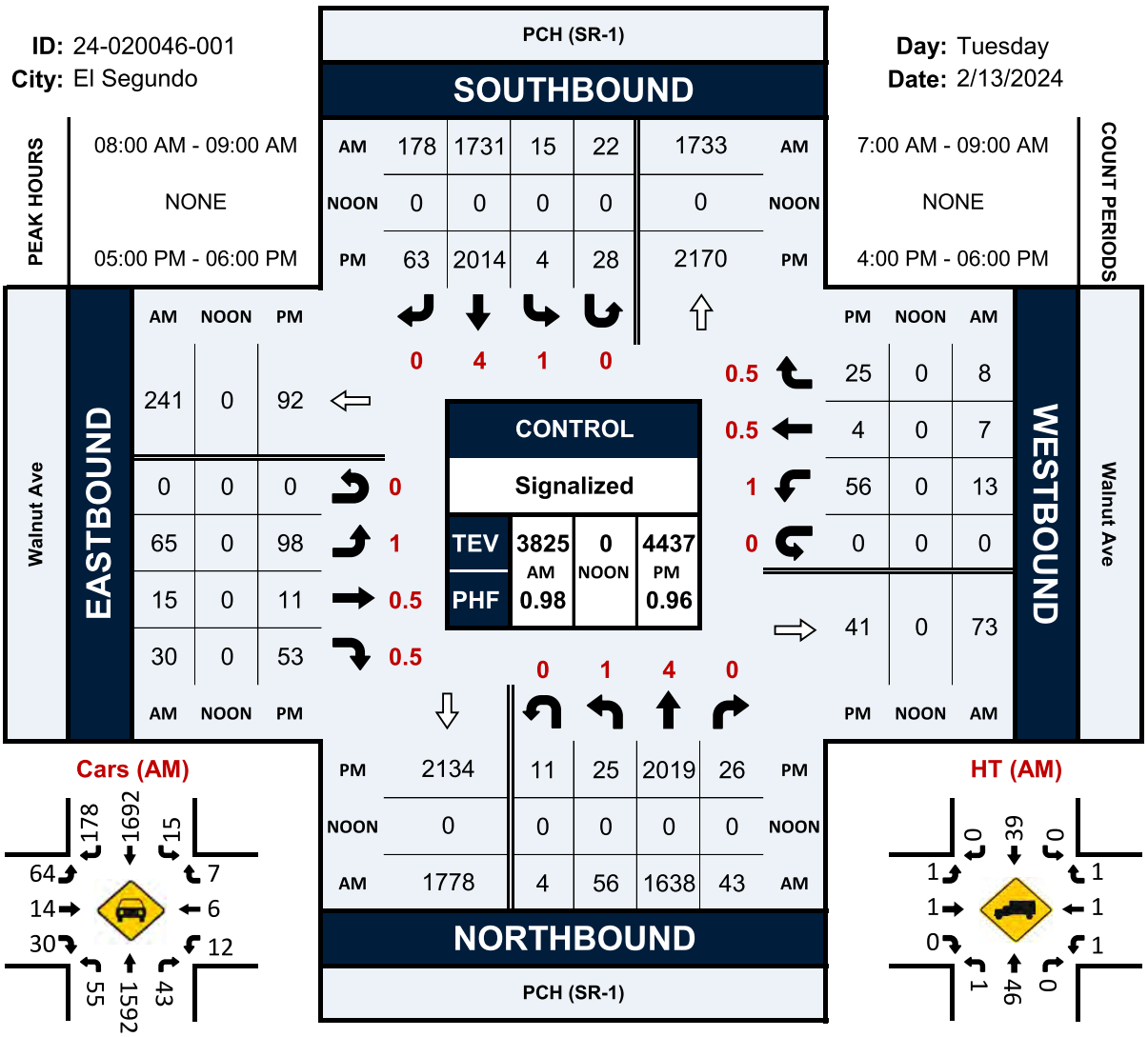
Attachment A

Traffic Count Data Sheets

Prepared by National Data & Surveying Services

PCH (SR-1) & Walnut Ave

Peak Hour Turning Movement Count



Prepared by National Data & Surveying Services

PCH (SR-1) & Maple Ave

Peak Hour Turning Movement Count

ID: 24-020046-002
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	4:00 PM - 06:00 PM

CONTROL: Signalized

	AM	NOON	PM	AM
TEV	3868	0	4680	
PHF	0.96		0.98	

SOUTHBOUND (PCH (SR-1))

AM	43	1536	143	9	1736 AM
NOON	0	0	0	0	0 NOON
PM	42	2022	68	11	2103 PM
	0	4	1	0	

EASTBOUND (Maple Ave)

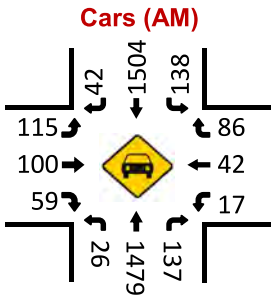
AM	NOON	PM	
113	0	186	
0	0	0	0
117	0	70	1
100	0	61	0.5
59	0	56	0.5

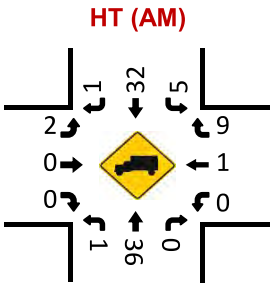
WESTBOUND (Maple Ave)

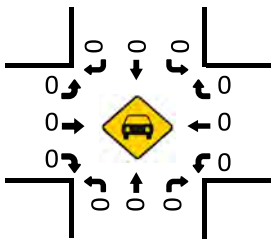
PM	NOON	AM	
135	0	95	1
64	0	43	1
41	0	17	1
0	0	0	0
236	0	380	

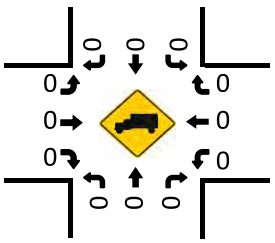
NORTHBOUND (PCH (SR-1))

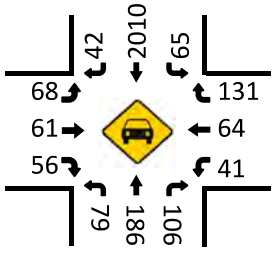
PM	2155	36	80	1887	107 PM
NOON	0	0	0	0	0 NOON
AM	1639	27	27	1515	137 AM
	0	1	4	0	

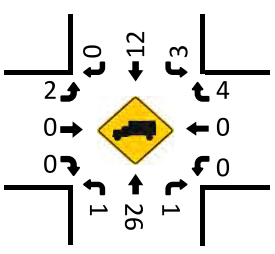


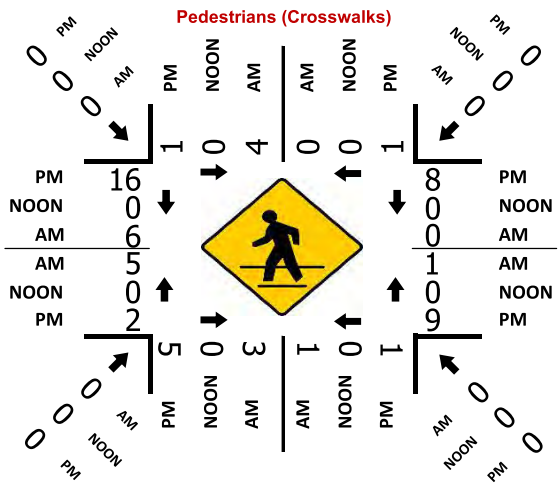












Prepared by National Data & Surveying Services

PCH (SR-1) & Mariposa Ave

Peak Hour Turning Movement Count

ID: 24-020046-003
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PCH (SR-1)

SOUTHBOUND

PEAK HOURS		COUNT PERIODS
AM	08:00 AM - 09:00 AM	AM
NOON	NONE	NOON
PM	04:45 PM - 05:45 PM	PM

AM	69	1381	169	29	1678	AM
NOON	0	0	0	0	0	NOON
PM	88	1755	170	44	1984	PM
	0	4	2	0		

AM	7:00 AM - 09:00 AM	AM
NOON	NONE	NOON
PM	4:00 PM - 06:00 PM	PM

EASTBOUND (Mariposa Ave)

AM	NOON	PM	
218	0	388	
0	0	0	0
99	0	123	1
189	0	208	0.5
46	0	48	0.5
AM	NOON	PM	

WESTBOUND (Mariposa Ave)

PM	NOON	AM	
151	0	99	1
196	0	93	1
149	0	78	1
0	0	1	0
494	0	469	
PM	NOON	AM	

CONTROL

Signalized

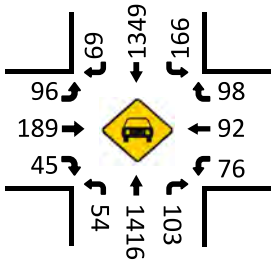
TEV	3884	0	4850
	AM	NOON	PM
PHF	0.94		0.96

PM	1984	32	104	1666	116	PM
NOON	0	0	0	0	0	NOON
AM	1519	14	56	1451	110	AM
	0	1	4	1		

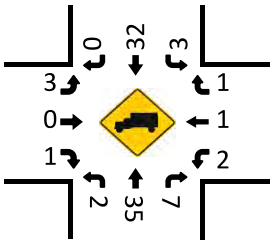
NORTHBOUND

PCH (SR-1)

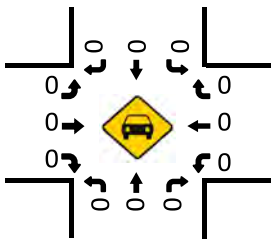
Cars (AM)



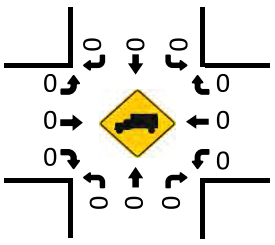
HT (AM)



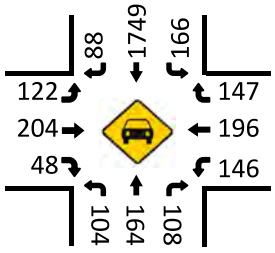
Cars (NOON)



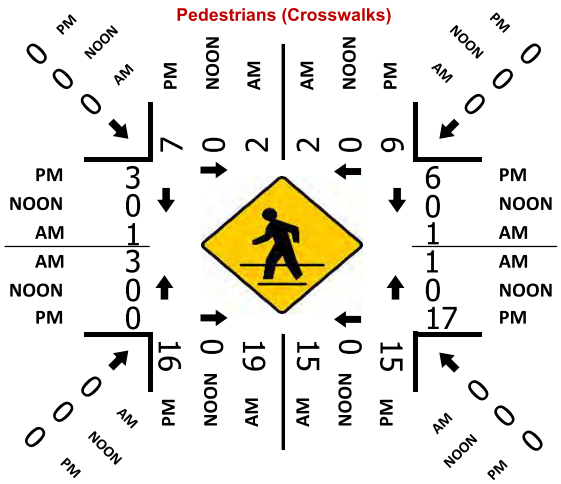
HT (NOON)



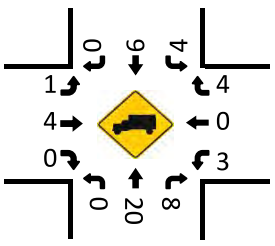
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

PCH (SR-1) & Grand Ave

Peak Hour Turning Movement Count

ID: 24-020046-004
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	4:00 PM - 06:00 PM

SOUTHBOUND (PCH (SR-1))

AM	185	1090	168	17	1624	AM
NOON	0	0	0	0	0	NOON
PM	139	1769	40	13	1860	PM

EASTBOUND (Grand Ave)

AM	NOON	PM	
381	0	437	
0	0	0	0
146	0	211	1.5
124	0	144	1.5
82	0	172	0

WESTBOUND (Grand Ave)

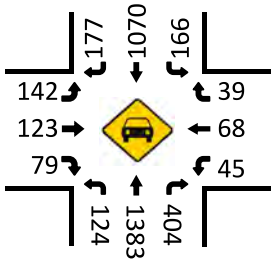
PM	NOON	AM	
175	0	42	1
151	0	70	2
264	0	48	2
0	0	0	0
354	0	696	

NORTHBOUND (PCH (SR-1))

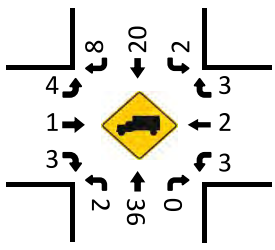
PM	2217	12	147	1461	170	PM
NOON	0	0	0	0	0	NOON
AM	1230	10	126	1419	404	AM

CONTROL			
Signalized			
TEV	3931 AM	0 NOON	4868 PM
PHF	0.94		0.94

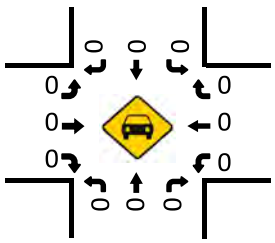
Cars (AM)



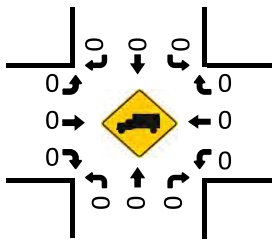
HT (AM)



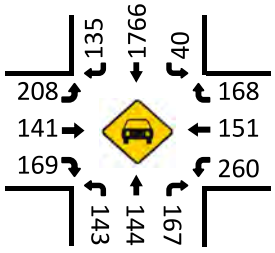
Cars (NOON)



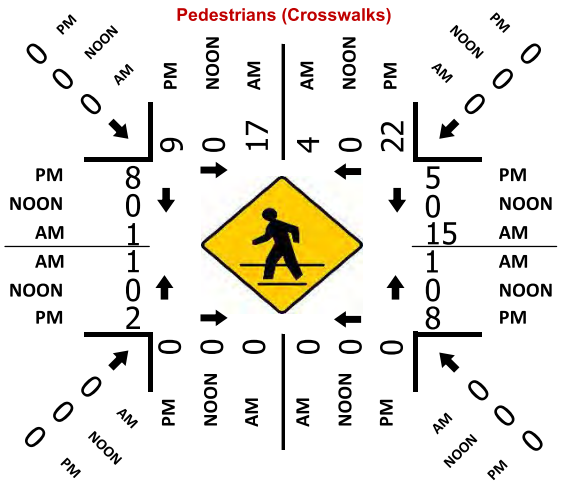
HT (NOON)



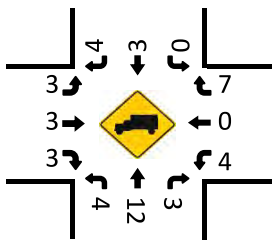
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

PCH (SR-1) & El Segundo Blvd

Peak Hour Turning Movement Count

ID: 24-020046-005
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (PCH (SR-1))

AM	133	971	88	14	2091	AM
NOON	0	0	0	0	0	NOON
PM	71	2052	101	9	1733	PM
	1	4	2	0		

EASTBOUND (El Segundo Blvd)

AM	NOON	PM	
744	0	698	
1	0	3	0
88	0	126	1
192	0	299	2
251	0	484	1

WESTBOUND (El Segundo Blvd)

PM	NOON	AM	
158	0	104	1
293	0	222	2
395	0	127	2
0	0	0	0
695	0	530	

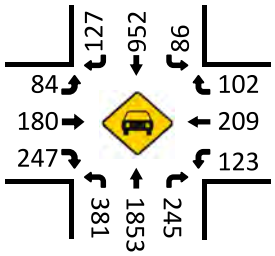
NORTHBOUND (PCH (SR-1))

PM	2968	37	331	1440	295	PM
NOON	0	0	0	0	0	NOON
AM	1376	27	388	1885	250	AM
	0	2	4	0		

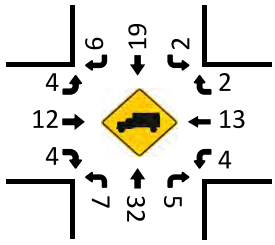
CONTROL: Signalized

TEV	4741	0	6094
	AM	NOON	PM
PHF	0.96		0.97

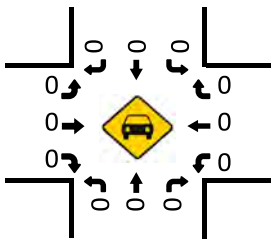
Cars (AM)



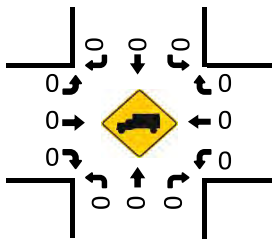
HT (AM)



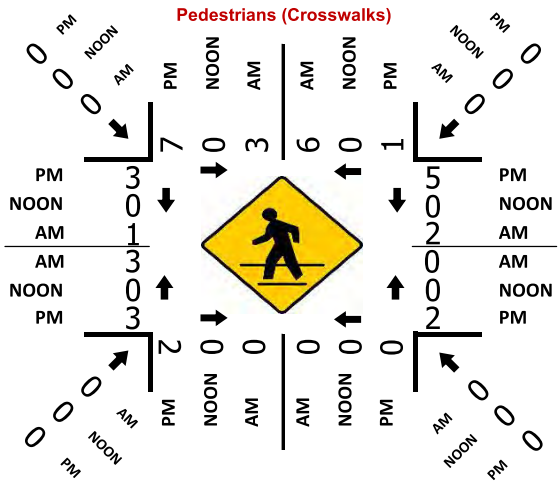
Cars (NOON)



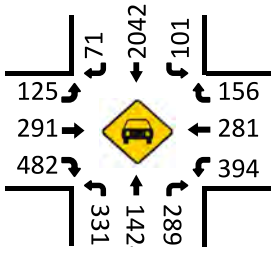
HT (NOON)



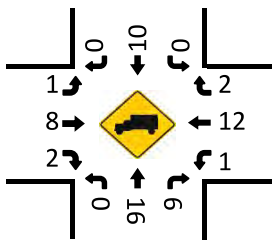
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Main St & Imperial Ave

Peak Hour Turning Movement Count

ID: 24-020046-006
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	4:00 PM - 06:00 PM

CONTROL: Signalized

	1780	0	1701
TEV	AM	NOON	PM
PHF	0.81		0.95

SOUTHBOUND (Main St)

AM	55	600	60	0	903	AM
NOON	0	0	0	0	0	NOON
PM	141	611	81	0	708	PM
	0	2	0	0		

EASTBOUND (Imperial Ave)

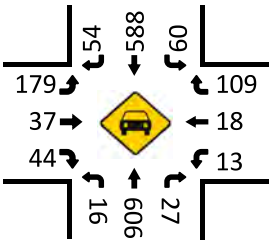
AM	NOON	PM	
91	0	187	
0	0	0	0
180	0	107	1
37	0	24	0.5
45	0	28	0.5
AM	NOON	PM	

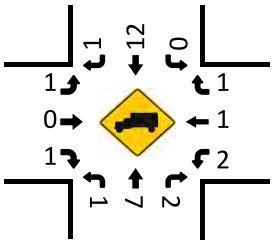
WESTBOUND (Imperial Ave)

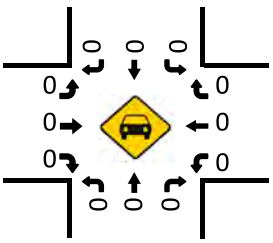
PM	NOON	AM	
65	0	110	0
22	0	19	1
27	0	15	0
0	0	0	0
140	0	126	
PM	NOON	AM	

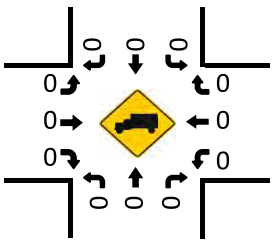
NORTHBOUND (Main St)

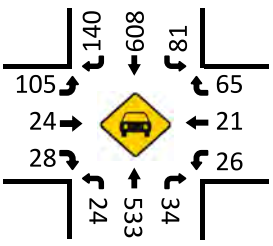
PM	666	0	24	536	35	PM
NOON	0	0	0	0	0	NOON
AM	660	0	17	613	29	AM
		0	0	2	0	

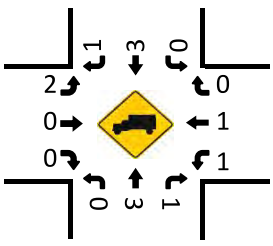


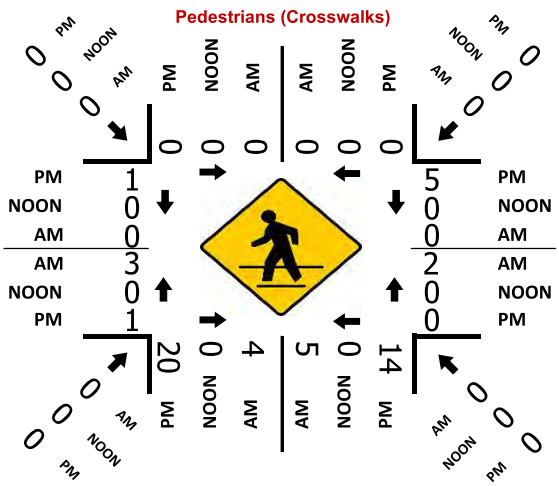












Prepared by National Data & Surveying Services

Main St & Maple Ave

Peak Hour Turning Movement Count

ID: 24-020046-007
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS	
AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Main St)

AM	18	619	37	0	621	AM
NOON	0	0	0	0	0	NOON
PM	15	589	29	0	649	PM

EASTBOUND (Maple Ave)

AM	NOON	PM		
56	0	72		
0	0	0	0	
65	0	29	0	
27	0	12	1	
25	0	27	0	
AM	NOON	PM		

WESTBOUND (Maple Ave)

PM	NOON	AM		
36	0	82	0	
25	0	19	1	
37	0	49	0	
0	0	0	0	
63	0	107		
PM	NOON	AM		

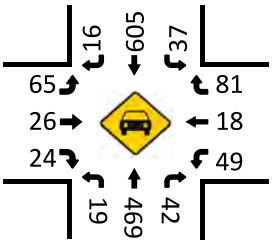
CONTROL: 4-Way Stop

TEV	1477 AM	0 NOON	1437 PM
PHF	0.75		0.92

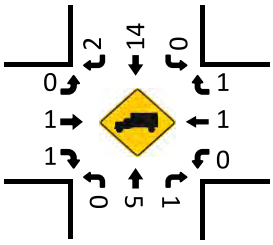
NORTHBOUND (Main St)

PM	653	0	32	584	22	PM
NOON	0	0	0	0	0	NOON
AM	693	0	19	474	43	AM

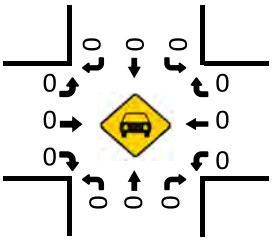
Cars (AM)



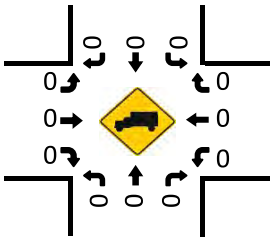
HT (AM)



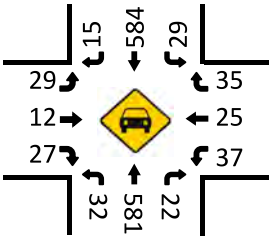
Cars (NOON)



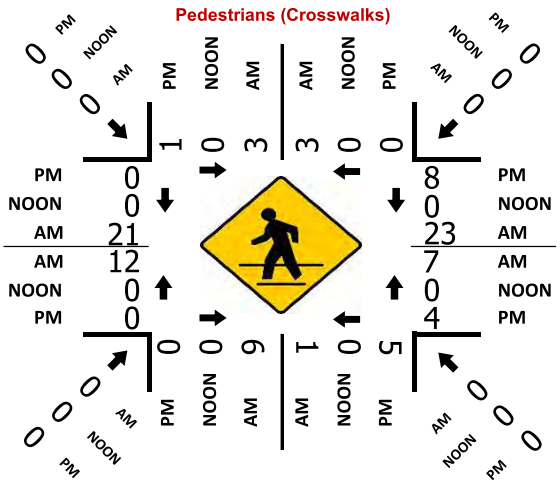
HT (NOON)



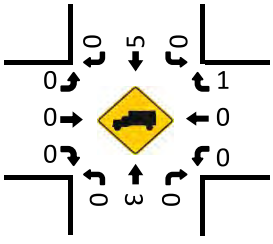
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

Main St & Mariposa Ave

Peak Hour Turning Movement Count

ID: 24-020046-008
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	4:00 PM - 06:00 PM

SOUTHBOUND (Main St)

AM	44	373	105	0	540	AM
NOON	0	0	0	0	0	NOON
PM	41	440	147	0	627	PM

EASTBOUND (Mariposa Ave)

AM	NOON	PM	
107	0	144	
0	0	0	0
63	0	66	0
59	0	70	1
26	0	30	0
AM	NOON	PM	

WESTBOUND (Mariposa Ave)

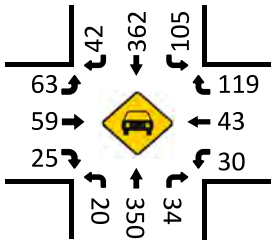
PM	NOON	AM	
117	0	120	0
80	0	43	1
48	0	30	0
0	0	0	0
262	0	198	
PM	NOON	AM	

NORTHBOUND (Main St)

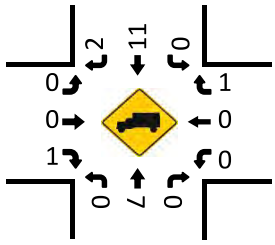
PM	518	0	23	444	45	PM
NOON	0	0	0	0	0	NOON
AM	429	0	20	357	34	AM

CONTROL			
Signalized			
TEV	1274 AM	0 NOON	1551 PM
PHF	0.81		0.92

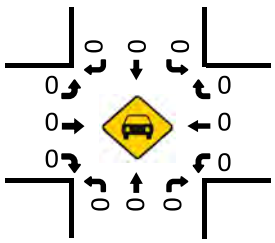
Cars (AM)



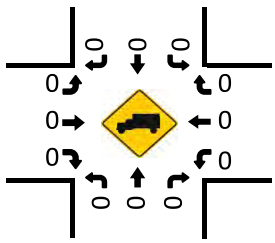
HT (AM)



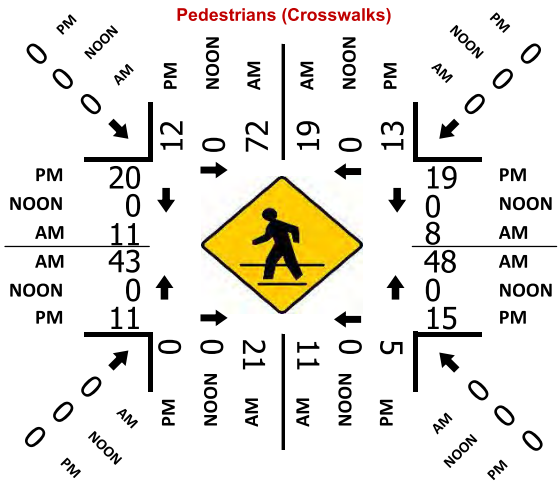
Cars (NOON)



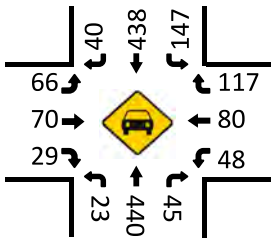
HT (NOON)



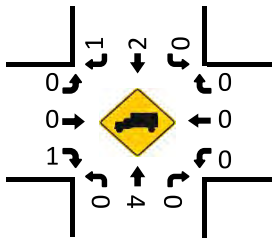
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Main St & Pine Ave

Peak Hour Turning Movement Count

ID: 24-020046-009
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS	
AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Main St)

AM	40	331	56	0	413	AM
NOON	0	0	0	0	0	NOON
PM	46	384	54	0	573	PM

EASTBOUND (Pine Ave)

AM	NOON	PM		
86	0	103		
0	0	0	0	
63	0	57	0	
56	0	24	1	
34	0	24	0	
AM	NOON	PM		

WESTBOUND (Pine Ave)

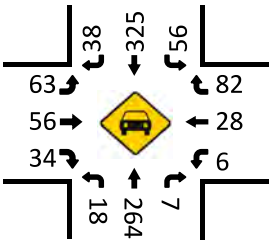
PM	NOON	AM	
84	0	83	0
19	0	28	1
10	0	6	0
0	0	0	0
85	0	119	
PM	NOON	AM	

NORTHBOUND (Main St)

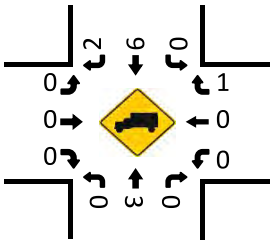
PM	418	0	38	432	7	PM
NOON	0	0	0	0	0	NOON
AM	371	0	18	267	7	AM

CONTROL			
4-Way Stop			
TEV	989 AM	0 NOON	1179 PM
PHF	0.87		0.92

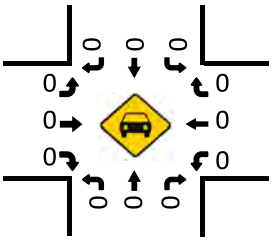
Cars (AM)



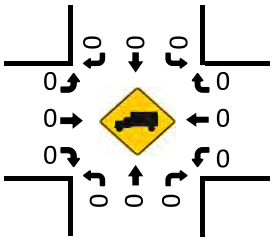
HT (AM)



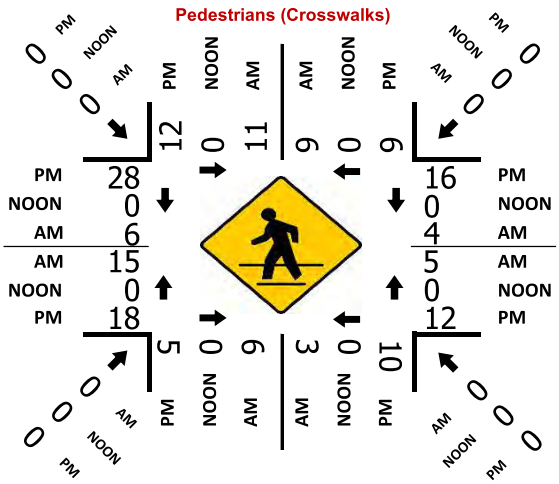
Cars (NOON)



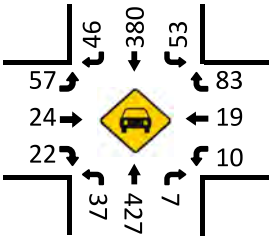
HT (NOON)



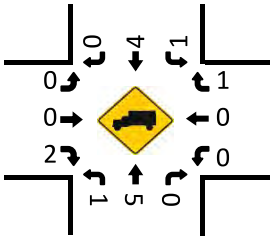
Pedestrians (Crosswalks)



Cars (PM)



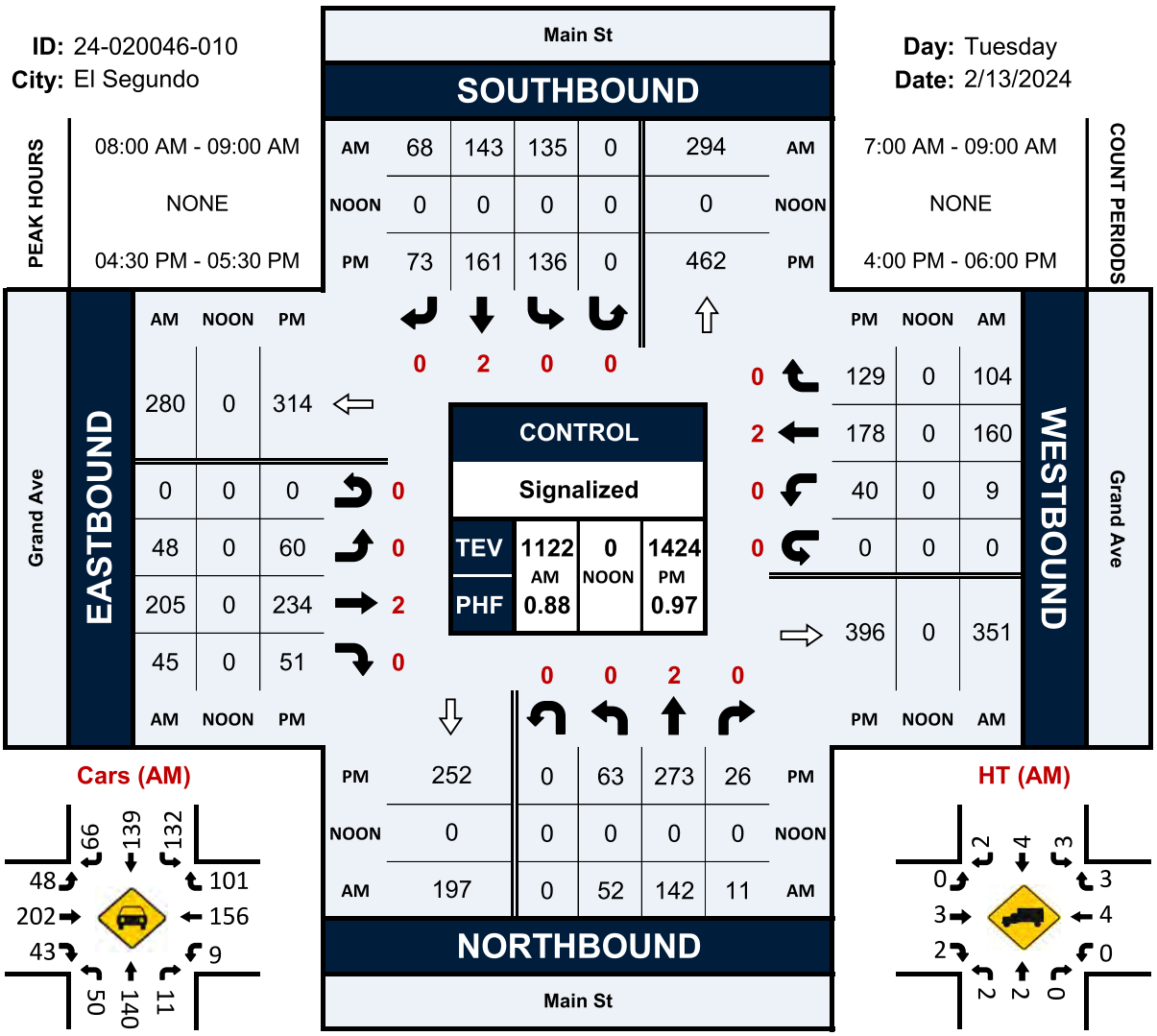
HT (PM)

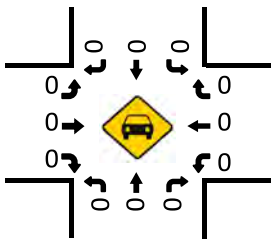


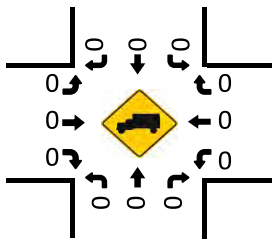
Prepared by National Data & Surveying Services

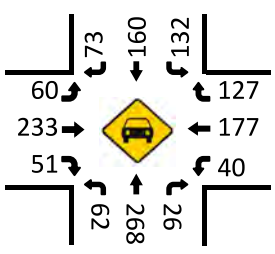
Main St & Grand Ave

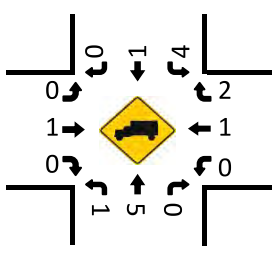
Peak Hour Turning Movement Count

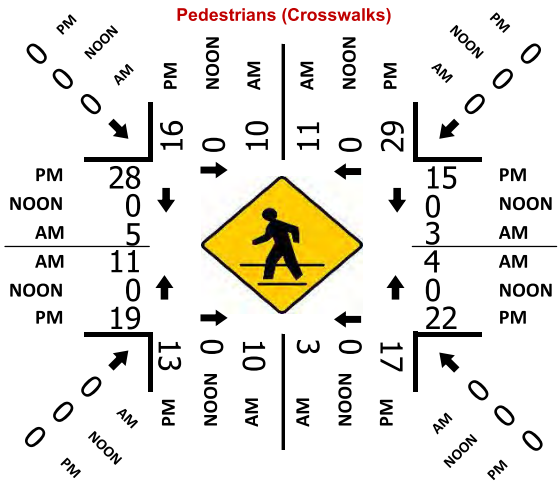












Prepared by National Data & Surveying Services

Main St & El Segundo Ave

Peak Hour Turning Movement Count

ID: 24-020046-011
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM: 07:45 AM - 08:45 AM
NOON: NONE
PM: 04:15 PM - 05:15 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Main St)

AM	4	0	120	0	149	AM
NOON	0	0	0	0	0	NOON
PM	24	0	178	0	238	PM

EASTBOUND (El Segundo Ave)

AM	NOON	PM	
129	0	199	⇦
1	0	0	0 ↶
4	0	49	0 ↱
179	0	297	1 →
0	0	0	0 ↷

WESTBOUND (El Segundo Ave)

PM	NOON	AM	
189	0	145	1 ↰
175	0	124	1 ←
0	0	0	0 ↶
0	0	0	0 ↷
475	0	299	⇨

NORTHBOUND (Main St)

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

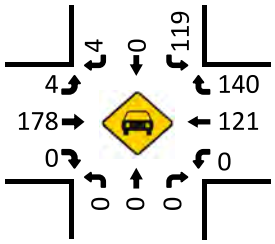
	0.5	0	1.5	0
	0	0	0	0

CONTROL

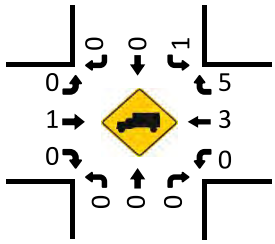
3-Way Stop(SB/EB/WB)

TEV	577 AM	0 NOON	912 PM
PHF	0.85		0.89

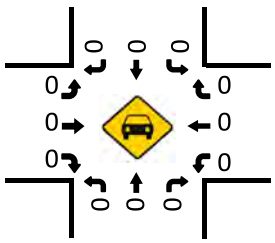
Cars (AM)



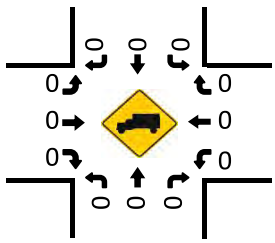
HT (AM)



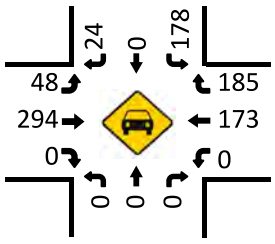
Cars (NOON)



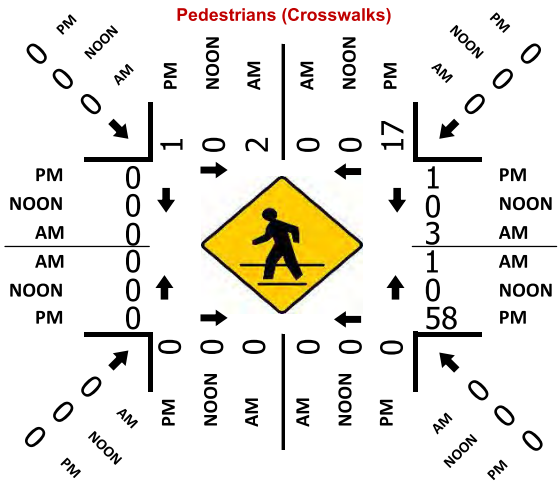
HT (NOON)



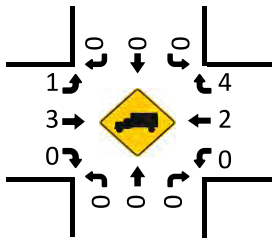
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

Whiting St & W Grand Ave

Peak Hour Turning Movement Count

ID: 24-020046-012
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Whiting St)

AM	8	12	14	0	38	AM
NOON	0	0	0	0	0	NOON
PM	9	20	12	0	58	PM

EASTBOUND (W Grand Ave)

AM	NOON	PM	
231	0	323	
0	0	0	0
5	0	17	0
219	0	240	2
46	0	24	0

WESTBOUND (W Grand Ave)

PM	NOON	AM	
15	0	14	0
250	0	205	2
7	0	5	0
0	0	0	0
258	0	238	

NORTHBOUND (Whiting St)

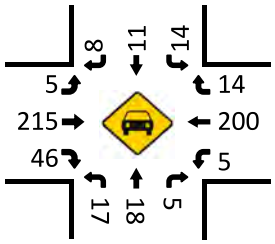
PM	51	0	64	26	6	PM
NOON	0	0	0	0	0	NOON
AM	63	0	18	19	5	AM

CONTROL

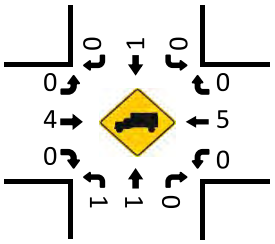
4-Way Stop

TEV	570	0	690
	AM	NOON	PM
PHF	0.93		0.89

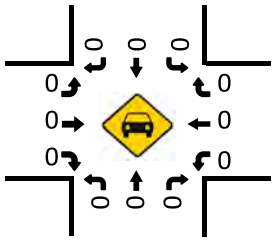
Cars (AM)



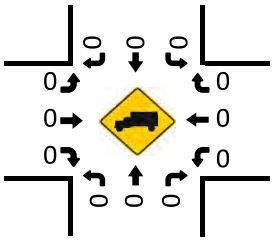
HT (AM)



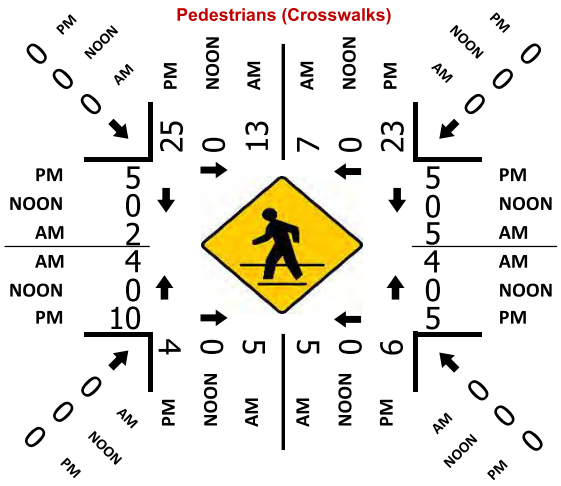
Cars (NOON)



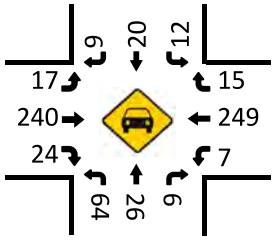
HT (NOON)



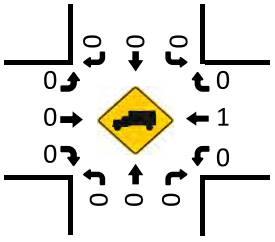
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Concord St & W Grand Ave

Peak Hour Turning Movement Count

ID: 24-020046-013
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Concord St)

AM	10	7	14	1	24	AM
NOON	0	0	0	0	0	NOON
PM	9	13	14	0	35	PM

EASTBOUND (W Grand Ave)

AM	NOON	PM	
212	0	287	
3	0	6	0
2	0	8	0
259	0	244	2
13	0	9	0
AM	NOON	PM	

WESTBOUND (W Grand Ave)

PM	NOON	AM	
16	0	10	0
260	0	187	2
11	0	7	0
8	0	12	0
277	0	297	
PM	NOON	AM	

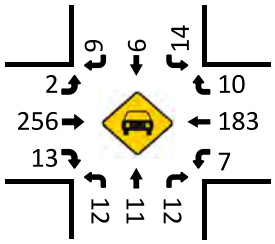
NORTHBOUND (Concord St)

PM	33	0	12	11	11	PM
NOON	0	0	0	0	0	NOON
AM	27	0	12	11	12	AM

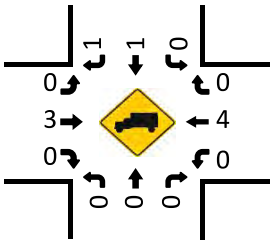
CONTROL: 4-Way Stop

		AM	NOON	PM
TEV	560	0	632	
PHF	0.90		0.94	

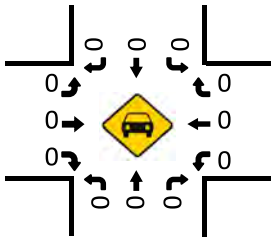
Cars (AM)



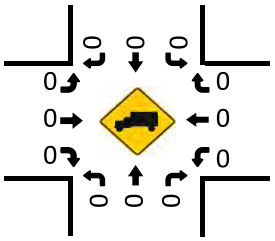
HT (AM)



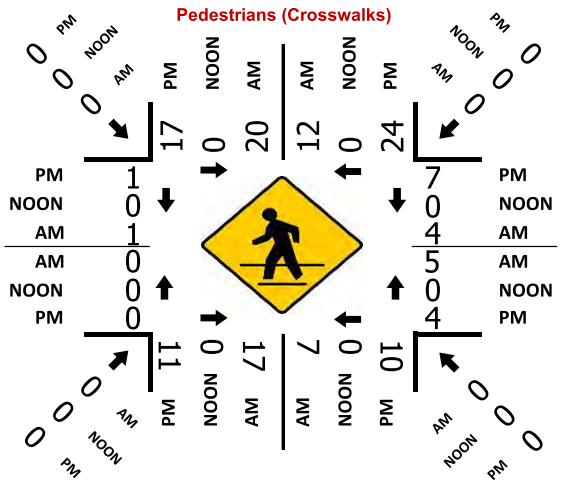
Cars (NOON)



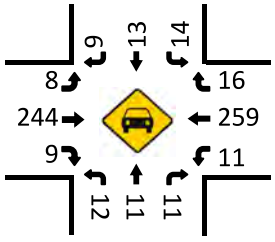
HT (NOON)



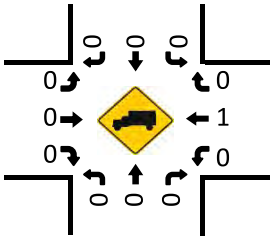
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Eucalyptus Dr & W Grand Ave

Peak Hour Turning Movement Count

ID: 24-020046-014
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM: 07:45 AM - 08:45 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Eucalyptus Dr)

AM	23	59	41	0	111	AM
NOON	0	0	0	0	0	NOON
PM	23	45	48	0	165	PM

EASTBOUND (W Grand Ave)

AM	NOON	PM	
278	0	346	
0	0	0	0
29	0	65	0
273	0	281	2
52	0	61	0
AM	NOON	PM	

WESTBOUND (W Grand Ave)

PM	NOON	AM	
35	0	52	0
289	0	225	2
47	0	14	0
0	0	0	0
352	0	328	
PM	NOON	AM	

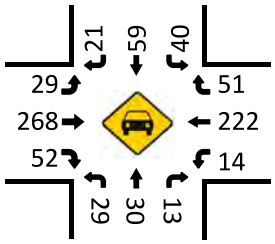
NORTHBOUND (Eucalyptus Dr)

PM	153	0	34	65	23	PM
NOON	0	0	0	0	0	NOON
AM	125	0	30	30	14	AM

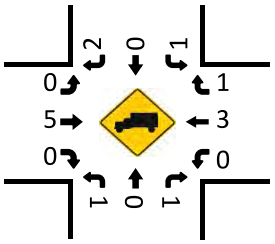
CONTROL: 4-Way Stop

TEV	842	0	1016
	AM	NOON	PM
PHF	0.80		0.98

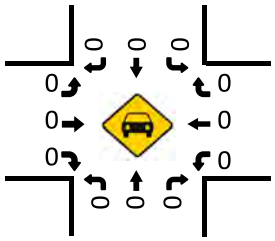
Cars (AM)



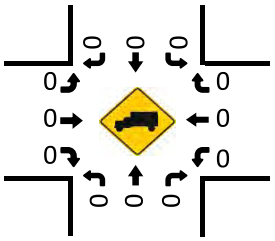
HT (AM)



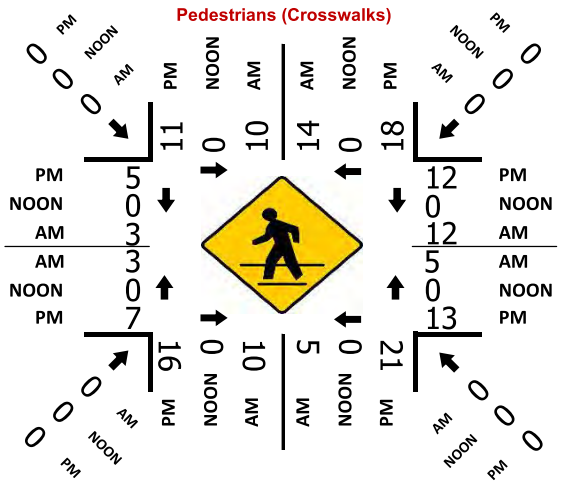
Cars (NOON)



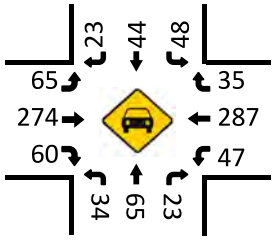
HT (NOON)



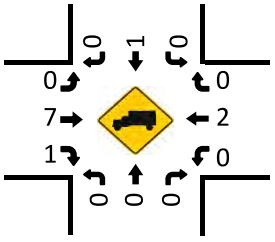
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Center St & W Grand Ave

Peak Hour Turning Movement Count

ID: 24-020046-015
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:15 PM - 05:15 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Center St)

AM	56	36	45	0	183	AM
NOON	0	0	0	0	0	NOON
PM	71	69	66	0	220	PM

EASTBOUND (W Grand Ave)

AM	NOON	PM		
285	0	425		
0	0	0	0	
75	0	61	0	
280	0	320	2	
27	0	13	0	
AM	NOON	PM		

WESTBOUND (W Grand Ave)

PM	NOON	AM	
61	0	68	0
327	0	217	2
10	0	21	0
0	0	0	0
413	0	352	
PM	NOON	AM	

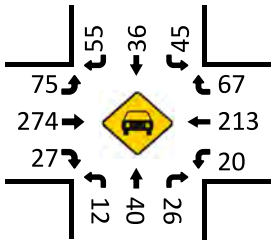
NORTHBOUND (Center St)

PM	92	0	27	98	27	PM
NOON	0	0	0	0	0	NOON
AM	84	0	12	40	27	AM

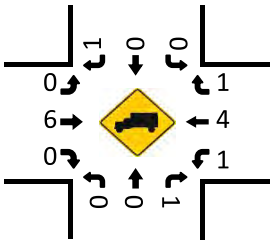
CONTROL: 4-Way Stop

TEV	904 AM	0 NOON	1150 PM
PHF	0.76		0.95

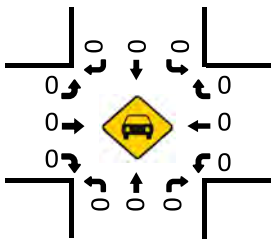
Cars (AM)



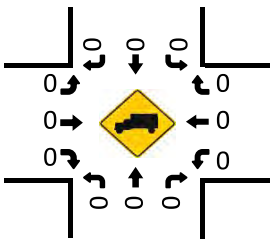
HT (AM)



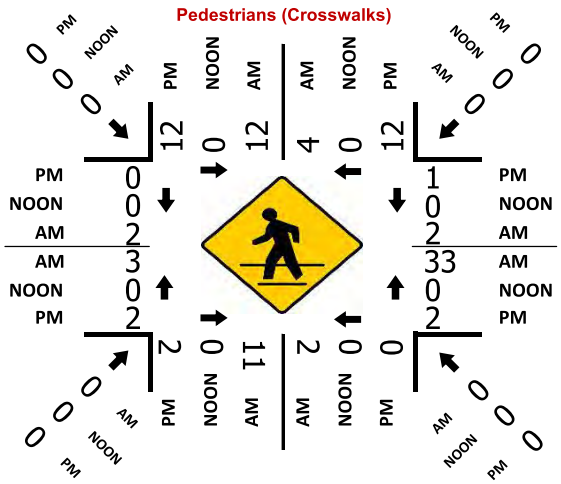
Cars (NOON)



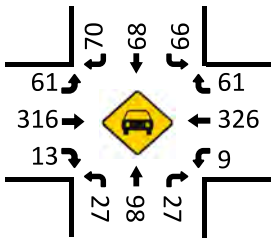
HT (NOON)



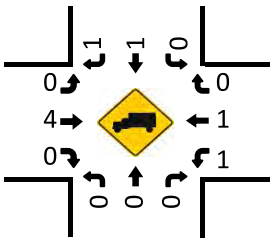
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Kansas St & W Grand Ave

Peak Hour Turning Movement Count

ID: 24-020046-016
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Kansas St)

AM	44	20	16	0	47	AM
NOON	0	0	0	0	0	NOON
PM	29	9	9	1	55	PM

EASTBOUND (W Grand Ave)

AM	NOON	PM		
367	0	444		
0	0	0	0	
22	0	21	0	
333	0	416	2	
21	0	8	0	
AM	NOON	PM		

WESTBOUND (W Grand Ave)

PM	NOON	AM		
			0	
14	0	15	0	
393	0	311	2	
27	0	37	0	
0	0	0	0	
501	0	365		
PM	NOON	AM		

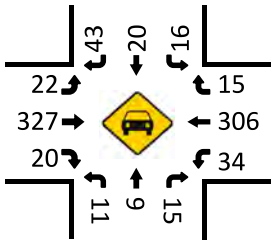
NORTHBOUND (Kansas St)

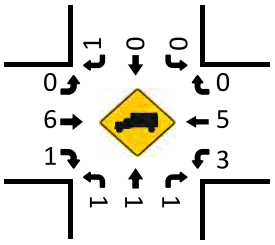
PM	44	0	22	19	76	PM
NOON	0	0	0	0	0	NOON
AM	78	0	12	10	16	AM

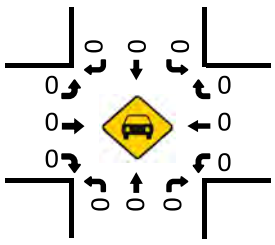
	0	0	1	0

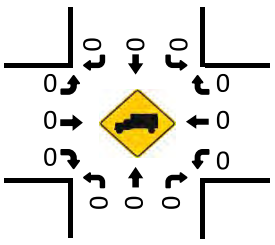
CONTROL: Signalized

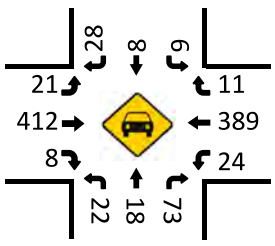
TEV	857 AM	0 NOON	1044 PM
PHF	0.85		0.93

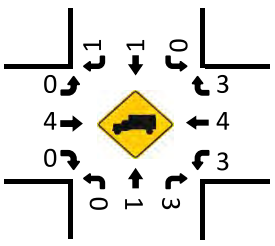


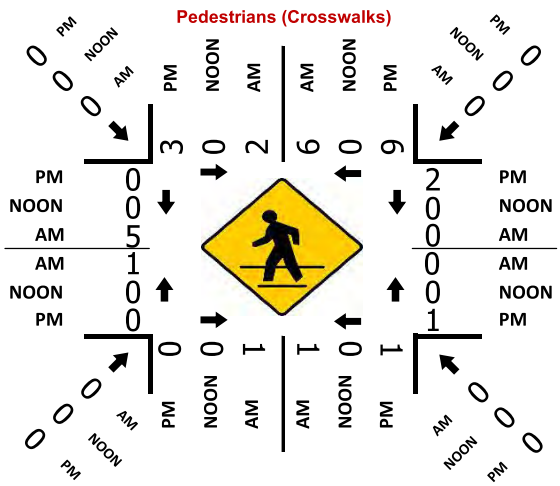












Prepared by National Data & Surveying Services

Maryland St & Grand Ave

Peak Hour Turning Movement Count

ID: 24-020046-017
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM: 07:45 AM - 08:45 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Maryland St)

AM	25	1	17	0	32	AM
NOON	0	0	0	0	0	NOON
PM	10	5	5	0	26	PM

EASTBOUND (Grand Ave)

AM	NOON	PM		
335	0	429		
0	0	0	0	
26	0	12	0	
343	0	380	2	
3	0	7	0	

WESTBOUND (Grand Ave)

PM	NOON	AM		
12	0	3	0	
416	0	305	2	
8	0	8	0	
0	0	0	0	
393	0	363		

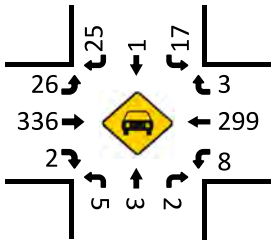
NORTHBOUND (Maryland St)

PM	20	0	3	2	8	PM
NOON	0	0	0	0	0	NOON
AM	12	0	5	3	3	AM

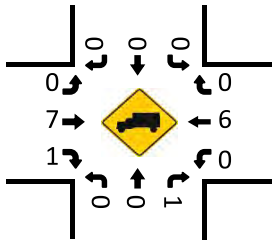
CONTROL: 2-Way Stop(NB/SB)

TEV	742	0	868
	AM	NOON	PM
PHF	0.71		0.96

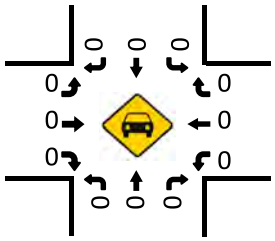
Cars (AM)



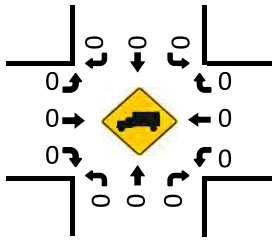
HT (AM)



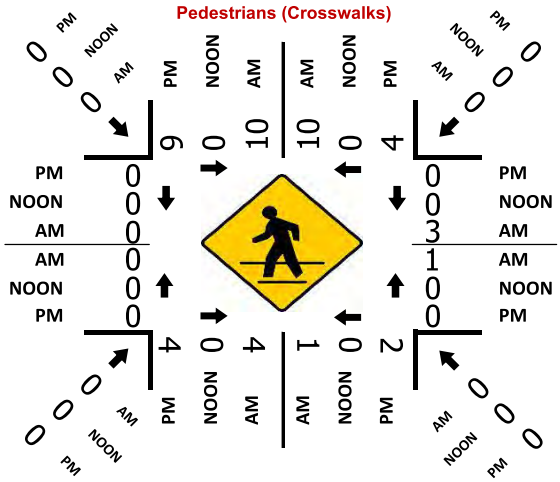
Cars (NOON)



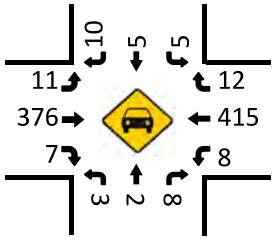
HT (NOON)



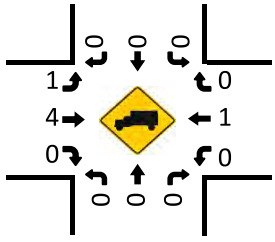
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Maryland St & Franklin Ave

Peak Hour Turning Movement Count

ID: 24-020046-018
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

CONTROL: 4-Way Stop

	AM	NOON	PM
TEV	79	0	120
PHF	0.73		0.81

SOUTHBOUND (Maryland St)

	L	T	R	U	Total	
AM	0	8	10	0	6	AM
NOON	0	0	0	0	0	NOON
PM	4	5	5	0	18	PM

EASTBOUND (Franklin Ave)

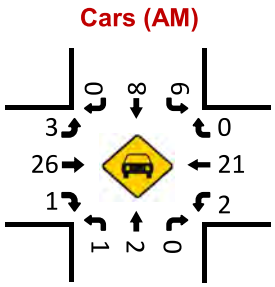
	L	T	R	U	
AM	1	0	0	0	1
NOON	3	0	6	0	9
PM	26	0	43	1	70
	2	0	5	0	7
	24	0	44	0	68

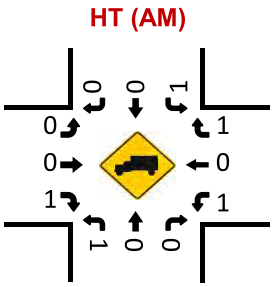
WESTBOUND (Franklin Ave)

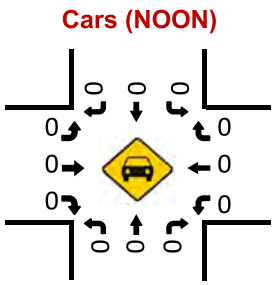
	L	T	R	U	
PM	8	0	1	0	9
NOON	40	0	21	1	61
AM	0	0	3	0	3
	0	0	0	0	0
	48	0	36	0	84

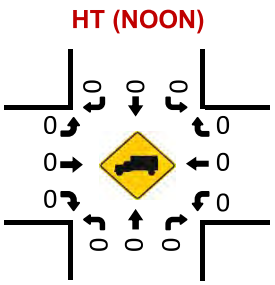
NORTHBOUND (Maryland St)

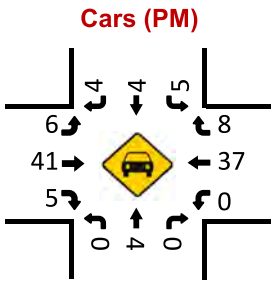
	L	T	R	U	Total	
PM	10	0	0	4	0	PM
NOON	0	0	0	0	0	NOON
AM	13	0	2	2	0	AM

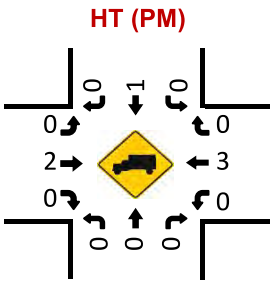


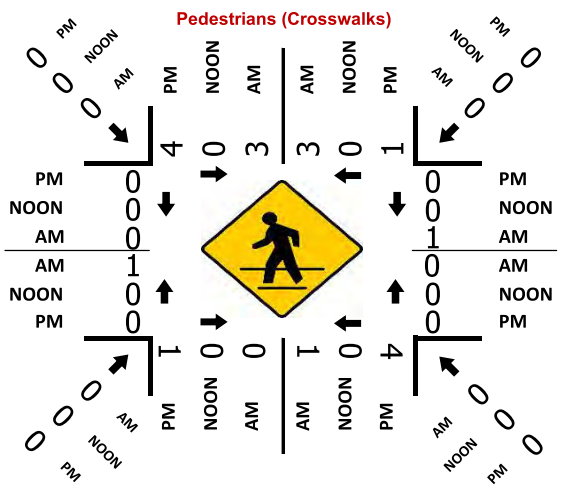












Prepared by National Data & Surveying Services

Center St & Mariposa Ave

Peak Hour Turning Movement Count

ID: 24-020046-019
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	4:00 PM - 06:00 PM

SOUTHBOUND (Center St)

AM	20	85	24	0	233	AM
NOON	0	0	0	0	0	NOON
PM	24	111	30	0	252	PM

EASTBOUND (Mariposa Ave)

AM	NOON	PM	
171	0	260	
0	0	0	0
37	0	20	0
138	0	143	1
40	0	28	0

WESTBOUND (Mariposa Ave)

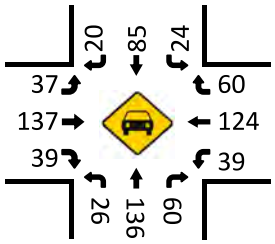
PM	NOON	AM	
34	0	60	0
212	0	125	1
69	0	39	0
0	0	0	0
239	0	222	

NORTHBOUND (Center St)

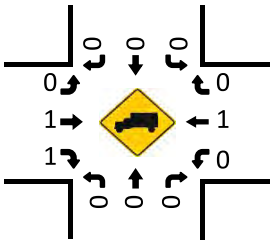
PM	208	0	24	198	66	PM
NOON	0	0	0	0	0	NOON
AM	164	0	26	136	60	AM

CONTROL			
4-Way Stop			
TEV	790	0	959
	AM	NOON	PM
PHF	0.80		0.99

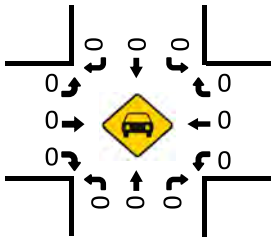
Cars (AM)



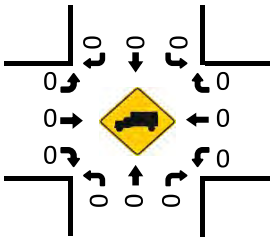
HT (AM)



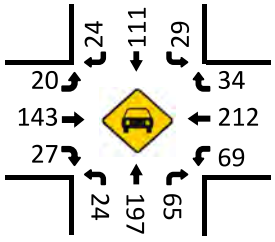
Cars (NOON)



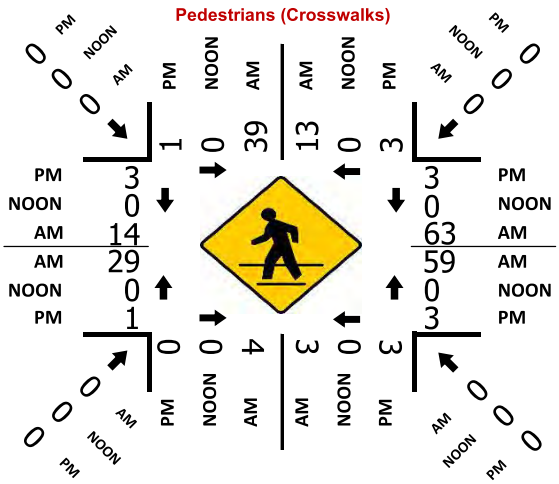
HT (NOON)



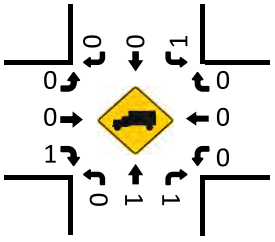
Cars (PM)



Pedestrians (Crosswalks)



HT (PM)



Prepared by National Data & Surveying Services

Center St & Pine Ave

Peak Hour Turning Movement Count

ID: 24-020046-020
City: El Segundo

Day: Tuesday
Date: 2/13/2024

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:15 PM - 05:15 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Center St)

	L	T	R	U	Total	
AM	36	132	0	0	214	AM
NOON	0	0	0	0	0	NOON
PM	50	167	0	0	268	PM

EASTBOUND (Pine Ave)

	L	T	R	U	Total	
AM	85	0	86		171	AM
NOON	0	0	0		0	NOON
PM	76	0	66		142	PM

WESTBOUND (Pine Ave)

	L	T	R	U	Total	
PM	0	0	0		0	PM
NOON	0	0	0		0	NOON
AM	0	0	0		0	AM

NORTHBOUND (Center St)

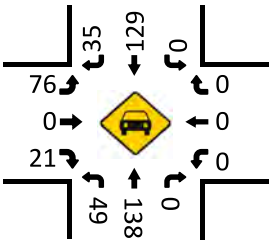
	L	T	R	U	Total	
PM	219	2	36	202	0	PM
NOON	0	0	0	0	0	NOON
AM	154	1	49	138	0	AM

CONTROL

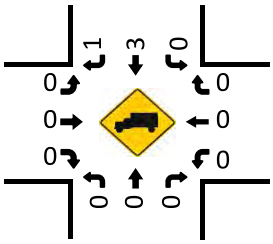
3-Way Stop(NB/SB/EB)

	AM	NOON	PM
TEV	453	0	573
PHF	0.66		0.91

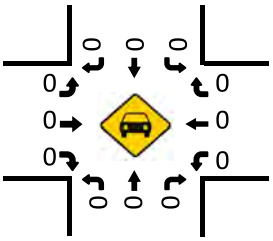
Cars (AM)



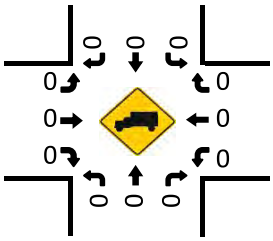
HT (AM)



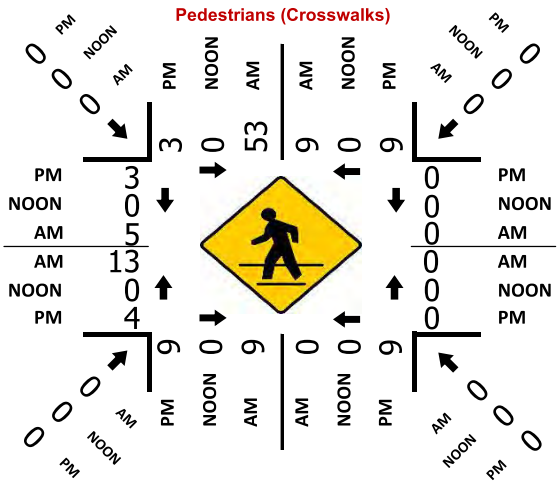
Cars (NOON)



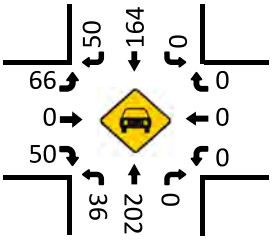
HT (NOON)



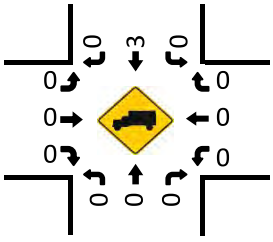
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Attachment B

Existing Conditions Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	65	15	30	13	7	8	4	56	1638	43	22	15
Future Volume (veh/h)	65	15	30	13	7	8	4	56	1638	43	22	15
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870
Adj Flow Rate, veh/h	66	15	31	13	7	8		57	1671	44		15
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	256	47	97	229	69	79		98	4024	106		34
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09		0.06	0.62	0.62		0.02
Sat Flow, veh/h	1398	544	1124	1360	796	910		1781	6494	171		1781
Grp Volume(v), veh/h	66	0	46	13	0	15		57	1242	473		15
Grp Sat Flow(s),veh/h/ln	1398	0	1668	1360	0	1707		1781	1609	1840		1781
Q Serve(g_s), s	2.2	0.0	1.3	0.4	0.0	0.4		1.5	6.5	6.5		0.4
Cycle Q Clear(g_c), s	2.6	0.0	1.3	1.7	0.0	0.4		1.5	6.5	6.5		0.4
Prop In Lane	1.00		0.67	1.00		0.53		1.00		0.09		1.00
Lane Grp Cap(c), veh/h	256	0	145	229	0	148		98	2990	1140		34
V/C Ratio(X)	0.26	0.00	0.32	0.06	0.00	0.10		0.58	0.42	0.42		0.45
Avail Cap(c_a), veh/h	719	0	696	679	0	712		417	4763	1816		272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	21.9	0.0	21.1	21.9	0.0	20.7		22.7	4.8	4.8		23.9
Incr Delay (d2), s/veh	0.5	0.0	1.2	0.1	0.0	0.3		5.4	0.1	0.2		9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.5	0.1	0.0	0.2		0.7	1.0	1.2		0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	0.0	22.3	22.0	0.0	21.0		28.0	4.9	5.0		32.9
LnGrp LOS	C	A	C	C	A	C		C	A	A		C
Approach Vol, veh/h		112			28				1772			
Approach Delay, s/veh		22.4			21.4				5.7			
Approach LOS		C			C				A			

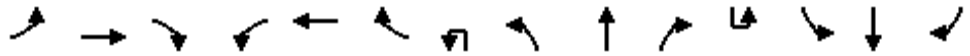
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	34.9		8.8	7.2	33.2		8.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	48.5		20.5	11.5	44.5		20.5				
Max Q Clear Time (g_c+I1), s	2.4	8.5		4.6	3.5	10.6		3.7				
Green Ext Time (p_c), s	0.0	16.1		0.3	0.0	18.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		6.7	
HCM 6th LOS		A	

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1731	178
Future Volume (veh/h)	1731	178
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	1766	182
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	2	2
Cap, veh/h	3484	359
Arrive On Green	0.58	0.58
Sat Flow, veh/h	5970	615
Grp Volume(v), veh/h	1427	521
Grp Sat Flow(s),veh/h/ln	1609	1760
Q Serve(g_s), s	8.6	8.6
Cycle Q Clear(g_c), s	8.6	8.6
Prop In Lane		0.35
Lane Grp Cap(c), veh/h	2816	1027
V/C Ratio(X)	0.51	0.51
Avail Cap(c_a), veh/h	4370	1594
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	6.1	6.1
Incr Delay (d2), s/veh	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.8
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	6.2	6.4
LnGrp LOS	A	A
Approach Vol, veh/h	1963	
Approach Delay, s/veh	6.5	
Approach LOS	A	
Timer - Assigned Phs		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	117	100	59	17	43	95	27	27	1515	137	9	143	1536	43
Future Volume (veh/h)	117	100	59	17	43	95	27	27	1515	137	9	143	1536	43
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	122	104	61	18	45	99		28	1578	143		149	1900	45
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	263	171	100	178	289	245		53	3376	306		190	4117	116
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15		0.03	0.56	0.56		0.11	0.64	0.64
Sat Flow, veh/h	1244	1105	648	1221	1870	1585		1781	6049	548		1781	6481	182
Grp Volume(v), veh/h	122	0	165	18	45	99		28	1259	462		149	1191	454
Grp Sat Flow(s),veh/h/ln	1244	0	1754	1221	1870	1585		1781	1609	1772		1781	1609	1838
Q Serve(g_s), s	7.0	0.0	6.6	1.0	1.6	4.2		1.2	11.7	11.7		6.1	8.9	8.9
Cycle Q Clear(g_c), s	8.6	0.0	6.6	7.6	1.6	4.2		1.2	11.7	11.7		6.1	8.9	8.9
Prop In Lane	1.00		0.37	1.00		1.00		1.00		0.31		1.00		0.10
Lane Grp Cap(c), veh/h	263	0	271	178	289	245		53	2693	989		190	3065	1167
V/C Ratio(X)	0.46	0.00	0.61	0.10	0.16	0.40		0.53	0.47	0.47		0.78	0.39	0.39
Avail Cap(c_a), veh/h	411	0	481	324	513	435		202	2693	989		441	3065	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	0.0	29.5	33.0	27.4	28.5		35.8	9.9	9.9		32.6	6.6	6.6
Incr Delay (d2), s/veh	1.3	0.0	2.2	0.2	0.2	1.1		8.1	0.6	1.6		7.0	0.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	2.9	0.3	0.7	1.6		0.6	3.5	4.1		2.8	2.3	2.9
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	32.4	0.0	31.7	33.3	27.6	29.6		43.9	10.5	11.5		39.5	7.0	7.6
LnGrp LOS	C	A	C	C	C	C		D	B	B		D	A	A
Approach Vol, veh/h		287			162				1749				1794	
Approach Delay, s/veh		32.0			29.4				11.3				9.8	
Approach LOS		C			C				B				A	

Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	12.5	46.2		16.1	6.7	52.0		16.1						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	8.5	37.5		20.5	8.5	47.5		20.5						
Max Q Clear Time (g_c+I1), s	8.6	13.7		10.6	3.2	10.9		9.6						
Green Ext Time (p_c), s	0.3	12.8		1.0	0.0	14.7		0.4						

Intersection Summary	
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.



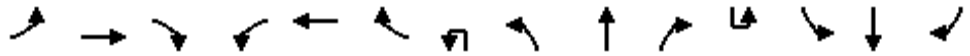
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	99	189	46	1	78	93	99	14	56	1451	110	29	169	1381	69
Future Volume (veh/h)	99	189	46	1	78	93	99	14	56	1451	110	29	169	1381	69
Initial Q (Qb), veh	0	0	0		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	105	201	49		83	99	105		60	1544	117		180	1469	73
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2		2	2	2		2	2	2
Cap, veh/h	136	253	62		107	296	251		87	2784	686		275	2932	146
Arrive On Green	0.08	0.17	0.17		0.06	0.16	0.16		0.05	0.43	0.43		0.08	0.46	0.46
Sat Flow, veh/h	1781	1453	354		1781	1870	1585		1781	6434	1585		3456	6325	314
Grp Volume(v), veh/h	105	0	250		83	99	105		60	1544	117		180	1120	422
Grp Sat Flow(s),veh/h/ln	1781	0	1807		1781	1870	1585		1781	1609	1585		1728	1609	1814
Q Serve(g_s), s	4.1	0.0	9.4		3.3	3.3	4.2		2.4	12.7	3.2		3.6	11.5	11.6
Cycle Q Clear(g_c), s	4.1	0.0	9.4		3.3	3.3	4.2		2.4	12.7	3.2		3.6	11.5	11.6
Prop In Lane	1.00		0.20		1.00		1.00		1.00		1.00		1.00		0.17
Lane Grp Cap(c), veh/h	136	0	315		107	296	251		87	2784	686		275	2237	841
V/C Ratio(X)	0.77	0.00	0.79		0.77	0.33	0.42		0.69	0.55	0.17		0.66	0.50	0.50
Avail Cap(c_a), veh/h	298	0	531		245	494	419		238	2784	686		510	2237	841
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	28.1		33.0	26.6	27.0		33.3	15.1	12.4		31.8	13.3	13.3
Incr Delay (d2), s/veh	8.8	0.0	4.5		11.1	0.7	1.1		9.3	0.8	0.5		2.6	0.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	4.4		1.7	1.4	1.6		1.2	4.2	1.1		1.5	3.7	4.5
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh	41.1	0.0	32.7		44.1	27.3	28.1		42.7	15.9	12.9		34.5	14.1	15.5
LnGrp LOS	D	A	C		D	C	C		D	B	B		C	B	B
Approach Vol, veh/h		355				287				1721				1722	
Approach Delay, s/veh		35.2				32.4				16.6				16.6	
Approach LOS		D				C				B				B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	35.3	8.8	16.9	8.0	37.5	9.9	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	30.8	9.8	20.9	9.5	31.8	11.9	18.8
Max Q Clear Time (g_c+I1), s	5.6	14.7	5.3	11.4	4.4	13.6	6.1	6.2
Green Ext Time (p_c), s	0.2	9.8	0.1	1.0	0.0	9.7	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	146	124	82	48	70	42	10	126	1419	404	17	168	1090	185
Future Volume (veh/h)	146	124	82	48	70	42	10	126	1419	404	17	168	1090	185
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	125	174	87	51	74	45		134	1510	430		179	1160	197
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	226	303	145	264	272	121		173	2442	602		226	2286	385
Arrive On Green	0.13	0.13	0.13	0.08	0.08	0.08		0.10	0.38	0.38		0.13	0.41	0.41
Sat Flow, veh/h	1781	2393	1142	3456	3554	1585		1781	6434	1585		1781	5585	942
Grp Volume(v), veh/h	125	134	127	51	74	45		134	1510	430		179	1001	356
Grp Sat Flow(s),veh/h/ln	1781	1870	1665	1728	1777	1585		1781	1609	1585		1781	1609	1701
Q Serve(g_s), s	4.1	4.2	4.5	0.9	1.2	1.7		4.5	11.8	14.3		6.0	9.6	9.7
Cycle Q Clear(g_c), s	4.1	4.2	4.5	0.9	1.2	1.7		4.5	11.8	14.3		6.0	9.6	9.7
Prop In Lane	1.00		0.69	1.00		1.00		1.00		1.00		1.00		0.55
Lane Grp Cap(c), veh/h	226	237	211	264	272	121		173	2442	602		226	1975	696
V/C Ratio(X)	0.55	0.57	0.60	0.19	0.27	0.37		0.78	0.62	0.71		0.79	0.51	0.51
Avail Cap(c_a), veh/h	518	544	484	1005	1033	461		319	2442	602		360	1975	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	25.4	25.6	26.8	27.0	27.2		27.3	15.6	16.4		26.3	13.6	13.7
Incr Delay (d2), s/veh	2.1	2.1	2.7	0.4	0.5	1.9		7.3	1.2	7.1		6.2	0.9	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.9	1.8	0.3	0.5	0.7		2.1	3.8	5.5		2.7	3.0	3.6
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	27.5	27.6	28.3	27.2	27.5	29.1		34.6	16.8	23.5		32.5	14.6	16.3
LnGrp LOS	C	C	C	C	C	C		C	B	C		C	B	B
Approach Vol, veh/h		386			170				2074				1536	
Approach Delay, s/veh		27.8			27.8				19.3				17.1	
Approach LOS		C			C				B				B	

Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	12.3	28.0		12.3	10.5	29.8		9.2						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	12.5	23.5		18.0	11.1	24.9		18.0						
Max Q Clear Time (g_c+I1), s	13.8	16.3		6.5	6.5	11.7		3.7						
Green Ext Time (p_c), s	0.2	5.6		1.4	0.1	7.1		0.5						

Intersection Summary	
HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	1	88	192	251	127	222	104	27	388	1885	250	14	88	971	133
Future Volume (veh/h)	1	88	192	251	127	222	104	27	388	1885	250	14	88	971	133
Initial Q (Qb), veh		0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		92	200	261	132	231	108		404	1964	260		92	1011	139
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h		118	694	310	206	669	298		509	2740	362		184	2440	601
Arrive On Green		0.07	0.20	0.20	0.06	0.19	0.19		0.15	0.47	0.47		0.05	0.38	0.38
Sat Flow, veh/h		1781	3554	1585	3456	3554	1585		3456	5792	766		3456	6434	1585
Grp Volume(v), veh/h		92	200	261	132	231	108		404	1636	588		92	1011	139
Grp Sat Flow(s),veh/h/ln		1781	1777	1585	1728	1777	1585		1728	1609	1733		1728	1609	1585
Q Serve(g_s), s		4.2	3.9	13.0	3.1	4.6	4.9		9.3	22.2	22.3		2.1	9.5	4.9
Cycle Q Clear(g_c), s		4.2	3.9	13.0	3.1	4.6	4.9		9.3	22.2	22.3		2.1	9.5	4.9
Prop In Lane		1.00		1.00	1.00		1.00		1.00		0.44		1.00		1.00
Lane Grp Cap(c), veh/h		118	694	310	206	669	298		509	2283	820		184	2440	601
V/C Ratio(X)		0.78	0.29	0.84	0.64	0.35	0.36		0.79	0.72	0.72		0.50	0.41	0.23
Avail Cap(c_a), veh/h		206	877	391	307	782	349		756	2283	820		231	2440	601
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		37.8	28.2	31.9	37.8	29.0	29.1		33.9	17.3	17.3		37.9	18.8	17.4
Incr Delay (d2), s/veh		10.3	0.2	12.7	3.3	0.3	0.7		3.5	2.0	5.4		2.1	0.5	0.9
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	1.6	5.8	1.3	1.9	1.8		3.9	7.6	9.0		0.9	3.3	1.8
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		48.1	28.4	44.6	41.1	29.3	29.8		37.4	19.2	22.6		39.9	19.3	18.3
LnGrp LOS		D	C	D	D	C	C		D	B	C		D	B	B
Approach Vol, veh/h			553			471				2628				1242	
Approach Delay, s/veh			39.3			32.7				22.8				20.7	
Approach LOS			D			C				C				C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	43.4	9.4	20.6	16.6	35.7	10.0	20.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	38.9	7.3	20.3	18.0	26.4	9.5	18.1
Max Q Clear Time (g_c+I1), s	4.1	24.3	5.1	15.0	11.3	11.5	6.2	6.9
Green Ext Time (p_c), s	0.0	11.5	0.1	1.0	0.8	6.3	0.1	1.3

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	37	45	15	19	110	17	613	29	60	600	55
Future Volume (veh/h)	180	37	45	15	19	110	17	613	29	60	600	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	46	56	19	23	136	21	757	36	74	741	68
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	477	155	189	117	59	249	111	1896	89	192	1638	146
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1227	768	935	88	292	1230	30	3306	155	152	2858	254
Grp Volume(v), veh/h	222	0	102	178	0	0	425	0	389	439	0	444
Grp Sat Flow(s),veh/h/ln	1227	0	1702	1610	0	0	1817	0	1674	1607	0	1656
Q Serve(g_s), s	1.2	0.0	2.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	6.3
Cycle Q Clear(g_c), s	5.1	0.0	2.0	3.9	0.0	0.0	5.0	0.0	5.2	5.3	0.0	6.3
Prop In Lane	1.00		0.55	0.11		0.76	0.05		0.09	0.17		0.15
Lane Grp Cap(c), veh/h	477	0	344	425	0	0	1136	0	960	1026	0	950
V/C Ratio(X)	0.46	0.00	0.30	0.42	0.00	0.00	0.37	0.00	0.41	0.43	0.00	0.47
Avail Cap(c_a), veh/h	780	0	764	814	0	0	1136	0	960	1026	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	13.6	14.3	0.0	0.0	4.7	0.0	4.8	4.8	0.0	5.0
Incr Delay (d2), s/veh	0.7	0.0	0.5	0.7	0.0	0.0	0.9	0.0	1.3	1.3	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.7	1.3	0.0	0.0	1.5	0.0	1.4	1.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	0.0	14.1	15.0	0.0	0.0	5.7	0.0	6.0	6.1	0.0	6.6
LnGrp LOS	B	A	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		324			178			814			883	
Approach Delay, s/veh		15.0			15.0			5.8			6.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	27.5	12.6	27.5	12.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	23.0	18.0	23.0	18.0
Max Q Clear Time (g_c+I1), s	7.2	7.1	8.3	5.9
Green Ext Time (p_c), s	5.0	1.1	5.6	0.8

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	35.7
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	27	25	49	19	82	19	474	43	37	619	18
Future Vol, veh/h	65	27	25	49	19	82	19	474	43	37	619	18
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	87	36	33	65	25	109	25	632	57	49	825	24
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	15.5	16.3	28.9	48.9
HCM LOS	C	C	D	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	7%	0%	56%	33%	11%	0%
Vol Thru, %	93%	85%	23%	13%	89%	95%
Vol Right, %	0%	15%	21%	55%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	256	280	117	150	347	328
LT Vol	19	0	65	49	37	0
Through Vol	237	237	27	19	310	310
RT Vol	0	43	25	82	0	18
Lane Flow Rate	341	373	156	200	462	437
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.715	0.766	0.351	0.425	0.942	0.879
Departure Headway (Hd)	7.539	7.39	8.098	7.653	7.337	7.243
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	481	489	445	472	494	502
Service Time	5.286	5.137	6.136	5.689	5.083	4.988
HCM Lane V/C Ratio	0.709	0.763	0.351	0.424	0.935	0.871
HCM Control Delay	27.1	30.5	15.5	16.3	54.5	43
HCM Lane LOS	D	D	C	C	F	E
HCM 95th-tile Q	5.6	6.7	1.6	2.1	11.5	9.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	59	26	30	43	120	20	357	34	105	373	44
Future Volume (veh/h)	63	59	26	30	43	120	20	357	34	105	373	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	73	32	37	53	148	25	441	42	130	460	54
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	183	64	154	100	220	146	1620	150	387	1205	140
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	545	842	294	156	460	1012	61	3105	287	459	2309	268
Grp Volume(v), veh/h	183	0	0	238	0	0	267	0	241	310	0	334
Grp Sat Flow(s),veh/h/ln	1681	0	0	1628	0	0	1803	0	1650	1382	0	1654
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	2.8	0.9	0.0	4.2
Cycle Q Clear(g_c), s	3.0	0.0	0.0	4.5	0.0	0.0	2.7	0.0	2.8	3.7	0.0	4.2
Prop In Lane	0.43		0.17	0.16		0.62	0.09		0.17	0.42		0.16
Lane Grp Cap(c), veh/h	514	0	0	474	0	0	1055	0	861	869	0	863
V/C Ratio(X)	0.36	0.00	0.00	0.50	0.00	0.00	0.25	0.00	0.28	0.36	0.00	0.39
Avail Cap(c_a), veh/h	959	0	0	956	0	0	1055	0	861	869	0	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	12.3	0.0	0.0	4.6	0.0	4.6	4.7	0.0	4.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.8	0.0	0.0	0.6	0.0	0.8	1.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.4	0.0	0.0	0.8	0.0	0.7	1.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	0.0	0.0	13.1	0.0	0.0	5.2	0.0	5.4	5.9	0.0	6.2
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		183			238			508			644	
Approach Delay, s/veh		12.2			13.1			5.3			6.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	12.0	22.5	12.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.8	5.0	6.2	6.5
Green Ext Time (p_c), s	2.7	0.9	3.6	1.1

Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	56	34	6	28	83	18	267	7	56	331	40
Future Vol, veh/h	63	56	34	6	28	83	18	267	7	56	331	40
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	64	39	7	32	95	21	307	8	64	380	46
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.9	10.7	11.5	12.9
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	12%	0%	41%	5%	25%	0%
Vol Thru, %	88%	95%	37%	24%	75%	81%
Vol Right, %	0%	5%	22%	71%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	152	141	153	117	222	206
LT Vol	18	0	63	6	56	0
Through Vol	134	134	56	28	166	166
RT Vol	0	7	34	83	0	40
Lane Flow Rate	174	161	176	134	255	236
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.303	0.276	0.302	0.222	0.433	0.384
Departure Headway (Hd)	6.255	6.159	6.182	5.939	6.123	5.857
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	573	581	579	601	586	612
Service Time	4.015	3.919	4.246	4.008	3.878	3.612
HCM Lane V/C Ratio	0.304	0.277	0.304	0.223	0.435	0.386
HCM Control Delay	11.7	11.3	11.9	10.7	13.5	12.2
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.3	1.1	1.3	0.8	2.2	1.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	205	45	9	160	104	52	142	11	135	143	68
Future Volume (veh/h)	48	205	45	9	160	104	52	142	11	135	143	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	233	51	10	182	118	59	161	12	153	162	77
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	496	111	121	437	266	477	1226	94	673	687	338
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	287	2311	515	45	2037	1237	613	2341	179	935	1313	646
Grp Volume(v), veh/h	180	0	159	169	0	141	120	0	112	203	0	189
Grp Sat Flow(s),veh/h/ln	1504	0	1609	1839	0	1479	1464	0	1670	1308	0	1586
Q Serve(g_s), s	0.9	0.0	3.0	0.0	0.0	2.8	0.0	0.0	1.2	2.1	0.0	2.2
Cycle Q Clear(g_c), s	3.7	0.0	3.0	2.7	0.0	2.8	2.2	0.0	1.2	3.3	0.0	2.2
Prop In Lane	0.31		0.32	0.06		0.84	0.49		0.11	0.75		0.41
Lane Grp Cap(c), veh/h	460	0	346	506	0	318	922	0	874	868	0	830
V/C Ratio(X)	0.39	0.00	0.46	0.33	0.00	0.44	0.13	0.00	0.13	0.23	0.00	0.23
Avail Cap(c_a), veh/h	931	0	843	1060	0	775	922	0	874	868	0	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	11.8	11.7	0.0	11.7	4.2	0.0	4.2	4.7	0.0	4.4
Incr Delay (d2), s/veh	0.5	0.0	1.0	0.4	0.0	1.0	0.3	0.0	0.3	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.9	0.9	0.0	0.8	0.3	0.0	0.3	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	0.0	12.7	12.0	0.0	12.7	4.5	0.0	4.5	5.3	0.0	5.1
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		339			310			232			392	
Approach Delay, s/veh		12.6			12.3			4.5			5.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	11.9	22.5	11.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.2	5.7	5.3	4.8
Green Ext Time (p_c), s	1.1	1.7	2.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	1	4	179	124	145	120	4
Future Vol, veh/h	1	4	179	124	145	120	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	1	5	211	146	171	141	5
Number of Lanes	0	0	1	1	1	2	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	10.4	8.8	10
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	0%	0%	100%	91%
Vol Thru, %	98%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	9%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	184	124	145	80	44
LT Vol	4	0	0	80	40
Through Vol	180	124	0	0	0
RT Vol	0	0	145	0	4
Lane Flow Rate	216	146	171	94	52
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.307	0.21	0.212	0.163	0.088
Departure Headway (Hd)	5.112	5.186	4.481	6.252	6.142
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	701	691	798	571	581
Service Time	3.156	2.926	2.221	4.017	3.907
HCM Lane V/C Ratio	0.308	0.211	0.214	0.165	0.09
HCM Control Delay	10.4	9.3	8.4	10.2	9.5
HCM Lane LOS	B	A	A	B	A
HCM 95th-tile Q	1.3	0.8	0.8	0.6	0.3

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	219	46	5	205	14	18	19	5	14	12	8
Future Vol, veh/h	5	219	46	5	205	14	18	19	5	14	12	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	235	49	5	220	15	19	20	5	15	13	9
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.8	8.7	8.6	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	43%	4%	0%	5%	0%	41%
Vol Thru, %	45%	96%	70%	95%	88%	35%
Vol Right, %	12%	0%	30%	0%	12%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	115	156	108	117	34
LT Vol	18	5	0	5	0	14
Through Vol	19	110	110	103	103	12
RT Vol	5	0	46	0	14	8
Lane Flow Rate	45	123	167	116	125	37
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.065	0.17	0.22	0.161	0.171	0.052
Departure Headway (Hd)	5.166	4.975	4.745	5.016	4.908	5.107
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	693	721	757	716	732	700
Service Time	3.203	2.702	2.472	2.744	2.636	3.145
HCM Lane V/C Ratio	0.065	0.171	0.221	0.162	0.171	0.053
HCM Control Delay	8.6	8.7	8.8	8.7	8.7	8.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.6	0.8	0.6	0.6	0.2

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Vol, veh/h	3	3	254	13	7	10	186	15	12	10	15	1	13	9	9
Future Vol, veh/h	3	3	254	13	7	10	186	15	12	10	15	1	13	9	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	282	14	8	11	207	17	13	11	17	1	14	10	10
Number of Lanes	0	0	2	0	0	0	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.9	8.7	8.3	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	2%	0%	10%	0%	42%
Vol Thru, %	27%	98%	91%	90%	86%	29%
Vol Right, %	41%	0%	9%	0%	14%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	133	140	110	108	32
LT Vol	12	3	0	11	0	13
Through Vol	10	130	127	99	93	9
RT Vol	15	0	13	0	15	9
Lane Flow Rate	41	148	156	122	120	36
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.057	0.203	0.211	0.171	0.163	0.05
Departure Headway (Hd)	5.008	4.95	4.873	5.041	4.895	5.105
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	715	726	737	713	734	701
Service Time	3.042	2.672	2.595	2.764	2.618	3.139
HCM Lane V/C Ratio	0.057	0.204	0.212	0.171	0.163	0.051
HCM Control Delay	8.3	8.9	8.9	8.8	8.6	8.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.8	0.8	0.6	0.6	0.2

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	273	52	14	225	52	30	30	14	41	59	23
Future Vol, veh/h	29	273	52	14	225	52	30	30	14	41	59	23
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	341	65	18	281	65	38	38	18	51	74	29
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.5	11	10.4	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	41%	18%	0%	11%	0%	33%
Vol Thru, %	41%	82%	72%	89%	68%	48%
Vol Right, %	19%	0%	28%	0%	32%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	166	189	127	165	123
LT Vol	30	29	0	14	0	41
Through Vol	30	137	137	113	113	59
RT Vol	14	0	52	0	52	23
Lane Flow Rate	92	207	236	158	206	154
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.158	0.337	0.365	0.261	0.323	0.255
Departure Headway (Hd)	6.145	5.868	5.583	5.932	5.652	5.98
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	583	612	643	606	635	600
Service Time	4.196	3.605	3.32	3.671	3.39	4.027
HCM Lane V/C Ratio	0.158	0.338	0.367	0.261	0.324	0.257
HCM Control Delay	10.4	11.6	11.5	10.8	11.1	11.1
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	0.6	1.5	1.7	1	1.4	1

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	280	27	21	217	68	12	40	27	45	36	56
Future Vol, veh/h	75	280	27	21	217	68	12	40	27	45	36	56
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	368	36	28	286	89	16	53	36	59	47	74
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	13.5	11.9	10.9	11.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	15%	35%	0%	16%	0%	33%
Vol Thru, %	51%	65%	84%	84%	61%	26%
Vol Right, %	34%	0%	16%	0%	39%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	215	167	130	177	137
LT Vol	12	75	0	21	0	45
Through Vol	40	140	140	109	109	36
RT Vol	27	0	27	0	68	56
Lane Flow Rate	104	283	220	170	232	180
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.183	0.486	0.36	0.295	0.379	0.307
Departure Headway (Hd)	6.347	6.183	5.891	6.23	5.874	6.135
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	562	583	609	574	611	584
Service Time	4.423	3.937	3.645	3.989	3.632	4.2
HCM Lane V/C Ratio	0.185	0.485	0.361	0.296	0.38	0.308
HCM Control Delay	10.9	14.7	12	11.6	12.2	11.9
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	0.7	2.6	1.6	1.2	1.8	1.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	333	21	37	311	15	12	10	16	16	20	44
Future Volume (veh/h)	22	333	21	37	311	15	12	10	16	16	20	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1781	1781	1781	1870	1870	1870
Adj Flow Rate, veh/h	26	392	25	44	366	18	14	12	19	19	24	52
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	2	2	2
Cap, veh/h	136	750	47	162	695	35	311	268	326	222	277	456
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	99	3153	198	169	2919	146	351	528	642	197	545	897
Grp Volume(v), veh/h	233	0	210	221	0	207	45	0	0	95	0	0
Grp Sat Flow(s),veh/h/ln	1784	0	1666	1559	0	1676	1521	0	0	1639	0	0
Q Serve(g_s), s	0.0	0.0	3.9	0.6	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.8	0.0	3.9	4.5	0.0	3.8	0.5	0.0	0.0	1.0	0.0	0.0
Prop In Lane	0.11		0.12	0.20		0.09	0.31		0.42	0.20		0.55
Lane Grp Cap(c), veh/h	537	0	396	493	0	399	906	0	0	954	0	0
V/C Ratio(X)	0.43	0.00	0.53	0.45	0.00	0.52	0.05	0.00	0.00	0.10	0.00	0.00
Avail Cap(c_a), veh/h	998	0	847	919	0	851	906	0	0	954	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	0.0	11.8	11.8	0.0	11.7	4.4	0.0	0.0	4.5	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	1.1	0.6	0.0	1.0	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.2	1.2	0.0	1.2	0.1	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	12.9	12.4	0.0	12.8	4.5	0.0	0.0	4.7	0.0	0.0
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		443			428			45			95	
Approach Delay, s/veh		12.6			12.6			4.5			4.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	12.9	22.5	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	5.9	3.0	6.5
Green Ext Time (p_c), s	0.1	2.0	0.4	1.9

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	343	3	8	305	3	5	3	3	17	1	25
Future Vol, veh/h	26	343	3	8	305	3	5	3	3	17	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2	9	9	9	2	2	2
Mvmt Flow	37	483	4	11	430	4	7	4	4	24	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	434	0	0	487	0	0	797	1015	244	772	1015	217
Stage 1	-	-	-	-	-	-	559	559	-	454	454	-
Stage 2	-	-	-	-	-	-	238	456	-	318	561	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.68	6.68	7.08	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.59	4.09	3.39	3.52	4.02	3.32
Pot Cap-1 Maneuver	1122	-	-	1072	-	-	265	226	736	289	237	787
Stage 1	-	-	-	-	-	-	464	492	-	555	568	-
Stage 2	-	-	-	-	-	-	724	549	-	668	508	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1122	-	-	1072	-	-	241	213	736	271	223	787
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	213	-	271	223	-
Stage 1	-	-	-	-	-	-	443	470	-	530	560	-
Stage 2	-	-	-	-	-	-	680	541	-	629	485	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.3	18.5	14.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	283	1122	-	-	1072	-	-	434
HCM Lane V/C Ratio	0.055	0.033	-	-	0.011	-	-	0.14
HCM Control Delay (s)	18.5	8.3	0.2	-	8.4	0.1	-	14.6
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.5

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	1	3	26	2	3	21	1	2	2	0	10	8
Future Vol, veh/h	1	3	26	2	3	21	1	2	2	0	10	8
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	6	6	6	6	6
Mvmt Flow	1	4	36	3	4	29	1	3	3	0	14	11
Number of Lanes	0	0	1	0	0	1	0	0	1	0	0	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.2	7.3	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	10%	12%	56%
Vol Thru, %	50%	84%	84%	44%
Vol Right, %	0%	6%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	32	25	18
LT Vol	2	3	3	10
Through Vol	2	27	21	8
RT Vol	0	2	1	0
Lane Flow Rate	5	44	34	25
Geometry Grp	1	1	1	1
Degree of Util (X)	0.006	0.049	0.038	0.029
Departure Headway (Hd)	4.256	3.993	4.02	4.252
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	838	897	891	840
Service Time	2.297	2.015	2.044	2.288
HCM Lane V/C Ratio	0.006	0.049	0.038	0.03
HCM Control Delay	7.3	7.2	7.2	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	0
Future Vol, veh/h	0
Peak Hour Factor	0.73
Heavy Vehicles, %	6
Mvmt Flow	0
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	138	40	39	125	60	26	136	60	24	85	20
Future Vol, veh/h	37	138	40	39	125	60	26	136	60	24	85	20
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	173	50	49	156	75	33	170	75	30	106	25
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.7	12.8	13	11.2
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	17%	17%	19%
Vol Thru, %	61%	64%	56%	66%
Vol Right, %	27%	19%	27%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	222	215	224	129
LT Vol	26	37	39	24
Through Vol	136	138	125	85
RT Vol	60	40	60	20
Lane Flow Rate	278	269	280	161
Geometry Grp	1	1	1	1
Degree of Util (X)	0.434	0.419	0.432	0.266
Departure Headway (Hd)	5.631	5.617	5.553	5.935
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	635	637	644	600
Service Time	3.703	3.688	3.622	4.019
HCM Lane V/C Ratio	0.438	0.422	0.435	0.268
HCM Control Delay	13	12.7	12.8	11.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.2	2.1	2.2	1.1

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	76	21	1	49	138	132	36
Future Vol, veh/h	76	21	1	49	138	132	36
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	115	32	2	74	209	200	55
Number of Lanes	1	0	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.6	10.4	9.7
HCM LOS	A	B	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	26%	78%	0%
Vol Thru, %	74%	0%	79%
Vol Right, %	0%	22%	21%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	188	97	168
LT Vol	49	76	0
Through Vol	139	0	132
RT Vol	0	21	36
Lane Flow Rate	285	147	255
Geometry Grp	1	1	1
Degree of Util (X)	0.368	0.211	0.319
Departure Headway (Hd)	4.655	5.168	4.518
Convergence, Y/N	Yes	Yes	Yes
Cap	772	691	794
Service Time	2.697	3.223	2.56
HCM Lane V/C Ratio	0.369	0.213	0.321
HCM Control Delay	10.4	9.6	9.7
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.7	0.8	1.4

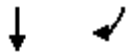
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	98	11	53	56	4	25	11	25	2019	26	28	4
Future Volume (veh/h)	98	11	53	56	4	25	11	25	2019	26	28	4
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870
Adj Flow Rate, veh/h	102	11	55	58	4	26		26	2103	27		4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	285	35	176	252	28	182		53	4117	53		10
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13		0.03	0.62	0.62		0.01
Sat Flow, veh/h	1380	271	1355	1335	216	1402		1781	6596	85		1781
Grp Volume(v), veh/h	102	0	66	58	0	30		26	1538	592		4
Grp Sat Flow(s),veh/h/ln	1380	0	1626	1335	0	1618		1781	1609	1855		1781
Q Serve(g_s), s	4.0	0.0	2.1	2.3	0.0	0.9		0.8	9.9	9.9		0.1
Cycle Q Clear(g_c), s	4.9	0.0	2.1	4.4	0.0	0.9		0.8	9.9	9.9		0.1
Prop In Lane	1.00		0.83	1.00		0.87		1.00		0.05		1.00
Lane Grp Cap(c), veh/h	285	0	211	252	0	210		53	3012	1158		10
V/C Ratio(X)	0.36	0.00	0.31	0.23	0.00	0.14		0.49	0.51	0.51		0.42
Avail Cap(c_a), veh/h	635	0	624	592	0	621		238	4090	1572		238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	23.8	0.0	22.1	24.1	0.0	21.6		26.8	5.8	5.8		27.8
Incr Delay (d2), s/veh	0.8	0.0	0.8	0.5	0.0	0.3		6.9	0.1	0.4		26.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.8	0.7	0.0	0.3		0.4	1.9	2.3		0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	0.0	23.0	24.6	0.0	21.9		33.7	5.9	6.2		54.1
LnGrp LOS	C	A	C	C	A	C		C	A	A		D
Approach Vol, veh/h		168			88				2156			
Approach Delay, s/veh		23.9			23.7				6.3			
Approach LOS		C			C				A			

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	39.5		11.8	6.2	38.1		11.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	47.5		21.5	7.5	47.5		21.5				
Max Q Clear Time (g_c+I1), s	2.1	11.9		6.9	2.8	12.8		6.4				
Green Ext Time (p_c), s	0.0	20.7		0.5	0.0	20.8		0.2				

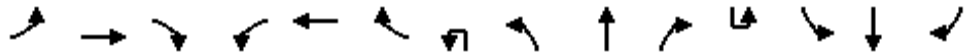
Intersection Summary			
HCM 6th Ctrl Delay		7.6	
HCM 6th LOS		A	

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2014	63
Future Volume (veh/h)	2014	63
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	2098	66
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	3873	122
Arrive On Green	0.60	0.60
Sat Flow, veh/h	6456	203
Grp Volume(v), veh/h	1568	596
Grp Sat Flow(s),veh/h/ln	1609	1834
Q Serve(g_s), s	10.8	10.8
Cycle Q Clear(g_c), s	10.8	10.8
Prop In Lane		0.11
Lane Grp Cap(c), veh/h	2895	1100
V/C Ratio(X)	0.54	0.54
Avail Cap(c_a), veh/h	4090	1554
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	6.6	6.6
Incr Delay (d2), s/veh	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.7
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	6.8	7.1
LnGrp LOS	A	A
Approach Vol, veh/h	2168	
Approach Delay, s/veh	7.0	
Approach LOS	A	
Timer - Assigned Phs		



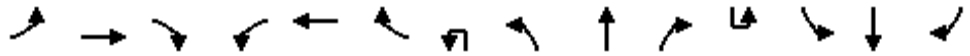
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	70	61	56	41	64	135	36	80	1887	107	11	68	2022	42
Future Volume (veh/h)	70	61	56	41	64	135	36	80	1887	107	11	68	2022	42
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	71	62	57	42	65	138		82	1926	109		69	2063	43
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	217	118	109	184	247	209		107	3972	225		92	4079	85
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13		0.06	0.63	0.63		0.05	0.62	0.62
Sat Flow, veh/h	1179	897	825	1273	1870	1585		1781	6277	355		1781	6535	136
Grp Volume(v), veh/h	71	0	119	42	65	138		82	1481	554		69	1523	583
Grp Sat Flow(s),veh/h/ln	1179	0	1722	1273	1870	1585		1781	1609	1806		1781	1609	1846
Q Serve(g_s), s	4.2	0.0	4.7	2.3	2.3	6.1		3.3	11.9	11.9		2.8	12.7	12.7
Cycle Q Clear(g_c), s	6.5	0.0	4.7	7.1	2.3	6.1		3.3	11.9	11.9		2.8	12.7	12.7
Prop In Lane	1.00		0.48	1.00		1.00		1.00		0.20		1.00		0.07
Lane Grp Cap(c), veh/h	217	0	227	184	247	209		107	3054	1143		92	3012	1152
V/C Ratio(X)	0.33	0.00	0.52	0.23	0.26	0.66		0.77	0.48	0.48		0.75	0.51	0.51
Avail Cap(c_a), veh/h	374	0	457	354	496	421		352	3054	1143		255	3012	1152
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	29.7	33.0	28.7	30.3		34.0	7.1	7.1		34.4	7.6	7.6
Incr Delay (d2), s/veh	0.9	0.0	1.9	0.6	0.6	3.5		10.8	0.6	1.5		11.7	0.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	2.0	0.7	1.0	2.4		1.7	3.1	3.8		1.5	3.4	4.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	32.5	0.0	31.6	33.7	29.2	33.8		44.9	7.7	8.6		46.1	8.2	9.2
LnGrp LOS	C	A	C	C	C	C		D	A	A		D	A	A
Approach Vol, veh/h		190			245				2117				2175	
Approach Delay, s/veh		31.9			32.6				9.4				9.7	
Approach LOS		C			C				A				A	

Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.3	51.0		14.2	8.9	50.4		14.2						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	10.5	46.5		19.5	14.5	42.5		19.5						
Max Q Clear Time (g_c+I1), s	4.3	13.9		8.5	5.3	14.7		9.1						
Green Ext Time (p_c), s	0.1	18.6		0.6	0.1	17.5		0.6						

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.



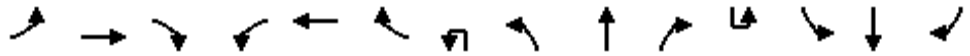
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	123	208	48	149	196	151	32	104	1666	116	44	170	1755	88
Future Volume (veh/h)	123	208	48	149	196	151	32	104	1666	116	44	170	1755	88
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	128	217	50	155	204	157		108	1735	121		177	1828	92
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	161	257	59	191	359	304		138	2704	666		258	2637	133
Arrive On Green	0.09	0.18	0.18	0.11	0.19	0.19		0.08	0.42	0.42		0.07	0.42	0.42
Sat Flow, veh/h	1781	1471	339	1781	1870	1585		1781	6434	1585		3456	6321	318
Grp Volume(v), veh/h	128	0	267	155	204	157		108	1735	121		177	1396	524
Grp Sat Flow(s),veh/h/ln	1781	0	1809	1781	1870	1585		1781	1609	1585		1728	1609	1813
Q Serve(g_s), s	5.7	0.0	11.6	6.9	8.0	7.2		4.8	17.3	3.9		4.0	19.2	19.2
Cycle Q Clear(g_c), s	5.7	0.0	11.6	6.9	8.0	7.2		4.8	17.3	3.9		4.0	19.2	19.2
Prop In Lane	1.00		0.19	1.00		1.00		1.00		1.00		1.00		0.18
Lane Grp Cap(c), veh/h	161	0	317	191	359	304		138	2704	666		258	2014	757
V/C Ratio(X)	0.79	0.00	0.84	0.81	0.57	0.52		0.78	0.64	0.18		0.69	0.69	0.69
Avail Cap(c_a), veh/h	218	0	403	253	453	384		240	2704	666		363	2014	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	32.3	35.3	29.6	29.3		36.6	18.6	14.7		36.5	19.3	19.3
Incr Delay (d2), s/veh	13.3	0.0	12.3	13.5	1.4	1.4		9.1	1.2	0.6		3.2	2.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	6.1	3.6	3.5	2.7		2.3	6.0	1.4		1.7	6.8	8.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	49.3	0.0	44.6	48.8	31.1	30.7		45.8	19.8	15.3		39.7	21.3	24.5
LnGrp LOS	D	A	D	D	C	C		D	B	B		D	C	C
Approach Vol, veh/h		395			516				1964				2097	
Approach Delay, s/veh		46.1			36.3				21.0				23.7	
Approach LOS		D			D				C				C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	38.5	13.2	18.7	10.8	38.3	11.8	20.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	34.0	11.5	18.0	10.9	31.6	9.9	19.6
Max Q Clear Time (g_c+I1), s	6.0	19.3	8.9	13.6	6.8	21.2	7.7	10.0
Green Ext Time (p_c), s	0.1	10.2	0.1	0.6	0.1	7.8	0.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	211	144	172	264	151	175	12	147	1461	170	13	40	1769	139
Future Volume (veh/h)	211	144	172	264	151	175	12	147	1461	170	13	40	1769	139
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	187	205	183	281	161	186		156	1554	181		43	1882	148
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	282	297	250	548	563	251		192	2658	655		69	2109	166
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16		0.11	0.41	0.41		0.04	0.34	0.34
Sat Flow, veh/h	1781	1875	1582	3456	3554	1585		1781	6434	1585		1781	6127	482
Grp Volume(v), veh/h	187	205	183	281	161	186		156	1554	181		43	1482	548
Grp Sat Flow(s),veh/h/ln	1781	1870	1586	1728	1777	1585		1781	1609	1585		1781	1609	1784
Q Serve(g_s), s	7.7	8.0	8.6	5.8	3.1	8.7		6.7	14.6	5.9		1.9	22.6	22.6
Cycle Q Clear(g_c), s	7.7	8.0	8.6	5.8	3.1	8.7		6.7	14.6	5.9		1.9	22.6	22.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		1.00		1.00		0.27
Lane Grp Cap(c), veh/h	282	296	251	548	563	251		192	2658	655		69	1661	614
V/C Ratio(X)	0.66	0.69	0.73	0.51	0.29	0.74		0.81	0.58	0.28		0.62	0.89	0.89
Avail Cap(c_a), veh/h	414	435	369	799	822	366		208	2658	655		149	1661	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	31.0	31.2	30.0	28.9	31.2		34.0	17.7	15.1		36.8	24.2	24.2
Incr Delay (d2), s/veh	2.7	2.9	4.1	0.7	0.3	4.5		20.0	0.9	1.0		8.7	7.7	17.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	3.7	3.4	2.4	1.3	3.5		3.8	5.0	2.1		0.9	8.9	11.6
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	33.5	33.8	35.3	30.7	29.1	35.7		54.0	18.6	16.2		45.6	31.9	41.9
LnGrp LOS	C	C	D	C	C	D		D	B	B		D	C	D
Approach Vol, veh/h		575			628				1891				2073	
Approach Delay, s/veh		34.2			31.8				21.3				34.8	
Approach LOS		C			C				C				C	

Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	7.5	36.7		16.8	12.9	31.3		16.8						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	6.5	29.4		18.1	9.1	26.8		18.0						
Max Q Clear Time (g_c+I1), s	3.9	16.6		10.6	8.7	24.6		10.7						
Green Ext Time (p_c), s	0.0	8.5		1.7	0.0	1.9		1.6						

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	3	126	299	484	395	293	158	37	331	1440	295	9	101	2052	71
Future Volume (veh/h)	3	126	299	484	395	293	158	37	331	1440	295	9	101	2052	71
Initial Q (Qb), veh		0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		130	308	499	407	302	163		341	1485	304		104	2115	73
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h		163	821	366	411	919	410		388	2150	440		178	2173	535
Arrive On Green		0.09	0.23	0.23	0.12	0.26	0.26		0.11	0.40	0.40		0.05	0.34	0.34
Sat Flow, veh/h		1781	3554	1585	3456	3554	1585		3456	5394	1103		3456	6434	1585
Grp Volume(v), veh/h		130	308	499	407	302	163		341	1328	461		104	2115	73
Grp Sat Flow(s),veh/h/ln		1781	1777	1585	1728	1777	1585		1728	1609	1672		1728	1609	1585
Q Serve(g_s), s		6.4	6.6	20.8	10.6	6.2	7.6		8.7	20.6	20.6		2.6	29.2	2.9
Cycle Q Clear(g_c), s		6.4	6.6	20.8	10.6	6.2	7.6		8.7	20.6	20.6		2.6	29.2	2.9
Prop In Lane		1.00		1.00	1.00		1.00		1.00		0.66		1.00		1.00
Lane Grp Cap(c), veh/h		163	821	366	411	919	410		388	1923	666		178	2173	535
V/C Ratio(X)		0.80	0.38	1.36	0.99	0.33	0.40		0.88	0.69	0.69		0.59	0.97	0.14
Avail Cap(c_a), veh/h		251	821	366	411	919	410		388	1923	666		204	2173	535
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		40.1	29.1	34.6	39.6	27.0	27.6		39.3	22.5	22.5		41.7	29.4	20.7
Incr Delay (d2), s/veh		9.7	0.3	179.7	41.8	0.2	0.6		20.0	2.1	5.8		3.3	13.9	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.2	2.7	25.9	6.7	2.5	2.8		4.6	7.5	8.5		1.2	12.5	1.1
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		49.8	29.4	214.3	81.4	27.2	28.2		59.4	24.5	28.3		45.0	43.3	21.2
LnGrp LOS		D	C	F	F	C	C		E	C	C		D	D	C
Approach Vol, veh/h			937			872				2130				2292	
Approach Delay, s/veh			130.7			52.7				30.9				42.7	
Approach LOS			F			D				C				D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	40.4	15.2	25.3	14.6	34.9	12.7	27.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.3	35.2	10.7	20.8	10.1	30.4	12.7	18.8
Max Q Clear Time (g_c+I1), s	4.6	22.6	12.6	22.8	10.7	31.2	8.4	9.6
Green Ext Time (p_c), s	0.0	8.7	0.0	0.0	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	24	28	27	22	65	24	536	35	81	611	141
Future Volume (veh/h)	107	24	28	27	22	65	24	536	35	81	611	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	25	29	28	23	68	25	564	37	85	643	148
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	449	115	133	180	60	133	149	1825	117	236	1431	317
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1306	790	916	271	415	915	47	3203	205	177	2512	556
Grp Volume(v), veh/h	113	0	54	119	0	0	326	0	300	450	0	426
Grp Sat Flow(s),veh/h/ln	1306	0	1705	1601	0	0	1790	0	1665	1643	0	1602
Q Serve(g_s), s	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	3.0	0.0	0.0	4.9
Cycle Q Clear(g_c), s	1.8	0.0	0.9	2.1	0.0	0.0	2.9	0.0	3.0	4.3	0.0	4.9
Prop In Lane	1.00		0.54	0.24		0.57	0.08		0.12	0.19		0.35
Lane Grp Cap(c), veh/h	449	0	248	374	0	0	1142	0	949	1071	0	913
V/C Ratio(X)	0.25	0.00	0.22	0.32	0.00	0.00	0.29	0.00	0.32	0.42	0.00	0.47
Avail Cap(c_a), veh/h	1003	0	972	1039	0	0	1142	0	949	1071	0	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.3	0.0	11.9	12.4	0.0	0.0	3.5	0.0	3.6	3.8	0.0	4.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.5	0.0	0.0	0.6	0.0	0.9	1.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.3	0.7	0.0	0.0	0.6	0.0	0.6	1.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.6	0.0	12.4	12.9	0.0	0.0	4.2	0.0	4.4	5.1	0.0	5.7
LnGrp LOS	B	A	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		167			119			626			876	
Approach Delay, s/veh		12.5			12.9			4.3			5.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	9.1	22.5	9.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	5.0	3.8	6.9	4.1
Green Ext Time (p_c), s	3.4	0.5	4.7	0.5

Intersection Summary	
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	12	27	37	25	36	32	584	22	29	589	15
Future Vol, veh/h	29	12	27	37	25	36	32	584	22	29	589	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	13	29	40	27	39	35	635	24	32	640	16
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.1	11.6	17.3	17.2
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	10%	0%	43%	38%	9%	0%
Vol Thru, %	90%	93%	18%	26%	91%	95%
Vol Right, %	0%	7%	40%	37%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	314	68	98	324	310
LT Vol	32	0	29	37	29	0
Through Vol	292	292	12	25	295	295
RT Vol	0	22	27	36	0	15
Lane Flow Rate	352	341	74	107	352	336
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.6	0.573	0.142	0.201	0.6	0.566
Departure Headway (Hd)	6.138	6.039	6.908	6.788	6.14	6.06
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	588	597	517	527	587	592
Service Time	3.895	3.795	4.974	4.851	3.896	3.816
HCM Lane V/C Ratio	0.599	0.571	0.143	0.203	0.6	0.568
HCM Control Delay	17.8	16.7	11.1	11.6	17.8	16.5
HCM Lane LOS	C	C	B	B	C	C
HCM 95th-tile Q	4	3.6	0.5	0.7	4	3.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	70	30	48	80	117	23	444	45	147	440	41
Future Volume (veh/h)	66	70	30	48	80	117	23	444	45	147	440	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	76	33	52	87	127	25	483	49	160	478	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	209	72	172	151	183	140	1581	156	404	1095	104
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	486	895	308	211	648	785	56	3092	305	490	2142	204
Grp Volume(v), veh/h	181	0	0	266	0	0	293	0	264	316	0	367
Grp Sat Flow(s),veh/h/ln	1690	0	0	1644	0	0	1807	0	1647	1170	0	1665
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	3.3	3.3	0.0	4.9
Cycle Q Clear(g_c), s	3.0	0.0	0.0	5.1	0.0	0.0	3.2	0.0	3.3	6.6	0.0	4.9
Prop In Lane	0.40		0.18	0.20		0.48	0.09		0.19	0.51		0.12
Lane Grp Cap(c), veh/h	537	0	0	506	0	0	1035	0	842	752	0	851
V/C Ratio(X)	0.34	0.00	0.00	0.53	0.00	0.00	0.28	0.00	0.31	0.42	0.00	0.43
Avail Cap(c_a), veh/h	946	0	0	948	0	0	1035	0	842	752	0	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	12.3	0.0	0.0	5.0	0.0	5.0	5.6	0.0	5.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.9	0.0	0.0	0.7	0.0	1.0	1.7	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.6	0.0	0.0	0.9	0.0	0.9	1.2	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.0	0.0	13.1	0.0	0.0	5.7	0.0	6.0	7.3	0.0	7.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		181			266			557			683	
Approach Delay, s/veh		11.9			13.1			5.8			7.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	22.5		12.7		22.5		12.7					
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5					
Max Green Setting (Gmax), s	18.0		18.0		18.0		18.0					
Max Q Clear Time (g_c+I1), s	5.3		5.0		8.6		7.1					
Green Ext Time (p_c), s	3.0		0.8		3.4		1.2					

Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	24	24	10	19	84	38	432	7	54	384	46
Future Vol, veh/h	57	24	24	10	19	84	38	432	7	54	384	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	62	26	26	11	21	91	41	470	8	59	417	50
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.4	10.9	13.5	13.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	54%	9%	22%	0%
Vol Thru, %	85%	97%	23%	17%	78%	81%
Vol Right, %	0%	3%	23%	74%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	223	105	113	246	238
LT Vol	38	0	57	10	54	0
Through Vol	216	216	24	19	192	192
RT Vol	0	7	24	84	0	46
Lane Flow Rate	276	242	114	123	267	259
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.467	0.404	0.208	0.21	0.455	0.422
Departure Headway (Hd)	6.093	5.995	6.567	6.155	6.123	5.875
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	591	599	544	581	586	611
Service Time	3.846	3.748	4.634	4.221	3.877	3.628
HCM Lane V/C Ratio	0.467	0.404	0.21	0.212	0.456	0.424
HCM Control Delay	14.1	12.8	11.4	10.9	13.9	12.9
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	2.5	1.9	0.8	0.8	2.4	2.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	234	51	40	178	129	63	273	26	136	161	73
Future Volume (veh/h)	60	234	51	40	178	129	63	273	26	136	161	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	241	53	41	184	133	65	281	27	140	166	75
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	513	116	172	404	278	347	1341	127	582	679	321
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	291	2238	504	206	1765	1214	409	2609	248	786	1321	625
Grp Volume(v), veh/h	187	0	169	195	0	163	193	0	180	190	0	191
Grp Sat Flow(s),veh/h/ln	1421	0	1611	1701	0	1484	1608	0	1657	1143	0	1590
Q Serve(g_s), s	1.0	0.0	3.2	0.1	0.0	3.3	0.0	0.0	2.1	2.3	0.0	2.3
Cycle Q Clear(g_c), s	4.3	0.0	3.2	3.3	0.0	3.3	2.0	0.0	2.1	4.3	0.0	2.3
Prop In Lane	0.33		0.31	0.21		0.82	0.34		0.15	0.74		0.39
Lane Grp Cap(c), veh/h	463	0	369	514	0	340	964	0	852	766	0	817
V/C Ratio(X)	0.40	0.00	0.46	0.38	0.00	0.48	0.20	0.00	0.21	0.25	0.00	0.23
Avail Cap(c_a), veh/h	888	0	828	977	0	762	964	0	852	766	0	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	11.6	11.6	0.0	11.7	4.6	0.0	4.6	5.3	0.0	4.7
Incr Delay (d2), s/veh	0.6	0.0	0.9	0.5	0.0	1.0	0.5	0.0	0.6	0.8	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.0	1.1	0.0	1.0	0.6	0.0	0.6	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	12.5	12.1	0.0	12.7	5.1	0.0	5.2	6.0	0.0	5.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		356			358			373			381	
Approach Delay, s/veh		12.4			12.4			5.1			5.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	12.5	22.5	12.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.1	6.3	6.3	5.3
Green Ext Time (p_c), s	2.0	1.7	2.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	297	175	189	178	24
Future Vol, veh/h	49	297	175	189	178	24
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	334	197	212	200	27
Number of Lanes	0	1	1	1	2	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	17	10.6	11.6
HCM LOS	C	B	B

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	14%	0%	0%	100%	71%
Vol Thru, %	86%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	346	175	189	119	83
LT Vol	49	0	0	119	59
Through Vol	297	175	0	0	0
RT Vol	0	0	189	0	24
Lane Flow Rate	389	197	212	133	94
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.608	0.316	0.3	0.261	0.174
Departure Headway (Hd)	5.627	5.793	5.084	7.035	6.684
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	641	621	707	511	537
Service Time	3.653	3.523	2.814	4.77	4.419
HCM Lane V/C Ratio	0.607	0.317	0.3	0.26	0.175
HCM Control Delay	17	11.2	10	12.2	10.8
HCM Lane LOS	C	B	A	B	B
HCM 95th-tile Q	4.1	1.4	1.3	1	0.6

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	240	24	7	250	15	64	26	6	12	20	9
Future Vol, veh/h	17	240	24	7	250	15	64	26	6	12	20	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	270	27	8	281	17	72	29	7	13	22	10
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.6	9.5	9.6	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	67%	12%	0%	5%	0%	29%
Vol Thru, %	27%	88%	83%	95%	89%	49%
Vol Right, %	6%	0%	17%	0%	11%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	96	137	144	132	140	41
LT Vol	64	17	0	7	0	12
Through Vol	26	120	120	125	125	20
RT Vol	6	0	24	0	15	9
Lane Flow Rate	108	154	162	148	157	46
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.164	0.227	0.231	0.218	0.227	0.07
Departure Headway (Hd)	5.487	5.316	5.136	5.29	5.188	5.432
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	649	671	694	675	687	653
Service Time	3.559	3.079	2.899	3.053	2.951	3.516
HCM Lane V/C Ratio	0.166	0.23	0.233	0.219	0.229	0.07
HCM Control Delay	9.6	9.7	9.5	9.5	9.5	8.9
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0.9	0.9	0.8	0.9	0.2

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	6	8	244	9	8	11	260	16	12	11	11	14	13	9
Future Vol, veh/h	6	8	244	9	8	11	260	16	12	11	11	14	13	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	9	260	10	9	12	277	17	13	12	12	15	14	10
Number of Lanes	0	0	2	0	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9	9.1	8.5	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	35%	6%	0%	8%	0%	39%
Vol Thru, %	32%	94%	93%	92%	89%	36%
Vol Right, %	32%	0%	7%	0%	11%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	136	131	149	146	36
LT Vol	12	8	0	12	0	14
Through Vol	11	128	122	137	130	13
RT Vol	11	0	9	0	16	9
Lane Flow Rate	36	145	139	159	155	38
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.052	0.202	0.192	0.221	0.211	0.056
Departure Headway (Hd)	5.172	5.032	4.953	5.014	4.898	5.22
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	691	713	725	716	733	685
Service Time	3.214	2.761	2.682	2.743	2.627	3.261
HCM Lane V/C Ratio	0.052	0.203	0.192	0.222	0.211	0.055
HCM Control Delay	8.5	9	8.9	9.2	8.9	8.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.8	0.7	0.8	0.8	0.2

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	281	61	47	289	35	34	65	23	48	45	23
Future Vol, veh/h	65	281	61	47	289	35	34	65	23	48	45	23
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	66	287	62	48	295	36	35	66	23	49	46	23
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.4	11.2	10.7	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	28%	32%	0%	25%	0%	41%
Vol Thru, %	53%	68%	70%	75%	81%	39%
Vol Right, %	19%	0%	30%	0%	19%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	206	202	192	180	116
LT Vol	34	65	0	47	0	48
Through Vol	65	141	141	145	145	45
RT Vol	23	0	61	0	35	23
Lane Flow Rate	124	210	206	195	183	118
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.208	0.347	0.319	0.323	0.29	0.199
Departure Headway (Hd)	6.025	5.952	5.577	5.958	5.695	6.061
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	595	604	646	604	630	591
Service Time	4.073	3.686	3.311	3.695	3.432	4.109
HCM Lane V/C Ratio	0.208	0.348	0.319	0.323	0.29	0.2
HCM Control Delay	10.7	11.8	10.9	11.5	10.8	10.6
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	0.8	1.5	1.4	1.4	1.2	0.7

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	320	13	10	327	61	27	98	27	66	69	71
Future Vol, veh/h	61	320	13	10	327	61	27	98	27	66	69	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	337	14	11	344	64	28	103	28	69	73	75
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	13.3	12.9	12.4	13.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	18%	28%	0%	6%	0%	32%
Vol Thru, %	64%	72%	92%	94%	73%	33%
Vol Right, %	18%	0%	8%	0%	27%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	152	221	173	174	225	206
LT Vol	27	61	0	10	0	66
Through Vol	98	160	160	164	164	69
RT Vol	27	0	13	0	61	71
Lane Flow Rate	160	233	182	183	236	217
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.294	0.423	0.322	0.327	0.409	0.385
Departure Headway (Hd)	6.612	6.662	6.467	6.559	6.335	6.391
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	546	544	559	552	572	566
Service Time	4.622	4.362	4.167	4.259	4.035	4.391
HCM Lane V/C Ratio	0.293	0.428	0.326	0.332	0.413	0.383
HCM Control Delay	12.4	14.2	12.2	12.4	13.3	13.3
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.2	2.1	1.4	1.4	2	1.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	21	416	8	27	393	14	22	19	76	1	9	9	29
Future Volume (veh/h)	21	416	8	27	393	14	22	19	76	1	9	9	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1841	1841	1841		1841	1841	1841
Adj Flow Rate, veh/h	23	447	9	29	423	15	24	20	82		10	10	31
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4		4	4	4
Cap, veh/h	130	799	16	138	759	27	210	192	525		214	222	489
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.51	0.51	0.51		0.51	0.51	0.51
Sat Flow, veh/h	79	3339	67	100	3174	113	177	378	1034		183	438	964
Grp Volume(v), veh/h	250	0	229	243	0	224	126	0	0		51	0	0
Grp Sat Flow(s),veh/h/ln	1794	0	1690	1705	0	1682	1589	0	0		1585	0	0
Q Serve(g_s), s	0.0	0.0	4.2	0.2	0.0	4.1	0.0	0.0	0.0		0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	4.2	4.4	0.0	4.1	1.4	0.0	0.0		0.6	0.0	0.0
Prop In Lane	0.09		0.04	0.12		0.07	0.19		0.65		0.20		0.61
Lane Grp Cap(c), veh/h	540	0	404	521	0	402	927	0	0		925	0	0
V/C Ratio(X)	0.46	0.00	0.57	0.47	0.00	0.56	0.14	0.00	0.00		0.06	0.00	0.00
Avail Cap(c_a), veh/h	1000	0	857	969	0	853	927	0	0		925	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00		1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	0.0	11.9	11.8	0.0	11.8	4.7	0.0	0.0		4.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	1.2	0.6	0.0	1.2	0.3	0.0	0.0		0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.3	1.3	0.0	1.3	0.4	0.0	0.0		0.1	0.0	0.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	12.5	0.0	13.1	12.5	0.0	13.1	5.0	0.0	0.0		4.6	0.0	0.0
LnGrp LOS	B	A	B	B	A	B	A	A	A		A	A	A
Approach Vol, veh/h		479			467			126				51	
Approach Delay, s/veh		12.8			12.7			5.0				4.6	
Approach LOS		B			B			A				A	

Timer - Assigned Phs	2		4		6		8						
Phs Duration (G+Y+Rc), s	22.5		13.0		22.5		13.0						
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5						
Max Green Setting (Gmax), s	18.0		18.0		18.0		18.0						
Max Q Clear Time (g_c+I1), s	3.4		6.2		2.6		6.4						
Green Ext Time (p_c), s	0.6		2.2		0.2		2.1						

Intersection Summary													
HCM 6th Ctrl Delay			11.5										
HCM 6th LOS			B										

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	380	7	8	416	12	3	2	8	5	5	10
Future Vol, veh/h	12	380	7	8	416	12	3	2	8	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	396	7	8	433	13	3	2	8	5	5	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	446	0	0	403	0	0	661	888	202	681	885	223
Stage 1	-	-	-	-	-	-	426	426	-	456	456	-
Stage 2	-	-	-	-	-	-	235	462	-	225	429	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1111	-	-	1152	-	-	348	281	805	336	282	780
Stage 1	-	-	-	-	-	-	577	584	-	554	567	-
Stage 2	-	-	-	-	-	-	747	563	-	757	582	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1111	-	-	1152	-	-	332	274	805	325	275	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	332	274	-	325	275	-
Stage 1	-	-	-	-	-	-	568	575	-	546	562	-
Stage 2	-	-	-	-	-	-	724	558	-	735	573	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	12.5	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	495	1111	-	-	1152	-	-	431
HCM Lane V/C Ratio	0.027	0.011	-	-	0.007	-	-	0.048
HCM Control Delay (s)	12.5	8.3	0.1	-	8.1	0	-	13.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	43	5	0	40	8	0	4	0	5	5	4
Future Vol, veh/h	6	43	5	0	40	8	0	4	0	5	5	4
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	53	6	0	49	10	0	5	0	6	6	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.2	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	11%	0%	36%
Vol Thru, %	100%	80%	83%	36%
Vol Right, %	0%	9%	17%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	54	48	14
LT Vol	0	6	0	5
Through Vol	4	43	40	5
RT Vol	0	5	8	4
Lane Flow Rate	5	67	59	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.006	0.074	0.065	0.019
Departure Headway (Hd)	4.165	3.982	3.921	4.055
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	900	913	877
Service Time	2.22	2.004	1.945	2.108
HCM Lane V/C Ratio	0.006	0.074	0.065	0.019
HCM Control Delay	7.2	7.3	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	143	28	69	212	34	24	198	66	30	111	24
Future Vol, veh/h	20	143	28	69	212	34	24	198	66	30	111	24
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	144	28	70	214	34	24	200	67	30	112	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.4	14	13.2	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	10%	22%	18%
Vol Thru, %	69%	75%	67%	67%
Vol Right, %	23%	15%	11%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	191	315	165
LT Vol	24	20	69	30
Through Vol	198	143	212	111
RT Vol	66	28	34	24
Lane Flow Rate	291	193	318	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.45	0.308	0.492	0.272
Departure Headway (Hd)	5.571	5.747	5.571	5.868
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	621	643	608
Service Time	3.636	3.819	3.634	3.943
HCM Lane V/C Ratio	0.453	0.311	0.495	0.275
HCM Control Delay	13.2	11.4	14	11.1
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.3	1.3	2.7	1.1

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	66	50	2	36	202	167	50
Future Vol, veh/h	66	50	2	36	202	167	50
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	73	55	2	40	222	184	55
Number of Lanes	1	0	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9	9.8	9.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	15%	57%	0%
Vol Thru, %	85%	0%	77%
Vol Right, %	0%	43%	23%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	240	116	217
LT Vol	36	66	0
Through Vol	204	0	167
RT Vol	0	50	50
Lane Flow Rate	264	127	238
Geometry Grp	1	1	1
Degree of Util (X)	0.333	0.173	0.292
Departure Headway (Hd)	4.541	4.899	4.407
Convergence, Y/N	Yes	Yes	Yes
Cap	791	730	816
Service Time	2.57	2.942	2.438
HCM Lane V/C Ratio	0.334	0.174	0.292
HCM Control Delay	9.8	9	9.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.6	1.2

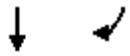
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	65	15	30	13	7	8	4	56	1638	43	22	15
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	65	45	0	13	15	0	0	60	1681	0	0	37
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.90	0.85	0.95	0.92	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1805	1710	0	1805	1748	0	0	1805	6874	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	4.3	3.2	0.0	0.9	1.0	0.0	0.0	4.0	29.3	0.0	0.0	2.5
Adj Reference Time (s)	9.5	9.5	0.0	9.5	9.5	0.0	0.0	9.5	33.8	0.0	0.0	9.5
Permitted Option												
Adj Saturation A (vph)	120	1710		120	1748		0	120	1719		0	120
Reference Time A (s)	64.8	3.2		13.0	1.0		0.0	59.8	29.3		0.0	36.9
Adj Saturation B (vph	0	1710		0	1748		NA	NA	NA		NA	NA
Reference Time B (s)	12.3	3.2		8.9	1.0		NA	NA	NA		NA	NA
Reference Time (s)		12.3			8.9				59.8			
Adj Reference Time (s)		16.8			13.4				64.3			
Split Option												
Ref Time Combined (s)	4.3	3.2		0.9	1.0		0.0	4.0	29.3		0.0	2.5
Ref Time Seperate (s)	4.3	1.1		0.9	0.5		0.3	3.7	28.6		1.5	1.0
Reference Time (s)	4.3	4.3		1.0	1.0		29.3	29.3	29.3		33.7	33.7
Adj Reference Time (s)	9.5	9.5		9.5	9.5		33.8	33.8	33.8		38.2	38.2

Summary	EB WB	NB SB	Combined
Protected Option (s)	19.0	47.7	
Permitted Option (s)	16.8	64.3	
Split Option (s)	19.0	72.0	
Minimum (s)	16.8	47.7	64.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	53.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1731	178
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1909	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.99	0.85
Saturated Flow (vph)	6804	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	33.7	0.0
Adj Reference Time (s)	38.2	0.0
Permitted Option		
Adj Saturation A (vph)	1701	
Reference Time A (s)	33.7	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	36.9	
Adj Reference Time (s)	41.4	
Split Option		
Ref Time Combined (s)	33.7	
Ref Time Seperate (s)	30.5	
Reference Time (s)	33.7	
Adj Reference Time (s)	38.2	
Summary		

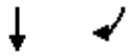
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	117	100	59	17	43	95	27	27	1515	137	9	143
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	117	159	0	17	43	95	0	54	1652	0	0	152
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	1.00	0.85	0.95	0.95	0.99	0.85	0.95	0.95
Saturated Flow (vph)	1805	1794	0	1805	1600	1615	0	1805	6815	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	7.8	10.6	0.0	1.1	2.7	7.1	0.0	3.6	29.1	0.0	0.0	10.1
Adj Reference Time (s)	12.3	15.1	0.0	9.5	9.5	11.6	0.0	9.5	33.6	0.0	0.0	14.6
Permitted Option												
Adj Saturation A (vph)	120	1794		120	1600		0	120	1704		0	120
Reference Time A (s)	116.7	10.6		17.0	2.7		0.0	53.9	29.1		0.0	151.6
Adj Saturation B (vph	0	1794		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	15.8	10.6		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		15.8			17.0				53.9			
Adj Reference Time (s)		20.3			21.5				58.4			
Split Option												
Ref Time Combined (s)	7.8	10.6		1.1	2.7		0.0	3.6	29.1		0.0	10.1
Ref Time Seperate (s)	7.8	6.7		1.1	2.7		1.8	1.8	26.7		0.6	9.5
Reference Time (s)	10.6	10.6		2.7	2.7		29.1	29.1	29.1		27.6	27.6
Adj Reference Time (s)	15.1	15.1		9.5	9.5		33.6	33.6	33.6		32.1	32.1

Summary	EB WB	NB SB	Combined
Protected Option (s)	24.6	48.2	
Permitted Option (s)	21.5	156.1	
Split Option (s)	24.6	65.7	
Minimum (s)	21.5	48.2	69.6

Right Turns	WBR
Adj Reference Time (s)	11.6
Cross Thru Ref Time (s)	48.2
Oncoming Left Ref Time (s)	12.3
Combined (s)	72.0

Intersection Summary			
Intersection Capacity Utilization	60.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1536	43
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1579	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	6873	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	27.6	0.0
Adj Reference Time (s)	32.1	0.0
Permitted Option		
Adj Saturation A (vph)	1718	
Reference Time A (s)	27.6	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	151.6	
Adj Reference Time (s)	156.1	
Split Option		
Ref Time Combined (s)	27.6	
Ref Time Seperate (s)	26.8	
Reference Time (s)	27.6	
Adj Reference Time (s)	32.1	
Summary		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	99	189	46	1	78	93	99	14	56	1451	110	29
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No				No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	99	235	0	0	79	93	99	0	70	1451	110	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95
Saturated Flow (vph)	1805	1844	0	0	1805	1600	1615	0	1805	6901	1615	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00				0.00				0.00		
Protected Option Allowed		Yes				Yes				Yes		
Reference Time (s)	6.6	15.3	0.0	0.0	5.3	5.9	7.4	0.0	4.7	25.2	8.2	0.0
Adj Reference Time (s)	11.1	19.8	0.0	0.0	9.8	10.4	11.9	0.0	9.5	29.7	12.7	0.0
Permitted Option												
Adj Saturation A (vph)	120	1844		0	120	1600		0	120	1725		0
Reference Time A (s)	98.7	15.3		0.0	78.8	5.9		0.0	69.8	25.2		0.0
Adj Saturation B (vph	0	1844		NA	NA	NA		NA	NA	NA		NA
Reference Time B (s)	14.6	15.3		NA	NA	NA		NA	NA	NA		NA
Reference Time (s)		15.3				78.8				69.8		
Adj Reference Time (s)		19.8				83.3				74.3		
Split Option												
Ref Time Combined (s)	6.6	15.3		0.0	5.3	5.9		0.0	4.7	25.2		0.0
Ref Time Seperate (s)	6.6	12.3		0.1	5.2	5.9		0.9	3.7	25.2		1.9
Reference Time (s)	15.3	15.3		5.9	5.9	5.9		25.2	25.2	25.2		25.4
Adj Reference Time (s)	19.8	19.8		10.4	10.4	10.4		29.7	29.7	29.7		29.9

Summary	EB WB	NB SB	Combined
Protected Option (s)	29.5	41.0	
Permitted Option (s)	83.3	106.2	
Split Option (s)	30.2	59.6	
Minimum (s)	29.5	41.0	70.6

Right Turns	WBR	NBR
Adj Reference Time (s)	11.9	12.7
Cross Thru Ref Time (s)	41.0	29.5
Oncoming Left Ref Time (s)	11.1	11.3
Combined (s)	63.9	53.5

Intersection Summary			
Intersection Capacity Utilization	58.8%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	169	1381	69
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	198	1450	0
Lane Utilization Factor	0.97	0.91	1.00
Turning Factor (vph)	0.95	0.99	0.85
Saturated Flow (vph)	3505	6852	0
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		Yes	
Reference Time (s)	6.8	25.4	0.0
Adj Reference Time (s)	11.3	29.9	0.0
Permitted Option			
Adj Saturation A (vph)	117	1713	
Reference Time A (s)	101.7	25.4	
Adj Saturation B (vph	NA	NA	
Reference Time B (s)	NA	NA	
Reference Time (s)		101.7	
Adj Reference Time (s)		106.2	
Split Option			
Ref Time Combined (s)	6.8	25.4	
Ref Time Seperate (s)	5.8	24.2	
Reference Time (s)	25.4	25.4	
Adj Reference Time (s)	29.9	29.9	
Summary			

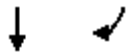
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	146	124	82	48	70	42	10	126	1419	404	17	168
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	352	0	48	70	42	0	136	1419	404	0	185
Lane Utilization Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	0	5128	0	3505	3618	1615	0	1805	6901	1615	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			0.0			3.1	0.0	9.0	24.7	30.0	0.0	12.3
Adj Reference Time (s)			0.0			9.5	0.0	13.5	29.2	34.5	0.0	16.8
Permitted Option												
Adj Saturation A (vph)	0	171		117	1809		0	120	1725		0	120
Reference Time A (s)	0.0	102.5		24.6	2.3		0.0	135.6	24.7		0.0	184.5
Adj Saturation B (vph	0	1701		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	12.9	13.6		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		13.6			24.6				135.6			
Adj Reference Time (s)		18.1			29.1				140.1			
Split Option												
Ref Time Combined (s)	0.0	8.2		1.6	2.3		0.0	9.0	24.7		0.0	12.3
Ref Time Seperate (s)	4.9	4.4		1.6	2.3		0.7	8.4	24.7		1.1	11.2
Reference Time (s)	8.2	8.2		2.3	2.3		24.7	24.7	24.7		22.7	22.7
Adj Reference Time (s)	12.7	12.7		9.5	9.5		29.2	29.2	29.2		27.2	27.2

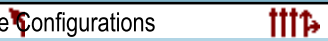
Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	46.0	
Permitted Option (s)	29.1	189.0	
Split Option (s)	22.2	56.3	
Minimum (s)	22.2	46.0	68.2

Right Turns	WBR	NBR
Adj Reference Time (s)	9.5	34.5
Cross Thru Ref Time (s)	46.0	12.7
Oncoming Left Ref Time (s)	12.7	16.8
Combined (s)	68.2	64.1

Intersection Summary			
Intersection Capacity Utilization	56.8%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1090	185
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1275	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.98	0.85
Saturated Flow (vph)	6751	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	22.7	0.0
Adj Reference Time (s)	27.2	0.0
Permitted Option		
Adj Saturation A (vph)	1688	
Reference Time A (s)	22.7	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	184.5	
Adj Reference Time (s)	189.0	
Split Option		
Ref Time Combined (s)	22.7	
Ref Time Seperate (s)	19.4	
Reference Time (s)	22.7	
Adj Reference Time (s)	27.2	

Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	1	88	192	251	127	222	104	27	388	1885	250	14
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No			No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	89	192	251	127	222	104	0	415	2135	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.97	0.91	1.00	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.98	0.85	0.95
Saturated Flow (vph)	0	1805	3618	1615	3505	3618	1615	0	3505	6780	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00			0.00				0.00		
Protected Option Allowed			Yes			Yes				Yes		
Reference Time (s)	0.0	5.9	6.4	18.7	4.3	7.4	7.7	0.0	14.2	37.8	0.0	0.0
Adj Reference Time (s)	0.0	10.4	10.9	23.2	9.5	11.9	12.2	0.0	18.7	42.3	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	120	1809		117	1809		0	117	1695		0
Reference Time A (s)	0.0	88.8	6.4		65.2	7.4		0.0	213.1	37.8		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time B (s)	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time (s)			88.8			65.2				213.1		
Adj Reference Time (s)			93.3			69.7				217.6		
Split Option												
Ref Time Combined (s)	0.0	5.9	6.4		4.3	7.4		0.0	14.2	37.8		0.0
Ref Time Seperate (s)	0.1	5.9	6.4		4.3	7.4		1.8	13.3	33.4		0.9
Reference Time (s)	6.4	6.4	6.4		7.4	7.4		37.8	37.8	37.8		16.9
Adj Reference Time (s)	10.9	10.9	10.9		11.9	11.9		42.3	42.3	42.3		21.4

Summary	EB WB	NB SB	Combined
Protected Option (s)	22.3	51.8	
Permitted Option (s)	93.3	217.6	
Split Option (s)	22.7	63.7	
Minimum (s)	22.3	51.8	74.1

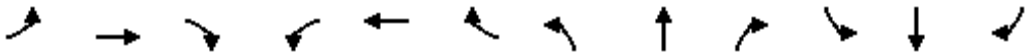
Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	23.2	12.2	14.4
Cross Thru Ref Time (s)	40.1	51.8	22.3
Oncoming Left Ref Time (s)	9.5	10.4	18.7
Combined (s)	72.7	74.4	55.4

Intersection Summary			
Intersection Capacity Utilization	62.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	88	971	133
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	102	971	133
Lane Utilization Factor	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85
Saturated Flow (vph)	3505	6901	1615
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		Yes	
Reference Time (s)	3.5	16.9	9.9
Adj Reference Time (s)	9.5	21.4	14.4
Permitted Option			
Adj Saturation A (vph)	117	1725	
Reference Time A (s)	52.4	16.9	
Adj Saturation B (vph	NA	NA	
Reference Time B (s)	NA	NA	
Reference Time (s)		52.4	
Adj Reference Time (s)		56.9	
Split Option			
Ref Time Combined (s)	3.5	16.9	
Ref Time Seperate (s)	3.0	16.9	
Reference Time (s)	16.9	16.9	
Adj Reference Time (s)	21.4	21.4	
Summary			



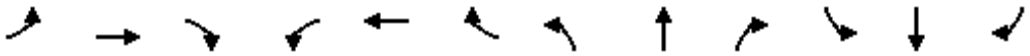
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	37	45	15	19	110	17	613	29	60	600	55
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	180	82	0	0	144	0	0	659	0	0	715	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.88	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1805	1744	0	0	1674	0	0	3589	0	0	3561	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	308	1744		0	660		0	980		0	365	
Reference Time A (s)	70.0	5.6		0.0	26.2		0.0	36.2		0.0	78.1	
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		9.0	18.3		NA	NA		NA	NA	
Reference Time (s)		70.0			18.3			36.2			78.1	
Adj Reference Time (s)		74.5			22.8			40.7			82.6	
Split Option												
Ref Time Combined (s)	12.0	5.6		0.0	10.3		0.0	22.0		0.0	24.1	
Ref Time Seperate (s)	12.0	2.5		1.0	1.4		1.1	20.5		4.0	20.2	
Reference Time (s)	12.0	12.0		10.3	10.3		22.0	22.0		24.1	24.1	
Adj Reference Time (s)	16.5	16.5		14.8	14.8		26.5	26.5		28.6	28.6	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	74.5	82.6	
Split Option (s)	31.3	55.1	
Minimum (s)	31.3	55.1	86.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	72.0%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.



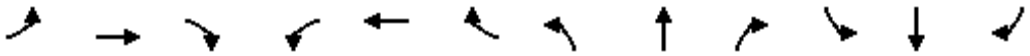
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	27	25	49	19	82	19	474	43	37	619	18
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	117	0	0	150	0	0	536	0	0	674	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	0.90	0.85	0.95	0.99	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1788	0	0	1716	0	0	3568	0	0	3593	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1055		0	1603		0	808		0	579	
Reference Time A (s)	0.0	13.3		0.0	11.2		0.0	34.2		0.0	54.5	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	12.3	15.9		11.3	18.5		NA	NA		NA	NA	
Reference Time (s)		13.3			11.2			34.2			54.5	
Adj Reference Time (s)		17.3			15.2			38.2			58.5	
Split Option												
Ref Time Combined (s)	0.0	7.9		0.0	10.5		0.0	18.0		0.0	22.5	
Ref Time Seperate (s)	4.3	1.8		3.3	1.4		1.3	15.9		2.5	20.6	
Reference Time (s)	7.9	7.9		10.5	10.5		18.0	18.0		22.5	22.5	
Adj Reference Time (s)	11.9	11.9		14.5	14.5		22.0	22.0		26.5	26.5	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	17.3	58.5	
Split Option (s)	26.3	48.5	
Minimum (s)	17.3	48.5	65.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



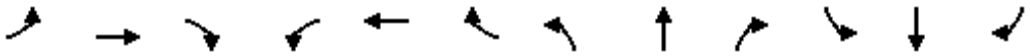
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	59	26	30	43	120	20	357	34	105	373	44
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	148	0	0	193	0	0	411	0	0	522	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.90	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1811	0	0	1709	0	0	3564	0	0	3536	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	814		0	1626		0	638		0	118	
Reference Time A (s)	0.0	21.8		0.0	14.2		0.0	31.1		0.0	106.9	
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		10.0	21.5		NA	NA		NA	NA	
Reference Time (s)		21.8			14.2			31.1			106.9	
Adj Reference Time (s)		26.3			18.7			35.6			111.4	
Split Option												
Ref Time Combined (s)	0.0	9.8		0.0	13.5		0.0	13.8		0.0	17.7	
Ref Time Seperate (s)	4.2	3.9		2.0	3.1		1.3	12.0		7.0	12.6	
Reference Time (s)	9.8	9.8		13.5	13.5		13.8	13.8		17.7	17.7	
Adj Reference Time (s)	14.3	14.3		18.0	18.0		18.3	18.3		22.2	22.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	26.3	111.4	
Split Option (s)	32.4	40.6	
Minimum (s)	26.3	40.6	66.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	55.7%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	56	34	6	28	83	18	267	7	56	331	40
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	153	0	0	117	0	0	292	0	0	427	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.89	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1799	0	0	1693	0	0	3593	0	0	3543	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	467		0	1676		0	519		0	186	
Reference Time A (s)	0.0	39.3		0.0	8.4		0.0	25.4		0.0	65.4	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	12.2	18.2		8.4	16.3		NA	NA		NA	NA	
Reference Time (s)		18.2			8.4			25.4			65.4	
Adj Reference Time (s)		22.2			12.4			29.4			69.4	
Split Option												
Ref Time Combined (s)	0.0	10.2		0.0	8.3		0.0	9.8		0.0	14.5	
Ref Time Seperate (s)	4.2	3.7		0.4	2.0		1.2	8.9		3.7	11.2	
Reference Time (s)	10.2	10.2		8.3	8.3		9.8	9.8		14.5	14.5	
Adj Reference Time (s)	14.2	14.2		12.3	12.3		13.8	13.8		18.5	18.5	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	22.2	69.4	
Split Option (s)	26.5	32.2	
Minimum (s)	22.2	32.2	54.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	45.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

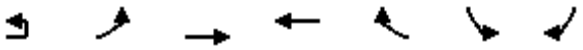
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	205	45	9	160	104	52	142	11	135	143	68
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	298	0	0	273	0	0	205	0	0	346	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.94	0.85	0.95	0.98	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3507	0	0	3405	0	0	3543	0	0	3442	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	125		0	808		0	118		0	115	
Reference Time A (s)	0.0	50.9		0.0	17.6		0.0	52.8		0.0	141.2	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		50.9			17.6			52.8			141.2	
Adj Reference Time (s)		55.4			22.1			57.3			145.7	
Split Option												
Ref Time Combined (s)	0.0	10.2		0.0	9.6		0.0	6.9		0.0	12.1	
Ref Time Seperate (s)	3.2	7.0		0.6	5.6		3.5	4.8		9.0	5.0	
Reference Time (s)	10.2	10.2		9.6	9.6		6.9	6.9		12.1	12.1	
Adj Reference Time (s)	14.7	14.7		14.1	14.1		11.4	11.4		16.6	16.6	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	55.4	145.7	
Split Option (s)	28.8	28.0	
Minimum (s)	28.8	28.0	56.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	47.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	1	4	179	124	145	120	4
Pedestrians							
Ped Button							
Pedestrian Timing (s)							
Free Right					No		No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	184	124	145	124	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	0.97	1.00
Turning Factor (vph)	0.95	0.95	1.00	1.00	0.85	0.95	0.85
Saturated Flow (vph)	0	0	1897	1600	1615	3494	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00	0.00		0.00	
Protected Option Allowed			No	No		No	
Reference Time (s)					10.8		0.0
Adj Reference Time (s)					14.8		0.0
Permitted Option							
Adj Saturation A (vph)	0	0	1368	1600		116	
Reference Time A (s)	0.0	0.0	16.1	7.8		63.9	
Adj Saturation B (vph	NA	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA	NA		NA	
Reference Time (s)			16.1	7.8			
Adj Reference Time (s)			20.1	11.8			
Split Option							
Ref Time Combined (s)	0.0	0.0	11.6	7.8		4.3	
Ref Time Seperate (s)	0.1	0.3	11.3	7.8		4.1	
Reference Time (s)	11.6	11.6	11.6	7.8		4.3	
Adj Reference Time (s)	15.6	15.6	15.6	11.8		8.3	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	20.1	Err	
Split Option (s)	27.5	8.3	
Minimum (s)	20.1	8.3	28.4

Right Turns	WBR
Adj Reference Time (s)	14.8
Cross Thru Ref Time (s)	0.0
Oncoming Left Ref Time (s)	15.6
Combined (s)	30.4

Intersection Summary			
Intersection Capacity Utilization	25.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	219	46	5	205	14	18	19	5	14	12	8
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	270	0	0	224	0	0	42	0	0	34	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.99	0.85	0.95	0.96	0.85	0.95	0.94	0.85
Saturated Flow (vph)	0	3522	0	0	3580	0	0	1826	0	0	1795	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1119		0	1049		0	1398		0	1422	
Reference Time A (s)	0.0	13.4		0.0	11.7		0.0	3.6		0.0	2.9	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		9.2	10.8		8.9	10.3	
Reference Time (s)		13.4			11.7			3.6			2.9	
Adj Reference Time (s)		17.4			15.7			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	9.2		0.0	7.5		0.0	2.8		0.0	2.3	
Ref Time Seperate (s)	0.3	7.5		0.3	6.9		1.2	1.2		0.9	0.8	
Reference Time (s)	9.2	9.2		7.5	7.5		2.8	2.8		2.3	2.3	
Adj Reference Time (s)	13.2	13.2		11.5	11.5		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	17.4	8.0	
Split Option (s)	24.7	16.0	
Minimum (s)	17.4	8.0	25.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	21.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	3	3	254	13	7	10	186	15	12	10	15	1
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No				No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	273	0	0	0	218	0	0	37	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.99	0.85	0.95	0.95	0.99	0.85	0.95	0.92	0.85	0.95
Saturated Flow (vph)	0	0	3588	0	0	0	3566	0	0	1756	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00				0.00			0.00		
Protected Option Allowed			No				No			No		
Reference Time (s)				0.0				0.0			0.0	
Adj Reference Time (s)				0.0				0.0			0.0	
Permitted Option												
Adj Saturation A (vph)	0	0	1059		0	0	399		0	1506		0
Reference Time A (s)	0.0	0.0	14.1		0.0	0.0	22.5		0.0	2.9		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		0	0		0
Reference Time B (s)	NA	NA	NA		NA	NA	NA		8.8	10.5		8.1
Reference Time (s)			14.1				22.5			2.9		
Adj Reference Time (s)			18.1				26.5			8.0		
Split Option												
Ref Time Combined (s)	0.0	0.0	9.1		0.0	0.0	7.3		0.0	2.5		0.0
Ref Time Seperate (s)	0.2	0.2	8.5		0.5	0.7	6.2		0.8	0.7		0.1
Reference Time (s)	9.1	9.1	9.1		7.3	7.3	7.3		2.5	2.5		2.2
Adj Reference Time (s)	13.1	13.1	13.1		11.3	11.3	11.3		8.0	8.0		8.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	26.5	8.0	
Split Option (s)	24.5	16.0	
Minimum (s)	24.5	8.0	32.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	27.1%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	13	9	9
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	0	32	0
Lane Utilization Factor	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.94	0.85
Saturated Flow (vph)	0	1780	0
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		No	
Reference Time (s)			0.0
Adj Reference Time (s)			0.0
Permitted Option			
Adj Saturation A (vph)	0	1191	
Reference Time A (s)	0.0	3.2	
Adj Saturation B (vph	0	0	
Reference Time B (s)	8.9	10.2	
Reference Time (s)		3.2	
Adj Reference Time (s)		8.0	
Split Option			
Ref Time Combined (s)	0.0	2.2	
Ref Time Seperate (s)	0.9	0.6	
Reference Time (s)	2.2	2.2	
Adj Reference Time (s)	8.0	8.0	

Summary

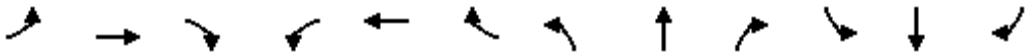
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	273	52	14	225	52	30	30	14	41	59	23
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	354	0	0	291	0	0	74	0	0	123	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.97	0.85	0.95	0.95	0.85	0.95	0.96	0.85
Saturated Flow (vph)	0	3523	0	0	3512	0	0	1809	0	0	1816	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	372		0	634		0	1273		0	1501	
Reference Time A (s)	0.0	38.4		0.0	22.2		0.0	7.0		0.0	9.8	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		10.0	12.9		10.7	16.1	
Reference Time (s)		38.4			22.2			7.0			9.8	
Adj Reference Time (s)		42.4			26.2			11.0			13.8	
Split Option												
Ref Time Combined (s)	0.0	12.1		0.0	9.9		0.0	4.9		0.0	8.1	
Ref Time Seperate (s)	1.9	9.3		0.9	7.7		2.0	2.0		2.7	3.9	
Reference Time (s)	12.1	12.1		9.9	9.9		4.9	4.9		8.1	8.1	
Adj Reference Time (s)	16.1	16.1		13.9	13.9		8.9	8.9		12.1	12.1	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	42.4	13.8	
Split Option (s)	30.0	21.0	
Minimum (s)	30.0	13.8	43.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	36.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



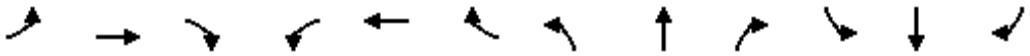
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	280	27	21	217	68	12	40	27	45	36	56
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	382	0	0	306	0	0	79	0	0	137	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.94	0.85	0.95	0.92	0.85
Saturated Flow (vph)	0	3544	0	0	3485	0	0	1789	0	0	1754	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	118		0	450		0	1622		0	926	
Reference Time A (s)	0.0	76.2		0.0	29.6		0.0	5.8		0.0	17.8	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.8	13.3		11.0	17.4	
Reference Time (s)		76.2			29.6			5.8			17.4	
Adj Reference Time (s)		80.2			33.6			9.8			21.4	
Split Option												
Ref Time Combined (s)	0.0	12.9		0.0	10.5		0.0	5.3		0.0	9.4	
Ref Time Seperate (s)	5.0	9.4		1.4	7.5		0.8	2.7		3.0	2.5	
Reference Time (s)	12.9	12.9		10.5	10.5		5.3	5.3		9.4	9.4	
Adj Reference Time (s)	16.9	16.9		14.5	14.5		9.3	9.3		13.4	13.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	80.2	21.4	
Split Option (s)	31.5	22.7	
Minimum (s)	31.5	21.4	52.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	44.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



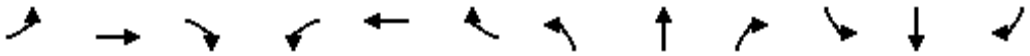
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	333	21	37	311	15	12	10	16	16	20	44
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	376	0	0	363	0	0	38	0	0	80	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	0.92	0.85	0.95	0.91	0.85
Saturated Flow (vph)	0	3577	0	0	3577	0	0	1752	0	0	1726	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	543		0	282		0	1081		0	1482	
Reference Time A (s)	0.0	31.8		0.0	45.7		0.0	4.2		0.0	6.5	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.8	10.6		9.1	13.6	
Reference Time (s)		31.8			45.7			4.2			6.5	
Adj Reference Time (s)		36.3			50.2			9.5			11.0	
Split Option												
Ref Time Combined (s)	0.0	12.6		0.0	12.2		0.0	2.6		0.0	5.6	
Ref Time Seperate (s)	1.5	11.1		2.5	10.4		0.8	0.7		1.1	1.4	
Reference Time (s)	12.6	12.6		12.2	12.2		2.6	2.6		5.6	5.6	
Adj Reference Time (s)	17.1	17.1		16.7	16.7		9.5	9.5		10.1	10.1	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	50.2	11.0	
Split Option (s)	33.8	19.6	
Minimum (s)	33.8	11.0	44.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	37.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	343	3	8	305	3	5	3	3	17	1	25
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	372	0	0	316	0	0	11	0	0	43	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.94	0.85	0.95	0.89	0.85
Saturated Flow (vph)	0	3601	0	0	3608	0	0	1781	0	0	1700	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	456		0	994		0	1303		0	1403	
Reference Time A (s)	0.0	35.2		0.0	17.1		0.0	1.0		0.0	3.7	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.3	8.7		9.1	11.0	
Reference Time (s)		35.2			17.1			1.0			3.7	
Adj Reference Time (s)		39.2			21.1			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	12.4		0.0	10.5		0.0	0.7		0.0	3.0	
Ref Time Seperate (s)	1.7	11.4		0.5	10.1		0.3	0.2		1.1	0.1	
Reference Time (s)	12.4	12.4		10.5	10.5		0.7	0.7		3.0	3.0	
Adj Reference Time (s)	16.4	16.4		14.5	14.5		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	39.2	8.0	
Split Option (s)	30.9	16.0	
Minimum (s)	30.9	8.0	38.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	32.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	1	3	26	2	3	21	1	2	2	0	10	8
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	32	0	0	25	0	0	4	0	0	18
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.98	0.85	0.95	0.99	0.85	0.95	0.97	0.85	0.95	0.97
Saturated Flow (vph)	0	0	1870	0	0	1877	0	0	1853	0	0	1847
Ped Intf Time (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
Pedestrian Frequency (%)			0.00			0.00			0.00			0.00
Protected Option Allowed			No			No			No			No
Reference Time (s)				0.0			0.0			0.0		
Adj Reference Time (s)				0.0			0.0			0.0		
Permitted Option												
Adj Saturation A (vph)	0	0	1388		0	1425		0	1568		0	1419
Reference Time A (s)	0.0	0.0	2.8		0.0	2.1		0.0	0.3		0.0	1.5
Adj Saturation B (vph	0	0	0		0	0		0	0		0	0
Reference Time B (s)	8.1	8.2	10.1		8.2	9.6		8.1	8.3		8.7	9.2
Reference Time (s)			2.8			2.1			0.3			1.5
Adj Reference Time (s)			8.0			8.0			8.0			8.0
Split Option												
Ref Time Combined (s)	0.0	0.0	2.1		0.0	1.6		0.0	0.3		0.0	1.2
Ref Time Seperate (s)	0.1	0.2	1.7		0.2	1.3		0.1	0.1		0.7	0.5
Reference Time (s)	2.1	2.1	2.1		1.6	1.6		0.3	0.3		1.2	1.2
Adj Reference Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	8.0	
Split Option (s)	16.0	16.0	
Minimum (s)	8.0	8.0	16.0

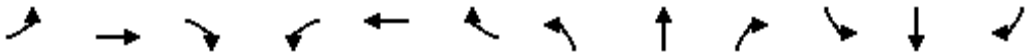
Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBR
Lane Configurations	
Volume (vph)	0
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	
Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	138	40	39	125	60	26	136	60	24	85	20
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	215	0	0	224	0	0	222	0	0	129	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	0.95	0.85	0.95	0.95	0.85	0.95	0.97	0.85
Saturated Flow (vph)	0	1831	0	0	1808	0	0	1812	0	0	1839	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1371		0	1344		0	1520		0	1169	
Reference Time A (s)	0.0	18.8		0.0	20.0		0.0	17.5		0.0	13.2	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		9.7	22.7		NA	NA	
Reference Time (s)		18.8			20.0			17.5			13.2	
Adj Reference Time (s)		22.8			24.0			21.5			17.2	
Split Option												
Ref Time Combined (s)	0.0	14.1		0.0	14.9		0.0	14.7		0.0	8.4	
Ref Time Seperate (s)	2.5	9.0		2.6	8.3		1.7	9.0		1.6	5.5	
Reference Time (s)	14.1	14.1		14.9	14.9		14.7	14.7		8.4	8.4	
Adj Reference Time (s)	18.1	18.1		18.9	18.9		18.7	18.7		12.4	12.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	24.0	21.5	
Split Option (s)	37.0	31.1	
Minimum (s)	24.0	21.5	45.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	37.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	76	21	1	49	138	132	36
Pedestrians							
Ped Button							
Pedestrian Timing (s)							
Free Right		No					No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120
Volume Combined (vph)	97	0	0	0	188	168	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.93	0.85	0.95	0.95	0.99	0.97	0.85
Saturated Flow (vph)	1766	0	0	0	1875	1839	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00				0.00	0.00	
Protected Option Allowed	No				No	No	
Reference Time (s)		0.0					0.0
Adj Reference Time (s)		0.0					0.0
Permitted Option							
Adj Saturation A (vph)	118		0	0	368	1839	
Reference Time A (s)	98.9		0.0	0.0	61.3	11.0	
Adj Saturation B (vph	NA		NA	NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	NA	
Reference Time (s)					61.3	11.0	
Adj Reference Time (s)					65.3	15.0	
Split Option							
Ref Time Combined (s)	6.6		0.0	0.0	12.0	11.0	
Ref Time Seperate (s)	5.2		0.1	3.3	8.7	8.6	
Reference Time (s)	6.6		12.0	12.0	12.0	11.0	
Adj Reference Time (s)	10.6		16.0	16.0	16.0	15.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	65.3	
Split Option (s)	10.6	31.0	
Minimum (s)	10.6	31.0	41.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	34.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

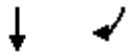
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	98	11	53	56	4	25	11	25	2019	26	28	4
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	98	64	0	56	29	0	0	36	2045	0	0	32
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.87	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1805	1664	0	1805	1654	0	0	1805	6888	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	6.5	4.6	0.0	3.7	2.1	0.0	0.0	2.4	35.6	0.0	0.0	2.1
Adj Reference Time (s)	11.0	9.5	0.0	9.5	9.5	0.0	0.0	9.5	40.1	0.0	0.0	9.5
Permitted Option												
Adj Saturation A (vph)	120	1664		120	1654		0	120	1722		0	120
Reference Time A (s)	97.7	4.6		55.8	2.1		0.0	35.9	35.6		0.0	31.9
Adj Saturation B (vph	0	1664		0	1654		NA	NA	NA		NA	NA
Reference Time B (s)	14.5	4.6		11.7	2.1		NA	NA	NA		NA	NA
Reference Time (s)		14.5			11.7				35.9			
Adj Reference Time (s)		19.0			16.2				40.4			
Split Option												
Ref Time Combined (s)	6.5	4.6		3.7	2.1		0.0	2.4	35.6		0.0	2.1
Ref Time Seperate (s)	6.5	0.8		3.7	0.3		0.7	1.7	35.2		1.9	0.3
Reference Time (s)	6.5	6.5		3.7	3.7		35.6	35.6	35.6		36.3	36.3
Adj Reference Time (s)	11.0	11.0		9.5	9.5		40.1	40.1	40.1		40.8	40.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	20.5	50.3	
Permitted Option (s)	19.0	40.8	
Split Option (s)	20.5	80.9	
Minimum (s)	19.0	40.8	59.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	49.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	2014	63
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	2077	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	6869	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	36.3	0.0
Adj Reference Time (s)	40.8	0.0
Permitted Option		
Adj Saturation A (vph)	1717	
Reference Time A (s)	36.3	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	36.3	
Adj Reference Time (s)	40.8	
Split Option		
Ref Time Combined (s)	36.3	
Ref Time Seperate (s)	35.2	
Reference Time (s)	36.3	
Adj Reference Time (s)	40.8	
Summary		

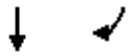
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	70	61	56	41	64	135	36	80	1887	107	11	68
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	70	117	0	41	64	135	0	116	1994	0	0	79
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	1.00	0.85	0.95	0.95	0.99	0.85	0.95	0.95
Saturated Flow (vph)	1805	1764	0	1805	1600	1615	0	1805	6845	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	4.7	8.0	0.0	2.7	4.0	10.0	0.0	7.7	35.0	0.0	0.0	5.3
Adj Reference Time (s)	9.5	12.5	0.0	9.5	9.5	14.5	0.0	12.2	39.5	0.0	0.0	9.8
Permitted Option												
Adj Saturation A (vph)	120	1764		120	1600		0	120	1711		0	120
Reference Time A (s)	69.8	8.0		40.9	4.0		0.0	115.7	35.0		0.0	78.8
Adj Saturation B (vph	0	1764		0	1600		NA	NA	NA		NA	NA
Reference Time B (s)	12.7	8.0		10.7	4.0		NA	NA	NA		NA	NA
Reference Time (s)		12.7			10.7				115.7			
Adj Reference Time (s)		17.2			15.2				120.2			
Split Option												
Ref Time Combined (s)	4.7	8.0		2.7	4.0		0.0	7.7	35.0		0.0	5.3
Ref Time Seperate (s)	4.7	4.2		2.7	4.0		2.4	5.3	33.1		0.7	4.5
Reference Time (s)	8.0	8.0		4.0	4.0		35.0	35.0	35.0		36.0	36.0
Adj Reference Time (s)	12.5	12.5		9.5	9.5		39.5	39.5	39.5		40.5	40.5

Summary	EB WB	NB SB	Combined
Protected Option (s)	22.0	52.7	
Permitted Option (s)	17.2	120.2	
Split Option (s)	22.0	80.0	
Minimum (s)	17.2	52.7	69.9

Right Turns	WBR
Adj Reference Time (s)	14.5
Cross Thru Ref Time (s)	49.2
Oncoming Left Ref Time (s)	9.5
Combined (s)	73.2

Intersection Summary			
Intersection Capacity Utilization	61.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	2022	42
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	2064	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	6880	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	36.0	0.0
Adj Reference Time (s)	40.5	0.0
Permitted Option		
Adj Saturation A (vph)	1720	
Reference Time A (s)	36.0	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	78.8	
Adj Reference Time (s)	83.3	
Split Option		
Ref Time Combined (s)	36.0	
Ref Time Seperate (s)	35.3	
Reference Time (s)	36.0	
Adj Reference Time (s)	40.5	
Summary		

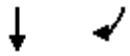
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	123	208	48	149	196	151	32	104	1666	116	44	170
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	123	256	0	149	196	151	0	136	1666	116	0	214
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1805	1847	0	1805	1600	1615	0	1805	6901	1615	0	3505
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	8.2	16.6	0.0	9.9	12.4	11.2	0.0	9.0	29.0	8.6	0.0	7.3
Adj Reference Time (s)	12.7	21.1	0.0	14.4	16.9	15.7	0.0	13.5	33.5	13.1	0.0	11.8
Permitted Option												
Adj Saturation A (vph)	120	1847		120	1600		0	120	1725		0	117
Reference Time A (s)	122.7	16.6		148.6	12.4		0.0	135.6	29.0		0.0	109.9
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		122.7			148.6				135.6			
Adj Reference Time (s)		127.2			153.1				140.1			
Split Option												
Ref Time Combined (s)	8.2	16.6		9.9	12.4		0.0	9.0	29.0		0.0	7.3
Ref Time Seperate (s)	8.2	13.5		9.9	12.4		2.1	6.9	29.0		2.9	5.8
Reference Time (s)	16.6	16.6		12.4	12.4		29.0	29.0	29.0		32.3	32.3
Adj Reference Time (s)	21.1	21.1		16.9	16.9		33.5	33.5	33.5		36.8	36.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	35.5	50.3	
Permitted Option (s)	153.1	140.1	
Split Option (s)	38.0	70.3	
Minimum (s)	35.5	50.3	85.9

Right Turns	WBR	NBR
Adj Reference Time (s)	15.7	13.1
Cross Thru Ref Time (s)	45.3	21.1
Oncoming Left Ref Time (s)	12.7	11.8
Combined (s)	73.7	46.1

Intersection Summary			
Intersection Capacity Utilization	71.6%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1755	88
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1843	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.99	0.85
Saturated Flow (vph)	6851	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	32.3	0.0
Adj Reference Time (s)	36.8	0.0
Permitted Option		
Adj Saturation A (vph)	1713	
Reference Time A (s)	32.3	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	109.9	
Adj Reference Time (s)	114.4	
Split Option		
Ref Time Combined (s)	32.3	
Ref Time Seperate (s)	30.7	
Reference Time (s)	32.3	
Adj Reference Time (s)	36.8	
Summary		

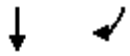
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	211	144	172	264	151	175	12	147	1461	170	13	40
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	527	0	264	151	175	0	159	1461	170	0	53
Lane Utilization Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	0	5057	0	3505	3618	1615	0	1805	6901	1615	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			0.0			13.0	0.0	10.6	25.4	12.6	0.0	3.5
Adj Reference Time (s)			0.0			17.5	0.0	15.1	29.9	17.1	0.0	9.5
Permitted Option												
Adj Saturation A (vph)	0	169		117	1809		0	120	1725		0	120
Reference Time A (s)	0.0	150.2		135.6	5.0		0.0	158.6	25.4		0.0	52.9
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		150.2			135.6				158.6			
Adj Reference Time (s)		154.7			140.1				163.1			
Split Option												
Ref Time Combined (s)	0.0	12.5		9.0	5.0		0.0	10.6	25.4		0.0	3.5
Ref Time Seperate (s)	7.0	5.2		9.0	5.0		0.8	9.8	25.4		0.9	2.7
Reference Time (s)	12.5	12.5		9.0	9.0		25.4	25.4	25.4		33.5	33.5
Adj Reference Time (s)	17.0	17.0		13.5	13.5		29.9	29.9	29.9		38.0	38.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	53.1	
Permitted Option (s)	154.7	163.1	
Split Option (s)	30.5	68.0	
Minimum (s)	30.5	53.1	83.7

Right Turns	WBR	NBR
Adj Reference Time (s)	17.5	17.1
Cross Thru Ref Time (s)	39.4	17.0
Oncoming Left Ref Time (s)	17.0	9.5
Combined (s)	73.9	43.6

Intersection Summary			
Intersection Capacity Utilization	69.7%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1769	139
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1908	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.99	0.85
Saturated Flow (vph)	6825	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	33.5	0.0
Adj Reference Time (s)	38.0	0.0
Permitted Option		
Adj Saturation A (vph)	1706	
Reference Time A (s)	33.5	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	52.9	
Adj Reference Time (s)	57.4	
Split Option		
Ref Time Combined (s)	33.5	
Ref Time Seperate (s)	31.1	
Reference Time (s)	33.5	
Adj Reference Time (s)	38.0	
Summary		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	3	126	299	484	395	293	158	37	331	1440	295	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No			No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	129	299	484	395	293	158	0	368	1735	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.97	0.91	1.00	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.97	0.85	0.95
Saturated Flow (vph)	0	1805	3618	1615	3505	3618	1615	0	3505	6725	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00			0.00				0.00		
Protected Option Allowed			Yes			Yes				Yes		
Reference Time (s)	0.0	8.6	9.9	36.0	13.5	9.7	11.7	0.0	12.6	31.0	0.0	0.0
Adj Reference Time (s)	0.0	13.1	14.4	40.5	18.0	14.2	16.2	0.0	17.1	35.5	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	120	1809		117	1809		0	117	1681		0
Reference Time A (s)	0.0	128.6	9.9		202.8	9.7		0.0	189.0	31.0		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time B (s)	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time (s)			128.6			202.8				189.0		
Adj Reference Time (s)			133.1			207.3				193.5		
Split Option												
Ref Time Combined (s)	0.0	8.6	9.9		13.5	9.7		0.0	12.6	31.0		0.0
Ref Time Seperate (s)	0.2	8.4	9.9		13.5	9.7		2.5	11.3	25.7		0.6
Reference Time (s)	9.9	9.9	9.9		13.5	13.5		31.0	31.0	31.0		35.7
Adj Reference Time (s)	14.4	14.4	14.4		18.0	18.0		35.5	35.5	35.5		40.2

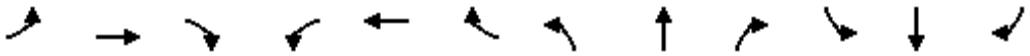
Summary	EB WB	NB SB	Combined
Protected Option (s)	32.4	57.3	
Permitted Option (s)	207.3	193.5	
Split Option (s)	32.4	75.6	
Minimum (s)	32.4	57.3	89.7

Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	40.5	16.2	9.8
Cross Thru Ref Time (s)	57.3	45.0	27.3
Oncoming Left Ref Time (s)	18.0	13.1	17.1
Combined (s)	115.8	74.3	54.2

Intersection Summary			
Intersection Capacity Utilization	96.5%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	101	2052	71
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	110	2052	71
Lane Utilization Factor	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85
Saturated Flow (vph)	3505	6901	1615
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		Yes	
Reference Time (s)	3.8	35.7	5.3
Adj Reference Time (s)	9.5	40.2	9.8
Permitted Option			
Adj Saturation A (vph)	117	1725	
Reference Time A (s)	56.5	35.7	
Adj Saturation B (vph	NA	NA	
Reference Time B (s)	NA	NA	
Reference Time (s)		56.5	
Adj Reference Time (s)		61.0	
Split Option			
Ref Time Combined (s)	3.8	35.7	
Ref Time Seperate (s)	3.5	35.7	
Reference Time (s)	35.7	35.7	
Adj Reference Time (s)	40.2	40.2	
Summary			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	24	28	27	22	65	24	536	35	81	611	141
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	107	52	0	0	114	0	0	595	0	0	833	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.90	0.85	0.95	0.99	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1805	1747	0	0	1717	0	0	3578	0	0	3509	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	548	1747		0	371		0	741		0	296	
Reference Time A (s)	23.4	3.6		0.0	36.9		0.0	40.4		0.0	103.2	
Adj Saturation B (vph	0	1747		0	0		NA	NA		NA	NA	
Reference Time B (s)	15.1	3.6		9.8	16.0		NA	NA		NA	NA	
Reference Time (s)		15.1			16.0			40.4			103.2	
Adj Reference Time (s)		19.6			20.5			44.9			107.7	
Split Option												
Ref Time Combined (s)	7.1	3.6		0.0	8.0		0.0	20.0		0.0	28.5	
Ref Time Seperate (s)	7.1	1.6		1.8	1.6		1.6	17.9		5.4	20.9	
Reference Time (s)	7.1	7.1		8.0	8.0		20.0	20.0		28.5	28.5	
Adj Reference Time (s)	11.6	11.6		12.5	12.5		24.5	24.5		33.0	33.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	20.5	107.7	
Split Option (s)	24.1	57.4	
Minimum (s)	20.5	57.4	77.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	64.9%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	12	27	37	25	36	32	584	22	29	589	15
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	68	0	0	98	0	0	638	0	0	633	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.93	0.85	0.95	0.99	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1749	0	0	1761	0	0	3590	0	0	3596	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1283		0	1433		0	626		0	676	
Reference Time A (s)	0.0	6.4		0.0	8.2		0.0	48.9		0.0	45.9	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.9	12.7		10.5	14.7		NA	NA		NA	NA	
Reference Time (s)		6.4			8.2			48.9			45.9	
Adj Reference Time (s)		10.4			12.2			52.9			49.9	
Split Option												
Ref Time Combined (s)	0.0	4.7		0.0	6.7		0.0	21.3		0.0	21.1	
Ref Time Seperate (s)	1.9	0.8		2.5	1.7		2.1	19.5		1.9	19.6	
Reference Time (s)	4.7	4.7		6.7	6.7		21.3	21.3		21.1	21.1	
Adj Reference Time (s)	8.7	8.7		10.7	10.7		25.3	25.3		25.1	25.1	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	12.2	52.9	
Split Option (s)	19.3	50.4	
Minimum (s)	12.2	50.4	62.7

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	52.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

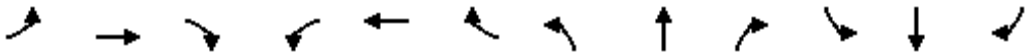
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	70	30	48	80	117	23	444	45	147	440	41
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	166	0	0	245	0	0	512	0	0	628	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.92	0.85	0.95	0.98	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1812	0	0	1747	0	0	3562	0	0	3540	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	971		0	1598		0	680		0	118	
Reference Time A (s)	0.0	20.5		0.0	18.4		0.0	37.1		0.0	149.5	
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		11.2	24.8		NA	NA		NA	NA	
Reference Time (s)		20.5			18.4			37.1			149.5	
Adj Reference Time (s)		25.0			22.9			41.6			154.0	
Split Option												
Ref Time Combined (s)	0.0	11.0		0.0	16.8		0.0	17.2		0.0	21.3	
Ref Time Seperate (s)	4.4	4.6		3.2	5.5		1.5	14.9		9.8	14.8	
Reference Time (s)	11.0	11.0		16.8	16.8		17.2	17.2		21.3	21.3	
Adj Reference Time (s)	15.5	15.5		21.3	21.3		21.7	21.7		25.8	25.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	25.0	154.0	
Split Option (s)	36.8	47.5	
Minimum (s)	25.0	47.5	72.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	60.5%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



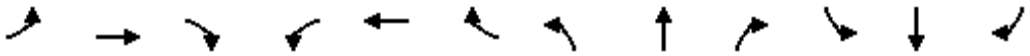
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	24	24	10	19	84	38	432	7	54	384	46
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	105	0	0	113	0	0	477	0	0	484	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	0.88	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1785	0	0	1681	0	0	3595	0	0	3546	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	477		0	1683		0	393		0	244	
Reference Time A (s)	0.0	26.4		0.0	8.1		0.0	49.7		0.0	65.9	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	11.8	15.1		8.7	16.1		NA	NA		NA	NA	
Reference Time (s)		15.1			8.1			49.7			65.9	
Adj Reference Time (s)		19.1			12.1			53.7			69.9	
Split Option												
Ref Time Combined (s)	0.0	7.1		0.0	8.1		0.0	15.9		0.0	16.4	
Ref Time Seperate (s)	3.8	1.6		0.7	1.4		2.5	14.4		3.6	12.9	
Reference Time (s)	7.1	7.1		8.1	8.1		15.9	15.9		16.4	16.4	
Adj Reference Time (s)	11.1	11.1		12.1	12.1		19.9	19.9		20.4	20.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	19.1	69.9	
Split Option (s)	23.1	40.3	
Minimum (s)	19.1	40.3	59.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	49.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



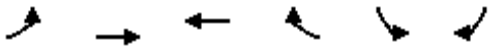
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	234	51	40	178	129	63	273	26	136	161	73
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	345	0	0	347	0	0	362	0	0	370	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.94	0.85	0.95	0.98	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3507	0	0	3396	0	0	3547	0	0	3446	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	117		0	222		0	118		0	115	
Reference Time A (s)	0.0	61.6		0.0	50.5		0.0	63.9		0.0	142.1	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		61.6			50.5			63.9			142.1	
Adj Reference Time (s)		66.1			55.0			68.4			146.6	
Split Option												
Ref Time Combined (s)	0.0	11.8		0.0	12.3		0.0	12.2		0.0	12.9	
Ref Time Seperate (s)	4.0	8.0		2.7	6.3		4.2	9.2		9.0	5.6	
Reference Time (s)	11.8	11.8		12.3	12.3		12.2	12.2		12.9	12.9	
Adj Reference Time (s)	16.3	16.3		16.8	16.8		16.7	16.7		17.4	17.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	66.1	146.6	
Split Option (s)	33.1	34.1	
Minimum (s)	33.1	34.1	67.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	56.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



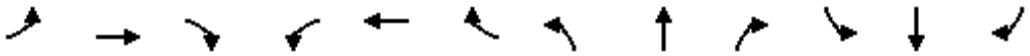
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	49	297	175	189	178	24
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	346	175	189	202	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.97	1.00
Turning Factor (vph)	0.95	0.99	1.00	0.85	0.94	0.85
Saturated Flow (vph)	0	1887	1600	1615	3464	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	0.00		0.00	
Protected Option Allowed		No	No		No	
Reference Time (s)				14.0		0.0
Adj Reference Time (s)				18.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	605	1600		115	
Reference Time A (s)	0.0	68.6	11.1		105.0	
Adj Saturation B (vph	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		68.6	11.1			
Adj Reference Time (s)		72.6	15.1			
Split Option						
Ref Time Combined (s)	0.0	22.0	11.1		7.0	
Ref Time Seperate (s)	3.3	18.8	11.1		6.2	
Reference Time (s)	22.0	22.0	11.1		7.0	
Adj Reference Time (s)	26.0	26.0	15.1		11.0	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	72.6	Err	
Split Option (s)	41.1	11.0	
Minimum (s)	41.1	11.0	52.1

Right Turns	WBR
Adj Reference Time (s)	18.0
Cross Thru Ref Time (s)	0.0
Oncoming Left Ref Time (s)	26.0
Combined (s)	44.1

Intersection Summary			
Intersection Capacity Utilization	43.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	240	24	7	250	15	64	26	6	12	20	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	281	0	0	272	0	0	96	0	0	41	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.99	0.85	0.95	0.96	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3560	0	0	3583	0	0	1819	0	0	1811	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	523		0	979		0	885		0	1812	
Reference Time A (s)	0.0	24.4		0.0	15.0		0.0	13.0		0.0	2.7	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		12.3	14.3		8.8	10.7	
Reference Time (s)		24.4			15.0			13.0			2.7	
Adj Reference Time (s)		28.4			19.0			17.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	9.5		0.0	9.1		0.0	6.3		0.0	2.7	
Ref Time Seperate (s)	1.1	8.1		0.5	8.4		4.3	1.7		0.8	1.3	
Reference Time (s)	9.5	9.5		9.1	9.1		6.3	6.3		2.7	2.7	
Adj Reference Time (s)	13.5	13.5		13.1	13.1		10.3	10.3		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	28.4	17.0	
Split Option (s)	26.6	18.3	
Minimum (s)	26.6	17.0	43.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	36.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	6	8	244	9	8	11	260	16	12	11	11	14
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No				No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	267	0	0	0	295	0	0	34	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.99	0.85	0.95	0.95	0.99	0.85	0.95	0.93	0.85	0.95
Saturated Flow (vph)	0	0	3590	0	0	0	3577	0	0	1776	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00				0.00			0.00		
Protected Option Allowed			No				No			No		
Reference Time (s)				0.0				0.0			0.0	
Adj Reference Time (s)				0.0				0.0			0.0	
Permitted Option												
Adj Saturation A (vph)	0	0	602		0	0	494		0	1417		0
Reference Time A (s)	0.0	0.0	21.0		0.0	0.0	26.6		0.0	2.9		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		0	0		0
Reference Time B (s)	NA	NA	NA		NA	NA	NA		8.8	10.3		8.9
Reference Time (s)			21.0				26.6			2.9		
Adj Reference Time (s)			25.0				30.6			8.0		
Split Option												
Ref Time Combined (s)	0.0	0.0	8.9		0.0	0.0	9.9		0.0	2.3		0.0
Ref Time Seperate (s)	0.4	0.5	8.1		0.5	0.7	8.7		0.8	0.8		0.9
Reference Time (s)	8.9	8.9	8.9		9.9	9.9	9.9		2.3	2.3		2.4
Adj Reference Time (s)	12.9	12.9	12.9		13.9	13.9	13.9		8.0	8.0		8.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	30.6	8.0	
Split Option (s)	26.8	16.0	
Minimum (s)	26.8	8.0	34.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	29.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	13	9
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.0	4.0
Minimum Green (s)	4.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	36	0
Lane Utilization Factor	1.00	1.00
Turning Factor (vph)	0.94	0.85
Saturated Flow (vph)	1793	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	No	
Reference Time (s)		0.0
Adj Reference Time (s)		0.0
Permitted Option		
Adj Saturation A (vph)	1321	
Reference Time A (s)	3.3	
Adj Saturation B (vph	0	
Reference Time B (s)	10.4	
Reference Time (s)	3.3	
Adj Reference Time (s)	8.0	
Split Option		
Ref Time Combined (s)	2.4	
Ref Time Seperate (s)	0.9	
Reference Time (s)	2.4	
Adj Reference Time (s)	8.0	
Summary		

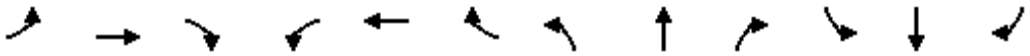
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	281	61	47	289	35	34	65	23	48	45	23
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	407	0	0	371	0	0	122	0	0	116	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3508	0	0	3544	0	0	1821	0	0	1805	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	127		0	198		0	1585		0	1145	
Reference Time A (s)	0.0	69.5		0.0	55.5		0.0	9.2		0.0	12.2	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		10.3	16.0		11.2	15.7	
Reference Time (s)		69.5			55.5			9.2			12.2	
Adj Reference Time (s)		73.5			59.5			13.2			16.2	
Split Option												
Ref Time Combined (s)	0.0	13.9		0.0	12.6		0.0	8.0		0.0	7.7	
Ref Time Seperate (s)	4.3	9.6		3.1	9.7		2.3	4.3		3.2	3.0	
Reference Time (s)	13.9	13.9		12.6	12.6		8.0	8.0		7.7	7.7	
Adj Reference Time (s)	17.9	17.9		16.6	16.6		12.0	12.0		11.7	11.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	73.5	16.2	
Split Option (s)	34.5	23.8	
Minimum (s)	34.5	16.2	50.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	42.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	320	13	10	327	61	27	98	27	66	69	71
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	394	0	0	398	0	0	152	0	0	206	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.93	0.85
Saturated Flow (vph)	0	3572	0	0	3530	0	0	1833	0	0	1773	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	137		0	977		0	1615		0	1026	
Reference Time A (s)	0.0	65.5		0.0	22.0		0.0	11.3		0.0	24.1	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		65.5			22.0			11.3			24.1	
Adj Reference Time (s)		69.5			26.0			15.3			28.1	
Split Option												
Ref Time Combined (s)	0.0	13.2		0.0	13.5		0.0	10.0		0.0	13.9	
Ref Time Seperate (s)	4.1	10.7		0.7	11.1		1.8	6.4		4.4	4.7	
Reference Time (s)	13.2	13.2		13.5	13.5		10.0	10.0		13.9	13.9	
Adj Reference Time (s)	17.2	17.2		17.5	17.5		14.0	14.0		17.9	17.9	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	69.5	28.1	
Split Option (s)	34.8	31.9	
Minimum (s)	34.8	28.1	62.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	52.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	21	416	8	27	393	14	22	19	76	1	9	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	445	0	0	434	0	0	117	0	0	0	48
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	0.89	0.85	0.95	0.95	0.90
Saturated Flow (vph)	0	3599	0	0	3589	0	0	1699	0	0	0	1710
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00				0.00
Protected Option Allowed		No			No			No				No
Reference Time (s)			0.0			0.0			0.0			
Adj Reference Time (s)			0.0			0.0			0.0			
Permitted Option												
Adj Saturation A (vph)	0	660		0	513		0	1310		0	0	1232
Reference Time A (s)	0.0	32.8		0.0	38.1		0.0	10.7		0.0	0.0	4.7
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	0
Reference Time B (s)	NA	NA		NA	NA		9.5	16.3		8.1	8.6	11.4
Reference Time (s)		32.8			38.1			10.7				4.7
Adj Reference Time (s)		37.3			42.6			15.2				9.5
Split Option												
Ref Time Combined (s)	0.0	14.8		0.0	14.5		0.0	8.3		0.0	0.0	3.4
Ref Time Seperate (s)	1.4	13.8		1.8	13.1		1.5	1.4		0.1	0.6	0.6
Reference Time (s)	14.8	14.8		14.5	14.5		8.3	8.3		3.4	3.4	3.4
Adj Reference Time (s)	19.3	19.3		19.0	19.0		12.8	12.8		9.5	9.5	9.5

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	42.6	15.2	
Split Option (s)	38.3	22.3	
Minimum (s)	38.3	15.2	53.6

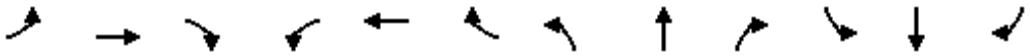
Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	44.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBR
Lane Configurations	
Volume (vph)	29
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	
Summary	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	380	7	8	416	12	3	2	8	5	5	10
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	399	0	0	436	0	0	13	0	0	20	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.90	0.85	0.95	0.91	0.85
Saturated Flow (vph)	0	3603	0	0	3599	0	0	1705	0	0	1736	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	903		0	1148		0	1312		0	1262	
Reference Time A (s)	0.0	23.3		0.0	21.1		0.0	1.2		0.0	1.9	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.2	8.9		8.3	9.4	
Reference Time (s)		23.3			21.1			1.2			1.9	
Adj Reference Time (s)		27.3			25.1			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	13.3		0.0	14.5		0.0	0.9		0.0	1.4	
Ref Time Seperate (s)	0.8	12.6		0.5	13.9		0.2	0.1		0.3	0.4	
Reference Time (s)	13.3	13.3		14.5	14.5		0.9	0.9		1.4	1.4	
Adj Reference Time (s)	17.3	17.3		18.5	18.5		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	27.3	8.0	
Split Option (s)	35.8	16.0	
Minimum (s)	27.3	8.0	35.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	29.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	43	5	0	40	8	0	4	0	5	5	4
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	54	0	0	48	0	0	4	0	0	14	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.94	0.85
Saturated Flow (vph)	0	1863	0	0	1853	0	0	1600	0	0	1786	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	705		0	1853		0	1600		0	273	
Reference Time A (s)	0.0	9.2		0.0	3.1		0.0	0.3		0.0	6.2	
Adj Saturation B (vph	0	0		0	1853		0	1600		0	0	
Reference Time B (s)	8.4	11.5		0.0	3.1		0.0	0.3		8.3	8.9	
Reference Time (s)		9.2			3.1			0.3			6.2	
Adj Reference Time (s)		13.2			8.0			8.0			10.2	
Split Option												
Ref Time Combined (s)	0.0	3.5		0.0	3.1		0.0	0.3		0.0	0.9	
Ref Time Seperate (s)	0.4	2.8		0.0	2.6		0.0	0.3		0.3	0.3	
Reference Time (s)	3.5	3.5		3.1	3.1		0.3	0.3		0.9	0.9	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	13.2	10.2	
Split Option (s)	16.0	16.0	
Minimum (s)	13.2	10.2	23.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	19.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	143	28	69	212	34	24	198	66	30	111	24
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	191	0	0	315	0	0	288	0	0	165	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.97	0.85	0.95	0.96	0.85	0.95	0.97	0.85
Saturated Flow (vph)	0	1848	0	0	1849	0	0	1827	0	0	1842	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1632		0	1040		0	1613		0	1047	
Reference Time A (s)	0.0	14.0		0.0	36.3		0.0	21.4		0.0	18.9	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		14.0			36.3			21.4			18.9	
Adj Reference Time (s)		18.0			40.3			25.4			22.9	
Split Option												
Ref Time Combined (s)	0.0	12.4		0.0	20.4		0.0	18.9		0.0	10.8	
Ref Time Seperate (s)	1.3	9.3		4.6	13.7		1.6	13.0		2.0	7.2	
Reference Time (s)	12.4	12.4		20.4	20.4		18.9	18.9		10.8	10.8	
Adj Reference Time (s)	16.4	16.4		24.4	24.4		22.9	22.9		14.8	14.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	40.3	25.4	
Split Option (s)	40.8	37.7	
Minimum (s)	40.3	25.4	65.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	54.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	66	50	2	36	202	167	50
Pedestrians							
Ped Button							
Pedestrian Timing (s)							
Free Right		No					No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120
Volume Combined (vph)	116	0	0	0	240	217	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.91	0.85	0.95	0.95	0.99	0.97	0.85
Saturated Flow (vph)	1727	0	0	0	1885	1834	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00				0.00	0.00	
Protected Option Allowed	No				No	No	
Reference Time (s)		0.0					0.0
Adj Reference Time (s)		0.0					0.0
Permitted Option							
Adj Saturation A (vph)	115		0	0	558	1834	
Reference Time A (s)	120.9		0.0	0.0	51.7	14.2	
Adj Saturation B (vph	NA		NA	NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	NA	
Reference Time (s)					51.7	14.2	
Adj Reference Time (s)					55.7	18.2	
Split Option							
Ref Time Combined (s)	8.1		0.0	0.0	15.3	14.2	
Ref Time Seperate (s)	4.6		0.1	2.4	12.8	10.9	
Reference Time (s)	8.1		15.3	15.3	15.3	14.2	
Adj Reference Time (s)	12.1		19.3	19.3	19.3	18.2	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	55.7	
Split Option (s)	12.1	37.5	
Minimum (s)	12.1	37.5	49.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	41.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Attachment C

Existing plus Project Analysis Worksheets

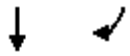
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	85	15	41	13	7	8	4	60	1720	43	22	15
Future Volume (veh/h)	85	15	41	13	7	8	4	60	1720	43	22	15
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870
Adj Flow Rate, veh/h	87	15	42	13	7	8		61	1755	44		15
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	276	46	128	238	84	96		101	3992	100		33
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11		0.06	0.61	0.61		0.02
Sat Flow, veh/h	1398	435	1217	1346	796	910		1781	6504	163		1781
Grp Volume(v), veh/h	87	0	57	13	0	15		61	1302	497		15
Grp Sat Flow(s),veh/h/ln	1398	0	1651	1346	0	1707		1781	1609	1841		1781
Q Serve(g_s), s	3.1	0.0	1.6	0.5	0.0	0.4		1.7	7.3	7.3		0.4
Cycle Q Clear(g_c), s	3.5	0.0	1.6	2.1	0.0	0.4		1.7	7.3	7.3		0.4
Prop In Lane	1.00		0.74	1.00		0.53		1.00		0.09		1.00
Lane Grp Cap(c), veh/h	276	0	173	238	0	179		101	2962	1130		33
V/C Ratio(X)	0.32	0.00	0.33	0.05	0.00	0.08		0.61	0.44	0.44		0.45
Avail Cap(c_a), veh/h	686	0	658	633	0	680		398	4549	1736		260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	22.4	0.0	21.3	22.3	0.0	20.8		23.7	5.3	5.3		25.0
Incr Delay (d2), s/veh	0.6	0.0	1.1	0.1	0.0	0.2		5.7	0.1	0.3		9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.6	0.1	0.0	0.2		0.8	1.3	1.6		0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	0.0	22.4	22.4	0.0	21.0		29.5	5.4	5.5		34.1
LnGrp LOS	C	A	C	C	A	C		C	A	A		C
Approach Vol, veh/h		144			28				1860			
Approach Delay, s/veh		22.8			21.6				6.2			
Approach LOS		C			C				A			

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	36.1		9.9	7.4	34.1		9.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	48.5		20.5	11.5	44.5		20.5				
Max Q Clear Time (g_c+I1), s	2.4	9.3		5.5	3.7	11.4		4.1				
Green Ext Time (p_c), s	0.0	17.1		0.4	0.1	18.2		0.0				

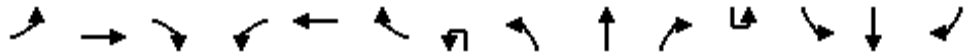
Intersection Summary		
HCM 6th Ctrl Delay	7.3	
HCM 6th LOS	A	

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1757	184
Future Volume (veh/h)	1757	184
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	1793	188
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	2	2
Cap, veh/h	3432	360
Arrive On Green	0.58	0.58
Sat Flow, veh/h	5959	625
Grp Volume(v), veh/h	1452	529
Grp Sat Flow(s),veh/h/ln	1609	1758
Q Serve(g_s), s	9.4	9.4
Cycle Q Clear(g_c), s	9.4	9.4
Prop In Lane		0.36
Lane Grp Cap(c), veh/h	2780	1013
V/C Ratio(X)	0.52	0.52
Avail Cap(c_a), veh/h	4174	1521
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	6.6	6.6
Incr Delay (d2), s/veh	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	6.8	7.0
LnGrp LOS	A	A
Approach Vol, veh/h	1996	
Approach Delay, s/veh	7.0	
Approach LOS	A	
Timer - Assigned Phs		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	138	108	74	21	46	96	27	31	1579	148	9	145	1564	50
Future Volume (veh/h)	138	108	74	21	46	96	27	31	1579	148	9	145	1564	50
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	144	112	77	22	48	100		32	1645	154		151	1629	52
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	281	179	123	180	324	274		57	3278	307		192	3994	127
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17		0.03	0.54	0.54		0.11	0.62	0.62
Sat Flow, veh/h	1240	1033	710	1194	1870	1585		1781	6030	564		1781	6453	206
Grp Volume(v), veh/h	144	0	189	22	48	100		32	1316	483		151	1218	463
Grp Sat Flow(s),veh/h/ln	1240	0	1743	1194	1870	1585		1781	1609	1769		1781	1609	1833
Q Serve(g_s), s	8.6	0.0	7.7	1.3	1.7	4.3		1.4	13.1	13.1		6.3	9.9	9.9
Cycle Q Clear(g_c), s	10.2	0.0	7.7	9.1	1.7	4.3		1.4	13.1	13.1		6.3	9.9	9.9
Prop In Lane	1.00		0.41	1.00		1.00		1.00		0.32		1.00		0.11
Lane Grp Cap(c), veh/h	281	0	301	180	324	274		57	2623	961		192	2986	1135
V/C Ratio(X)	0.51	0.00	0.63	0.12	0.15	0.36		0.56	0.50	0.50		0.79	0.41	0.41
Avail Cap(c_a), veh/h	398	0	465	293	500	423		197	2623	961		429	2986	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	0.0	29.4	33.6	26.9	28.0		36.6	11.0	11.0		33.4	7.5	7.5
Incr Delay (d2), s/veh	1.4	0.0	2.1	0.3	0.2	0.8		8.2	0.7	1.9		7.0	0.4	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	3.4	0.4	0.7	1.6		0.7	4.0	4.7		3.0	2.7	3.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	32.7	0.0	31.6	33.9	27.1	28.8		44.8	11.7	12.9		40.4	7.9	8.5
LnGrp LOS	C	A	C	C	C	C		D	B	B		D	A	A
Approach Vol, veh/h		333			170				1831				1832	
Approach Delay, s/veh		32.1			29.0				12.6				10.7	
Approach LOS		C			C				B				B	

Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	12.8	46.2		17.8	7.0	52.0		17.8						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	8.5	37.5		20.5	8.5	47.5		20.5						
Max Q Clear Time (g_c+I1), s	8.3	15.1		12.2	3.4	11.9		11.1						
Green Ext Time (p_c), s	0.3	13.0		1.0	0.0	15.0		0.4						

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.



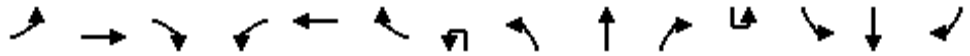
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	122	204	62	1	79	98	100	14	61	1506	113	29	172	1417	77
Future Volume (veh/h)	122	204	62	1	79	98	100	14	61	1506	113	29	172	1417	77
Initial Q (Qb), veh	0	0	0		0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	130	217	66		84	104	106		65	1602	120		183	1507	82
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2		2	2	2		2	2	2
Cap, veh/h	166	265	81		109	300	254		89	2707	667		276	2835	154
Arrive On Green	0.09	0.19	0.19		0.06	0.16	0.16		0.05	0.42	0.42		0.08	0.45	0.45
Sat Flow, veh/h	1781	1376	419		1781	1870	1585		1781	6434	1585		3456	6292	342
Grp Volume(v), veh/h	130	0	283		84	104	106		65	1602	120		183	1155	434
Grp Sat Flow(s),veh/h/ln	1781	0	1795		1781	1870	1585		1781	1609	1585		1728	1609	1809
Q Serve(g_s), s	5.2	0.0	11.1		3.4	3.6	4.4		2.6	14.1	3.5		3.8	12.7	12.7
Cycle Q Clear(g_c), s	5.2	0.0	11.1		3.4	3.6	4.4		2.6	14.1	3.5		3.8	12.7	12.7
Prop In Lane	1.00		0.23		1.00		1.00		1.00		1.00		1.00		0.19
Lane Grp Cap(c), veh/h	166	0	345		109	300	254		89	2707	667		276	2174	815
V/C Ratio(X)	0.78	0.00	0.82		0.77	0.35	0.42		0.73	0.59	0.18		0.66	0.53	0.53
Avail Cap(c_a), veh/h	290	0	513		238	480	407		231	2707	667		496	2174	815
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	28.3		33.9	27.3	27.7		34.3	16.3	13.3		32.7	14.5	14.5
Incr Delay (d2), s/veh	7.8	0.0	6.5		11.0	0.7	1.1		10.7	1.0	0.6		2.7	0.9	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	5.2		1.7	1.6	1.6		1.3	4.7	1.2		1.6	4.2	5.0
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh	40.3	0.0	34.9		44.8	28.0	28.8		45.0	17.3	13.9		35.4	15.5	17.0
LnGrp LOS	D	A	C		D	C	C		D	B	B		D	B	B
Approach Vol, veh/h		413				294				1787				1772	
Approach Delay, s/veh		36.6				33.1				18.1				17.9	
Approach LOS		D				C				B				B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	35.3	9.0	18.6	8.2	37.5	11.3	16.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	30.8	9.8	20.9	9.5	31.8	11.9	18.8
Max Q Clear Time (g_c+I1), s	5.6	16.1	5.4	13.1	4.6	14.7	7.2	6.4
Green Ext Time (p_c), s	0.2	9.5	0.1	1.0	0.0	9.6	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	175	141	97	48	74	45	10	131	1438	404	17	179	1119	194
Future Volume (veh/h)	175	141	97	48	74	45	10	131	1438	404	17	179	1119	194
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	146	206	103	51	79	48		139	1530	430		190	1190	206
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	252	338	162	259	267	119		178	2371	584		237	2233	384
Arrive On Green	0.14	0.14	0.14	0.08	0.08	0.08		0.10	0.37	0.37		0.13	0.40	0.40
Sat Flow, veh/h	1781	2388	1146	3456	3554	1585		1781	6434	1585		1781	5566	957
Grp Volume(v), veh/h	146	159	150	51	79	48		139	1530	430		190	1031	365
Grp Sat Flow(s),veh/h/ln	1781	1870	1664	1728	1777	1585		1781	1609	1585		1781	1609	1698
Q Serve(g_s), s	4.9	5.1	5.4	0.9	1.3	1.8		4.9	12.6	15.0		6.6	10.4	10.5
Cycle Q Clear(g_c), s	4.9	5.1	5.4	0.9	1.3	1.8		4.9	12.6	15.0		6.6	10.4	10.5
Prop In Lane	1.00		0.69	1.00		1.00		1.00		1.00		1.00		0.56
Lane Grp Cap(c), veh/h	252	265	235	259	267	119		178	2371	584		237	1936	681
V/C Ratio(X)	0.58	0.60	0.64	0.20	0.30	0.40		0.78	0.65	0.74		0.80	0.53	0.54
Avail Cap(c_a), veh/h	503	528	470	975	1003	447		310	2371	584		349	1936	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	25.7	25.8	27.7	27.9	28.1		28.0	16.7	17.5		26.8	14.5	14.6
Incr Delay (d2), s/veh	2.1	2.2	2.8	0.4	0.6	2.2		7.2	1.4	8.1		8.1	1.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.3	2.2	0.4	0.6	0.7		2.3	4.2	5.9		3.1	3.4	3.9
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	27.7	27.9	28.7	28.1	28.5	30.3		35.2	18.1	25.5		34.9	15.6	17.6
LnGrp LOS	C	C	C	C	C	C		D	B	C		C	B	B
Approach Vol, veh/h		455			178				2099				1586	
Approach Delay, s/veh		28.1			28.9				20.7				18.4	
Approach LOS		C			C				C				B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.0	28.0		13.5	10.9	30.1		9.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	12.5	23.5		18.0	11.1	24.9		18.0
Max Q Clear Time (g_c+I1), s	8.6	17.0		7.4	6.9	12.5		3.8
Green Ext Time (p_c), s	0.2	5.1		1.6	0.1	7.0		0.6

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	1	99	218	289	127	231	109	27	401	1893	250	14	104	996	136
Future Volume (veh/h)	1	99	218	289	127	231	109	27	401	1893	250	14	104	996	136
Initial Q (Qb), veh		0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		103	227	301	132	241	114		418	1972	260		108	1038	142
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h		132	766	342	204	714	318		518	2658	350		188	2336	575
Arrive On Green		0.07	0.22	0.22	0.06	0.20	0.20		0.15	0.46	0.46		0.05	0.36	0.36
Sat Flow, veh/h		1781	3554	1585	3456	3554	1585		3456	5795	763		3456	6434	1585
Grp Volume(v), veh/h		103	227	301	132	241	114		418	1642	590		108	1038	142
Grp Sat Flow(s),veh/h/ln		1781	1777	1585	1728	1777	1585		1728	1609	1733		1728	1609	1585
Q Serve(g_s), s		4.8	4.5	15.6	3.2	4.9	5.3		9.9	23.7	23.7		2.6	10.4	5.3
Cycle Q Clear(g_c), s		4.8	4.5	15.6	3.2	4.9	5.3		9.9	23.7	23.7		2.6	10.4	5.3
Prop In Lane		1.00		1.00	1.00		1.00		1.00		0.44		1.00		1.00
Lane Grp Cap(c), veh/h		132	766	342	204	714	318		518	2214	795		188	2336	575
V/C Ratio(X)		0.78	0.30	0.88	0.65	0.34	0.36		0.81	0.74	0.74		0.58	0.44	0.25
Avail Cap(c_a), veh/h		200	851	379	297	758	338		733	2214	795		224	2336	575
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		38.6	27.9	32.2	39.0	29.0	29.2		34.8	18.8	18.8		39.1	20.5	18.9
Incr Delay (d2), s/veh		10.7	0.2	19.3	3.4	0.3	0.7		4.5	2.3	6.2		2.8	0.6	1.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.4	1.9	7.5	1.4	2.0	2.0		4.3	8.3	9.8		1.1	3.7	2.0
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		49.3	28.1	51.5	42.5	29.3	29.9		39.3	21.1	25.0		41.9	21.1	19.9
LnGrp LOS		D	C	D	D	C	C		D	C	C		D	C	B
Approach Vol, veh/h			631			487				2650				1288	
Approach Delay, s/veh			42.7			33.0				24.9				22.7	
Approach LOS			D			C				C				C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	43.4	9.5	22.8	17.2	35.3	10.8	21.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	38.9	7.3	20.3	18.0	26.4	9.5	18.1
Max Q Clear Time (g_c+I1), s	4.6	25.7	5.2	17.6	11.9	12.4	6.8	7.3
Green Ext Time (p_c), s	0.0	10.6	0.1	0.7	0.8	6.2	0.1	1.3

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	37	69	15	19	110	25	658	29	60	614	61
Future Volume (veh/h)	200	37	69	15	19	110	25	658	29	60	614	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	247	46	85	19	23	136	31	812	36	74	758	75
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	132	244	115	66	276	120	1821	79	184	1576	151
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1227	588	1087	83	296	1229	49	3266	142	148	2826	271
Grp Volume(v), veh/h	247	0	131	178	0	0	454	0	425	449	0	458
Grp Sat Flow(s),veh/h/ln	1227	0	1675	1609	0	0	1781	0	1676	1592	0	1653
Q Serve(g_s), s	2.1	0.0	2.7	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	7.0
Cycle Q Clear(g_c), s	6.0	0.0	2.7	3.9	0.0	0.0	5.9	0.0	6.2	5.8	0.0	7.0
Prop In Lane	1.00		0.65	0.11		0.76	0.07		0.08	0.16		0.16
Lane Grp Cap(c), veh/h	498	0	376	457	0	0	1086	0	935	989	0	922
V/C Ratio(X)	0.50	0.00	0.35	0.39	0.00	0.00	0.42	0.00	0.45	0.45	0.00	0.50
Avail Cap(c_a), veh/h	758	0	731	791	0	0	1086	0	935	989	0	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	13.5	13.9	0.0	0.0	5.3	0.0	5.4	5.3	0.0	5.6
Incr Delay (d2), s/veh	0.8	0.0	0.6	0.5	0.0	0.0	1.2	0.0	1.6	1.5	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.9	1.3	0.0	0.0	1.8	0.0	1.8	1.8	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.0	14.0	14.5	0.0	0.0	6.5	0.0	7.0	6.8	0.0	7.5
LnGrp LOS	B	A	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		378			178			879			907	
Approach Delay, s/veh		14.9			14.5			6.8			7.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	27.5	13.8	27.5	13.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	23.0	18.0	23.0	18.0
Max Q Clear Time (g_c+I1), s	8.2	8.0	9.0	5.9
Green Ext Time (p_c), s	5.4	1.2	5.6	0.8

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	49.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	68	29	25	57	19	83	19	521	63	40	653	19
Future Vol, veh/h	68	29	25	57	19	83	19	521	63	40	653	19
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	39	33	76	25	111	25	695	84	53	871	25
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	16.2	17.3	40.3	69.2
HCM LOS	C	C	E	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	7%	0%	56%	36%	11%	0%
Vol Thru, %	93%	81%	24%	12%	89%	95%
Vol Right, %	0%	19%	20%	52%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	324	122	159	367	346
LT Vol	19	0	68	57	40	0
Through Vol	261	261	29	19	327	327
RT Vol	0	63	25	83	0	19
Lane Flow Rate	373	431	163	212	489	461
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.787	0.89	0.371	0.457	1.035	0.963
Departure Headway (Hd)	7.78	7.605	8.325	7.857	7.622	7.526
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	470	479	434	462	479	484
Service Time	5.48	5.305	6.325	5.857	5.322	5.226
HCM Lane V/C Ratio	0.794	0.9	0.376	0.459	1.021	0.952
HCM Control Delay	33.6	46	16.2	17.3	78.3	59.6
HCM Lane LOS	D	E	C	C	F	F
HCM 95th-tile Q	7.1	9.7	1.7	2.3	14.6	12.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	61	26	31	44	129	20	399	36	110	406	49
Future Volume (veh/h)	79	61	26	31	44	129	20	399	36	110	406	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	75	32	38	54	159	25	493	44	136	501	60
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	297	173	59	153	101	233	141	1616	141	366	1184	140
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	640	767	260	151	448	1035	55	3129	272	426	2292	272
Grp Volume(v), veh/h	205	0	0	251	0	0	295	0	267	332	0	365
Grp Sat Flow(s),veh/h/ln	1667	0	0	1634	0	0	1804	0	1653	1337	0	1653
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	3.2	1.4	0.0	4.8
Cycle Q Clear(g_c), s	3.4	0.0	0.0	4.8	0.0	0.0	3.2	0.0	3.2	4.7	0.0	4.8
Prop In Lane	0.48		0.16	0.15		0.63	0.08		0.16	0.41		0.16
Lane Grp Cap(c), veh/h	528	0	0	487	0	0	1044	0	854	836	0	854
V/C Ratio(X)	0.39	0.00	0.00	0.52	0.00	0.00	0.28	0.00	0.31	0.40	0.00	0.43
Avail Cap(c_a), veh/h	942	0	0	947	0	0	1044	0	854	836	0	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	12.3	0.0	0.0	4.8	0.0	4.9	5.0	0.0	5.2
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.8	0.0	0.0	0.7	0.0	1.0	1.4	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	1.5	0.0	0.0	0.9	0.0	0.9	1.1	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	0.0	0.0	13.1	0.0	0.0	5.5	0.0	5.8	6.4	0.0	6.8
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		205			251			562			697	
Approach Delay, s/veh		12.2			13.1			5.7			6.6	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	12.4	22.5	12.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	5.2	5.4	6.8	6.8
Green Ext Time (p_c), s	3.0	1.0	3.8	1.2

Intersection Summary	
HCM 6th Ctrl Delay	7.9
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	81	56	42	6	28	87	20	289	7	57	358	46
Future Vol, veh/h	81	56	42	6	28	87	20	289	7	57	358	46
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	93	64	48	7	32	100	23	332	8	66	411	53
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	13.1	11.3	12.4	14.2
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	12%	0%	45%	5%	24%	0%
Vol Thru, %	88%	95%	31%	23%	76%	80%
Vol Right, %	0%	5%	23%	72%	0%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	152	179	121	236	225
LT Vol	20	0	81	6	57	0
Through Vol	145	145	56	28	179	179
RT Vol	0	7	42	87	0	46
Lane Flow Rate	189	174	206	139	271	259
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.341	0.31	0.365	0.24	0.477	0.436
Departure Headway (Hd)	6.495	6.4	6.381	6.212	6.336	6.068
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	550	557	560	573	567	590
Service Time	4.277	4.182	4.464	4.306	4.11	3.842
HCM Lane V/C Ratio	0.344	0.312	0.368	0.243	0.478	0.439
HCM Control Delay	12.6	12.1	13.1	11.3	14.8	13.5
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.5	1.3	1.7	0.9	2.6	2.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	232	54	9	175	108	55	152	11	142	164	75
Future Volume (veh/h)	59	232	54	9	175	108	55	152	11	142	164	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	264	61	10	199	123	62	173	12	161	186	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	532	125	117	492	286	449	1185	85	630	693	327
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	308	2247	528	39	2079	1207	585	2329	166	892	1361	642
Grp Volume(v), veh/h	206	0	186	181	0	151	126	0	121	222	0	210
Grp Sat Flow(s),veh/h/ln	1476	0	1607	1840	0	1485	1409	0	1672	1309	0	1586
Q Serve(g_s), s	1.4	0.0	3.5	0.0	0.0	3.1	0.1	0.0	1.3	2.5	0.0	2.7
Cycle Q Clear(g_c), s	4.5	0.0	3.5	2.9	0.0	3.1	2.7	0.0	1.3	3.8	0.0	2.7
Prop In Lane	0.32		0.33	0.06		0.81	0.49		0.10	0.73		0.40
Lane Grp Cap(c), veh/h	484	0	380	543	0	352	868	0	851	842	0	807
V/C Ratio(X)	0.43	0.00	0.49	0.33	0.00	0.43	0.15	0.00	0.14	0.26	0.00	0.26
Avail Cap(c_a), veh/h	891	0	818	1031	0	755	868	0	851	842	0	807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	11.7	11.4	0.0	11.5	4.6	0.0	4.6	5.2	0.0	4.9
Incr Delay (d2), s/veh	0.6	0.0	1.0	0.4	0.0	0.8	0.4	0.0	0.3	0.8	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.1	1.0	0.0	0.9	0.4	0.0	0.4	0.8	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	0.0	12.6	11.8	0.0	12.3	4.9	0.0	4.9	6.0	0.0	5.7
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		392			332			247			432	
Approach Delay, s/veh		12.5			12.0			4.9			5.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	12.9	22.5	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.7	6.5	5.8	5.1
Green Ext Time (p_c), s	1.2	1.9	2.3	1.7

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	1	4	187	127	159	162	4
Future Vol, veh/h	1	4	187	127	159	162	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	1	5	220	149	187	191	5
Number of Lanes	0	0	1	1	1	2	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	11	9.3	10.6
HCM LOS	B	A	B

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	0%	0%	100%	93%
Vol Thru, %	98%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	127	159	108	58
LT Vol	4	0	0	108	54
Through Vol	188	127	0	0	0
RT Vol	0	0	159	0	4
Lane Flow Rate	226	149	187	127	68
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.332	0.223	0.242	0.223	0.118
Departure Headway (Hd)	5.293	5.366	4.66	6.331	6.248
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	675	666	765	563	569
Service Time	3.356	3.123	2.417	4.123	4.04
HCM Lane V/C Ratio	0.335	0.224	0.244	0.226	0.12
HCM Control Delay	11	9.7	8.9	11	9.9
HCM Lane LOS	B	A	A	B	A
HCM 95th-tile Q	1.5	0.8	0.9	0.8	0.4

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	219	46	9	218	15	18	19	19	18	12	9
Future Vol, veh/h	5	219	46	9	218	15	18	19	19	18	12	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	235	49	10	234	16	19	20	20	19	13	10
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.9	8.8	8.6	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	32%	4%	0%	8%	0%	46%
Vol Thru, %	34%	96%	70%	92%	88%	31%
Vol Right, %	34%	0%	30%	0%	12%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	115	156	118	124	39
LT Vol	18	5	0	9	0	18
Through Vol	19	110	110	109	109	12
RT Vol	19	0	46	0	15	9
Lane Flow Rate	60	123	167	127	133	42
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.085	0.173	0.224	0.179	0.184	0.06
Departure Headway (Hd)	5.069	5.051	4.821	5.091	4.967	5.19
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	705	710	744	704	721	688
Service Time	3.113	2.784	2.554	2.825	2.701	3.238
HCM Lane V/C Ratio	0.085	0.173	0.224	0.18	0.184	0.061
HCM Control Delay	8.6	8.8	8.9	8.9	8.8	8.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.6	0.9	0.6	0.7	0.2

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Vol, veh/h	3	3	271	13	7	17	200	18	14	10	37	1	21	9	10
Future Vol, veh/h	3	3	271	13	7	17	200	18	14	10	37	1	21	9	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	301	14	8	19	222	20	16	11	41	1	23	10	11
Number of Lanes	0	0	2	0	0	0	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.2	9.1	8.6	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	23%	2%	0%	15%	0%	53%
Vol Thru, %	16%	98%	91%	85%	85%	22%
Vol Right, %	61%	0%	9%	0%	15%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	142	149	124	118	41
LT Vol	14	3	0	18	0	22
Through Vol	10	139	136	106	100	9
RT Vol	37	0	13	0	18	10
Lane Flow Rate	68	157	165	138	131	46
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.094	0.222	0.229	0.199	0.182	0.067
Departure Headway (Hd)	4.99	5.08	5.007	5.191	5.011	5.297
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	715	706	716	690	715	673
Service Time	3.04	2.821	2.748	2.934	2.753	3.351
HCM Lane V/C Ratio	0.095	0.222	0.23	0.2	0.183	0.068
HCM Control Delay	8.6	9.3	9.2	9.2	8.9	8.7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.8	0.9	0.7	0.7	0.2

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	306	53	15	237	54	35	30	17	48	59	25
Future Vol, veh/h	29	306	53	15	237	54	35	30	17	48	59	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	383	66	19	296	68	44	38	21	60	74	31
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	12.4	11.5	10.8	11.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	43%	16%	0%	11%	0%	36%
Vol Thru, %	37%	84%	74%	89%	69%	45%
Vol Right, %	21%	0%	26%	0%	31%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	182	206	134	173	132
LT Vol	35	29	0	15	0	48
Through Vol	30	153	153	119	119	59
RT Vol	17	0	53	0	54	25
Lane Flow Rate	102	228	258	167	216	165
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.18	0.379	0.41	0.283	0.349	0.283
Departure Headway (Hd)	6.332	5.997	5.734	6.102	5.823	6.164
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	565	598	626	587	617	581
Service Time	4.397	3.746	3.482	3.855	3.575	4.221
HCM Lane V/C Ratio	0.181	0.381	0.412	0.284	0.35	0.284
HCM Control Delay	10.8	12.4	12.4	11.3	11.7	11.7
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	0.7	1.8	2	1.2	1.6	1.2

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	90	323	27	21	231	81	12	40	27	58	36	61
Future Vol, veh/h	90	323	27	21	231	81	12	40	27	58	36	61
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	118	425	36	28	304	107	16	53	36	76	47	80
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	16	13.2	11.4	13.1
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	15%	36%	0%	15%	0%	37%
Vol Thru, %	51%	64%	86%	85%	59%	23%
Vol Right, %	34%	0%	14%	0%	41%	39%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	252	189	137	197	155
LT Vol	12	90	0	21	0	58
Through Vol	40	162	162	116	116	36
RT Vol	27	0	27	0	81	61
Lane Flow Rate	104	331	248	180	259	204
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.194	0.588	0.421	0.324	0.439	0.363
Departure Headway (Hd)	6.705	6.392	6.108	6.49	6.117	6.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	530	563	585	551	584	557
Service Time	4.805	4.166	3.882	4.271	3.898	4.495
HCM Lane V/C Ratio	0.196	0.588	0.424	0.327	0.443	0.366
HCM Control Delay	11.4	18	13.3	12.4	13.7	13.1
HCM Lane LOS	B	C	B	B	B	B
HCM 95th-tile Q	0.7	3.8	2.1	1.4	2.2	1.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	385	21	37	326	18	12	10	16	25	20	56
Future Volume (veh/h)	25	385	21	37	326	18	12	10	16	25	20	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1781	1781	1781	1870	1870	1870
Adj Flow Rate, veh/h	29	453	25	44	384	21	14	12	19	29	24	66
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	8	8	8	2	2	2
Cap, veh/h	135	797	43	156	719	40	305	263	320	255	228	448
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	98	3182	173	148	2869	160	349	526	640	262	457	896
Grp Volume(v), veh/h	266	0	241	230	0	219	45	0	0	119	0	0
Grp Sat Flow(s),veh/h/ln	1782	0	1671	1504	0	1673	1516	0	0	1615	0	0
Q Serve(g_s), s	0.2	0.0	4.6	0.5	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	4.6	5.0	0.0	4.1	0.5	0.0	0.0	1.4	0.0	0.0
Prop In Lane	0.11		0.10	0.19		0.10	0.31		0.42	0.24		0.55
Lane Grp Cap(c), veh/h	557	0	419	496	0	419	888	0	0	931	0	0
V/C Ratio(X)	0.48	0.00	0.58	0.46	0.00	0.52	0.05	0.00	0.00	0.13	0.00	0.00
Avail Cap(c_a), veh/h	981	0	835	884	0	836	888	0	0	931	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	0.0	11.8	11.6	0.0	11.6	4.6	0.0	0.0	4.8	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	1.3	0.7	0.0	1.0	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.4	1.2	0.0	1.2	0.1	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	0.0	13.1	12.3	0.0	12.7	4.7	0.0	0.0	5.1	0.0	0.0
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		507			449			45			119	
Approach Delay, s/veh		12.7			12.5			4.7			5.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	13.5	22.5	13.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	6.6	3.4	7.0
Green Ext Time (p_c), s	0.1	2.3	0.5	2.0

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	383	6	13	319	3	6	4	21	17	4	25
Future Vol, veh/h	26	383	6	13	319	3	6	4	21	17	4	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2	9	9	9	2	2	2
Mvmt Flow	37	539	8	18	449	4	8	6	30	24	6	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	453	0	0	547	0	0	881	1106	274	834	1108	227
Stage 1	-	-	-	-	-	-	617	617	-	487	487	-
Stage 2	-	-	-	-	-	-	264	489	-	347	621	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.68	6.68	7.08	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.59	4.09	3.39	3.52	4.02	3.32
Pot Cap-1 Maneuver	1104	-	-	1018	-	-	230	199	703	261	209	776
Stage 1	-	-	-	-	-	-	427	463	-	531	549	-
Stage 2	-	-	-	-	-	-	699	530	-	642	477	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1104	-	-	1018	-	-	203	185	703	231	194	776
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	185	-	231	194	-
Stage 1	-	-	-	-	-	-	407	441	-	506	536	-
Stage 2	-	-	-	-	-	-	644	517	-	578	454	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.4	15.6	17
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	382	1104	-	-	1018	-	-	364
HCM Lane V/C Ratio	0.114	0.033	-	-	0.018	-	-	0.178
HCM Control Delay (s)	15.6	8.4	0.2	-	8.6	0.1	-	17
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.6

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Vol, veh/h	1	18	26	2	3	21	1	2	7	0	10	15
Future Vol, veh/h	1	18	26	2	3	21	1	2	7	0	10	15
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	6	6	6	6	6
Mvmt Flow	1	25	36	3	4	29	1	3	10	0	14	21
Number of Lanes	0	0	1	0	0	1	0	0	1	0	0	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	39%	12%	34%
Vol Thru, %	78%	57%	84%	52%
Vol Right, %	0%	4%	4%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	47	25	29
LT Vol	2	18	3	10
Through Vol	7	27	21	15
RT Vol	0	2	1	4
Lane Flow Rate	12	64	34	40
Geometry Grp	1	1	1	1
Degree of Util (X)	0.015	0.073	0.039	0.046
Departure Headway (Hd)	4.247	4.102	4.073	4.167
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	836	870	875	854
Service Time	2.305	2.139	2.116	2.219
HCM Lane V/C Ratio	0.014	0.074	0.039	0.047
HCM Control Delay	7.4	7.5	7.3	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.1	0.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBR
Lane Configurations	
Traffic Vol, veh/h	4
Future Vol, veh/h	4
Peak Hour Factor	0.73
Heavy Vehicles, %	6
Mvmt Flow	5
Number of Lanes	0

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	13.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	149	40	47	128	60	26	136	85	24	85	20
Future Vol, veh/h	37	149	40	47	128	60	26	136	85	24	85	20
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	186	50	59	160	75	33	170	106	30	106	25
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.7	13.8	14.3	11.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	16%	20%	19%
Vol Thru, %	55%	66%	54%	66%
Vol Right, %	34%	18%	26%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	247	226	235	129
LT Vol	26	37	47	24
Through Vol	136	149	128	85
RT Vol	85	40	60	20
Lane Flow Rate	309	282	294	161
Geometry Grp	1	1	1	1
Degree of Util (X)	0.49	0.453	0.467	0.279
Departure Headway (Hd)	5.71	5.779	5.722	6.239
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	624	616	623	579
Service Time	3.804	3.879	3.821	4.239
HCM Lane V/C Ratio	0.495	0.458	0.472	0.278
HCM Control Delay	14.3	13.7	13.8	11.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.7	2.4	2.5	1.1

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	76	30	1	52	163	140	36
Future Vol, veh/h	76	30	1	52	163	140	36
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	115	45	2	79	247	212	55
Number of Lanes	1	0	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.9	11.3	10.1
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	24%	72%	0%
Vol Thru, %	76%	0%	80%
Vol Right, %	0%	28%	20%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	216	106	176
LT Vol	52	76	0
Through Vol	164	0	140
RT Vol	0	30	36
Lane Flow Rate	327	161	267
Geometry Grp	1	1	1
Degree of Util (X)	0.428	0.234	0.342
Departure Headway (Hd)	4.711	5.242	4.617
Convergence, Y/N	Yes	Yes	Yes
Cap	759	681	776
Service Time	2.763	3.311	2.671
HCM Lane V/C Ratio	0.431	0.236	0.344
HCM Control Delay	11.3	9.9	10.1
HCM Lane LOS	B	A	B
HCM 95th-tile Q	2.2	0.9	1.5

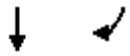
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	98	11	53	56	4	25	11	25	2019	26	28	4
Future Volume (veh/h)	98	11	53	56	4	25	11	25	2019	26	28	4
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870
Adj Flow Rate, veh/h	102	11	55	58	4	26		26	2103	27		4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	285	35	176	252	28	182		53	4117	53		10
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13		0.03	0.62	0.62		0.01
Sat Flow, veh/h	1380	271	1355	1335	216	1402		1781	6596	85		1781
Grp Volume(v), veh/h	102	0	66	58	0	30		26	1538	592		4
Grp Sat Flow(s),veh/h/ln	1380	0	1626	1335	0	1618		1781	1609	1855		1781
Q Serve(g_s), s	4.0	0.0	2.1	2.3	0.0	0.9		0.8	9.9	9.9		0.1
Cycle Q Clear(g_c), s	4.9	0.0	2.1	4.4	0.0	0.9		0.8	9.9	9.9		0.1
Prop In Lane	1.00		0.83	1.00		0.87		1.00		0.05		1.00
Lane Grp Cap(c), veh/h	285	0	211	252	0	210		53	3012	1158		10
V/C Ratio(X)	0.36	0.00	0.31	0.23	0.00	0.14		0.49	0.51	0.51		0.42
Avail Cap(c_a), veh/h	635	0	624	592	0	621		238	4090	1572		238
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00		1.00
Uniform Delay (d), s/veh	23.8	0.0	22.1	24.1	0.0	21.6		26.8	5.8	5.8		27.8
Incr Delay (d2), s/veh	0.8	0.0	0.8	0.5	0.0	0.3		6.9	0.1	0.4		26.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.8	0.7	0.0	0.3		0.4	1.9	2.3		0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	0.0	23.0	24.6	0.0	21.9		33.7	5.9	6.2		54.1
LnGrp LOS	C	A	C	C	A	C		C	A	A		D
Approach Vol, veh/h		168			88				2156			
Approach Delay, s/veh		23.9			23.7				6.3			
Approach LOS		C			C				A			

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	39.5		11.8	6.2	38.1		11.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7.5	47.5		21.5	7.5	47.5		21.5				
Max Q Clear Time (g_c+I1), s	2.1	11.9		6.9	2.8	12.8		6.4				
Green Ext Time (p_c), s	0.0	20.7		0.5	0.0	20.8		0.2				

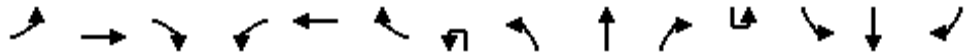
Intersection Summary		
HCM 6th Ctrl Delay		7.6
HCM 6th LOS		A

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2014	63
Future Volume (veh/h)	2014	63
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	2098	66
Peak Hour Factor	0.96	0.96
Percent Heavy Veh, %	2	2
Cap, veh/h	3873	122
Arrive On Green	0.60	0.60
Sat Flow, veh/h	6456	203
Grp Volume(v), veh/h	1568	596
Grp Sat Flow(s),veh/h/ln	1609	1834
Q Serve(g_s), s	10.8	10.8
Cycle Q Clear(g_c), s	10.8	10.8
Prop In Lane		0.11
Lane Grp Cap(c), veh/h	2895	1100
V/C Ratio(X)	0.54	0.54
Avail Cap(c_a), veh/h	4090	1554
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	6.6	6.6
Incr Delay (d2), s/veh	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.7
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	6.8	7.1
LnGrp LOS	A	A
Approach Vol, veh/h	2168	
Approach Delay, s/veh	7.0	
Approach LOS	A	
Timer - Assigned Phs		



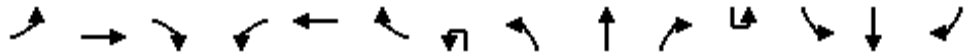
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	70	61	56	41	64	135	36	80	1887	107	11	68	2022	42
Future Volume (veh/h)	70	61	56	41	64	135	36	80	1887	107	11	68	2022	42
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	71	62	57	42	65	138		82	1926	109		69	2063	43
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	217	118	109	184	247	209		107	3972	225		92	4079	85
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13		0.06	0.63	0.63		0.05	0.62	0.62
Sat Flow, veh/h	1179	897	825	1273	1870	1585		1781	6277	355		1781	6535	136
Grp Volume(v), veh/h	71	0	119	42	65	138		82	1481	554		69	1523	583
Grp Sat Flow(s),veh/h/ln	1179	0	1722	1273	1870	1585		1781	1609	1806		1781	1609	1846
Q Serve(g_s), s	4.2	0.0	4.7	2.3	2.3	6.1		3.3	11.9	11.9		2.8	12.7	12.7
Cycle Q Clear(g_c), s	6.5	0.0	4.7	7.1	2.3	6.1		3.3	11.9	11.9		2.8	12.7	12.7
Prop In Lane	1.00		0.48	1.00		1.00		1.00		0.20		1.00		0.07
Lane Grp Cap(c), veh/h	217	0	227	184	247	209		107	3054	1143		92	3012	1152
V/C Ratio(X)	0.33	0.00	0.52	0.23	0.26	0.66		0.77	0.48	0.48		0.75	0.51	0.51
Avail Cap(c_a), veh/h	374	0	457	354	496	421		352	3054	1143		255	3012	1152
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	29.7	33.0	28.7	30.3		34.0	7.1	7.1		34.4	7.6	7.6
Incr Delay (d2), s/veh	0.9	0.0	1.9	0.6	0.6	3.5		10.8	0.6	1.5		11.7	0.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	2.0	0.7	1.0	2.4		1.7	3.1	3.8		1.5	3.4	4.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	32.5	0.0	31.6	33.7	29.2	33.8		44.9	7.7	8.6		46.1	8.2	9.2
LnGrp LOS	C	A	C	C	C	C		D	A	A		D	A	A
Approach Vol, veh/h		190			245				2117				2175	
Approach Delay, s/veh		31.9			32.6				9.4				9.7	
Approach LOS		C			C				A				A	

Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.3	51.0		14.2	8.9	50.4		14.2						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	10.5	46.5		19.5	14.5	42.5		19.5						
Max Q Clear Time (g_c+I1), s	4.3	13.9		8.5	5.3	14.7		9.1						
Green Ext Time (p_c), s	0.1	18.6		0.6	0.1	17.5		0.6						

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.



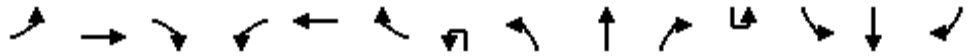
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	123	208	48	149	196	151	32	104	1666	116	44	170	1755	88
Future Volume (veh/h)	123	208	48	149	196	151	32	104	1666	116	44	170	1755	88
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	128	217	50	155	204	157		108	1735	121		177	1828	92
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	161	257	59	191	359	304		138	2704	666		258	2637	133
Arrive On Green	0.09	0.18	0.18	0.11	0.19	0.19		0.08	0.42	0.42		0.07	0.42	0.42
Sat Flow, veh/h	1781	1471	339	1781	1870	1585		1781	6434	1585		3456	6321	318
Grp Volume(v), veh/h	128	0	267	155	204	157		108	1735	121		177	1396	524
Grp Sat Flow(s),veh/h/ln	1781	0	1809	1781	1870	1585		1781	1609	1585		1728	1609	1813
Q Serve(g_s), s	5.7	0.0	11.6	6.9	8.0	7.2		4.8	17.3	3.9		4.0	19.2	19.2
Cycle Q Clear(g_c), s	5.7	0.0	11.6	6.9	8.0	7.2		4.8	17.3	3.9		4.0	19.2	19.2
Prop In Lane	1.00		0.19	1.00		1.00		1.00		1.00		1.00		0.18
Lane Grp Cap(c), veh/h	161	0	317	191	359	304		138	2704	666		258	2014	757
V/C Ratio(X)	0.79	0.00	0.84	0.81	0.57	0.52		0.78	0.64	0.18		0.69	0.69	0.69
Avail Cap(c_a), veh/h	218	0	403	253	453	384		240	2704	666		363	2014	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	0.0	32.3	35.3	29.6	29.3		36.6	18.6	14.7		36.5	19.3	19.3
Incr Delay (d2), s/veh	13.3	0.0	12.3	13.5	1.4	1.4		9.1	1.2	0.6		3.2	2.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	6.1	3.6	3.5	2.7		2.3	6.0	1.4		1.7	6.8	8.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	49.3	0.0	44.6	48.8	31.1	30.7		45.8	19.8	15.3		39.7	21.3	24.5
LnGrp LOS	D	A	D	D	C	C		D	B	B		D	C	C
Approach Vol, veh/h		395			516				1964				2097	
Approach Delay, s/veh		46.1			36.3				21.0				23.7	
Approach LOS		D			D				C				C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	38.5	13.2	18.7	10.8	38.3	11.8	20.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	34.0	11.5	18.0	10.9	31.6	9.9	19.6
Max Q Clear Time (g_c+I1), s	6.0	19.3	8.9	13.6	6.8	21.2	7.7	10.0
Green Ext Time (p_c), s	0.1	10.2	0.1	0.6	0.1	7.8	0.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	211	144	172	264	151	175	12	147	1461	170	13	40	1769	139
Future Volume (veh/h)	211	144	172	264	151	175	12	147	1461	170	13	40	1769	139
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No				No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	187	205	183	281	161	186		156	1554	181		43	1882	148
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	282	297	250	548	563	251		192	2658	655		69	2109	166
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16		0.11	0.41	0.41		0.04	0.34	0.34
Sat Flow, veh/h	1781	1875	1582	3456	3554	1585		1781	6434	1585		1781	6127	482
Grp Volume(v), veh/h	187	205	183	281	161	186		156	1554	181		43	1482	548
Grp Sat Flow(s),veh/h/ln	1781	1870	1586	1728	1777	1585		1781	1609	1585		1781	1609	1784
Q Serve(g_s), s	7.7	8.0	8.6	5.8	3.1	8.7		6.7	14.6	5.9		1.9	22.6	22.6
Cycle Q Clear(g_c), s	7.7	8.0	8.6	5.8	3.1	8.7		6.7	14.6	5.9		1.9	22.6	22.6
Prop In Lane	1.00		1.00	1.00		1.00		1.00		1.00		1.00		0.27
Lane Grp Cap(c), veh/h	282	296	251	548	563	251		192	2658	655		69	1661	614
V/C Ratio(X)	0.66	0.69	0.73	0.51	0.29	0.74		0.81	0.58	0.28		0.62	0.89	0.89
Avail Cap(c_a), veh/h	414	435	369	799	822	366		208	2658	655		149	1661	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	31.0	31.2	30.0	28.9	31.2		34.0	17.7	15.1		36.8	24.2	24.2
Incr Delay (d2), s/veh	2.7	2.9	4.1	0.7	0.3	4.5		20.0	0.9	1.0		8.7	7.7	17.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	3.7	3.4	2.4	1.3	3.5		3.8	5.0	2.1		0.9	8.9	11.6
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	33.5	33.8	35.3	30.7	29.1	35.7		54.0	18.6	16.2		45.6	31.9	41.9
LnGrp LOS	C	C	D	C	C	D		D	B	B		D	C	D
Approach Vol, veh/h		575			628				1891				2073	
Approach Delay, s/veh		34.2			31.8				21.3				34.8	
Approach LOS		C			C				C				C	

Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	7.5	36.7		16.8	12.9	31.3		16.8						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5						
Max Green Setting (Gmax), s	6.5	29.4		18.1	9.1	26.8		18.0						
Max Q Clear Time (g_c+I1), s	3.9	16.6		10.6	8.7	24.6		10.7						
Green Ext Time (p_c), s	0.0	8.5		1.7	0.0	1.9		1.6						

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	3	126	299	484	395	293	158	37	331	1440	295	9	101	2052	71
Future Volume (veh/h)	3	126	299	484	395	293	158	37	331	1440	295	9	101	2052	71
Initial Q (Qb), veh		0	0	0	0	0	0		0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		130	308	499	407	302	163		341	1485	304		104	2115	73
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h		163	821	366	411	919	410		388	2150	440		178	2173	535
Arrive On Green		0.09	0.23	0.23	0.12	0.26	0.26		0.11	0.40	0.40		0.05	0.34	0.34
Sat Flow, veh/h		1781	3554	1585	3456	3554	1585		3456	5394	1103		3456	6434	1585
Grp Volume(v), veh/h		130	308	499	407	302	163		341	1328	461		104	2115	73
Grp Sat Flow(s),veh/h/ln		1781	1777	1585	1728	1777	1585		1728	1609	1672		1728	1609	1585
Q Serve(g_s), s		6.4	6.6	20.8	10.6	6.2	7.6		8.7	20.6	20.6		2.6	29.2	2.9
Cycle Q Clear(g_c), s		6.4	6.6	20.8	10.6	6.2	7.6		8.7	20.6	20.6		2.6	29.2	2.9
Prop In Lane		1.00		1.00	1.00		1.00		1.00		0.66		1.00		1.00
Lane Grp Cap(c), veh/h		163	821	366	411	919	410		388	1923	666		178	2173	535
V/C Ratio(X)		0.80	0.38	1.36	0.99	0.33	0.40		0.88	0.69	0.69		0.59	0.97	0.14
Avail Cap(c_a), veh/h		251	821	366	411	919	410		388	1923	666		204	2173	535
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		40.1	29.1	34.6	39.6	27.0	27.6		39.3	22.5	22.5		41.7	29.4	20.7
Incr Delay (d2), s/veh		9.7	0.3	179.7	41.8	0.2	0.6		20.0	2.1	5.8		3.3	13.9	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.2	2.7	25.9	6.7	2.5	2.8		4.6	7.5	8.5		1.2	12.5	1.1
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		49.8	29.4	214.3	81.4	27.2	28.2		59.4	24.5	28.3		45.0	43.3	21.2
LnGrp LOS		D	C	F	F	C	C		E	C	C		D	D	C
Approach Vol, veh/h			937			872				2130				2292	
Approach Delay, s/veh			130.7			52.7				30.9				42.7	
Approach LOS			F			D				C				D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	40.4	15.2	25.3	14.6	34.9	12.7	27.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.3	35.2	10.7	20.8	10.1	30.4	12.7	18.8
Max Q Clear Time (g_c+I1), s	4.6	22.6	12.6	22.8	10.7	31.2	8.4	9.6
Green Ext Time (p_c), s	0.0	8.7	0.0	0.0	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	24	28	27	22	65	24	536	35	81	611	141
Future Volume (veh/h)	107	24	28	27	22	65	24	536	35	81	611	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	25	29	28	23	68	25	564	37	85	643	148
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	449	115	133	180	60	133	149	1825	117	236	1431	317
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1306	790	916	271	415	915	47	3203	205	177	2512	556
Grp Volume(v), veh/h	113	0	54	119	0	0	326	0	300	450	0	426
Grp Sat Flow(s),veh/h/ln	1306	0	1705	1601	0	0	1790	0	1665	1643	0	1602
Q Serve(g_s), s	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.0	3.0	0.0	0.0	4.9
Cycle Q Clear(g_c), s	1.8	0.0	0.9	2.1	0.0	0.0	2.9	0.0	3.0	4.3	0.0	4.9
Prop In Lane	1.00		0.54	0.24		0.57	0.08		0.12	0.19		0.35
Lane Grp Cap(c), veh/h	449	0	248	374	0	0	1142	0	949	1071	0	913
V/C Ratio(X)	0.25	0.00	0.22	0.32	0.00	0.00	0.29	0.00	0.32	0.42	0.00	0.47
Avail Cap(c_a), veh/h	1003	0	972	1039	0	0	1142	0	949	1071	0	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.3	0.0	11.9	12.4	0.0	0.0	3.5	0.0	3.6	3.8	0.0	4.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.5	0.0	0.0	0.6	0.0	0.9	1.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.3	0.7	0.0	0.0	0.6	0.0	0.6	1.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.6	0.0	12.4	12.9	0.0	0.0	4.2	0.0	4.4	5.1	0.0	5.7
LnGrp LOS	B	A	B	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		167			119			626			876	
Approach Delay, s/veh		12.5			12.9			4.3			5.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	9.1	22.5	9.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	5.0	3.8	6.9	4.1
Green Ext Time (p_c), s	3.4	0.5	4.7	0.5

Intersection Summary	
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	12	27	37	25	36	32	584	22	29	589	15
Future Vol, veh/h	29	12	27	37	25	36	32	584	22	29	589	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	13	29	40	27	39	35	635	24	32	640	16
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.1	11.6	17.3	17.2
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	10%	0%	43%	38%	9%	0%
Vol Thru, %	90%	93%	18%	26%	91%	95%
Vol Right, %	0%	7%	40%	37%	0%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	314	68	98	324	310
LT Vol	32	0	29	37	29	0
Through Vol	292	292	12	25	295	295
RT Vol	0	22	27	36	0	15
Lane Flow Rate	352	341	74	107	352	336
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.6	0.573	0.142	0.201	0.6	0.566
Departure Headway (Hd)	6.138	6.039	6.908	6.788	6.14	6.06
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	588	597	517	527	587	592
Service Time	3.895	3.795	4.974	4.851	3.896	3.816
HCM Lane V/C Ratio	0.599	0.571	0.143	0.203	0.6	0.568
HCM Control Delay	17.8	16.7	11.1	11.6	17.8	16.5
HCM Lane LOS	C	C	B	B	C	C
HCM 95th-tile Q	4	3.6	0.5	0.7	4	3.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	70	30	48	80	117	23	444	45	147	440	41
Future Volume (veh/h)	66	70	30	48	80	117	23	444	45	147	440	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	76	33	52	87	127	25	483	49	160	478	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	209	72	172	151	183	140	1581	156	404	1095	104
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	486	895	308	211	648	785	56	3092	305	490	2142	204
Grp Volume(v), veh/h	181	0	0	266	0	0	293	0	264	316	0	367
Grp Sat Flow(s),veh/h/ln	1690	0	0	1644	0	0	1807	0	1647	1170	0	1665
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	3.3	3.3	0.0	4.9
Cycle Q Clear(g_c), s	3.0	0.0	0.0	5.1	0.0	0.0	3.2	0.0	3.3	6.6	0.0	4.9
Prop In Lane	0.40		0.18	0.20		0.48	0.09		0.19	0.51		0.12
Lane Grp Cap(c), veh/h	537	0	0	506	0	0	1035	0	842	752	0	851
V/C Ratio(X)	0.34	0.00	0.00	0.53	0.00	0.00	0.28	0.00	0.31	0.42	0.00	0.43
Avail Cap(c_a), veh/h	946	0	0	948	0	0	1035	0	842	752	0	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	12.3	0.0	0.0	5.0	0.0	5.0	5.6	0.0	5.4
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.9	0.0	0.0	0.7	0.0	1.0	1.7	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	1.6	0.0	0.0	0.9	0.0	0.9	1.2	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.0	0.0	13.1	0.0	0.0	5.7	0.0	6.0	7.3	0.0	7.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		181			266			557			683	
Approach Delay, s/veh		11.9			13.1			5.8			7.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	12.7	22.5	12.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	5.3	5.0	8.6	7.1
Green Ext Time (p_c), s	3.0	0.8	3.4	1.2

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	24	24	10	19	84	38	432	7	54	384	46
Future Vol, veh/h	57	24	24	10	19	84	38	432	7	54	384	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	62	26	26	11	21	91	41	470	8	59	417	50
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.4	10.9	13.5	13.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	15%	0%	54%	9%	22%	0%
Vol Thru, %	85%	97%	23%	17%	78%	81%
Vol Right, %	0%	3%	23%	74%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	223	105	113	246	238
LT Vol	38	0	57	10	54	0
Through Vol	216	216	24	19	192	192
RT Vol	0	7	24	84	0	46
Lane Flow Rate	276	242	114	123	267	259
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.467	0.404	0.208	0.21	0.455	0.422
Departure Headway (Hd)	6.093	5.995	6.567	6.155	6.123	5.875
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	591	599	544	581	586	611
Service Time	3.846	3.748	4.634	4.221	3.877	3.628
HCM Lane V/C Ratio	0.467	0.404	0.21	0.212	0.456	0.424
HCM Control Delay	14.1	12.8	11.4	10.9	13.9	12.9
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	2.5	1.9	0.8	0.8	2.4	2.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	234	51	40	178	129	63	273	26	136	161	73
Future Volume (veh/h)	60	234	51	40	178	129	63	273	26	136	161	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	241	53	41	184	133	65	281	27	140	166	75
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	513	116	172	404	278	347	1341	127	582	679	321
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	291	2238	504	206	1765	1214	409	2609	248	786	1321	625
Grp Volume(v), veh/h	187	0	169	195	0	163	193	0	180	190	0	191
Grp Sat Flow(s),veh/h/ln	1421	0	1611	1701	0	1484	1608	0	1657	1143	0	1590
Q Serve(g_s), s	1.0	0.0	3.2	0.1	0.0	3.3	0.0	0.0	2.1	2.3	0.0	2.3
Cycle Q Clear(g_c), s	4.3	0.0	3.2	3.3	0.0	3.3	2.0	0.0	2.1	4.3	0.0	2.3
Prop In Lane	0.33		0.31	0.21		0.82	0.34		0.15	0.74		0.39
Lane Grp Cap(c), veh/h	463	0	369	514	0	340	964	0	852	766	0	817
V/C Ratio(X)	0.40	0.00	0.46	0.38	0.00	0.48	0.20	0.00	0.21	0.25	0.00	0.23
Avail Cap(c_a), veh/h	888	0	828	977	0	762	964	0	852	766	0	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	11.6	11.6	0.0	11.7	4.6	0.0	4.6	5.3	0.0	4.7
Incr Delay (d2), s/veh	0.6	0.0	0.9	0.5	0.0	1.0	0.5	0.0	0.6	0.8	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.0	1.1	0.0	1.0	0.6	0.0	0.6	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	12.5	12.1	0.0	12.7	5.1	0.0	5.2	6.0	0.0	5.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		356			358			373			381	
Approach Delay, s/veh		12.4			12.4			5.1			5.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	12.5	22.5	12.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	4.1	6.3	6.3	5.3
Green Ext Time (p_c), s	2.0	1.7	2.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	297	175	189	178	24
Future Vol, veh/h	49	297	175	189	178	24
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	334	197	212	200	27
Number of Lanes	0	1	1	1	2	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	17	10.6	11.6
HCM LOS	C	B	B

Lane	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	14%	0%	0%	100%	71%
Vol Thru, %	86%	100%	0%	0%	0%
Vol Right, %	0%	0%	100%	0%	29%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	346	175	189	119	83
LT Vol	49	0	0	119	59
Through Vol	297	175	0	0	0
RT Vol	0	0	189	0	24
Lane Flow Rate	389	197	212	133	94
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.608	0.316	0.3	0.261	0.174
Departure Headway (Hd)	5.627	5.793	5.084	7.035	6.684
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	641	621	707	511	537
Service Time	3.653	3.523	2.814	4.77	4.419
HCM Lane V/C Ratio	0.607	0.317	0.3	0.26	0.175
HCM Control Delay	17	11.2	10	12.2	10.8
HCM Lane LOS	C	B	A	B	B
HCM 95th-tile Q	4.1	1.4	1.3	1	0.6

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	240	24	7	250	15	64	26	6	12	20	9
Future Vol, veh/h	17	240	24	7	250	15	64	26	6	12	20	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	270	27	8	281	17	72	29	7	13	22	10
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.6	9.5	9.6	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	67%	12%	0%	5%	0%	29%
Vol Thru, %	27%	88%	83%	95%	89%	49%
Vol Right, %	6%	0%	17%	0%	11%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	96	137	144	132	140	41
LT Vol	64	17	0	7	0	12
Through Vol	26	120	120	125	125	20
RT Vol	6	0	24	0	15	9
Lane Flow Rate	108	154	162	148	157	46
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.164	0.227	0.231	0.218	0.227	0.07
Departure Headway (Hd)	5.487	5.316	5.136	5.29	5.188	5.432
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	649	671	694	675	687	653
Service Time	3.559	3.079	2.899	3.053	2.951	3.516
HCM Lane V/C Ratio	0.166	0.23	0.233	0.219	0.229	0.07
HCM Control Delay	9.6	9.7	9.5	9.5	9.5	8.9
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0.9	0.9	0.8	0.9	0.2

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	6	8	244	9	8	11	260	16	12	11	11	14	13	9
Future Vol, veh/h	6	8	244	9	8	11	260	16	12	11	11	14	13	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	9	260	10	9	12	277	17	13	12	12	15	14	10
Number of Lanes	0	0	2	0	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9	9.1	8.5	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	35%	6%	0%	8%	0%	39%
Vol Thru, %	32%	94%	93%	92%	89%	36%
Vol Right, %	32%	0%	7%	0%	11%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	136	131	149	146	36
LT Vol	12	8	0	12	0	14
Through Vol	11	128	122	137	130	13
RT Vol	11	0	9	0	16	9
Lane Flow Rate	36	145	139	159	155	38
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.052	0.202	0.192	0.221	0.211	0.056
Departure Headway (Hd)	5.172	5.032	4.953	5.014	4.898	5.22
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	691	713	725	716	733	685
Service Time	3.214	2.761	2.682	2.743	2.627	3.261
HCM Lane V/C Ratio	0.052	0.203	0.192	0.222	0.211	0.055
HCM Control Delay	8.5	9	8.9	9.2	8.9	8.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.8	0.7	0.8	0.8	0.2

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	281	61	47	289	35	34	65	23	48	45	23
Future Vol, veh/h	65	281	61	47	289	35	34	65	23	48	45	23
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	66	287	62	48	295	36	35	66	23	49	46	23
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.4	11.2	10.7	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	28%	32%	0%	25%	0%	41%
Vol Thru, %	53%	68%	70%	75%	81%	39%
Vol Right, %	19%	0%	30%	0%	19%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	206	202	192	180	116
LT Vol	34	65	0	47	0	48
Through Vol	65	141	141	145	145	45
RT Vol	23	0	61	0	35	23
Lane Flow Rate	124	210	206	195	183	118
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.208	0.347	0.319	0.323	0.29	0.199
Departure Headway (Hd)	6.025	5.952	5.577	5.958	5.695	6.061
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	595	604	646	604	630	591
Service Time	4.073	3.686	3.311	3.695	3.432	4.109
HCM Lane V/C Ratio	0.208	0.348	0.319	0.323	0.29	0.2
HCM Control Delay	10.7	11.8	10.9	11.5	10.8	10.6
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	0.8	1.5	1.4	1.4	1.2	0.7

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	320	13	10	327	61	27	98	27	66	69	71
Future Vol, veh/h	61	320	13	10	327	61	27	98	27	66	69	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	337	14	11	344	64	28	103	28	69	73	75
Number of Lanes	0	2	0	0	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	13.3	12.9	12.4	13.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	18%	28%	0%	6%	0%	32%
Vol Thru, %	64%	72%	92%	94%	73%	33%
Vol Right, %	18%	0%	8%	0%	27%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	152	221	173	174	225	206
LT Vol	27	61	0	10	0	66
Through Vol	98	160	160	164	164	69
RT Vol	27	0	13	0	61	71
Lane Flow Rate	160	233	182	183	236	217
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.294	0.423	0.322	0.327	0.409	0.385
Departure Headway (Hd)	6.612	6.662	6.467	6.559	6.335	6.391
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	546	544	559	552	572	566
Service Time	4.622	4.362	4.167	4.259	4.035	4.391
HCM Lane V/C Ratio	0.293	0.428	0.326	0.332	0.413	0.383
HCM Control Delay	12.4	14.2	12.2	12.4	13.3	13.3
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.2	2.1	1.4	1.4	2	1.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	21	416	8	27	393	14	22	19	76	1	9	9	29
Future Volume (veh/h)	21	416	8	27	393	14	22	19	76	1	9	9	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1841	1841	1841		1841	1841	1841
Adj Flow Rate, veh/h	23	447	9	29	423	15	24	20	82		10	10	31
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93		0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4		4	4	4
Cap, veh/h	130	799	16	138	759	27	210	192	525		214	222	489
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.51	0.51	0.51		0.51	0.51	0.51
Sat Flow, veh/h	79	3339	67	100	3174	113	177	378	1034		183	438	964
Grp Volume(v), veh/h	250	0	229	243	0	224	126	0	0		51	0	0
Grp Sat Flow(s),veh/h/ln	1794	0	1690	1705	0	1682	1589	0	0		1585	0	0
Q Serve(g_s), s	0.0	0.0	4.2	0.2	0.0	4.1	0.0	0.0	0.0		0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	4.2	4.4	0.0	4.1	1.4	0.0	0.0		0.6	0.0	0.0
Prop In Lane	0.09		0.04	0.12		0.07	0.19		0.65		0.20		0.61
Lane Grp Cap(c), veh/h	540	0	404	521	0	402	927	0	0		925	0	0
V/C Ratio(X)	0.46	0.00	0.57	0.47	0.00	0.56	0.14	0.00	0.00		0.06	0.00	0.00
Avail Cap(c_a), veh/h	1000	0	857	969	0	853	927	0	0		925	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00		1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	0.0	11.9	11.8	0.0	11.8	4.7	0.0	0.0		4.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	1.2	0.6	0.0	1.2	0.3	0.0	0.0		0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.3	1.3	0.0	1.3	0.4	0.0	0.0		0.1	0.0	0.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	12.5	0.0	13.1	12.5	0.0	13.1	5.0	0.0	0.0		4.6	0.0	0.0
LnGrp LOS	B	A	B	B	A	B	A	A	A		A	A	A
Approach Vol, veh/h		479			467			126				51	
Approach Delay, s/veh		12.8			12.7			5.0				4.6	
Approach LOS		B			B			A				A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.5	13.0	22.5	13.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	18.0	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.4	6.2	2.6	6.4
Green Ext Time (p_c), s	0.6	2.2	0.2	2.1

Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	380	7	8	416	12	3	2	8	5	5	10
Future Vol, veh/h	12	380	7	8	416	12	3	2	8	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	396	7	8	433	13	3	2	8	5	5	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	446	0	0	403	0	0	661	888	202	681	885	223
Stage 1	-	-	-	-	-	-	426	426	-	456	456	-
Stage 2	-	-	-	-	-	-	235	462	-	225	429	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1111	-	-	1152	-	-	348	281	805	336	282	780
Stage 1	-	-	-	-	-	-	577	584	-	554	567	-
Stage 2	-	-	-	-	-	-	747	563	-	757	582	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1111	-	-	1152	-	-	332	274	805	325	275	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	332	274	-	325	275	-
Stage 1	-	-	-	-	-	-	568	575	-	546	562	-
Stage 2	-	-	-	-	-	-	724	558	-	735	573	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.1	12.5	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	495	1111	-	-	1152	-	-	431
HCM Lane V/C Ratio	0.027	0.011	-	-	0.007	-	-	0.048
HCM Control Delay (s)	12.5	8.3	0.1	-	8.1	0	-	13.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	43	5	0	40	8	0	4	0	5	5	4
Future Vol, veh/h	6	43	5	0	40	8	0	4	0	5	5	4
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	53	6	0	49	10	0	5	0	6	6	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.2	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	11%	0%	36%
Vol Thru, %	100%	80%	83%	36%
Vol Right, %	0%	9%	17%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	54	48	14
LT Vol	0	6	0	5
Through Vol	4	43	40	5
RT Vol	0	5	8	4
Lane Flow Rate	5	67	59	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.006	0.074	0.065	0.019
Departure Headway (Hd)	4.165	3.982	3.921	4.055
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	900	913	877
Service Time	2.22	2.004	1.945	2.108
HCM Lane V/C Ratio	0.006	0.074	0.065	0.019
HCM Control Delay	7.2	7.3	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	143	28	69	212	34	24	198	66	30	111	24
Future Vol, veh/h	20	143	28	69	212	34	24	198	66	30	111	24
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	144	28	70	214	34	24	200	67	30	112	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.4	14	13.2	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	10%	22%	18%
Vol Thru, %	69%	75%	67%	67%
Vol Right, %	23%	15%	11%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	191	315	165
LT Vol	24	20	69	30
Through Vol	198	143	212	111
RT Vol	66	28	34	24
Lane Flow Rate	291	193	318	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.45	0.308	0.492	0.272
Departure Headway (Hd)	5.571	5.747	5.571	5.868
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	621	643	608
Service Time	3.636	3.819	3.634	3.943
HCM Lane V/C Ratio	0.453	0.311	0.495	0.275
HCM Control Delay	13.2	11.4	14	11.1
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.3	1.3	2.7	1.1

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Vol, veh/h	66	50	2	36	202	167	50
Future Vol, veh/h	66	50	2	36	202	167	50
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	73	55	2	40	222	184	55
Number of Lanes	1	0	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9	9.8	9.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	15%	57%	0%
Vol Thru, %	85%	0%	77%
Vol Right, %	0%	43%	23%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	240	116	217
LT Vol	36	66	0
Through Vol	204	0	167
RT Vol	0	50	50
Lane Flow Rate	264	127	238
Geometry Grp	1	1	1
Degree of Util (X)	0.333	0.173	0.292
Departure Headway (Hd)	4.541	4.899	4.407
Convergence, Y/N	Yes	Yes	Yes
Cap	791	730	816
Service Time	2.57	2.942	2.438
HCM Lane V/C Ratio	0.334	0.174	0.292
HCM Control Delay	9.8	9	9.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.6	1.2



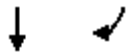
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	85	15	41	13	7	8	4	60	1720	43	22	15
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	85	56	0	13	15	0	0	64	1763	0	0	37
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.89	0.85	0.95	0.92	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1805	1691	0	1805	1748	0	0	1805	6876	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	5.7	4.0	0.0	0.9	1.0	0.0	0.0	4.3	30.8	0.0	0.0	2.5
Adj Reference Time (s)	10.2	9.5	0.0	9.5	9.5	0.0	0.0	9.5	35.3	0.0	0.0	9.5
Permitted Option												
Adj Saturation A (vph)	120	1691		120	1748		0	120	1719		0	120
Reference Time A (s)	84.8	4.0		13.0	1.0		0.0	63.8	30.8		0.0	36.9
Adj Saturation B (vph	0	1691		0	1748		NA	NA	NA		NA	NA
Reference Time B (s)	13.7	4.0		8.9	1.0		NA	NA	NA		NA	NA
Reference Time (s)		13.7			8.9				63.8			
Adj Reference Time (s)		18.2			13.4				68.3			
Split Option												
Ref Time Combined (s)	5.7	4.0		0.9	1.0		0.0	4.3	30.8		0.0	2.5
Ref Time Seperate (s)	5.7	1.1		0.9	0.5		0.3	4.0	30.0		1.5	1.0
Reference Time (s)	5.7	5.7		1.0	1.0		30.8	30.8	30.8		34.2	34.2
Adj Reference Time (s)	10.2	10.2		9.5	9.5		35.3	35.3	35.3		38.7	38.7

Summary	EB WB	NB SB	Combined
Protected Option (s)	19.7	48.2	
Permitted Option (s)	18.2	68.3	
Split Option (s)	19.7	74.0	
Minimum (s)	18.2	48.2	66.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	55.3%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1757	184
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1941	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.99	0.85
Saturated Flow (vph)	6803	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	34.2	0.0
Adj Reference Time (s)	38.7	0.0
Permitted Option		
Adj Saturation A (vph)	1701	
Reference Time A (s)	34.2	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	36.9	
Adj Reference Time (s)	41.4	
Split Option		
Ref Time Combined (s)	34.2	
Ref Time Seperate (s)	31.0	
Reference Time (s)	34.2	
Adj Reference Time (s)	38.7	
Summary		

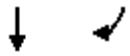
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	138	108	74	21	46	96	27	31	1579	148	9	145
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	138	182	0	21	46	96	0	58	1727	0	0	154
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	1.00	0.85	0.95	0.95	0.99	0.85	0.95	0.95
Saturated Flow (vph)	1805	1784	0	1805	1600	1615	0	1805	6812	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	9.2	12.2	0.0	1.4	2.9	7.1	0.0	3.9	30.4	0.0	0.0	10.2
Adj Reference Time (s)	13.7	16.7	0.0	9.5	9.5	11.6	0.0	9.5	34.9	0.0	0.0	14.7
Permitted Option												
Adj Saturation A (vph)	120	1784		120	1600		0	120	1703		0	120
Reference Time A (s)	137.6	12.2		20.9	2.9		0.0	57.8	30.4		0.0	153.6
Adj Saturation B (vph	0	1784		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	17.2	12.2		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		17.2			20.9				57.8			
Adj Reference Time (s)		21.7			25.4				62.3			
Split Option												
Ref Time Combined (s)	9.2	12.2		1.4	2.9		0.0	3.9	30.4		0.0	10.2
Ref Time Seperate (s)	9.2	7.3		1.4	2.9		1.8	2.1	27.8		0.6	9.6
Reference Time (s)	12.2	12.2		2.9	2.9		30.4	30.4	30.4		28.2	28.2
Adj Reference Time (s)	16.7	16.7		9.5	9.5		34.9	34.9	34.9		32.7	32.7

Summary	EB WB	NB SB	Combined
Protected Option (s)	26.2	49.7	
Permitted Option (s)	25.4	158.1	
Split Option (s)	26.2	67.6	
Minimum (s)	25.4	49.7	75.1

Right Turns	WBR
Adj Reference Time (s)	11.6
Cross Thru Ref Time (s)	49.7
Oncoming Left Ref Time (s)	13.7
Combined (s)	75.0

Intersection Summary			
Intersection Capacity Utilization	62.6%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1564	50
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1614	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	6869	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	28.2	0.0
Adj Reference Time (s)	32.7	0.0
Permitted Option		
Adj Saturation A (vph)	1717	
Reference Time A (s)	28.2	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	153.6	
Adj Reference Time (s)	158.1	
Split Option		
Ref Time Combined (s)	28.2	
Ref Time Seperate (s)	27.3	
Reference Time (s)	28.2	
Adj Reference Time (s)	32.7	
Summary		

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	122	204	62	1	79	98	100	14	61	1506	113	29
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No				No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	122	266	0	0	80	98	100	0	75	1506	113	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95
Saturated Flow (vph)	1805	1834	0	0	1805	1600	1615	0	1805	6901	1615	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00				0.00				0.00		
Protected Option Allowed		Yes				Yes				Yes		
Reference Time (s)	8.1	17.4	0.0	0.0	5.3	6.2	7.4	0.0	5.0	26.2	8.4	0.0
Adj Reference Time (s)	12.6	21.9	0.0	0.0	9.8	10.7	11.9	0.0	9.5	30.7	12.9	0.0
Permitted Option												
Adj Saturation A (vph)	120	1834		0	120	1600		0	120	1725		0
Reference Time A (s)	121.7	17.4		0.0	79.8	6.2		0.0	74.8	26.2		0.0
Adj Saturation B (vph	0	1834		NA	NA	NA		NA	NA	NA		NA
Reference Time B (s)	16.1	17.4		NA	NA	NA		NA	NA	NA		NA
Reference Time (s)		17.4				79.8				74.8		
Adj Reference Time (s)		21.9				84.3				79.3		
Split Option												
Ref Time Combined (s)	8.1	17.4		0.0	5.3	6.2		0.0	5.0	26.2		0.0
Ref Time Seperate (s)	8.1	13.4		0.1	5.3	6.2		0.9	4.1	26.2		1.9
Reference Time (s)	17.4	17.4		6.2	6.2	6.2		26.2	26.2	26.2		26.2
Adj Reference Time (s)	21.9	21.9		10.7	10.7	10.7		30.7	30.7	30.7		30.7

Summary	EB WB	NB SB	Combined
Protected Option (s)	31.7	42.1	
Permitted Option (s)	84.3	107.7	
Split Option (s)	32.6	61.4	
Minimum (s)	31.7	42.1	73.8

Right Turns	WBR	NBR
Adj Reference Time (s)	11.9	12.9
Cross Thru Ref Time (s)	42.1	31.7
Oncoming Left Ref Time (s)	12.6	11.4
Combined (s)	66.6	56.0

Intersection Summary			
Intersection Capacity Utilization	61.5%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	172	1417	77
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	201	1494	0
Lane Utilization Factor	0.97	0.91	1.00
Turning Factor (vph)	0.95	0.99	0.85
Saturated Flow (vph)	3505	6847	0
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		Yes	
Reference Time (s)	6.9	26.2	0.0
Adj Reference Time (s)	11.4	30.7	0.0
Permitted Option			
Adj Saturation A (vph)	117	1712	
Reference Time A (s)	103.2	26.2	
Adj Saturation B (vph	NA	NA	
Reference Time B (s)	NA	NA	
Reference Time (s)		103.2	
Adj Reference Time (s)		107.7	
Split Option			
Ref Time Combined (s)	6.9	26.2	
Ref Time Seperate (s)	5.9	24.8	
Reference Time (s)	26.2	26.2	
Adj Reference Time (s)	30.7	30.7	
Summary			

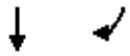
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	175	141	97	48	74	45	10	131	1438	404	17	179
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	413	0	48	74	45	0	141	1438	404	0	196
Lane Utilization Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	0	5124	0	3505	3618	1615	0	1805	6901	1615	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			0.0			3.3	0.0	9.4	25.0	30.0	0.0	13.0
Adj Reference Time (s)			0.0			9.5	0.0	13.9	29.5	34.5	0.0	17.5
Permitted Option												
Adj Saturation A (vph)	0	171		117	1809		0	120	1725		0	120
Reference Time A (s)	0.0	122.9		24.6	2.5		0.0	140.6	25.0		0.0	195.5
Adj Saturation B (vph	0	1698		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	13.8	15.0		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		15.0			24.6				140.6			
Adj Reference Time (s)		19.5			29.1				145.1			
Split Option												
Ref Time Combined (s)	0.0	9.7		1.6	2.5		0.0	9.4	25.0		0.0	13.0
Ref Time Seperate (s)	5.8	5.0		1.6	2.5		0.7	8.7	25.0		1.1	11.9
Reference Time (s)	9.7	9.7		2.5	2.5		25.0	25.0	25.0		23.3	23.3
Adj Reference Time (s)	14.2	14.2		9.5	9.5		29.5	29.5	29.5		27.8	27.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	47.0	
Permitted Option (s)	29.1	200.0	
Split Option (s)	23.7	57.4	
Minimum (s)	23.7	47.0	70.7

Right Turns	WBR	NBR
Adj Reference Time (s)	9.5	34.5
Cross Thru Ref Time (s)	47.0	14.2
Oncoming Left Ref Time (s)	14.2	17.5
Combined (s)	70.7	66.2

Intersection Summary			
Intersection Capacity Utilization	58.9%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1119	194
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1313	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.98	0.85
Saturated Flow (vph)	6748	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	23.3	0.0
Adj Reference Time (s)	27.8	0.0
Permitted Option		
Adj Saturation A (vph)	1687	
Reference Time A (s)	23.3	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	195.5	
Adj Reference Time (s)	200.0	
Split Option		
Ref Time Combined (s)	23.3	
Ref Time Seperate (s)	19.9	
Reference Time (s)	23.3	
Adj Reference Time (s)	27.8	
Summary		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	1	99	218	289	127	231	109	27	401	1893	250	14
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No			No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	100	218	289	127	231	109	0	428	2143	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.97	0.91	1.00	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.98	0.85	0.95
Saturated Flow (vph)	0	1805	3618	1615	3505	3618	1615	0	3505	6780	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00			0.00				0.00		
Protected Option Allowed			Yes			Yes				Yes		
Reference Time (s)	0.0	6.6	7.2	21.5	4.3	7.7	8.1	0.0	14.7	37.9	0.0	0.0
Adj Reference Time (s)	0.0	11.1	11.7	26.0	9.5	12.2	12.6	0.0	19.2	42.4	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	120	1809		117	1809		0	117	1695		0
Reference Time A (s)	0.0	99.7	7.2		65.2	7.7		0.0	219.8	37.9		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time B (s)	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time (s)			99.7			65.2				219.8		
Adj Reference Time (s)			104.2			69.7				224.3		
Split Option												
Ref Time Combined (s)	0.0	6.6	7.2		4.3	7.7		0.0	14.7	37.9		0.0
Ref Time Seperate (s)	0.1	6.6	7.2		4.3	7.7		1.8	13.7	33.5		0.9
Reference Time (s)	7.2	7.2	7.2		7.7	7.7		37.9	37.9	37.9		17.3
Adj Reference Time (s)	11.7	11.7	11.7		12.2	12.2		42.4	42.4	42.4		21.8

Summary	EB WB	NB SB	Combined
Protected Option (s)	23.3	51.9	
Permitted Option (s)	104.2	224.3	
Split Option (s)	23.9	64.2	
Minimum (s)	23.3	51.9	75.2

Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	26.0	12.6	14.6
Cross Thru Ref Time (s)	41.0	51.9	23.3
Oncoming Left Ref Time (s)	9.5	11.1	19.2
Combined (s)	76.4	75.7	57.1

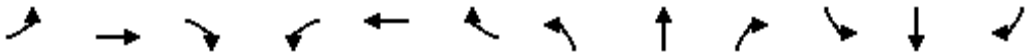
Intersection Summary			
Intersection Capacity Utilization	63.7%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	104	996	136
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	118	996	136
Lane Utilization Factor	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85
Saturated Flow (vph)	3505	6901	1615
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		Yes	
Reference Time (s)	4.0	17.3	10.1
Adj Reference Time (s)	9.5	21.8	14.6
Permitted Option			
Adj Saturation A (vph)	117	1725	
Reference Time A (s)	60.6	17.3	
Adj Saturation B (vph	NA	NA	
Reference Time B (s)	NA	NA	
Reference Time (s)		60.6	
Adj Reference Time (s)		65.1	
Split Option			
Ref Time Combined (s)	4.0	17.3	
Ref Time Seperate (s)	3.6	17.3	
Reference Time (s)	17.3	17.3	
Adj Reference Time (s)	21.8	21.8	

Summary



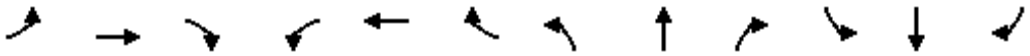
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	37	69	15	19	110	25	658	29	60	614	61
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	200	106	0	0	144	0	0	712	0	0	735	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.90	0.85	0.95	0.88	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	1805	1714	0	0	1674	0	0	3589	0	0	3558	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	308	1714		0	660		0	818		0	377	
Reference Time A (s)	77.8	7.4		0.0	26.2		0.0	44.9		0.0	78.7	
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		9.0	18.3		NA	NA		NA	NA	
Reference Time (s)		77.8			18.3			44.9			78.7	
Adj Reference Time (s)		82.3			22.8			49.4			83.2	
Split Option												
Ref Time Combined (s)	13.3	7.4		0.0	10.3		0.0	23.8		0.0	24.8	
Ref Time Seperate (s)	13.3	2.6		1.0	1.4		1.7	22.0		4.0	20.6	
Reference Time (s)	13.3	13.3		10.3	10.3		23.8	23.8		24.8	24.8	
Adj Reference Time (s)	17.8	17.8		14.8	14.8		28.3	28.3		29.3	29.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	82.3	83.2	
Split Option (s)	32.6	57.6	
Minimum (s)	32.6	57.6	90.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	75.2%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	29	25	57	19	83	19	521	63	40	653	19
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	122	0	0	159	0	0	603	0	0	712	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	0.91	0.85	0.95	0.98	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1790	0	0	1720	0	0	3555	0	0	3593	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1118		0	1583		0	867		0	567	
Reference Time A (s)	0.0	13.1		0.0	12.1		0.0	36.5		0.0	58.4	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	12.5	16.2		11.8	19.1		NA	NA		NA	NA	
Reference Time (s)		13.1			12.1			36.5			58.4	
Adj Reference Time (s)		17.1			16.1			40.5			62.4	
Split Option												
Ref Time Combined (s)	0.0	8.2		0.0	11.1		0.0	20.4		0.0	23.8	
Ref Time Seperate (s)	4.5	2.0		3.8	1.4		1.3	17.6		2.7	21.8	
Reference Time (s)	8.2	8.2		11.1	11.1		20.4	20.4		23.8	23.8	
Adj Reference Time (s)	12.2	12.2		15.1	15.1		24.4	24.4		27.8	27.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	17.1	62.4	
Split Option (s)	27.3	52.1	
Minimum (s)	17.1	52.1	69.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	57.7%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	61	26	31	44	129	20	399	36	110	406	49
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	166	0	0	204	0	0	455	0	0	565	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.90	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1811	0	0	1707	0	0	3567	0	0	3536	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	740		0	1658		0	692		0	118	
Reference Time A (s)	0.0	26.9		0.0	14.8		0.0	32.5		0.0	112.0	
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		10.1	22.3		NA	NA		NA	NA	
Reference Time (s)		26.9			14.8			32.5			112.0	
Adj Reference Time (s)		31.4			19.3			37.0			116.5	
Split Option												
Ref Time Combined (s)	0.0	11.0		0.0	14.3		0.0	15.3		0.0	19.2	
Ref Time Seperate (s)	5.3	4.0		2.1	3.1		1.3	13.4		7.3	13.7	
Reference Time (s)	11.0	11.0		14.3	14.3		15.3	15.3		19.2	19.2	
Adj Reference Time (s)	15.5	15.5		18.8	18.8		19.8	19.8		23.7	23.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	31.4	116.5	
Split Option (s)	34.3	43.5	
Minimum (s)	31.4	43.5	74.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	62.4%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

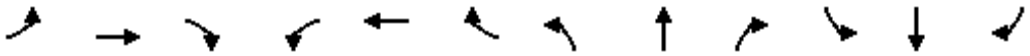
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	56	42	6	28	87	20	289	7	57	358	46
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	179	0	0	121	0	0	316	0	0	461	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	0.89	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1792	0	0	1691	0	0	3594	0	0	3541	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	422		0	1682		0	505		0	206	
Reference Time A (s)	0.0	50.9		0.0	8.6		0.0	28.0		0.0	67.8	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	13.4	20.0		8.4	16.6		NA	NA		NA	NA	
Reference Time (s)		20.0			8.6			28.0			67.8	
Adj Reference Time (s)		24.0			12.6			32.0			71.8	
Split Option												
Ref Time Combined (s)	0.0	12.0		0.0	8.6		0.0	10.6		0.0	15.6	
Ref Time Seperate (s)	5.4	3.8		0.4	2.0		1.3	9.6		3.8	12.1	
Reference Time (s)	12.0	12.0		8.6	8.6		10.6	10.6		15.6	15.6	
Adj Reference Time (s)	16.0	16.0		12.6	12.6		14.6	14.6		19.6	19.6	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	24.0	71.8	
Split Option (s)	28.6	34.2	
Minimum (s)	24.0	34.2	58.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



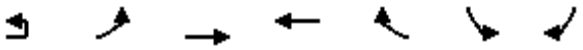
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	232	54	9	175	108	55	152	11	142	164	75
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	345	0	0	292	0	0	218	0	0	381	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.94	0.85	0.95	0.98	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3502	0	0	3412	0	0	3545	0	0	3445	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	117		0	843		0	118		0	115	
Reference Time A (s)	0.0	60.6		0.0	18.2		0.0	55.9		0.0	148.4	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		60.6			18.2			55.9			148.4	
Adj Reference Time (s)		65.1			22.7			60.4			152.9	
Split Option												
Ref Time Combined (s)	0.0	11.8		0.0	10.3		0.0	7.4		0.0	13.3	
Ref Time Seperate (s)	3.9	7.9		0.6	6.2		3.7	5.1		9.4	5.7	
Reference Time (s)	11.8	11.8		10.3	10.3		7.4	7.4		13.3	13.3	
Adj Reference Time (s)	16.3	16.3		14.8	14.8		11.9	11.9		17.8	17.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	65.1	152.9	
Split Option (s)	31.1	29.6	
Minimum (s)	31.1	29.6	60.7

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	50.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Volume (vph)	1	4	187	127	159	162	4
Pedestrians							
Ped Button							
Pedestrian Timing (s)							
Free Right					No		No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	192	127	159	166	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	0.97	1.00
Turning Factor (vph)	0.95	0.95	1.00	1.00	0.85	0.95	0.85
Saturated Flow (vph)	0	0	1898	1600	1615	3497	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)			0.00	0.00		0.00	
Protected Option Allowed			No	No		No	
Reference Time (s)					11.8		0.0
Adj Reference Time (s)					15.8		0.0
Permitted Option							
Adj Saturation A (vph)	0	0	1385	1600		117	
Reference Time A (s)	0.0	0.0	16.6	8.0		85.4	
Adj Saturation B (vph	NA	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA	NA		NA	
Reference Time (s)			16.6	8.0			
Adj Reference Time (s)			20.6	12.0			
Split Option							
Ref Time Combined (s)	0.0	0.0	12.1	8.0		5.7	
Ref Time Seperate (s)	0.1	0.3	11.8	8.0		5.6	
Reference Time (s)	12.1	12.1	12.1	8.0		5.7	
Adj Reference Time (s)	16.1	16.1	16.1	12.0		9.7	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	20.6	Err	
Split Option (s)	28.2	9.7	
Minimum (s)	20.6	9.7	30.3

Right Turns	WBR
Adj Reference Time (s)	15.8
Cross Thru Ref Time (s)	0.0
Oncoming Left Ref Time (s)	16.1
Combined (s)	32.0

Intersection Summary			
Intersection Capacity Utilization	26.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	219	46	9	218	15	18	19	19	18	12	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	270	0	0	242	0	0	56	0	0	39	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.99	0.85	0.95	0.93	0.85	0.95	0.94	0.85
Saturated Flow (vph)	0	3522	0	0	3577	0	0	1774	0	0	1792	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1119		0	784		0	1556		0	1162	
Reference Time A (s)	0.0	13.4		0.0	15.8		0.0	4.3		0.0	4.0	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		9.2	11.8		9.2	10.6	
Reference Time (s)		13.4			15.8			4.3			4.0	
Adj Reference Time (s)		17.4			19.8			8.3			8.0	
Split Option												
Ref Time Combined (s)	0.0	9.2		0.0	8.1		0.0	3.8		0.0	2.6	
Ref Time Seperate (s)	0.3	7.5		0.6	7.3		1.2	1.3		1.2	0.8	
Reference Time (s)	9.2	9.2		8.1	8.1		3.8	3.8		2.6	2.6	
Adj Reference Time (s)	13.2	13.2		12.1	12.1		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	19.8	8.3	
Split Option (s)	25.3	16.0	
Minimum (s)	19.8	8.3	28.1

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	23.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	3	3	271	13	7	17	200	18	14	10	37	1
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No				No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	290	0	0	0	242	0	0	61	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.99	0.85	0.95	0.95	0.98	0.85	0.95	0.90	0.85	0.95
Saturated Flow (vph)	0	0	3590	0	0	0	3559	0	0	1707	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00				0.00			0.00		
Protected Option Allowed			No				No			No		
Reference Time (s)				0.0				0.0			0.0	
Adj Reference Time (s)				0.0				0.0			0.0	
Permitted Option												
Adj Saturation A (vph)	0	0	1089		0	0	292		0	1648		0
Reference Time A (s)	0.0	0.0	14.7		0.0	0.0	30.0		0.0	4.4		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		0	0		0
Reference Time B (s)	NA	NA	NA		NA	NA	NA		8.9	12.3		8.1
Reference Time (s)			14.7				30.0			4.4		
Adj Reference Time (s)			18.7				34.0			8.4		
Split Option												
Ref Time Combined (s)	0.0	0.0	9.7		0.0	0.0	8.2		0.0	4.3		0.0
Ref Time Seperate (s)	0.2	0.2	9.1		0.5	1.1	6.7		0.9	0.7		0.1
Reference Time (s)	9.7	9.7	9.7		8.2	8.2	8.2		4.3	4.3		2.8
Adj Reference Time (s)	13.7	13.7	13.7		12.2	12.2	12.2		8.3	8.3		8.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	34.0	9.7	
Split Option (s)	25.9	16.3	
Minimum (s)	25.9	9.7	35.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	29.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	21	9	10
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	0	41	0
Lane Utilization Factor	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.94	0.85
Saturated Flow (vph)	0	1781	0
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		No	
Reference Time (s)			0.0
Adj Reference Time (s)			0.0
Permitted Option			
Adj Saturation A (vph)	0	859	
Reference Time A (s)	0.0	5.7	
Adj Saturation B (vph	0	0	
Reference Time B (s)	9.4	10.8	
Reference Time (s)		5.7	
Adj Reference Time (s)		9.7	
Split Option			
Ref Time Combined (s)	0.0	2.8	
Ref Time Seperate (s)	1.4	0.6	
Reference Time (s)	2.8	2.8	
Adj Reference Time (s)	8.0	8.0	
Summary			

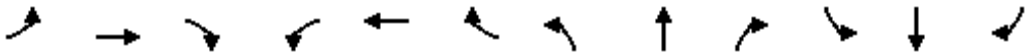
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	306	53	15	237	54	35	30	17	48	59	25
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	388	0	0	306	0	0	82	0	0	132	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.97	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3530	0	0	3513	0	0	1802	0	0	1812	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	415		0	625		0	1296		0	1492	
Reference Time A (s)	0.0	39.3		0.0	23.6		0.0	7.6		0.0	10.6	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		10.3	13.5		11.2	16.7	
Reference Time (s)		39.3			23.6			7.6			10.6	
Adj Reference Time (s)		43.3			27.6			11.6			14.6	
Split Option												
Ref Time Combined (s)	0.0	13.2		0.0	10.5		0.0	5.5		0.0	8.7	
Ref Time Seperate (s)	1.9	10.4		1.0	8.1		2.3	2.0		3.2	3.9	
Reference Time (s)	13.2	13.2		10.5	10.5		5.5	5.5		8.7	8.7	
Adj Reference Time (s)	17.2	17.2		14.5	14.5		9.5	9.5		12.7	12.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	43.3	14.6	
Split Option (s)	31.6	22.2	
Minimum (s)	31.6	14.6	46.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	38.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



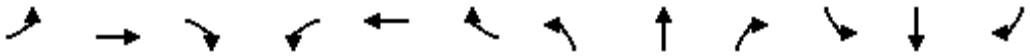
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	323	27	21	231	81	12	40	27	58	36	61
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	440	0	0	333	0	0	79	0	0	155	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.94	0.85	0.95	0.92	0.85
Saturated Flow (vph)	0	3548	0	0	3475	0	0	1789	0	0	1754	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	118		0	490		0	1665		0	852	
Reference Time A (s)	0.0	91.3		0.0	30.5		0.0	5.7		0.0	21.8	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.8	13.3		11.9	18.6	
Reference Time (s)		91.3			30.5			5.7			18.6	
Adj Reference Time (s)		95.3			34.5			9.7			22.6	
Split Option												
Ref Time Combined (s)	0.0	14.9		0.0	11.5		0.0	5.3		0.0	10.6	
Ref Time Seperate (s)	6.0	10.8		1.4	8.0		0.8	2.7		3.9	2.5	
Reference Time (s)	14.9	14.9		11.5	11.5		5.3	5.3		10.6	10.6	
Adj Reference Time (s)	18.9	18.9		15.5	15.5		9.3	9.3		14.6	14.6	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	95.3	22.6	
Split Option (s)	34.4	23.9	
Minimum (s)	34.4	22.6	57.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	47.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



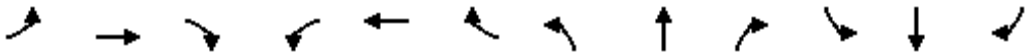
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	385	21	37	326	18	12	10	16	25	20	56
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	431	0	0	381	0	0	38	0	0	101	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	0.92	0.85	0.95	0.91	0.85
Saturated Flow (vph)	0	3581	0	0	3575	0	0	1752	0	0	1720	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	548		0	302		0	1194		0	1406	
Reference Time A (s)	0.0	36.2		0.0	46.3		0.0	3.8		0.0	8.6	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.8	10.6		9.7	15.0	
Reference Time (s)		36.2			46.3			3.8			8.6	
Adj Reference Time (s)		40.7			50.8			9.5			13.1	
Split Option												
Ref Time Combined (s)	0.0	14.4		0.0	12.8		0.0	2.6		0.0	7.0	
Ref Time Seperate (s)	1.7	12.9		2.5	10.9		0.8	0.7		1.7	1.4	
Reference Time (s)	14.4	14.4		12.8	12.8		2.6	2.6		7.0	7.0	
Adj Reference Time (s)	18.9	18.9		17.3	17.3		9.5	9.5		11.5	11.5	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	50.8	13.1	
Split Option (s)	36.2	21.0	
Minimum (s)	36.2	13.1	49.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	41.1%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	383	6	13	319	3	6	4	21	17	4	25
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	415	0	0	335	0	0	31	0	0	46	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	1.00	0.85	0.95	0.89	0.85	0.95	0.90	0.85
Saturated Flow (vph)	0	3598	0	0	3606	0	0	1690	0	0	1713	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	511		0	767		0	1522		0	953	
Reference Time A (s)	0.0	36.5		0.0	22.1		0.0	2.4		0.0	5.8	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.4	10.2		9.1	11.2	
Reference Time (s)		36.5			22.1			2.4			5.8	
Adj Reference Time (s)		40.5			26.1			8.0			9.8	
Split Option												
Ref Time Combined (s)	0.0	13.8		0.0	11.1		0.0	2.2		0.0	3.2	
Ref Time Seperate (s)	1.7	12.7		0.9	10.6		0.4	0.3		1.1	0.3	
Reference Time (s)	13.8	13.8		11.1	11.1		2.2	2.2		3.2	3.2	
Adj Reference Time (s)	17.8	17.8		15.1	15.1		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	40.5	9.8	
Split Option (s)	33.0	16.0	
Minimum (s)	33.0	9.8	42.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	35.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	1	18	26	2	3	21	1	2	7	0	10	15
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No			No			No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	47	0	0	25	0	0	9	0	0	29
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.97	0.85	0.95	0.99	0.85	0.95	0.99	0.85	0.95	0.96
Saturated Flow (vph)	0	0	1850	0	0	1877	0	0	1879	0	0	1829
Ped Intf Time (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
Pedestrian Frequency (%)			0.00			0.00			0.00			0.00
Protected Option Allowed			No			No			No			No
Reference Time (s)				0.0			0.0			0.0		
Adj Reference Time (s)				0.0			0.0			0.0		
Permitted Option												
Adj Saturation A (vph)	0	0	748		0	1804		0	1620		0	1135
Reference Time A (s)	0.0	0.0	7.5		0.0	1.7		0.0	0.7		0.0	3.1
Adj Saturation B (vph	0	0	0		0	0		0	0		0	0
Reference Time B (s)	8.1	9.2	11.0		8.2	9.6		8.1	8.6		8.7	9.9
Reference Time (s)			7.5			1.7			0.7			3.1
Adj Reference Time (s)			11.5			8.0			8.0			8.0
Split Option												
Ref Time Combined (s)	0.0	0.0	3.0		0.0	1.6		0.0	0.6		0.0	1.9
Ref Time Seperate (s)	0.1	1.2	1.7		0.2	1.3		0.1	0.4		0.7	1.0
Reference Time (s)	3.0	3.0	3.0		1.6	1.6		0.6	0.6		1.9	1.9
Adj Reference Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	11.5	8.0	
Split Option (s)	16.0	16.0	
Minimum (s)	11.5	8.0	19.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	16.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBR
Lane Configurations	
Volume (vph)	4
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	

Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	149	40	47	128	60	26	136	85	24	85	20
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	226	0	0	235	0	0	247	0	0	129	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.95	0.85	0.95	0.94	0.85	0.95	0.97	0.85
Saturated Flow (vph)	0	1834	0	0	1809	0	0	1792	0	0	1839	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1452		0	1260		0	1533		0	1125	
Reference Time A (s)	0.0	18.7		0.0	22.4		0.0	19.3		0.0	13.8	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		9.7	24.5		NA	NA	
Reference Time (s)		18.7			22.4			19.3			13.8	
Adj Reference Time (s)		22.7			26.4			23.3			17.8	
Split Option												
Ref Time Combined (s)	0.0	14.8		0.0	15.6		0.0	16.5		0.0	8.4	
Ref Time Seperate (s)	2.5	9.7		3.1	8.5		1.7	9.1		1.6	5.5	
Reference Time (s)	14.8	14.8		15.6	15.6		16.5	16.5		8.4	8.4	
Adj Reference Time (s)	18.8	18.8		19.6	19.6		20.5	20.5		12.4	12.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	26.4	23.3	
Split Option (s)	38.4	33.0	
Minimum (s)	26.4	23.3	49.7

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	41.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	76	30	1	52	163	140	36
Pedestrians							
Ped Button							
Pedestrian Timing (s)							
Free Right		No					No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120
Volume Combined (vph)	106	0	0	0	216	176	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.92	0.85	0.95	0.95	0.99	0.97	0.85
Saturated Flow (vph)	1754	0	0	0	1877	1842	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00				0.00	0.00	
Protected Option Allowed	No				No	No	
Reference Time (s)		0.0					0.0
Adj Reference Time (s)		0.0					0.0
Permitted Option							
Adj Saturation A (vph)	117		0	0	394	1842	
Reference Time A (s)	108.8		0.0	0.0	65.8	11.5	
Adj Saturation B (vph	NA		NA	NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	NA	
Reference Time (s)					65.8	11.5	
Adj Reference Time (s)					69.8	15.5	
Split Option							
Ref Time Combined (s)	7.3		0.0	0.0	13.8	11.5	
Ref Time Seperate (s)	5.2		0.1	3.5	10.3	9.1	
Reference Time (s)	7.3		13.8	13.8	13.8	11.5	
Adj Reference Time (s)	11.3		17.8	17.8	17.8	15.5	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	69.8	
Split Option (s)	11.3	33.3	
Minimum (s)	11.3	33.3	44.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	37.1%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

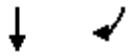
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	110	11	58	56	4	25	11	35	2066	26	28	4
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	110	69	0	56	29	0	0	46	2092	0	0	32
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.87	0.85	0.95	0.87	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1805	1660	0	1805	1654	0	0	1805	6888	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	7.3	5.0	0.0	3.7	2.1	0.0	0.0	3.1	36.4	0.0	0.0	2.1
Adj Reference Time (s)	11.8	9.5	0.0	9.5	9.5	0.0	0.0	9.5	40.9	0.0	0.0	9.5
Permitted Option												
Adj Saturation A (vph)	120	1660		120	1654		0	120	1722		0	120
Reference Time A (s)	109.7	5.0		55.8	2.1		0.0	45.9	36.4		0.0	31.9
Adj Saturation B (vph	0	1660		0	1654		NA	NA	NA		NA	NA
Reference Time B (s)	15.3	5.0		11.7	2.1		NA	NA	NA		NA	NA
Reference Time (s)		15.3			11.7				45.9			
Adj Reference Time (s)		19.8			16.2				50.4			
Split Option												
Ref Time Combined (s)	7.3	5.0		3.7	2.1		0.0	3.1	36.4		0.0	2.1
Ref Time Seperate (s)	7.3	0.8		3.7	0.3		0.7	2.3	36.0		1.9	0.3
Reference Time (s)	7.3	7.3		3.7	3.7		36.4	36.4	36.4		38.0	38.0
Adj Reference Time (s)	11.8	11.8		9.5	9.5		40.9	40.9	40.9		42.5	42.5

Summary	EB WB	NB SB	Combined
Protected Option (s)	21.3	52.0	
Permitted Option (s)	19.8	50.4	
Split Option (s)	21.3	83.4	
Minimum (s)	19.8	50.4	70.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	58.5%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	2089	82
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	2171	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.99	0.85
Saturated Flow (vph)	6862	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	38.0	0.0
Adj Reference Time (s)	42.5	0.0
Permitted Option		
Adj Saturation A (vph)	1715	
Reference Time A (s)	38.0	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	38.0	
Adj Reference Time (s)	42.5	
Split Option		
Ref Time Combined (s)	38.0	
Ref Time Seperate (s)	36.5	
Reference Time (s)	38.0	
Adj Reference Time (s)	42.5	
Summary		

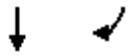
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	81	64	64	48	69	137	36	94	1931	111	11	69
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	81	128	0	48	69	137	0	130	2042	0	0	80
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	1.00	0.85	0.95	0.95	0.99	0.85	0.95	0.95
Saturated Flow (vph)	1805	1758	0	1805	1600	1615	0	1805	6845	0	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	5.4	8.7	0.0	3.2	4.4	10.2	0.0	8.6	35.8	0.0	0.0	5.3
Adj Reference Time (s)	9.9	13.2	0.0	9.5	9.5	14.7	0.0	13.1	40.3	0.0	0.0	9.8
Permitted Option												
Adj Saturation A (vph)	120	1758		120	1600		0	120	1711		0	120
Reference Time A (s)	80.8	8.7		47.9	4.4		0.0	129.6	35.8		0.0	79.8
Adj Saturation B (vph	0	1758		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	13.4	8.7		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		13.4			47.9				129.6			
Adj Reference Time (s)		17.9			52.4				134.1			
Split Option												
Ref Time Combined (s)	5.4	8.7		3.2	4.4		0.0	8.6	35.8		0.0	5.3
Ref Time Seperate (s)	5.4	4.4		3.2	4.4		2.4	6.2	33.9		0.7	4.6
Reference Time (s)	8.7	8.7		4.4	4.4		35.8	35.8	35.8		37.4	37.4
Adj Reference Time (s)	13.2	13.2		9.5	9.5		40.3	40.3	40.3		41.9	41.9

Summary	EB WB	NB SB	Combined
Protected Option (s)	22.7	55.1	
Permitted Option (s)	52.4	134.1	
Split Option (s)	22.7	82.2	
Minimum (s)	22.7	55.1	77.8

Right Turns	WBR
Adj Reference Time (s)	14.7
Cross Thru Ref Time (s)	50.1
Oncoming Left Ref Time (s)	9.9
Combined (s)	74.7

Intersection Summary			
Intersection Capacity Utilization	64.8%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	2082	61
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	2143	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	1.00	0.85
Saturated Flow (vph)	6871	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	37.4	0.0
Adj Reference Time (s)	41.9	0.0
Permitted Option		
Adj Saturation A (vph)	1718	
Reference Time A (s)	37.4	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	79.8	
Adj Reference Time (s)	84.3	
Split Option		
Ref Time Combined (s)	37.4	
Ref Time Seperate (s)	36.4	
Reference Time (s)	37.4	
Adj Reference Time (s)	41.9	
Summary		

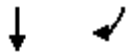
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	135	213	56	151	206	153	32	119	1714	117	44	171
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	135	269	0	151	206	153	0	151	1714	117	0	215
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.97
Turning Factor (vph)	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	1805	1841	0	1805	1600	1615	0	1805	6901	1615	0	3505
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		Yes			Yes				Yes			
Reference Time (s)	9.0	17.5	0.0	10.0	13.0	11.4	0.0	10.0	29.8	8.7	0.0	7.4
Adj Reference Time (s)	13.5	22.0	0.0	14.5	17.5	15.9	0.0	14.5	34.3	13.2	0.0	11.9
Permitted Option												
Adj Saturation A (vph)	120	1841		120	1600		0	120	1725		0	117
Reference Time A (s)	134.6	17.5		150.6	13.0		0.0	150.6	29.8		0.0	110.4
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		134.6			150.6				150.6			
Adj Reference Time (s)		139.1			155.1				155.1			
Split Option												
Ref Time Combined (s)	9.0	17.5		10.0	13.0		0.0	10.0	29.8		0.0	7.4
Ref Time Seperate (s)	9.0	13.9		10.0	13.0		2.1	7.9	29.8		2.9	5.9
Reference Time (s)	17.5	17.5		13.0	13.0		29.8	29.8	29.8		33.6	33.6
Adj Reference Time (s)	22.0	22.0		17.5	17.5		34.3	34.3	34.3		38.1	38.1

Summary	EB WB	NB SB	Combined
Protected Option (s)	36.6	52.7	
Permitted Option (s)	155.1	155.1	
Split Option (s)	39.5	72.4	
Minimum (s)	36.6	52.7	89.2

Right Turns	WBR	NBR
Adj Reference Time (s)	15.9	13.2
Cross Thru Ref Time (s)	46.2	22.0
Oncoming Left Ref Time (s)	13.5	11.9
Combined (s)	75.5	47.1

Intersection Summary			
Intersection Capacity Utilization	74.4%	ICU Level of Service	D

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1810	107
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1917	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.99	0.85
Saturated Flow (vph)	6843	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	33.6	0.0
Adj Reference Time (s)	38.1	0.0
Permitted Option		
Adj Saturation A (vph)	1711	
Reference Time A (s)	33.6	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	110.4	
Adj Reference Time (s)	114.9	
Split Option		
Ref Time Combined (s)	33.6	
Ref Time Seperate (s)	31.7	
Reference Time (s)	33.6	
Adj Reference Time (s)	38.1	
Summary		

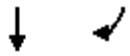
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	227	152	180	264	168	186	12	162	1490	170	13	46
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No				No		
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	559	0	264	168	186	0	174	1490	170	0	59
Lane Utilization Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	1.00	0.85	0.95	0.95	1.00	0.85	0.95	0.95
Saturated Flow (vph)	0	5059	0	3505	3618	1615	0	1805	6901	1615	0	1805
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00				0.00			
Protected Option Allowed		No			No				Yes			
Reference Time (s)			0.0			13.8	0.0	11.6	25.9	12.6	0.0	3.9
Adj Reference Time (s)			0.0			18.3	0.0	16.1	30.4	17.1	0.0	9.5
Permitted Option												
Adj Saturation A (vph)	0	169		117	1809		0	120	1725		0	120
Reference Time A (s)	0.0	161.5		135.6	5.6		0.0	173.5	25.9		0.0	58.8
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time B (s)	NA	NA		NA	NA		NA	NA	NA		NA	NA
Reference Time (s)		161.5			135.6				173.5			
Adj Reference Time (s)		166.0			140.1				178.0			
Split Option												
Ref Time Combined (s)	0.0	13.3		9.0	5.6		0.0	11.6	25.9		0.0	3.9
Ref Time Seperate (s)	7.5	5.5		9.0	5.6		0.8	10.8	25.9		0.9	3.1
Reference Time (s)	13.3	13.3		9.0	9.0		25.9	25.9	25.9		34.5	34.5
Adj Reference Time (s)	17.8	17.8		13.5	13.5		30.4	30.4	30.4		39.0	39.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	55.0	
Permitted Option (s)	166.0	178.0	
Split Option (s)	31.3	69.4	
Minimum (s)	31.3	55.0	86.3

Right Turns	WBR	NBR
Adj Reference Time (s)	18.3	17.1
Cross Thru Ref Time (s)	39.9	17.8
Oncoming Left Ref Time (s)	17.8	9.5
Combined (s)	76.0	44.4

Intersection Summary			
Intersection Capacity Utilization	71.9%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBT	SBR
Lane Configurations		
Volume (vph)	1792	165
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.5	4.0
Minimum Green (s)	5.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	1957	0
Lane Utilization Factor	0.91	1.00
Turning Factor (vph)	0.99	0.85
Saturated Flow (vph)	6814	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	Yes	
Reference Time (s)	34.5	0.0
Adj Reference Time (s)	39.0	0.0
Permitted Option		
Adj Saturation A (vph)	1703	
Reference Time A (s)	34.5	
Adj Saturation B (vph	NA	
Reference Time B (s)	NA	
Reference Time (s)	58.8	
Adj Reference Time (s)	63.3	
Split Option		
Ref Time Combined (s)	34.5	
Ref Time Seperate (s)	31.6	
Reference Time (s)	34.5	
Adj Reference Time (s)	39.0	
Summary		

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	3	132	312	505	395	319	174	37	365	1462	295	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No			No				No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.0	4.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	135	312	505	395	319	174	0	402	1757	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.97	0.91	1.00	1.00
Turning Factor (vph)	0.95	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.97	0.85	0.95
Saturated Flow (vph)	0	1805	3618	1615	3505	3618	1615	0	3505	6727	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00			0.00				0.00		
Protected Option Allowed			Yes			Yes				Yes		
Reference Time (s)	0.0	9.0	10.3	37.5	13.5	10.6	12.9	0.0	13.8	31.3	0.0	0.0
Adj Reference Time (s)	0.0	13.5	14.8	42.0	18.0	15.1	17.4	0.0	18.3	35.8	0.0	0.0
Permitted Option												
Adj Saturation A (vph)	0	120	1809		117	1809		0	117	1682		0
Reference Time A (s)	0.0	134.6	10.3		202.8	10.6		0.0	206.4	31.3		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time B (s)	NA	NA	NA		NA	NA		NA	NA	NA		NA
Reference Time (s)			134.6			202.8				206.4		
Adj Reference Time (s)			139.1			207.3				210.9		
Split Option												
Ref Time Combined (s)	0.0	9.0	10.3		13.5	10.6		0.0	13.8	31.3		0.0
Ref Time Seperate (s)	0.2	8.8	10.3		13.5	10.6		2.5	12.5	26.1		0.6
Reference Time (s)	10.3	10.3	10.3		13.5	13.5		31.3	31.3	31.3		35.9
Adj Reference Time (s)	14.8	14.8	14.8		18.0	18.0		35.8	35.8	35.8		40.4

Summary	EB WB	NB SB	Combined
Protected Option (s)	32.9	58.7	
Permitted Option (s)	207.3	210.9	
Split Option (s)	32.9	76.3	
Minimum (s)	32.9	58.7	91.6

Right Turns	EBR	WBR	SBR
Adj Reference Time (s)	42.0	17.4	10.5
Cross Thru Ref Time (s)	58.7	45.3	28.6
Oncoming Left Ref Time (s)	18.0	13.5	18.3
Combined (s)	118.7	76.2	57.3

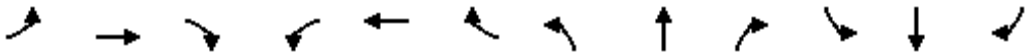
Intersection Summary			
Intersection Capacity Utilization	98.9%	ICU Level of Service	F

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	109	2066	81
Pedestrians			
Ped Button			
Pedestrian Timing (s)			
Free Right			No
Ideal Flow	1600	1600	1600
Lost Time (s)	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120
Volume Combined (vph)	118	2066	81
Lane Utilization Factor	0.97	0.91	1.00
Turning Factor (vph)	0.95	1.00	0.85
Saturated Flow (vph)	3505	6901	1615
Ped Intf Time (s)	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	
Protected Option Allowed		Yes	
Reference Time (s)	4.0	35.9	6.0
Adj Reference Time (s)	9.5	40.4	10.5
Permitted Option			
Adj Saturation A (vph)	117	1725	
Reference Time A (s)	60.6	35.9	
Adj Saturation B (vph	NA	NA	
Reference Time B (s)	NA	NA	
Reference Time (s)		60.6	
Adj Reference Time (s)		65.1	
Split Option			
Ref Time Combined (s)	4.0	35.9	
Ref Time Seperate (s)	3.7	35.9	
Reference Time (s)	35.9	35.9	
Adj Reference Time (s)	40.4	40.4	

Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	24	38	27	22	65	42	561	35	81	651	160
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	119	62	0	0	114	0	0	638	0	0	892	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.91	0.85	0.95	0.90	0.85	0.95	0.99	0.85	0.95	0.97	0.85
Saturated Flow (vph)	1805	1725	0	0	1717	0	0	3576	0	0	3504	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	548	1725		0	371		0	483		0	324	
Reference Time A (s)	26.1	4.3		0.0	36.9		0.0	58.4		0.0	105.0	
Adj Saturation B (vph	0	1725		0	0		NA	NA		NA	NA	
Reference Time B (s)	15.9	4.3		9.8	16.0		NA	NA		NA	NA	
Reference Time (s)		15.9			16.0			58.4			105.0	
Adj Reference Time (s)		20.4			20.5			62.9			109.5	
Split Option												
Ref Time Combined (s)	7.9	4.3		0.0	8.0		0.0	21.4		0.0	30.5	
Ref Time Seperate (s)	7.9	1.7		1.8	1.6		2.8	18.8		5.4	22.3	
Reference Time (s)	7.9	7.9		8.0	8.0		21.4	21.4		30.5	30.5	
Adj Reference Time (s)	12.4	12.4		12.5	12.5		25.9	25.9		35.0	35.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	20.5	109.5	
Split Option (s)	24.9	61.0	
Minimum (s)	20.5	61.0	81.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	67.9%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	13	27	55	27	38	32	625	32	30	635	17
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	71	0	0	120	0	0	689	0	0	682	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.93	0.85	0.95	0.99	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1753	0	0	1768	0	0	3584	0	0	3596	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1406		0	1359		0	666		0	698	
Reference Time A (s)	0.0	6.1		0.0	10.6		0.0	50.5		0.0	48.3	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	10.1	12.9		11.7	16.1		NA	NA		NA	NA	
Reference Time (s)		6.1			10.6			50.5			48.3	
Adj Reference Time (s)		10.1			14.6			54.5			52.3	
Split Option												
Ref Time Combined (s)	0.0	4.9		0.0	8.1		0.0	23.1		0.0	22.8	
Ref Time Seperate (s)	2.1	0.9		3.7	1.9		2.1	20.9		2.0	21.1	
Reference Time (s)	4.9	4.9		8.1	8.1		23.1	23.1		22.8	22.8	
Adj Reference Time (s)	8.9	8.9		12.1	12.1		27.1	27.1		26.8	26.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	14.6	54.5	
Split Option (s)	21.0	53.8	
Minimum (s)	14.6	53.8	68.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	57.0%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	71	30	49	81	123	23	481	46	154	482	55
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	175	0	0	253	0	0	550	0	0	691	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.92	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1812	0	0	1744	0	0	3565	0	0	3535	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	928		0	1621		0	719		0	118	
Reference Time A (s)	0.0	22.6		0.0	18.7		0.0	38.2		0.0	156.9	
Adj Saturation B (vph	NA	NA		0	0		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		11.3	25.4		NA	NA		NA	NA	
Reference Time (s)		22.6			18.7			38.2			156.9	
Adj Reference Time (s)		27.1			23.2			42.7			161.4	
Split Option												
Ref Time Combined (s)	0.0	11.6		0.0	17.4		0.0	18.5		0.0	23.5	
Ref Time Seperate (s)	4.9	4.7		3.3	5.6		1.5	16.2		10.2	16.2	
Reference Time (s)	11.6	11.6		17.4	17.4		18.5	18.5		23.5	23.5	
Adj Reference Time (s)	16.1	16.1		21.9	21.9		23.0	23.0		28.0	28.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	27.1	161.4	
Split Option (s)	38.0	51.0	
Minimum (s)	27.1	51.0	78.1

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	65.1%	ICU Level of Service	C

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	24	28	10	19	86	45	459	7	57	409	61
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	118	0	0	115	0	0	511	0	0	527	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	0.88	0.85	0.95	0.99	0.85	0.95	0.98	0.85
Saturated Flow (vph)	0	1781	0	0	1680	0	0	3594	0	0	3536	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	459		0	1686		0	346		0	255	
Reference Time A (s)	0.0	30.8		0.0	8.2		0.0	57.3		0.0	70.3	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	12.4	16.0		8.7	16.2		NA	NA		NA	NA	
Reference Time (s)		16.0			8.2			57.3			70.3	
Adj Reference Time (s)		20.0			12.2			61.3			74.3	
Split Option												
Ref Time Combined (s)	0.0	8.0		0.0	8.2		0.0	17.1		0.0	17.9	
Ref Time Seperate (s)	4.4	1.6		0.7	1.4		3.0	15.3		3.8	13.8	
Reference Time (s)	8.0	8.0		8.2	8.2		17.1	17.1		17.9	17.9	
Adj Reference Time (s)	12.0	12.0		12.2	12.2		21.1	21.1		21.9	21.9	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	20.0	74.3	
Split Option (s)	24.2	42.9	
Minimum (s)	20.0	42.9	62.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	52.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

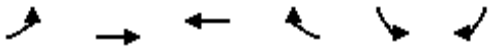
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	251	56	40	205	136	71	293	26	141	174	84
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	375	0	0	381	0	0	390	0	0	399	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.94	0.85	0.95	0.98	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3505	0	0	3406	0	0	3549	0	0	3441	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	117		0	257		0	118		0	115	
Reference Time A (s)	0.0	69.9		0.0	51.5		0.0	72.0		0.0	147.5	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		69.9			51.5			72.0			147.5	
Adj Reference Time (s)		74.4			56.0			76.5			152.0	
Split Option												
Ref Time Combined (s)	0.0	12.8		0.0	13.4		0.0	13.2		0.0	13.9	
Ref Time Seperate (s)	4.5	8.6		2.7	7.2		4.7	9.8		9.4	6.1	
Reference Time (s)	12.8	12.8		13.4	13.4		13.2	13.2		13.9	13.9	
Adj Reference Time (s)	17.3	17.3		17.9	17.9		17.7	17.7		18.4	18.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	74.4	152.0	
Split Option (s)	35.3	36.1	
Minimum (s)	35.3	36.1	71.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	59.5%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	49	301	182	229	200	24
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right				No		No
Ideal Flow	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	350	182	229	224	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	0.97	1.00
Turning Factor (vph)	0.95	0.99	1.00	0.85	0.94	0.85
Saturated Flow (vph)	0	1887	1600	1615	3468	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	0.00		0.00	
Protected Option Allowed		No	No		No	
Reference Time (s)				17.0		0.0
Adj Reference Time (s)				21.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	610	1600		116	
Reference Time A (s)	0.0	68.9	11.5		116.2	
Adj Saturation B (vph	NA	NA	NA		NA	
Reference Time B (s)	NA	NA	NA		NA	
Reference Time (s)		68.9	11.5			
Adj Reference Time (s)		72.9	15.5			
Split Option						
Ref Time Combined (s)	0.0	22.3	11.5		7.7	
Ref Time Seperate (s)	3.3	19.0	11.5		6.9	
Reference Time (s)	22.3	22.3	11.5		7.7	
Adj Reference Time (s)	26.3	26.3	15.5		11.7	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	72.9	Err	
Split Option (s)	41.8	11.7	
Minimum (s)	41.8	11.7	53.5

Right Turns	WBR
Adj Reference Time (s)	21.0
Cross Thru Ref Time (s)	0.0
Oncoming Left Ref Time (s)	26.3
Combined (s)	47.3

Intersection Summary			
Intersection Capacity Utilization	44.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	246	24	18	256	19	64	26	13	14	20	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	287	0	0	293	0	0	103	0	0	43	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.99	0.85	0.95	0.95	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3562	0	0	3571	0	0	1806	0	0	1810	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	534		0	517		0	992		0	1756	
Reference Time A (s)	0.0	24.6		0.0	25.6		0.0	12.5		0.0	2.9	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		12.3	14.8		8.9	10.9	
Reference Time (s)		24.6			25.6			12.5			2.9	
Adj Reference Time (s)		28.6			29.6			16.5			8.0	
Split Option												
Ref Time Combined (s)	0.0	9.7		0.0	9.8		0.0	6.8		0.0	2.9	
Ref Time Seperate (s)	1.1	8.3		1.2	8.6		4.3	1.7		0.9	1.3	
Reference Time (s)	9.7	9.7		9.8	9.8		6.8	6.8		2.9	2.9	
Adj Reference Time (s)	13.7	13.7		13.8	13.8		10.8	10.8		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	29.6	16.5	
Split Option (s)	27.5	18.8	
Minimum (s)	27.5	16.5	44.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	36.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	6	9	258	10	8	31	280	23	13	11	23	18
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right				No				No			No	
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	283	0	0	0	342	0	0	47	0	0
Lane Utilization Factor	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.99	0.85	0.95	0.95	0.98	0.85	0.95	0.91	0.85	0.95
Saturated Flow (vph)	0	0	3589	0	0	0	3561	0	0	1736	0	0
Ped Intf Time (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
Pedestrian Frequency (%)			0.00				0.00			0.00		
Protected Option Allowed			No				No			No		
Reference Time (s)				0.0				0.0			0.0	
Adj Reference Time (s)				0.0				0.0			0.0	
Permitted Option												
Adj Saturation A (vph)	0	0	597		0	0	237		0	1544		0
Reference Time A (s)	0.0	0.0	22.4		0.0	0.0	47.1		0.0	3.7		0.0
Adj Saturation B (vph	NA	NA	NA		NA	NA	NA		0	0		0
Reference Time B (s)	NA	NA	NA		NA	NA	NA		8.9	11.2		9.2
Reference Time (s)			22.4				47.1			3.7		
Adj Reference Time (s)			26.4				51.1			8.0		
Split Option												
Ref Time Combined (s)	0.0	0.0	9.5		0.0	0.0	11.5		0.0	3.2		0.0
Ref Time Seperate (s)	0.4	0.6	8.6		0.5	2.1	9.4		0.9	0.8		1.2
Reference Time (s)	9.5	9.5	9.5		11.5	11.5	11.5		3.2	3.2		2.7
Adj Reference Time (s)	13.5	13.5	13.5		15.5	15.5	15.5		8.0	8.0		8.0

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	51.1	8.5	
Split Option (s)	29.0	16.0	
Minimum (s)	29.0	8.5	37.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	31.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	SBT	SBR
Lane Configurations		
Volume (vph)	13	10
Pedestrians		
Ped Button		
Pedestrian Timing (s)		
Free Right		No
Ideal Flow	1600	1600
Lost Time (s)	4.0	4.0
Minimum Green (s)	4.0	4.0
Refr Cycle Length (s)	120	120
Volume Combined (vph)	41	0
Lane Utilization Factor	1.00	1.00
Turning Factor (vph)	0.94	0.85
Saturated Flow (vph)	1790	0
Ped Intf Time (s)	0.0	0.0
Pedestrian Frequency (%)	0.00	
Protected Option Allowed	No	
Reference Time (s)		0.0
Adj Reference Time (s)		0.0
Permitted Option		
Adj Saturation A (vph)	1096	
Reference Time A (s)	4.5	
Adj Saturation B (vph	0	
Reference Time B (s)	10.7	
Reference Time (s)	4.5	
Adj Reference Time (s)	8.5	
Split Option		
Ref Time Combined (s)	2.7	
Ref Time Seperate (s)	0.9	
Reference Time (s)	2.7	
Adj Reference Time (s)	8.0	
Summary		

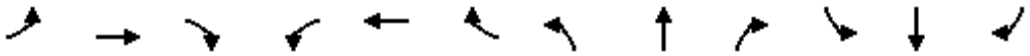
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	299	65	49	320	41	37	65	24	51	45	24
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	430	0	0	410	0	0	126	0	0	120	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.98	0.85	0.95	0.96	0.85	0.95	0.95	0.85
Saturated Flow (vph)	0	3508	0	0	3542	0	0	1819	0	0	1804	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	137		0	218		0	1580		0	1161	
Reference Time A (s)	0.0	72.6		0.0	58.8		0.0	9.6		0.0	12.4	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		10.5	16.3		11.4	16.0	
Reference Time (s)		72.6			58.8			9.6			12.4	
Adj Reference Time (s)		76.6			62.8			13.6			16.4	
Split Option												
Ref Time Combined (s)	0.0	14.7		0.0	13.9		0.0	8.3		0.0	8.0	
Ref Time Seperate (s)	4.4	10.2		3.3	10.8		2.5	4.3		3.4	3.0	
Reference Time (s)	14.7	14.7		13.9	13.9		8.3	8.3		8.0	8.0	
Adj Reference Time (s)	18.7	18.7		17.9	17.9		12.3	12.3		12.0	12.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	76.6	16.4	
Split Option (s)	36.6	24.3	
Minimum (s)	36.6	16.4	53.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	44.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	344	13	10	368	76	27	98	27	80	69	81
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	423	0	0	454	0	0	152	0	0	230	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.97	0.85	0.95	0.96	0.85	0.95	0.93	0.85
Saturated Flow (vph)	0	3573	0	0	3523	0	0	1833	0	0	1768	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	135		0	1039		0	1647		0	976	
Reference Time A (s)	0.0	70.5		0.0	23.9		0.0	11.1		0.0	28.3	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		70.5			23.9			11.1			28.3	
Adj Reference Time (s)		74.5			27.9			15.1			32.3	
Split Option												
Ref Time Combined (s)	0.0	14.2		0.0	15.5		0.0	10.0		0.0	15.6	
Ref Time Seperate (s)	4.4	11.5		0.7	12.5		1.8	6.4		5.3	4.7	
Reference Time (s)	14.2	14.2		15.5	15.5		10.0	10.0		15.6	15.6	
Adj Reference Time (s)	18.2	18.2		19.5	19.5		14.0	14.0		19.6	19.6	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	74.5	32.3	
Split Option (s)	37.7	33.6	
Minimum (s)	37.7	32.3	69.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	58.3%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	31	444	8	27	442	22	22	19	76	1	13	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.5	4.5	4.5
Minimum Green (s)	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	5.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	483	0	0	491	0	0	117	0	0	0	59
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.99	0.85	0.95	0.99	0.85	0.95	0.89	0.85	0.95	0.95	0.90
Saturated Flow (vph)	0	3597	0	0	3583	0	0	1699	0	0	0	1706
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00				0.00
Protected Option Allowed		No			No			No				No
Reference Time (s)			0.0			0.0			0.0			
Adj Reference Time (s)			0.0			0.0			0.0			
Permitted Option												
Adj Saturation A (vph)	0	499		0	576		0	1363		0	0	1169
Reference Time A (s)	0.0	43.2		0.0	39.9		0.0	10.3		0.0	0.0	6.1
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	0
Reference Time B (s)	NA	NA		NA	NA		9.5	16.3		8.1	8.9	12.2
Reference Time (s)		43.2			39.9			10.3				6.1
Adj Reference Time (s)		47.7			44.4			14.8				10.6
Split Option												
Ref Time Combined (s)	0.0	16.1		0.0	16.4		0.0	8.3		0.0	0.0	4.2
Ref Time Seperate (s)	2.1	14.8		1.8	14.8		1.5	1.4		0.1	0.9	0.6
Reference Time (s)	16.1	16.1		16.4	16.4		8.3	8.3		4.2	4.2	4.2
Adj Reference Time (s)	20.6	20.6		20.9	20.9		12.8	12.8		9.5	9.5	9.5

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	47.7	14.8	
Split Option (s)	41.6	22.3	
Minimum (s)	41.6	14.8	56.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	SBR
Lane Configurations	
Volume (vph)	36
Pedestrians	
Ped Button	
Pedestrian Timing (s)	
Free Right	No
Ideal Flow	1600
Lost Time (s)	4.0
Minimum Green (s)	4.0
Refr Cycle Length (s)	120
Volume Combined (vph)	0
Lane Utilization Factor	1.00
Turning Factor (vph)	0.85
Saturated Flow (vph)	0
Ped Intf Time (s)	0.0
Pedestrian Frequency (%)	
Protected Option Allowed	
Reference Time (s)	0.0
Adj Reference Time (s)	0.0
Permitted Option	
Adj Saturation A (vph)	
Reference Time A (s)	
Adj Saturation B (vph	
Reference Time B (s)	
Reference Time (s)	
Adj Reference Time (s)	
Split Option	
Ref Time Combined (s)	
Ref Time Seperate (s)	
Reference Time (s)	
Adj Reference Time (s)	
Summary	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	400	9	24	452	12	5	5	17	5	7	10
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	421	0	0	488	0	0	27	0	0	22	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	0.99	0.85	0.95	0.90	0.85	0.95	0.92	0.85
Saturated Flow (vph)	0	3601	0	0	3595	0	0	1705	0	0	1750	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	931		0	638		0	1355		0	1213	
Reference Time A (s)	0.0	24.0		0.0	36.9		0.0	2.4		0.0	2.2	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	0	
Reference Time B (s)	NA	NA		NA	NA		8.3	9.9		8.3	9.5	
Reference Time (s)		24.0			36.9			2.4			2.2	
Adj Reference Time (s)		28.0			40.9			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	14.0		0.0	16.3		0.0	1.9		0.0	1.5	
Ref Time Seperate (s)	0.8	13.3		1.6	15.1		0.3	0.4		0.3	0.5	
Reference Time (s)	14.0	14.0		16.3	16.3		1.9	1.9		1.5	1.5	
Adj Reference Time (s)	18.0	18.0		20.3	20.3		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	40.9	8.0	
Split Option (s)	38.3	16.0	
Minimum (s)	38.3	8.0	46.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	43	5	0	40	8	0	10	0	5	10	18
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	62	0	0	48	0	0	10	0	0	33	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.98	0.85	0.95	0.97	0.85	0.95	1.00	0.85	0.95	0.91	0.85
Saturated Flow (vph)	0	1856	0	0	1853	0	0	1600	0	0	1731	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	417		0	1853		0	1600		0	529	
Reference Time A (s)	0.0	17.8		0.0	3.1		0.0	0.6		0.0	7.5	
Adj Saturation B (vph	0	0		0	1853		0	1600		0	0	
Reference Time B (s)	8.9	12.0		0.0	3.1		0.0	0.6		8.3	10.3	
Reference Time (s)		12.0			3.1			0.6			7.5	
Adj Reference Time (s)		16.0			8.0			8.0			11.5	
Split Option												
Ref Time Combined (s)	0.0	4.0		0.0	3.1		0.0	0.6		0.0	2.3	
Ref Time Seperate (s)	0.9	2.8		0.0	2.6		0.0	0.6		0.3	0.7	
Reference Time (s)	4.0	4.0		3.1	3.1		0.6	0.6		2.3	2.3	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	16.0	11.5	
Split Option (s)	16.0	16.0	
Minimum (s)	16.0	11.5	27.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	22.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	147	28	88	220	34	24	198	77	30	111	24
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	195	0	0	342	0	0	299	0	0	165	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.97	0.85	0.95	0.97	0.85	0.95	0.96	0.85	0.95	0.97	0.85
Saturated Flow (vph)	0	1850	0	0	1848	0	0	1819	0	0	1842	0
Ped Intf Time (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
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1682		0	941		0	1614		0	1032	
Reference Time A (s)	0.0	13.9		0.0	43.6		0.0	22.2		0.0	19.2	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		NA	NA	
Reference Time (s)		13.9			43.6			22.2			19.2	
Adj Reference Time (s)		17.9			47.6			26.2			23.2	
Split Option												
Ref Time Combined (s)	0.0	12.7		0.0	22.2		0.0	19.7		0.0	10.8	
Ref Time Seperate (s)	1.3	9.5		5.9	14.2		1.6	13.1		2.0	7.2	
Reference Time (s)	12.7	12.7		22.2	22.2		19.7	19.7		10.8	10.8	
Adj Reference Time (s)	16.7	16.7		26.2	26.2		23.7	23.7		14.8	14.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	47.6	26.2	
Split Option (s)	42.9	38.5	
Minimum (s)	42.9	26.2	69.1

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	57.6%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	66	55	2	45	213	186	50
Pedestrians							
Ped Button							
Pedestrian Timing (s)							
Free Right		No					No
Ideal Flow	1600	1600	1600	1600	1600	1600	1600
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120
Volume Combined (vph)	121	0	0	0	260	236	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.91	0.85	0.95	0.95	0.99	0.97	0.85
Saturated Flow (vph)	1722	0	0	0	1883	1840	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00				0.00	0.00	
Protected Option Allowed	No				No	No	
Reference Time (s)		0.0					0.0
Adj Reference Time (s)		0.0					0.0
Permitted Option							
Adj Saturation A (vph)	115		0	0	504	1840	
Reference Time A (s)	126.5		0.0	0.0	61.9	15.4	
Adj Saturation B (vph	NA		NA	NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	NA	
Reference Time (s)					61.9	15.4	
Adj Reference Time (s)					65.9	19.4	
Split Option							
Ref Time Combined (s)	8.4		0.0	0.0	16.6	15.4	
Ref Time Seperate (s)	4.6		0.1	3.0	13.5	12.1	
Reference Time (s)	8.4		16.6	16.6	16.6	15.4	
Adj Reference Time (s)	12.4		20.6	20.6	20.6	19.4	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	65.9	
Split Option (s)	12.4	40.0	
Minimum (s)	12.4	40.0	52.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Attachment D

Signal Warrant Analysis Worksheets

Kimley»Horn

PEAK HOUR SIGNAL WARRANT ANALYSIS (Warrant #3, California MUTCD 2012 Edition)

INT #1

PROJECT NAME: *El Segundo Housing Element Update*

SCENARIO: *Existing Plus Project Conditions*

COMMENTS:

MAJOR STREET: *Main Street* ☑ NB/SB ☐ EB/WB # OF APPROACH LANES: 2

MINOR STREET: *Maple Avenue* ☐ NB/SB ☑ EB/WB # OF APPROACH LANES: 1

THE STUDY INTERSECTION HAS MORE THAN THREE APPROACHES (Y OR N): Y

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): N

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): N

WORST CASE DELAY FOR MINOR STREET APPROACH:	AM		PM	
	100.0	sec/veh	51.5	sec/veh
	4.42	veh-hr	1.72	veh-hr

			MAJOR STREET			MINOR STREET				
			NB Approach	SB Approach	Total	EB Approach	WB Approach	Heavy Leg	Total	Intersection Total
06:00 AM	TO	07:00 AM			0			0	0	0
07:00 AM	TO	08:00 AM	603	712	1315	122	159	159	281	1596
08:00 AM	TO	09:00 AM			0			0	0	0
09:00 AM	TO	10:00 AM			0			0	0	0
10:00 AM	TO	11:00 AM			0			0	0	0
11:00 AM	TO	12:00 PM			0			0	0	0
12:00 PM	TO	01:00 PM			0			0	0	0
01:00 PM	TO	02:00 PM			0			0	0	0
02:00 PM	TO	03:00 PM			0			0	0	0
03:00 PM	TO	04:00 PM			0			0	0	0
04:00 PM	TO	05:00 PM			0			0	0	0
05:00 PM	TO	06:00 PM	689	682	1371	71	120	120	191	1562
06:00 PM	TO	07:00 PM			0			0	0	0
07:00 PM	TO	08:00 PM			0			0	0	0
08:00 PM	TO	09:00 PM			0			0	0	0
09:00 PM	TO	10:00 PM			0			0	0	0

	MAJOR STREET	MINOR STREET		INTERSECTION
	Total	Heavy Leg	Total	Total
AM MAX	1315	159	281	1596
PM MAX	1371	120	191	1562

Kimley»Horn

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
Source: MUTCD 2012 California Supplement

Scenario: Existing Plus Project Conditions AM

Comments:

	PART A or PART B	SATISFIED	**YES**

PART A
(All parts 1, 2, and 3 below must be satisfied) SATISFIED **YES**

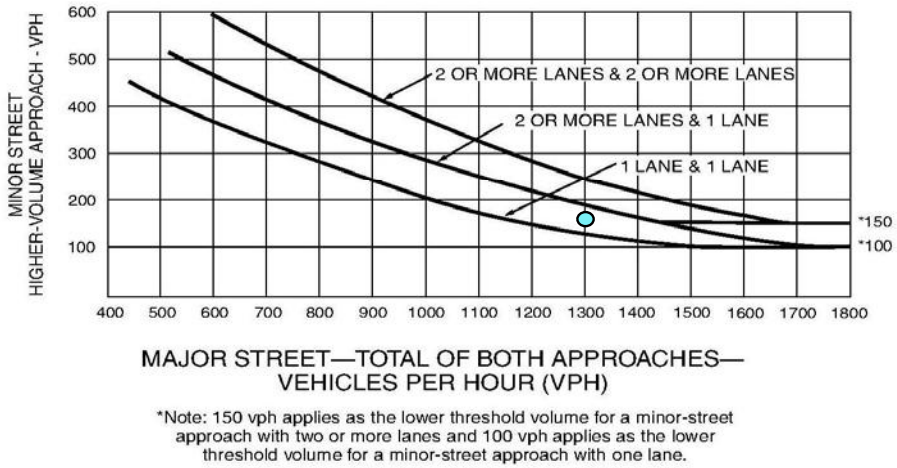
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; AND — Yes
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND — Yes
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches. — Yes

PART B SATISFIED **No**

APPROACH LANES	One	2 or More
Both Approaches - Major Street		1315
Highest Approach - Minor Street	159	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-3.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Kimley»Horn

Traffic Signal Warrants Worksheet
Warrant 3: Peak Hour
Source: MUTCD 2012 California Supplement

Scenario: Existing Plus Project Conditions PM

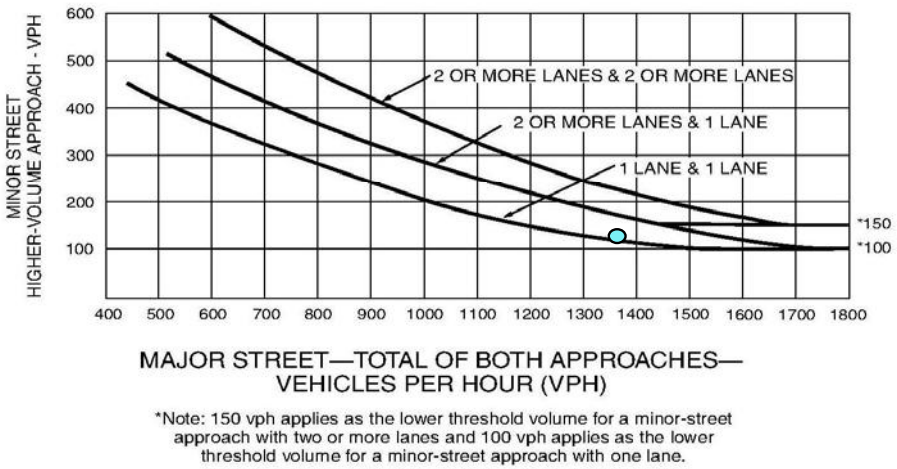
Comments:

	PART A or PART B	SATISFIED	**NO**
PART A (All parts 1, 2, and 3 below must be satisfied)		SATISFIED	**NO**
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; AND			No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND			Yes
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersection with four or more approaches or 650 vph for intersection with less than four approaches.			Yes
PART B		SATISFIED	**No**

APPROACH LANES	One	2 or More
Both Approaches - Major Street		1371
Highest Approach - Minor Street	120	

The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume minor street approach (one direction only) for one hour (any consecutive 15 minute period) fall above applicable curves in MUTCD Figure 4C-3.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Attachment C

Air Quality, Energy, Greenhouse Gas Emissions, and Noise Impact Analyses

ESA

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technical memorandum

date	October 31, 2023
to	Michael Allen
cc	
from	Alan Sako, LLED AP BD+C Luci Hise-Fisher, AICP
subject	City of El Segundo 2021-2029 2021-2029 Housing Element – Screening Air Quality, Energy, Greenhouse Gas Emissions, and Noise Impact Analyses

1. Introduction and Project Description

This Technical Memorandum (Memo) provides screening-level impact analyses for air quality, energy, greenhouse gas (GHG) emissions, and noise for amendments necessary to implement the City of El Segundo 2021-2029 Housing Element. On November 15, 2022, the City Council adopted a revised 2021-2029 Housing Element. On January 17, 2023, after the City made some minor technical changes to the Housing Element, the Department of Housing and Community Development (HCD) issued a conditional approval letter but delayed full certification of the Housing Element until the City completes the rezoning described in Program 6 of the Housing Element. The purpose of this analysis is to provide screening level analyses under the California Environmental Quality Act (CEQA) to inform the City as to the appropriate level of CEQA documentation that may be necessary for the amendments.

For the 2021-2029 Housing Element, the regional housing needs assessment (RHNA) allocation ("fair share" of the regional total) from Southern California Association of Governments (SCAG) for El Segundo is a total of 492 units. With the City's shortfall of 29 units from the 2014-2021 planning period, the total requirement for the City during the 6th Cycle Housing Element period is 521 units.

The City has identified four approaches to increase in housing units in the City to comply with the 6th RHNA cycle allocation. The projected increase in housing that would result from the four approaches would exceed the 521 units allocated to the City in order to provide a buffer given the uncertainty of where redevelopment will occur as well as considering the overall land use pattern in the City and to project beyond the 2021-2029 timeframe. The four approaches include:

- Creation of a Housing Overlay (HO) that would be applied to four areas. The HO will allow for an increase in density from the current 27 units per acre to up to 65 units per acre. Assuming a density of 65 units per acre, the resulting net increase would be 193 units.

- Creation of a Mixed Use Overlay (MU-O) that would be applied to three areas. The MU-O would allow a density of 75 units per acre resulting in up to 335 residential units that could be developed on the identified parcels.

- Increase in R-3 allowable density from 27 units per acre to 30 units per acre. Assuming a density of 30 units per acre, the resulting net increase would be 367 units.

- The Downtown Specific Plan is being updated and would result in an increase of 300 residential units in the Downtown area.

The attached figure shows the locations where increases in residential densities would occur. Amendments to the City's General Plan Land Use Element and Zoning Code will be necessary to establish the HO and MU-O and to increase the residential density allowed in the R-3 zone. In total, the amendments to the General Plan and Zoning Code being evaluated in this Memo would result in up to 1,195 residential units. In addition to the residential units, a net increase of approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses would be anticipated. For purposes of this Memo, "the Project" refers to the General Plan and Zoning Code amendments and "future development" refers to the increase of 1,195 residential units and 64,077 square feet of residential serving commercial. This Memo considers the analyses and conclusions in the City's General Plan Program Environmental Impact Report (General Plan PEIR).[1] The screening level analyses are compared with the conclusions in the General Plan PEIR.

2. Thresholds of Significance

The significance thresholds to evaluate a project's potential for significant air quality, energy, GHG emissions, and noise impacts are derived from the Environmental Checklist question in Appendix G of the *State CEQA Guidelines*. Accordingly, a project would generally result in a significant impact if the project would result in or exceed the thresholds discussed below.

The General Plan PEIR evaluated impacts from buildout of the General Plan for Air Quality, Energy (within the Utilities section), and Noise. At the time the PEIR was prepared, GHG emissions was not a separate section in the Environmental Checklist question in Appendix G of the *State CEQA Guidelines*. However, buildout of the General Plan would result in GHG emissions from the same sources that would generate air pollutant emissions and energy demand.

The potential for the increase in residential and non-residential development to result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects in the General Plan PEIR is determined in the screening impact analysis provided in Section 3.

2.1 Air Quality

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have a significant impact related to air quality if it would:

[1] City of El Segundo, General Plan Environmental Impact Report, SCH# 91041092, December 1991.

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; or

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Pursuant to the State CEQA Guidelines (Section 15064.7), a lead agency may consider using, when available, significance thresholds established by the applicable air quality management district or air pollution control district when making determinations of significance. For purposes of this analysis, the thresholds adopted by the South Coast Air Quality Management District (SCAQMD) in connection with its *CEQA Air Quality Handbook*, *Air Quality Analysis Guidance Handbook*, and subsequent SCAQMD guidance are relied upon. While the SCAQMD *CEQA Air Quality Handbook* contains significance thresholds for lead, project construction and operation would not include sources of lead emissions and would therefore not exceed the significance thresholds for lead. Unleaded fuel and unleaded paints have virtually eliminated lead emissions from commercial land use projects such as the Project.[2] As a result, lead emissions are not further evaluated in this Technical Memorandum.

Conflict with Applicable Air Quality Plans. State CEQA Guidelines Section 15125 requires an analysis of a project's potential conflict with applicable governmental plans and policies. In accordance with the SCAQMD's *CEQA Air Quality Handbook*, the following criteria were used to evaluate the Project's potential conflict with the SCAQMD's 2022 Air Quality Management Plan (AQMP):

- Criterion 1: Will the Project result in any of the following:
  - An increase in the frequency or severity of existing air quality violations; or
  - Cause or contribute to new air quality violations; or
  - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
- Criterion 2: Will the Project exceed the assumptions utilized in preparing the AQMP?

Construction and Operational Emissions. A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or State non-attainment pollutant. The South Coast Air Basin is currently designated as non-attainment for ozone, respirable particulate matter (PM10), and fine particulate matter (PM2.5). SCAQMD methodology recommends that significance thresholds be used to determine the potential cumulative impacts to regional air quality along with a project's consistency with the current AQMP.

The SCAQMD has established numerical significance thresholds for construction and operational activities. The numerical thresholds are based on the recognition that the South Coast Air Basin is a distinct geographic area with a critical air pollution problem for which ambient air quality standards have been promulgated to protect public health.[3] Given that construction impacts are temporary and limited to the construction phase, the SCAQMD has established numerical significance thresholds specific to construction activity. Based on the

[2] Pursuant to the Consumer Product Safety Act, the U.S. Consumer Product Safety Commission passed regulations prohibiting the use of lead-containing paints for products manufactured after February 27, 1978. Effective January 1, 1996, the Clean Air Act banned the sale of all leaded fuel for use in on-road vehicles.

[3] SCAQMD, CEQA Air Quality Handbook, April 1993.

SCAQMD CEQA Air Quality Significance Thresholds,[4] the Project would potentially result in a significant impact of a federal or State non-attainment pollutant if emissions of ozone precursors (volatile organic compounds [VOC] and nitrogen oxides [NO_X]), PM10, or PM2.5 would exceed the values shown in **Table 1**, *SCAQMD Regional Emissions Thresholds*.

TABLE 1
SCAQMD REGIONAL EMISSIONS THRESHOLDS (POUNDS PER DAY)

Activity	VOC	NO_X	CO	SO_2	PM10	PM2.5
Construction	75	100	550	150	150	55
Operations	55	55	550	150	150	55

SOURCE: SCAQMD, Air Quality Significance Thresholds, April 2019.

Localized Emission Impacts on Sensitive Receptors. In addition, the SCAQMD has developed a methodology to assess the potential for localized emissions to cause an exceedance of applicable ambient air quality standards or ambient concentration limits. Impacts would be considered significant if the following would occur:

- Maximum daily localized emissions of NO_X and/or carbon monoxide (CO) during construction or operation are greater than the applicable localized significance thresholds, resulting in predicted ambient concentrations in the vicinity of the Project Site greater than the most stringent ambient air quality standards for NO_2 and/or CO.[5]
- Maximum daily localized emissions of PM10 and/or PM2.5 during construction are greater than the applicable localized significance thresholds, resulting in predicted ambient concentrations in the vicinity of the Project Site to exceed 10.4 µg/m^3 over 24 hours (SCAQMD Rule 403 control requirement).
- Maximum daily localized emissions of PM10 and/or PM2.5 during operation are greater than the applicable localized significance thresholds, resulting in predicted ambient concentrations in the vicinity of the Project Site to exceed 2.5 µg/m^3 over 24 hours (SCAQMD Rule 1303 allowable change in concentration).
- The following conditions would occur at an intersection or roadway within one-quarter mile of a sensitive receptor:
  - The Project would cause or contribute to an exceedance of the CAAQS 1-hour or 8-hour CO standards of 20 or 9.0 parts per million (ppm), respectively.
  - Where the CO standard is exceeded at the intersection, a project would result in a significant impact if the incremental increase due to the project is equal to or greater than 1.0 ppm for the California 1-hour CO standard, or 0.45 ppm for the 8-hour CO standard.

The SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds and, therefore, not cause or contribute to an exceedance of the applicable ambient air quality standards or ambient concentration limits without project-specific dispersion modeling.[6] The localized screening criteria for SCAQMD Source Receptor Area 3 are

4 SCAQMD, Air Quality Significance Thresholds, April 2019.
5 SCAQMD, Final Localized Significance Threshold Methodology, June 2003 and revised July 2008.
6 SCAQMD, Final Localized Significance Threshold Methodology, June 2003 and revised July 2008.

applicable to individual projects in the City of El Segundo and are provided in **Table 2**, *SCAQMD Localized Screening Criteria*.

TABLE 2
SCAQMD LOCALIZED SCREENING CRITERIA (POUNDS PER DAY)

	Individual Project Size: 1 Acre				Individual Project Size: 2 Acre				Individual Project Size: 5 Acre			
Activity / Receptor Distance	**NO_X**	**CO**	**PM10**	**PM2.5**	**NO_X**	**CO**	**PM10**	**PM2.5**	**NO_X**	**CO**	**PM10**	**PM2.5**
Construction												
≤ 25 meters	91	664	5	3	131	967	8	5	197	1,796	15	8
50 meters	93	785	14	5	128	1,158	23	7	189	1,984	46	11
100 meters	107	1,156	28	9	139	1,597	37	12	202	2,608	60	19
200 meters	139	2,228	56	21	165	2,783	65	25	222	4,119	88	35
500 meters	218	7,269	140	75	233	7,950	148	81	277	9,852	171	96
Operations												
≤ 25 meters	91	664	1	1	131	967	2	1	197	1,796	4	2
50 meters	93	785	4	2	128	1,158	6	2	189	1,984	12	3
100 meters	107	1,156	7	3	139	1,597	9	3	202	2,608	15	5
200 meters	139	2,228	14	5	165	2,783	16	6	222	4,119	21	9
500 meters	218	7,269	34	18	233	7,950	36	20	277	9,852	41	24

SOURCE: SCAQMD, Final Localized Significance Threshold Methodology, Appendix C, October 21, 2009.

Toxic Air Contaminants and Sensitive Receptors. Based on the SCAQMD thresholds, the Project would cause a significant impact by exposing sensitive receptors to toxic air contaminant (TAC) emissions if any of the following would occur:[7]

- The Project emits carcinogenic materials or TACs that exceed the maximum incremental cancer risk of ten in one million or a cancer burden greater than 0.5 excess cancer cases (in areas greater than or equal to 1 in 1 million) or an acute or chronic hazard index of 1.0.

Objectionable Odors and Other Emissions. With respect to other emissions, such as odors, the Project's impacts would be considered significant if it created objectionable odors affecting a substantial number of people. In addition, based on the thresholds in the SCAQMD *CEQA Air Quality Handbook*,[8] the Project would potentially result in a significant impact of an attainment, maintenance, or unclassified pollutant if emissions of CO or sulfur dioxide (SO_2) would exceed the values shown in Table 1.

7 SCAQMD, CEQA Air Quality Handbook, April 1993.
8 SCAQMD, CEQA Air Quality Handbook, April 1993.

2.2 Energy

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have a significant impact related to energy if it would:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Appendix F of the State CEQA Guidelines was prepared in response to the requirement in Public Resources Code Section 21100(b)(3), which states that an EIR shall include a detailed statement setting forth "[m]itigation measures proposed to minimize significant effects of the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy." The analysis utilizes factors and considerations identified in Appendix F of the State CEQA Guidelines, as appropriate, to assist in answering the Appendix G questions.

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

The factors to evaluate energy impacts under Threshold (a) include items number 1, 2, 3, 5, and 6 above. The factors to evaluate energy impacts under Threshold (b) include item number 4 above.

2.3 Greenhouse Gas Emissions

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have a significant impact related to GHG emissions if it would:

a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

CEQA Guidelines Section 15064.4 gives lead agencies the discretion to determine whether to assess those emissions quantitatively or qualitatively. If a qualitative analysis is used, in addition to quantification, this section recommends certain qualitative factors that may be used in the determination of significance (i.e., extent to which the project may increase or reduce GHG emissions compared to the existing environment; whether the project exceeds an applicable significance threshold; and extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs). CEQA Guidelines Section 15064.4 does

not establish a threshold of significance; rather, lead agencies are granted discretion to establish significance thresholds for their respective jurisdictions, including looking to thresholds developed by other public agencies, or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), so long as any threshold chosen is supported by substantial evidence per CEQA Guidelines Section 15064.7(c). The California Natural Resources Agency (CNRA) has also clarified that the CEQA Guidelines focus on the effects of GHG emissions as cumulative impacts, and that they should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15064(h)).[9]

Although GHG emissions can be quantified, the California Air Resources Board (CARB), SCAQMD, and the City have not adopted quantitative project-level significance thresholds for GHG emissions that would be applicable to the Project. OPR released a technical advisory on CEQA and climate change that provided some guidance on assessing the significance of GHG emissions, and states that "lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice," and that while "climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment."[10] Furthermore, the technical advisory states that "CEQA authorizes reliance on previously approved plans and mitigation programs that have adequately analyzed and mitigated GHG emissions to a less than significant level as a means to avoid or substantially reduce the cumulative impact of a project."[11]

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project.[12] To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency.[13] Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, [and] plans or regulations for the reduction of greenhouse gas emissions."[14] Thus, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of non-significance for GHG emissions if a project complies with a program and/or other regulatory schemes to reduce GHG emissions.

The City has not adopted a numeric threshold for the analysis of GHG impacts. As noted above, CEQA Guidelines Section 15064.4(b)(2) allows the City to determine a threshold of significance that applies to the Project, and, accordingly, the threshold of significance applied in the analysis below is whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The California Air Resources Board

9 See generally California Natural Resources Agency, Final Statement of Reasons for Regulatory Action, December 2009, pages 11-13, 14, and 16; see also Letter from Cynthia Bryant, Director of the Office of Planning and Research to Mike Chrisman, Secretary for Natural Resources, April 13, 2009.

10 See generally California Natural Resources Agency, Final Statement of Reasons for Regulatory Action, December 2009, pages 11-13, 14, and 16; see also Letter from Cynthia Bryant, Director of the Office of Planning and Research to Mike Chrisman, Secretary for Natural Resources, April 13, 2009.

11 Governor's Office of Planning and Research, Technical Advisory – CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.

12 CCR, Title 14, Section 15064(h)(3).

13 CCR, Title 14, Section 15064(h)(3).

14 CCR, Title 14, Section 15064(h)(3).

(CARB) 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan) and the Southern California Association of Government (SCAG) 2020-2024 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) would apply to the Project and are intended to reduce GHG emissions to meet the Statewide targets set forth in AB 32 and amended by SB 32. If the Project is not in conflict with the applicable regulatory plans and policies to reduce GHG emissions, then the Project would result in a less than significant impact with respect to GHG emissions.

2.4 Noise

In accordance with Appendix G of the *State CEQA Guidelines*, a project would have a significant impact related to noise and vibration if it would result in the:

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; or

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Substantial temporary increase in ambient noise levels. The El Segundo Municipal Code (ESMC) Section 7-2-10 exempts construction activities from the City's Noise Ordinance as provided below:

> *The following activities shall be exempted from the provisions of this Chapter:*
>
> *D. Construction Noise: Between the Hours Of 10:00 P.M. And 7:00 A.M: Noise sources associated with or vibration created by construction, repair, or remodeling of any real property, provided said activities do not take place between the hours of six o'clock (6:00) P.M. and seven o'clock (7:00) A.M. Monday through Saturday, or at any time on Sunday or a Federal holiday, and provided the noise level created by such activities does not exceed the noise standard of sixty five (65) dBA plus the limits specified in subsection 7-2-4C of this Chapter as measured on the receptor residential property line and provided any vibration created does not endanger the public health, welfare and safety.*

The City has not adopted a numeric threshold for temporary construction noise during daytime hours in the ESMC. The Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* provides guidelines on a quantitative assessment.[15] The FTA guidelines recommend comparing the combined average noise level (i.e., over an 8-hour workday) for all equipment for each phase of construction to the criteria provided in **Table 3**, *Detailed Analysis Construction Noise Criteria.* The analysis should identify locations where the level exceeds the criteria, if any.

[15] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

TABLE 3
DETAILED ANALYSIS CONSTRUCTION NOISE CRITERIA

	A-Weighted Decibels (dBA) Leq (8-hour)	
Land Use	**Day**	**Night**
Residential	80	70
Commercial	85	85
Industrial	90	90

SOURCE: FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018.

Substantial permanent increase in ambient noise levels. The ESMC Section 7-2-4 establishes noise standards as provided below:

> *No person shall, at any location within the City, create any noise, nor shall any person allow the creation of any noise within the person's control on public or private property (hereinafter "noise source"), which causes the noise level when measured on any other property (hereinafter "receptor property"), to exceed the applicable noise standard, except as set forth in subsection C1 of this section.*
>
> *A. Residential Property: Five (5) dBA above the ambient noise level.*
>
> *B. Commercial and Industrial Properties: Eight (8) dBA above the ambient noise level.*
>
> *C. Adjustments:*
>
> *1. Increases to the noise standards as set forth in subsections A and B of this Section may be permitted in accordance with the following [in **Table 4**, Noise Standards Adjustments]:*

TABLE 4
NOISE STANDARDS ADJUSTMENTS

Permitted Increase (dBA)	Duration of Increase (Minutes)*
0	30
5	15
10	5
15	1
20	Less than 1

* Cumulative minutes during any one hour.

SOURCE: ESMC, Section 7-2-4.

> *2. If the receptor property is located on a boundary between two (2) different noise zones, the lower noise level standard applicable to the quieter zone shall apply. (Ord. 1242, 1-16-1996).*

The ESMC Section 7-2-8 establishes specific noise prohibitions as provided below:

The following acts, and the causing thereof, are declared to be in violation of this Chapter if they occur in such a manner as to disturb the peace, quiet and comfort of any reasonable person of normal sensitivity residing in the area; and occur:

A. Between The Hours Of 10:00 P.M. And 7:00 A.M:

1. Operating, playing or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier, or similar device which produces, reproduces or amplifies sound.

2. Using or operating any loudspeaker, public address system or similar device.

3. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects.

4. Repairing, building, rebuilding, adjusting or testing any motor vehicle.

B. Between The Hours Of 8:00 P.M. And 7:00 A.M:

1. Refuse Collection Vehicles:

a. Collection of refuse with a collection vehicle in a residential area or within five hundred feet (500') thereof;

b. Operation or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse in a residential area or within five hundred feet (500') thereof.

2. Loudspeakers/Public Address Systems: Using or operating for any commercial purpose any loudspeaker, public address system, or similar device on a public right of way or public space.

3. Powered Model: Operating or permitting the operation of powered models. (Ord. 1242, 1-16-1996)

Excessive groundborne vibration or groundborne noise levels. The City has not adopted a numeric threshold for temporary construction groundborne vibration or groundborne noise. The ESMC Section 7-2-9 establishes a general policy for groundborne vibration as provided below:

Notwithstanding other sections of this Chapter, a person shall not create, maintain or cause any ground vibration which is perceptible, without the use of instruments, to any reasonable person of normal sensitivity at any point on any affected property. (Ord. 1242, 1-16-1996)

The FTA *Transit Noise and Vibration Impact Assessment Manual* provides guidelines on a quantitative assessment for potential building damage from groundborne vibration.[16] The FTA groundborne vibration damage criteria are shown in **Table 5,** *Construction Vibration Damage Criteria*.

[16] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, Table 7-5, September 2018.

TABLE 5
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	Peak Particle Velocity (PPV) (inches per second)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: FTA, Transit Noise and Vibration Impact Assessment Manual, Table 7-5, September 2018.

The California Department of Transportation (Caltrans) *Transportation and Construction Vibration Guidance Manual* provides guidelines on a quantitative assessment for potential human annoyance impacts from groundborne vibration. According to the guidelines, a groundborne vibration level of 0.4 inches per second PPV is associated with severe human annoyance potential.[17]

Airstrip or Airport Excessive Noise Levels. The City of El Segundo is located to the south of Los Angeles International Airport (LAX). Other local and regional airports are located further than two miles from the City. The Federal Aviation Administration (FAA) generally identifies 65 dB day-night noise level (DNL) or Community Noise Equivalent Level (CNEL) as the threshold level of aviation noise which is significant.

3. Screening Impact Analysis

3.1 Air Quality

a) Conflict with or Obstruct Air Quality Plan

Criterion No. 1

The first criterion evaluates the potential for a project to result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP. The SCAQMD numerical significance thresholds for construction and operational emissions are designed for the analysis of individual projects and not for long-term planning documents, such as the Project. Emissions are dependent on the exact size, nature, and location of an individual land use type, combined with reductions in localized impacts from the removal of existing land use types, as applicable (i.e., conversion of commercial or light industrial uses).

Construction

Construction of future projects facilitated by the Project would generate air pollutant emissions through the use of heavy-duty construction equipment. Details necessary to provide a meaningful quantitative estimate of construction emissions would be speculative, as specific sites, buildings and uses to be constructed or modified, construction schedules, and quantities of earthmoving are unknown. Because this information is unknown, construction emissions modeling is not feasible and would be speculative.

[17] California Department of Transportation, Transportation and Construction Vibration Guidance Manual, Table 20, April 2020.

Nonetheless, construction of development that could occur as a result of the Project would be limited in extent and duration and would emit air pollutants on short-term and temporary basis. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation, which was approved by CARB in June 2020 and mandates zero-emission vehicle sales requirements for truck manufacturers and a one-time reporting requirement for large entities and fleets.[18] The regulation is designed to accelerate widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition, trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 California Code of Regulations, Section 2485). In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and cranes, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by the CARB on July 26, 2007, reduces emissions by requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR, Section 2449). The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

The City's General Plan PEIR determined that construction emission impacts would be significant but mitigated to less than significant. The City's Air Quality Element includes policies to reduce construction-related emissions. Policy AQ10-1.2 and Policy AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. Emission reduction measures generally consistent with the City's General Plan PEIR and Air Quality Element policies could include the use of construction equipment certified to meet the United States Environmental Protection Agency (USEPA) and CARB Tier 4 Final emissions standards, which substantially reduces exhaust emissions of NO_X, PM10, and PM2.5. Emissions of VOCs could be reduced through the use of low-VOC containing architectural coatings. As such, it is likely that construction emissions from projects facilitated by the Project could be reduced to below project-level significance and not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards. **Thus, construction associated with implementation of the future development would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to conflicts with or obstruction of the AQMP.**

Operation

The Project would allow for an increase in residential units and non-residential square footage that would occur as infill development. Although operational details of any future projects are unknown, the future development would result in air pollutant emissions from building energy demand from new residential and commercial (residential serving retail) uses and on-going transportation emissions from vehicles traveling to and from the new residential and commercial (residential serving retail) uses.

[18] California Air Resources Board, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed February 2023.

The City's General Plan PEIR determined that operational emissions associated with implementation of the General Plan would potentially conflict with the attainment goals of the AQMP and impacts would be significant and unavoidable.

Operational emissions from buildout of the residential units and associated non-residential floor area over time would not generate air pollutant emissions that would exceed the project-level significance thresholds and not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards. **Thus, operation of future development associated with the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to conflicts with or obstruction of the AQMP.**

Criterion No. 2

With respect to the second criterion for determining consistency with AQMP growth assumptions, the projections in the AQMP for achieving air quality goals are based on anticipated growth regarding population and housing. Determining whether or not a project exceeds the assumptions reflected in the AQMP involves the evaluation of consistency with applicable population, housing, and employment growth projections and appropriate incorporation of AQMP control measures. The following discussion provides an analysis with respect to this criterion.

Construction

Future development facilitated by the Project would be required to comply with CARB's requirements to minimize short-term emissions from on-road and off-road diesel equipment, including the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling to no more than five minutes at a location (Title 13 California Code of Regulations, Section 2485) and SCAQMD regulations such as Rule 403 for controlling fugitive dust and Rule 1113 for controlling VOC emissions from architectural coatings. Compliance with these measures and requirements would be consistent with and meet or exceed the AQMP compliance requirements for control strategies intended to reduce emissions from construction equipment and activities.

Construction of future development allowed by the Project would facilitate an increase in short-term employment compared to existing conditions. Although any future construction facilitated by the Project would generate construction workers, it would be unlikely to create a substantial number of new construction jobs; construction-related jobs generated by the future development would likely be filled by employees within the construction industry in the greater Los Angeles County region. Construction industry jobs generally have no regular place of business, as construction workers commute to job sites throughout the region, which may change several times a year. Moreover, these jobs would be temporary, lasting only through the duration of construction. As such, the Project would not result in an unanticipated increase in population or jobs in the City.

Thus, construction associated with the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to conflicts with or obstruction of AQMP control measures or anticipated growth.

Operation

The operation of future development that could occur as a result of the Project would be required to comply with CARB motor vehicle standards, SCAQMD regulations for stationary sources and architectural coatings, and

applicable building energy standards including the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and the California Green Building Standards Code (Title 24, Part 11). The AQMP also includes land use and transportation strategies that are intended to reduce VMT and resulting regional mobile-source emissions.

Future development that could occur as a result of the Project would provide opportunities for building energy conservation to meet and exceed required building energy standards to conserve energy and reduce associated emissions. The 2021-2029 Housing Element encourages improved building energy strategies such as passive and/or active solar heating and cooling systems to improve energy efficiency.[19] In addition, the City's Air Quality Element includes policies to reduce building energy demand. Policy AQ12-1.2 includes provisions to incorporate energy conservation features in the design of new projects that would help to reduce building emissions. The Air Quality Element also includes policies to reduce transportation-related emissions. Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is the intent of the Project. The Project would promote mixed-use development as residential serving retail uses would be allowed with residential uses. Mixed-use development encourages reduced vehicle trips and VMT as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations of the proposed housing opportunity sites would also encourage reduced VMT as people would live close to existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers within and around the City including the Hyperion Wastewater Treatment Facility to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east. Thus, the Project would result in a land use pattern that would allow development that would reduce transportation-related emissions.

The AQMP is based on population, employment and VMT forecasts informed by the Southern California Association of Governments. A project might be in conflict with the AQMP if the development's growth is greater than that anticipated in the local general plan and SCAG's growth projections. As discussed above, the Project accommodates for population growth by increasing residential density in existing infill locations and allowing for increased multi-family housing units. The City is generally built out; thus, densification of existing infill sites with increased multi-family housing units accommodates growth in an efficient manner, since mixed-use infill development encourages reduced vehicle trips and VMT.

Thus, operation of future development associated with the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to conflicts with or obstruction of AQMP control measures or anticipated growth.

b) Cumulatively Considerable Increase of Non-attainment Pollutant

Construction

As discussed above in Section (a), construction of future development allowed by the Project would generate air pollutant emissions through the use of heavy-duty construction equipment. However, details necessary to provide a meaningful quantitative estimate of construction emissions would be speculative, as specific sites, buildings and uses to be constructed or modified, construction schedules, and quantities of earthmoving are unknown.

[19] City of El Segundo, 2021-2029 Housing Element, Chapter 5, Section C, p. 72.

Construction of future development projects resulting from the amendments would be limited in extent and duration and would emit air pollutants on short-term and temporary basis. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation,[20] which is designed to accelerate widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. Trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 California Code of Regulations, Section 2485). In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and cranes, as well as many other self-propelled off-road diesel vehicles requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR, Section 2449). The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

The City's General Plan PEIR determined that construction emission impacts would be significant but mitigated to less than significant. The City's Air Quality Element includes policies to reduce construction-related emissions. Policy AQ10-1.2 and Policy AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. The use of construction equipment certified to meet the USEPA and CARB Tier 4 Final emissions standards, which would generally be consistent with the City's General Plan PEIR and Air Quality Element policies, would substantially reduce exhaust emissions of NO_X, PM10, and PM2.5. Emissions of VOCs could be reduced through the use of low-VOC containing architectural coatings. As such, it is likely that construction emissions from future development projects allowed by the Project could be reduced to below project-level significance and not result in an increase in a cumulatively considerable increase in nonattainment pollutants. **Thus, construction associated with the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to a cumulatively considerable increase in nonattainment pollutants.**

Operations

Future development that would occur as a result of the amendments would result in up to 1,195 multi-family dwelling units and approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses. Operational emissions from buildout of these units over time would generate approximately 6,238 average daily trips.[21] Operational emissions were estimated using the California Emissions Estimator Model (CalEEMod) (Version 2022.1). The analysis assumes that full buildout would occur in 2040 with a linear buildout distribution over the interim modeled years 2030 and 2035. The results of the regional criteria pollutant emission calculations for VOC, NO_X, CO, SO_2, PM10, and PM2.5 are presented in **Table 6,** *Estimated Maximum Daily Regional Operational Emissions.*

[20] California Air Resources Board, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed February 2023.

[21] Kimley Horn, City of El Segundo Density Increase Trip Generation, August 27, 2023.

TABLE 6
ESTIMATED MAXIMUM DAILY REGIONAL OPERATIONAL EMISSIONS (POUNDS PER DAY)[a]

Operational Year	VOC	NO_X	CO	SO_2	PM10	PM2.5
2030 (398 dwelling units; 21,360 retail sq.ft.)	17.8	6.3	81.6	0.2	15.3	4.0
2035 (797 dwelling units; 42,720 retail sq.ft.)	34.3	10.8	154	0.3	30.7	8.1
2040 (1,195 dwelling units; 64,077 retail sq.ft.)	50.2	14.8	216	0.4	46.0	12.0
SCAQMD Significance Threshold	55	55	550	150	150	55
Exceeds Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

[a] CalEEMod output files are provided in Exhibit A of this memorandum.

SOURCE: CalEEMod (Version 2022.1); ESA 2023

As shown, future development with implementation of the Project would not generate air pollutant emissions that would exceed the project-level significance thresholds and would not result in a cumulatively considerable increase in nonattainment pollutants. **Thus, operation of future development associated with the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to a cumulatively considerable increase in nonattainment pollutants.**

c) Expose Sensitive Receptors to Substantial Pollutant Concentrations

Localized Emissions

Construction

Construction of future individual projects that would occur as a result of the amendments would generate localized air pollutant emissions from the use of heavy-duty construction equipment. In addition, fugitive dust emissions would result from demolition and earthmoving activities. Details necessary to provide a meaningful quantitative estimate of construction emissions would be speculative, as specific sites, buildings and uses to be constructed or modified, construction schedules, and quantities of earthmoving are unknown. Because this information is unknown, construction emissions modeling is not feasible and would be speculative.

While the Project would result in the future development of up to 1,195 multi-family dwelling units and approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses, construction would occur in different locations throughout the City corresponding to the areas in which the amendments are proposed. Temporary construction associated with future individual project developments would not be concentrated in any one location and would occur over an extended timeframe and, thus, would not expose any one sensitive receptor location to substantial localized emissions.

Construction emissions would also be controlled via compliance with applicable regulations and General Plan policies and programs. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation,[22] which accelerates the widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition,

[22] California Air Resources Board, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed February 2023.

trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 California Code of Regulations, Section 2485). Heavy-duty construction equipment fleets would also be required to comply with the In-Use Off-Road Diesel-Fueled Fleets Regulation, which reduces emissions by requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR, Section 2449). The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

The City's Air Quality Element includes policies to reduce construction-related emissions. Policy AQ10-1.2 and Policy AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. Emission reduction measures generally consistent with the City's General Plan PEIR and Air Quality Element policies could include the use of construction equipment certified to meet the USEPA and CARB Tier 4 Final emissions standards, which substantially reduces exhaust emissions of diesel particulate matter.

Regulatory compliance along with implementation of General Plan policies and programs would be effective in reducing construction emissions from future residential development likely to a level below the significance thresholds. **Future development associated with implementation of the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to localized construction emissions.**

Operations

The operation of future individual projects that would occur as a result of the amendments would generate localized air pollutant emissions from on-site combustion of natural gas from building energy demand, and landscaping equipment. There are no specific projects proposed at this time; therefore, the specific size, location, timing, and operation of such future projects are unknown and quantification of localized operational emissions from individual projects would not be feasible and would be speculative.

Nonetheless, the future development of multi-family dwelling units and residential serving commercial (i.e., ground-floor retail) uses within the various identified areas located throughout the City would not include uses that would generate substantial sources of operational emissions. These uses are not associated with large stationary sources of emissions such as industrial-sized boilers. Further, any miscellaneous trucks, such as moving trucks and parcel delivery trucks, would be subject to the five-minute regulatory idling limitation and would be required to comply with the applicable provisions of the CARB 13 CCR, Section 2025 (Truck and Bus regulation) to minimize and reduce PM and NO_X emissions from existing diesel trucks. Operation of future residential and retail uses would result in minimal emissions from maintenance or other ongoing activities and use of architectural coatings and household cleaning products.

The City's Air Quality Element includes policies to reduce operational-related emissions. Policy AQ12-1.2 includes a provision to incorporate energy conservation features in the design of new projects that would help to reduce emissions from building energy demand. Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is the intent of the Project.

Regulatory compliance along with implementation of General Plan policies and programs would be effective in reducing operational emissions from Project-related future residential development and associated non-residential

development likely to a level below the significance thresholds. **Future development associated with the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to localized operational emissions.**

Carbon Monoxide Hotspots

The SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the South Coast Air Basin. These include: (a) Wilshire Boulevard and Veteran Avenue; (b) Sunset Boulevard and Highland Avenue; (c) La Cienega Boulevard and Century Boulevard; and (d) Long Beach Boulevard and Imperial Highway. In the 2003 AQMP CO attainment demonstration, the SCAQMD notes that the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day.[23] This intersection is located near the on- and off-ramps to Interstate 405 in West Los Angeles. The evidence provided in Table 4-10 of Appendix V of the 2003 AQMP shows that the peak modeled CO concentration due to vehicle emissions (i.e., excluding background concentrations) at these four intersections was 4.6 ppm (one-hour average) and 3.2 ppm (eight-hour average) at Wilshire Boulevard and Veteran Avenue.[24]

Based on the future development of up to 1,195 multi-family dwelling units and approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses that would occur as a result of the Project would generate approximately 6,238 average daily trips,[25] which is approximately 6.2 percent of the 100,000 vehicles per day modeled at the intersection of Wilshire Boulevard and Veteran Avenue in the 2003 AQMP. However, the addition of 6,238 average daily trips would not occur at any one intersection or roadway as the trips would be spread throughout the City at different intersections and roadways as the proposed amendment areas are located in various locations. Generally, the proposed amendment areas are located: south of Imperial Avenue between the Hyperion Wastewater Treatment Facility and California Street; along Main Street between Imperial Avenue and Palm Avenue; the area east of Constitution Park, Washington Park and Freedom Park, west of Pacific Coast Highway, south of Walnut Avenue and north of Holly Avenue; and at various locations south of Mariposa Avenue, north of El Segundo Boulevard, east of the Hyperion Wastewater Treatment Facility and west of Kansas Street.

The City's Circulation Element shows projected daily traffic volumes from buildout of land uses per the Land Use Element. Projected daily traffic volumes along the arterial roadways in the vicinity of the proposed locations would range from approximately 1,700 to 24,900. Projected daily traffic volumes along Pacific Coast Highway would be up to approximately 81,100. Thus, operation of future projects facilitated by the Project would not result in 100,000 vehicles per day at intersection and this comparison demonstrates that the Project would not contribute to the formation of CO hotspots and that no further CO analysis is required. **Future development associated with the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to CO hotspots.**

Toxic Air Contaminants

The Project would result in increased density and increased number of housing units and supporting residential serving retail uses at existing infill sites. Although construction and operational details of any future projects are

[23] South Coast Air Quality Management District. 2003. *Final 2003 Air Quality Management Plan Appendix V, pages V 4-24*. August. Available: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2003-air-quality-management-plan/2003-aqmp-appendix-v.pdf?sfvrsn=2. Accessed March 2023.

[24] The eight-hour average is based on a 0.7 persistence factor, as recommended by the SCAQMD.

[25] Kimley Horn, City of El Segundo Density Increase Trip Generation, August 27, 2023.

unknown, the growth that would occur as a result of the Project would result in emissions of TACs from temporary use of construction equipment and on-going miscellaneous truck trips such as parcel delivery trucks.

During construction activities, temporary TAC emissions would be associated with diesel particulate matter emissions from heavy construction equipment. According to the Office of Environmental Health Hazard Assessment (OEHHA), health effects from TACs are described in terms of individual cancer risk based on a residential or lifetime exposure period (i.e., 30-year and 70-year, respectively). While implementation of the Project would result in the future development of up to 1,195 multi-family dwelling units and approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses, construction would occur in different locations throughout the City corresponding to the locations of the proposed amendments. Temporary construction associated with future individual project developments would not be concentrated in any one location and, thus, would not expose any one sensitive receptor location to substantial TAC emissions.

Construction TAC emissions would also be controlled via compliance with applicable regulations and General Plan policies and programs. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation,[26] which accelerates the widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition, trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 California Code of Regulations, Section 2485). Heavy-duty construction equipment fleets would also be required to comply with the In-Use Off-Road Diesel-Fueled Fleets Regulation, which reduces emissions by requiring the installation of diesel soot filters and the retirement, replacement, or repowering of older, dirtier engines with newer emission control models (13 CCR, Section 2449). The compliance schedule requires construction equipment fleets to fully meet emissions standards by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

The SCAQMD recommends that operational health risks be assessed for substantial sources of operational diesel particulate matter (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units) and has provided guidance for analyzing mobile source diesel emissions.[27] Future projects facilitated by the Project would result in an increase in the number of housing units and supporting residential serving retail uses and would not include uses that would generate substantial sources of operational diesel particulate matter. Further, any miscellaneous trucks, such as moving trucks and parcel delivery trucks, would be subject to the five-minute regulatory idling limitation and would be required to comply with the applicable provisions of the CARB 13 CCR, Section 2025 (Truck and Bus regulation) to minimize and reduce PM and NO_X emissions from existing diesel trucks. Therefore, Project operations would not be considered a substantial source of diesel particulate matter. Operation of future residential and retail uses would result in minimal emissions of TAC from maintenance or other ongoing activities and use of architectural coatings and household cleaning products.

The City's General Plan PEIR determined that TAC emission impacts would be significant but mitigated to less than significant. The City's Air Quality Element includes policies to reduce construction- and operational-related

[26] California Air Resources Board, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed February 2023.

[27] SCAQMD, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, August 2003, http://www.aqmd.gov/docs/default-source/ceqa/handbook/mobile-source-toxics-analysis.doc?sfvrsn=2.

emissions. Policy AQ10-1.2 and Policy AQ10-1.3 include provisions to prohibit the use of building materials and methods which generate excessive pollutants and for projects to meet or exceed requirements of the SCAQMD for reducing PM10 emissions. Emission reduction measures generally consistent with the City's General Plan PEIR and Air Quality Element policies could include the use of construction equipment certified to meet the USEPA and CARB Tier 4 Final emissions standards, which substantially reduces exhaust emissions of diesel particulate matter. Policy AQ12-1.2 includes a provision to incorporate energy conservation features in the design of new projects that would help to reduce emissions from building energy demand. Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is an intent of the Project.

Regulatory compliance along with implementation of General Plan policies and programs, as well as other emissions reduction measures as needed, would be effective in reducing construction and operational emissions from future residential development likely to a level below the significance thresholds. **Future development resulting from the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to TAC emissions.**

d) Other emissions (such as those leading to Odors)

Construction

Potential activities that may emit odors during construction include the use of architectural coatings and solvents, as well as the combustion of diesel fuel in on-and off-road equipment. SCAQMD Rule 1113 would limit the amount of VOCs in architectural coatings and solvents. In addition, development resulting from the Project would comply with the applicable provisions of the CARB Air Toxics Control Measure regarding idling limitations for diesel trucks. Through mandatory compliance with SCAQMD Rules, no construction activities or materials are expected to create objectionable odors affecting a substantial number of people. Furthermore, as discussed above, it is likely that construction emissions from projects facilitated by the Project could be reduced to below project-level significance for other pollutants, such as those designated as attainment or maintenance (i.e., carbon monoxide [CO] and sulfur dioxide [SO_2]). **Thus, construction resulting from the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to other emissions such as those leading to odors.**

Operation

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include:

- Agriculture (farming and livestock)
- Wastewater Treatment Plant
- Food Processing Plants
- Chemical Plants
- Composting
- Refineries
- l.andfills
- Dairies
- Fiberglass Molding

The operation of future projects that would result from the Project would not include any uses identified by the SCAQMD associated with substantial odors. Furthermore, as discussed above, it is likely that operational emissions from projects facilitated by the Project could be reduced to below project-level significance for other pollutants, such as those designated as attainment or maintenance (i.e., CO and SO_2). **Thus, operation of future development associated with the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to other emissions such as those leading to odors.**

3.2 Energy

a) Wasteful, Inefficient, or Unnecessary consumption of Energy

The Project, through the proposed amendments, would result in an increase in the number of housing units at infill sites. Although construction and operational details of any future projects are unknown, the energy demand would increase from new residential and commercial (residential serving retail) uses and temporary transportation fuel demand from construction equipment and on-going transportation fuel demand from vehicles traveling to and from the new residential and commercial (residential serving retail) uses.

The 2021-2029 Housing Element contemplates opportunities for energy conservation to meet and exceed required building energy standards to conserve energy and improve affordability of housing energy costs. The 2021-2029 Housing Element encourages improved building energy strategies such as passive and/or active solar heating and cooling systems to improve energy efficiency. The 2021-2029 Housing Element also encourages the use of daylight strategies such as properly designed and located skylights and solar tubes, thereby reducing lighting electricity costs and energy consumption. The City would continue to require the incorporation of energy conserving (e.g., Energy Star or equivalent) appliances, fixtures, and other devices into the design of new residential units as required by the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and the California Green Building Standards Code (Title 24, Part 11), and applicable El Segundo Municipal Code requirements. The City will also continue to review new subdivisions to ensure that each lot optimizes proper solar access and orientation to the extent possible. The 2021-2029 Housing Element encourages water saving features including the use of plant materials in residential landscaping adapted to the climate in the El Segundo

area and the use of mulch to retain soil moisture to reduce irrigation water demand. The City will also continue to require the incorporation of low-flow plumbing fixtures into the design of all new residential units.

The City implements a Green Building Program that encourages developers to incorporate green building design in construction activities through the use of "green" building materials, which can be accomplished by measures outlined in the City's Home Remodeling Green Building Guidelines. The five components of green design included in the program are:

- Implementing sustainable site planning;
- Safeguarding water and water efficiency;
- Ensuring energy efficiency and employing renewable energy;
- Using conservation of materials and resources; and
- Providing indoor environmental quality

Incorporating building energy efficiency measures into future development facilitated by the Project would align with building electrification as a major focal point of state agencies and electric utilities in reaching the state's renewable energy and GHG reduction goals. Building electrification may potentially strain the electricity grid as the demand for electricity increases. However, building energy efficiency measures would lessen the potential for the Project to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience.

With respect to transportation fuel demand, the Project would promote mixed-use development through the creation of a Mixed-Use Ordinance and some of the housing would be located within proximity to non-residential uses. Mixed-use development and proximity to non-residential uses encourages reduced vehicle trips and vehicle miles traveled as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations of the future development allowed by the amendments would also encourage reduced VMT as people would be able to live close to existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers within and around the City including the Hyperion Wastewater Treatment Facility to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east.

The City's General Plan PEIR determined that building energy (electricity and natural gas) impacts would be less than significant. The City's Air Quality Element includes policies to reduce building energy demand. Policy AQ12-1.2 includes provisions to incorporate energy conservation features in the design of new projects. Policy AQ12-1.4 states that new construction not preclude the use of solar energy systems by uses and buildings on adjacent properties. The City's Conservation Element includes policies to reduce water demand. Policy CN2-4 requires implementation of water conservation measures as necessary to ensure sufficient water supplies. Policy CN2-5 require new construction and development to install water-conserving fixtures and appliances to reduce water demand. Policy CN2-7 requires new construction and development to incorporate water conserving landscape design and management. The City's Air Quality Element also includes policies to reduce transportation-related fuel demand. Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is an intent of the Project.

As outlined above, the Project provides for development of housing with mixed-uses located at infill locations to reduce VMT, generally consistent with relevant General Plan policies to reduce energy and transportation fuel demand. In addition, the General Plan includes policies to reduce energy demand. As such, the Project would not result in wasteful, inefficient, or unnecessary consumption of energy. **Thus, the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to energy.**

b) Conflict with or Obstruct Renewable Energy or Energy Efficiency Plan

Future development facilitated by the Project would be required to comply with applicable building energy standards including the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and the California Green Building Standards Code (Title 24, Part 11). As discussed above, the City implements a Green Building Program that encourages developers to incorporate green building designs that may exceed code requirements. As discussed above, the 2021-2029 Housing Element encourages opportunities for energy and water conservation and reduced VMT. Further, as discussed above, incorporating building energy efficiency measures into future development that would occur as a result of the Project would align with building electrification as a major focal point of state agencies and electric utilities in reaching the state's renewable energy and GHG reduction goals. Building energy efficiency measures would lessen the potential for the Project to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience. In addition, policies in the City's General Plan promote energy and water efficiency, reduced VMT, and protection of solar energy systems. **Thus, the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to renewable energy or energy efficiency plan.**

3.3 Greenhouse Gas Emissions

a) GHG emissions that may have a Significant Impact on the Environment; and

b) Conflict with Plan, Policy or Regulation

As discussed in Section 2, the City has not adopted a numeric threshold for the analysis of GHG impacts. If the Project is not in conflict with the applicable regulatory plans and policies to reduce GHG emissions, then the Project would result in a less than significant impact with respect to GHG emissions. The above checklist questions are addressed in a combined discussion below.

GHG Emissions and City Policies and Programs

Future projects that would occur as a result of the amendments would result in construction at infill sites. Although construction details of any future projects are unknown, construction of future projects would likely require the use of construction equipment that that would typically emit GHGs from combustion of fossil fuels in diesel and gasoline-powered equipment and vehicles and from the use of electricity that is generated partially from sources that emit GHGs. Construction of future projects resulting from the Project would be limited in extent and duration and would emit GHGs on short-term and temporary basis. Construction truck fleets would be required to comply with the Advanced Clean Trucks regulation, which was approved by CARB in June 2020 and mandates zero-emission vehicle sales requirements for truck manufacturers and a one-time reporting requirement

for large entities and fleets.[28] The regulation is designed to accelerate widespread adoption of zero emission vehicles in the medium- and heavy-duty truck sector to reduce on-road mobile source emissions on the path to carbon neutrality by 2045. In addition, trucks would be required to comply with the CARB Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling, which would reduce fuel combustion and associated emissions (Title 13 California Code of Regulations, Section 2485). Additionally, construction equipment and vehicles would be required to use fuels that comply with the CARB Low Carbon Fuel Standard, which reduces the carbon content of fuels and fuel production, which is a strategy that would assist California in meeting the 2030 GHG emissions reduction target enacted through Senate Bill 32.

The operation of future developments facilitated by the Project would result in an increase in the number of housing units at infill sites. Although operational details of any future projects are unknown, development resulting from the Project would result in GHG emissions from building energy demand from new residential and commercial (residential serving retail) uses and on-going transportation GHG emissions from vehicles traveling to and from the new residential and commercial (residential serving retail) uses.

The 2021-2029 Housing Element contemplates opportunities for building energy conservation to meet and exceed required building energy standards to conserve energy and reduce associated GHG emissions. The 2021-2029 Housing Element encourages improved building energy strategies such as passive and/or active solar heating and cooling systems to improve energy efficiency. The 2021-2029 Housing Element also encourages the use of daylight strategies such as skylights and solar tubes to reduce GHG emissions from lighting electricity. The City would continue to require the incorporation of energy conserving (e.g., Energy Star or equivalent) appliances, fixtures, and other devices into the design of new residential units as required by the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and the California Green Building Standards Code (Title 24, Part 11), and applicable El Segundo Municipal Code requirements. The 2021-2029 Housing Element encourages water saving features including the use of water efficient residential landscaping to reduce irrigation water demand and associated GHG emissions. The City will also continue to require the incorporation of low-flow plumbing fixtures into the design of all new residential units to reduce indoor water demand and associated GHG emissions.

The City implements a Green Building Program that encourages developers to incorporate green building design in construction activities through the use of "green" building materials, which can be accomplished by measures outlined in the City's Home Remodeling Green Building Guidelines. The five components of green design included in the program are:

- Implementing sustainable site planning;
- Safeguarding water and water efficiency;
- Ensuring energy efficiency and employing renewable energy;
- Using conservation of materials and resources; and
- Providing indoor environmental quality

Incorporating building energy efficiency measures into future development resulting from the Project would align with building electrification as a major focal point of state agencies and electric utilities in reaching the state's

[28] California Air Resources Board, Advanced Clean Trucks, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks. Accessed February 2023.

GHG reduction goals. Incorporation of building energy efficiency measures would lessen the potential for the Project to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience.

With respect to transportation-related GHG emissions, the Project would promote mixed-use development through the creation of a Mixed-Use Ordinance resulting in residential serving retail uses in the development of residential uses. Mixed-use development encourages reduced vehicle trips and vehicle miles traveled as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations where increases in housing would occur will also encourage reduced vehicle miles traveled as people would be able to live close to existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers. Thus, the Project would promote strategies that would reduce transportation-related GHG emissions.

The City's Air Quality Element includes policies to reduce building energy demand. Policy AQ12-1.2 includes provisions to incorporate energy conservation features in the design of new projects that would help to reduce GHG emissions. Policy AQ12-1.4 states that new construction not preclude the use of solar energy systems by uses and buildings on adjacent properties. The City's Conservation Element includes policies to reduce water demand and associated GHG emissions. Policy CN2-4 requires implementation of water conservation measures as necessary to ensure sufficient water supplies. Policy CN2-5 require new construction and development to install water-conserving fixtures and appliances to reduce water demand. Policy CN2-7 requires new construction and development to incorporate water conserving landscape design and management. The City's Air Quality Element also includes policies to reduce transportation-related GHG emissions. Policy AQ9-1.1 directs the City to consider mixed-use housing development proposals to reduce VMT, which is an intent of the Project. Projects facilitated by the Project would be required to comply with applicable building energy standards including the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and the California Green Building Standards Code (Title 24, Part 11). Code requirements would include solar ready buildings and vehicle parking space that includes electric vehicle supply equipment. As discussed above, the City implements a Green Building Program that encourages developers to incorporate green building designs that may exceed code requirements.

GHG Emissions and 2022 Scoping Plan for Achieving Carbon Neutrality

The CARB 2022 Scoping Plan for Achieving Carbon Neutrality[29] (Scoping Plan) outlines the strategies the state will implement to achieve carbon neutrality by reducing GHGs to meet the anthropogenic target and by expanding actions to capture and store carbon through the state's natural and working lands and using a variety of mechanical approaches. The major element of the 2022 Scoping Plan is the decarbonization of every sector of the economy. This requires rapidly moving to zero-emission transportation for cars, buses, trains, and trucks; phasing out the use of fossil gas for heating; clamping down on chemicals and refrigerants; providing communities with sustainable options such as walking, biking, and public transit to reduce reliance on cars; continuing to build out solar arrays, wind turbine capacity, and other resources to provide clean, renewable energy to displace fossil-fuel fired electrical generation; scaling up new options such as renewable hydrogen for hard-to-electrify end uses and biomethane where needed.

[29] California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality, November 16, 2022.

The 2022 Scoping Plan presents a non-exhaustive list of impactful GHG reduction strategies that can be implemented by local governments within the three priority areas (see Appendix D of the 2022 Scoping Plan, Priority GHG Reduction Strategies for Local Government Climate Action Priority Areas). An assessment of the Project relative to the GHG reduction strategies in the three priority areas is provided below. As discussed below, the Project would support relevant and applicable strategies. Based on the discussions below, the Project would not conflict with applicable 2022 Scoping Plan strategies and regulations to reduce GHG emissions.

Transportation Electrification

The priority GHG reduction strategies for local government climate action related to transportation electrification are discussed below and would support the Scoping Plan action to have 100 percent of all new passenger vehicles to be zero-emission by 2035 (see Table 2-1 of the 2022 Scoping Plan).

The CARB approved the Advanced Clean Cars II rule which codifies Executive Order N-79-20 and requires 100 percent of new cars and light trucks sold in California be zero-emission vehicles by 2035. The State has also adopted AB 2127, which requires the CEC to analyze and examine charging needs to support California's EVs in 2030 and to support decision-makers allocation of resources to install new electric vehicle chargers where they are needed most.

The Project would not conflict with this strategy as future residential development would be required to comply with the applicable requirements of the Title 24 Building Energy Efficiency Standards Energy Code (Title 24, Part 6) and the California Green Building Standards Code (Title 24, Part 11). The CALGreen Code was updated in 2022 to include new mandatory measures for residential and non-residential uses including requirements for electric vehicle supply equipment and electric vehicle ready spaces. As such, the Project would support the electrification of transportation-related sources of emissions and would reduce vehicle and equipment emissions. Thus, the Project would not conflict with this strategy.

Vehicle Miles Traveled Reduction

The priority GHG reduction strategies for local government climate action related to vehicle miles traveled (VMT) reduction are discussed below and would support the Scoping Plan action to reduce VMT per capita 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045.

The Project would not conflict with the strategy to reduce VMT. Although operational details of any future projects are unknown, the Project would allow for mixed-use development as residential serving retail uses would be contemplated with the development of residential uses. Mixed-use development encourages reduced vehicle trips as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips. The infill locations where increases in housing would occur will encourage reduced VMT as people would be able to live close to existing commercial and retail goods and services from co-located or nearby residential serving retail uses and close to existing employment centers within and around the City including the Hyperion Wastewater Treatment Facility to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east. As such, the Project would not conflict with this strategy.

Building Decarbonization

The priority GHG reduction strategies for local government climate action related to electrification are discussed below and would support the Scoping Plan actions regarding meeting increased demand for electrification without

new fossil gas-fire resources and all electric appliances beginning in 2026 (residential) and 2029 (commercial) (see Table 2-1 of the 2022 Scoping Plan).

California's transition away from fossil fuel–based energy sources will bring GHG emissions associated with building energy use down to zero as California's electric supply becomes 100 percent carbon free. California has committed to achieving this goal by 2045 through Senate Bill 100, the 100 Percent Clean Energy Act of 2018. Senate Bill 100 strengthened the State's RPS by requiring that 60 percent of all electricity provided to retail users in California come from renewable sources by 2030 and that 100 percent come from carbon-free sources by 2045. The land use sector will benefit from RPS because the electricity used in buildings will be increasingly carbon-free, but implementation does not depend (directly, at least) on how buildings are designed and built.

Future projects facilitated by the Project would be required to comply with applicable State and City requirements for building energy efficiency and electrification and would adhere to applicable CALGreen (Title 24) requirements for energy efficiency and electrification of new buildings. Additionally, incorporating building energy efficiency measures into future development allowed by the Project would align with building electrification of state agencies and electric utilities and lessen the potential for the Project to cause substantial strain on the electricity grid during baseload and peak times as state agencies and electric utility providers continue to work to strengthen and enhance the electricity grid, increase the supply of renewable electricity, and enhance grid reliability and resilience. Thus, the Project would not conflict with this strategy.

Summary

As outlined above, the 2021-2029 Housing Element includes provisions for building energy and water efficiency and provides for housing opportunity sites with mixed-uses located at existing infill locations to reduce VMT, generally consistent with relevant General Plan policies to reduce building energy and transportation GHG emissions. As such, the Project would not generate GHG emissions that may have a significant impact on the environment and not conflict with an applicable plan, policy or regulation for reducing GHG emissions. **Thus, the future development resulting from the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to GHG emissions and conflicts with an applicable plan, policy or regulation for reducing GHG emissions.**

3.4 Noise

a) Substantial Temporary or Permanent Increase in Noise

Construction

Future projects facilitated by the Project would result in construction at existing infill developed sites. Although construction details of any future projects are unknown, construction of housing projects would likely require the use of construction equipment that that typically are associated with temporary noise, such as cranes, dozers, and forklifts. Depending on the type and model of equipment used for construction, typical hourly average noise levels for heavy construction equipment range from approximately 65 to 86 dBA Leq at a distance of 50 feet from the equipment.[30] Equipment such as pile drivers and vibratory rollers generate higher noise levels; however, such equipment would not likely be necessary for the future residential development projects. Actual exposure levels would depend on the number and types of equipment, the intensity of the construction activity, the distance of

[30] Federal Highway Administration, Roadway Construction Noise Model User's Guide,

sensitive receptors to the noise source, and any intervening structures, topography, and noise absorption characteristics of the ground that might affect noise attenuation.

Future projects facilitated by the Project would be required to comply with the ESMC including generally prohibiting construction between the hours of 6:00 P.M. and 7:00 A.M. Monday through Saturday, or at any time on Sunday or a Federal holiday. Furthermore, the City's Noise Element Policy N1-2.1 and Program N1-2.1B includes provisions for implementing construction noise reduction measures such as noise suppression equipment and/or the use of temporary barriers.

The City's General Plan PEIR determined that construction noise would be a significant impact but would be mitigated to less than significant with implementation of Noise Element policies and programs. The use of temporary barriers, as provided in the Noise Element Policy N1-2.1 and Program N1-2.1B would be capable of reducing noise by 10 dBA or more for barriers that block the line-of-sight from the noise-generating construction equipment and noise sensitive receptors. Noise reductions can also be achieved through the use of equipment enclosures, noise-attenuating or noise absorbing sound blankets, and other similar measures. Implementation of Noise Element policies and programs to reduce construction noise, as well as other noise reduction measures as needed, would be effective in reducing construction noise from future residential development likely to a level below the FTA guidelines for construction equipment noise shown in **Table 3**. **Thus, the development resulting from the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to temporary construction noise.**

Operations

Future projects resulting from the Project would result in an increase in number of housing units at infill sites. Although operational details of any future projects are unknown, the Project would promote mixed-use development as residential serving retail uses would be contemplated with the development of residential uses. Mixed-use development encourages reduced vehicle trips as people may be able to obtain goods and services from co-located or nearby residential serving retail uses without the need to generate passenger vehicle trips.

The future development of up to 1,195 multi-family dwelling units and approximately 64,077 square feet of residential serving commercial (i.e., ground-floor retail) uses that would occur as a result of the Project, would generate approximately 6,238 average daily trips.[31] These trips would occur on roadways spread throughout the City as the identified areas for amendments are located in various locations. Generally, the areas are located: south of Imperial Avenue between the Hyperion Wastewater Treatment Facility and California Street; along Main Street between Imperial Avenue and Palm Avenue; the area east of Constitution Park, Washington Park and Freedom Park, west of Pacific Coast Highway, south of Walnut Avenue and north of Holly Avenue; and at various locations south of Mariposa Avenue, north of El Segundo Boulevard, east of the Hyperion Wastewater Treatment Facility and west of Kansas Street.

A doubling of sound energy corresponds to a 3 dBA increase in noise level. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. Thus, a general doubling of traffic volumes would be required to increase traffic noise levels by 3 dBA, assuming a similar mix of passenger vehicles and

[31] Kimley Horn, City of El Segundo Density Increase Trip Generation, August 27, 2023.

heavy-duty trucks. In order to increase traffic noise levels by 5 dBA, traffic volumes would have to increase by more than triple, assuming a similar mix of passenger vehicles and heavy-duty trucks.

The identified areas for amendments are located in urban areas throughout the City are generally developed properties. Thus, the sites already generate vehicle traffic on local roadways from existing residential, school, commercial, and light industrial uses as well as from employment centers within and around the City including the Hyperion Wastewater Treatment Facility to the west, LAX to the north, Chevron Refinery to the south, and the Raytheon campus and Mattel Campus to the east. Because the future development would be scattered throughout the City, development resulting from the Project would not result in a concentrated increase in vehicle traffic volumes in any one location or on any one roadway. Thus, the Project would not likely result in a tripling of the existing vehicle traffic volumes on local roadways.

The City's General Plan PEIR determined that traffic generated noise would be a significant impact but would be mitigated to less than significant with implementation of General Plan Noise Element policies and programs. The City's General Plan Noise Element Policy N1-1.8 includes provisions for continuing to develop zoning, subdivision, and development controls to prevent future encroachment of noise-sensitive uses into present or planned industrial or transportation system noise-impacted zones. The Noise Element Policy N1-1.9 and Program N1-1.9A include provisions for reviewing all new development projects in the City for conformance with California Noise Insulation Standards to ensure interior noise will not exceed acceptable levels. **Thus, the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to operational noise.**

b) Excessive Groundborne Vibration or Groundborne Noise

Construction

Future projects resulting from the Project would result in construction at existing infill developed sites. Although construction details of any future projects are unknown, construction of future projects would likely require the use of construction equipment that typically are associated with temporary groundborne vibration, such as dozers, caisson drilling, and jackhammers. As shown in **Table 5**, the FTA guidelines show that a vibration level of up to 0.20 inches per second PPV would not result in construction groundborne vibration damage for non-engineered timber and masonry buildings, which are typically residential structures. As discussed in Section 2.4 above, a groundborne vibration level of 0.4 inches per second PPV is associated with severe human annoyance potential.

According to the FTA *Transit Noise and Vibration Impact Assessment Manual*, temporary groundborne vibration levels for construction equipment, such as dozers and caisson drilling, would be up to 0.191 inches per second at a reference distance of 15 feet and 0.089 inches per second at a reference distance of 25 feet from the equipment.[32] Equipment such as pile drivers and vibratory rollers generate higher groundborne vibration levels; however, such equipment would not likely be necessary for the future residential development projects. With a relatively buffer distance of at least 15 feet from adjacent structures, which is generally achievable at infill project site locations, construction equipment used for future projects would not be anticipated to generate groundborne vibration levels that would exceed the thresholds for building damage or annoyance. Furthermore, ESMC Section 7-2-10 prohibits construction between the hours of six o'clock (6:00) P.M. and seven o'clock (7:00) A.M. Monday through Saturday, or at any time on Sunday or a Federal holiday. Thus, construction, and any associated groundborne vibration would not normally occur during evening and nighttime hours or on Sundays or Federal

[32] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, Table 7-4, September 2018.

holidays, when people tend to be more sensitive to vibration impacts. **Thus, the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to construction groundborne vibration or groundborne noise.**

Operations

The operation of future projects resulting from the Project would include residential and commercial (residential serving retail) uses, which typically do not include substantial sources of groundborne vibration. According to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), stationary equipment such as pumps and compressors generate groundborne vibration levels of 0.5 in/sec PPV at 1 foot.[33] This vibration level drops to approximately 0.009 inches per second PPV at 15 feet and 0.004 in/sec PPV at 25 feet. Furthermore, any future project that includes stationary equipment would locate such equipment on building rooftops or within or near buildings such that the equipment would not generate groundborne vibration off the future development site. Therefore, groundborne vibration from the operation of such mechanical equipment is not expected to generate excessive groundborne vibration in excess of significance thresholds.

Caltrans has studied the impacts of propagation of vehicle vibration on sensitive land uses and notes that "heavy trucks, and quite frequently buses, generate the highest earthborne vibrations of normal traffic."[34] Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that "vibrations measured on freeway shoulders (5 m [meters] from the centerline of the nearest lane) have never exceeded 2 mm/s [millimeters per second], with the worst combinations of heavy trucks."[35] "This amplitude coincides with the maximum recommended 'safe level' for ruins and ancient monuments (and historic buildings)." [36] A vibration level of 2 millimeters per second is approximately 0.08 inches per second PPV. Vehicles traveling along freeways and state routes would cause infrequent and inconsistent vibration events that would attenuate quickly after onset. Sensitive receptors would likely be located further away than 15 meters from a roadway or highway and would therefore experience levels lower than 0.08 in/sec. Furthermore, future projects facilitated by the Project, which would include residential and commercial (residential serving retail) uses, would generally not result in substantial truck trips and would primarily generate passenger vehicle trips, which generate substantially less groundborne vibration levels.

Thus, operation of future projects facilitated by the Project would not be expected to generate excessive groundborne vibration in excess of significance thresholds. **Thus, the Project would not likely result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to operational groundborne vibration or groundborne noise.**

c) Excessive Noise from Airstrip or Airport (Less than Significant)

The Project would result in development of residential uses that would be located close to or within the Planning Boundary/Airport Influence Area (AIA) for LAX as designated within the Airport Land Use Plan (ALUP). The FAA is required to provide noise exposure and land use information from noise exposure maps prepared under

[33] American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 1999 ASHRAE Applications Handbook. http://www.hvac.amickracing.com/Miscellaneous/HVAC_Applications_Handbook-ASHRAE.pdf. Accessed September 25, 2023.

[34] California Department of Transportation (Caltrans), 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September 2013.

[35] California Department of Transportation (Caltrans), 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September 2013.

[36] California Department of Transportation (Caltrans), 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September 2013.

Title 14 Code of Federal Regulations (CFR) Part 150. The FAA Part 150 Noise Exposure Map for LAX shows that the 65 dBA CNEL noise contour would include portions of the existing R3 Zone generally north of Mariposa Avenue and west of California Street.[37] The 70 dBA CNEL noise contour would include the northern most portions of the existing R3 zone generally north of Walnut Avenue and west of California Street. The 75 dBA CNEL noise contour would not include any of the identified areas for the proposed amendments.

Pursuant to ALUP Policies G-1 and N-3, the compatibility of proposed land uses is determined by consulting the land use compatibility table provided in Section V of the ALUP. The land use compatibility table identifies land uses by category, including residential, commercial, and industrial land use. The Project would allow for the future development of residential and commercial (residential serving retail) uses. The compatibility criteria in the ALUP land use compatibility table guidelines provides the following recommendations for residential uses within the 65 to 70 and 70 to 75 dBA CNEL noise contours:

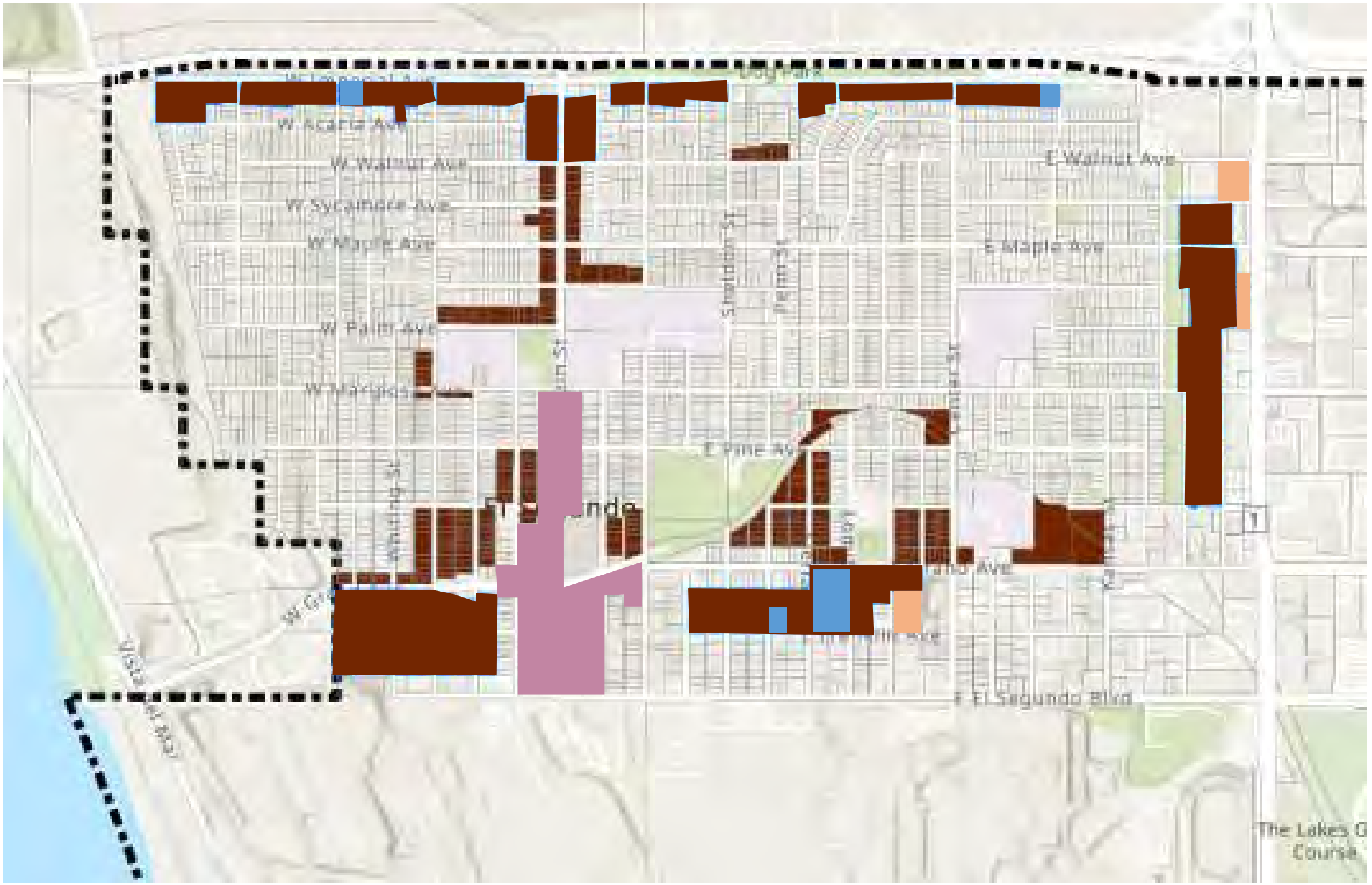
> *Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR [noise level reduction] of at least 25 dB to 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.*[38]

Therefore, for future proposed housing within the 65 to 70 and 70 to 75 dBA CNEL noise contours, enhanced building noise level reduction measures should be used. The City's Noise Element Policy N1-1.9 and Program N1-1.9A requires new habitable residential uses to include noise reduction measures for airport-related noise, such as dual pane windows and insulation, to ensure conformance with California Noise Insulation Standards (California Code of Regulations Title 24) and to ensure interior noise would not exceed acceptable levels.

The City's General Plan PEIR determined that aircraft noise would be a significant and unavoidable impact even with implementation of General Plan Noise Element policies and programs to reduce aircraft noise impacts. **Based on the above, the Project would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects related to aircraft noise.**

[37] Federal Aviation Administration, Airport Noise Compatibility Planning Information, Los Angeles International Airport (LAX), Part 150 Noise Exposure Map, 2/12/2016. https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps. Accessed September 25, 2023.

[38] FAA, Airport Noise Compatibility Planning Information, Los Angeles International Airport (LAX), Part 150 Noise Exposure Map, 2/12/2016. https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps. Accessed September 25, 2023.


W Acacia Ave
W Walnut Ave
W Sycamore Ave
W Maple Ave
W Palm Ave
E Walnut Ave
E Maple Ave
E Pine Ave
Pacific Coast Hwy
El Segundo Blvd
Existing R3 Zone
R3 Sites Inventory sites
Commercial (MU) Sites Inventory sites
Downtown Specific Plan

City of El Segundo Density Increase Trip Generation

ITE Land Use Code	Land Use	Size	Units	Daily Trips	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
221	Mixed Use Overlay	335	Dwelling Units	1,551	136	31	105	131	80	51
221	Housing Overlay	193	Dwelling Units	874	73	17	56	76	46	30
220	R3 Density Increase	367	Dwelling Units	2,428	147	35	112	187	118	69
221	Downtown Specific Plan	300	Dwelling Units	1,385	120	28	92	117	71	46
Total Project Trips		**1,195**	**Dwelling Units**	**6,238**	**476**	**111**	**365**	**511**	**315**	**196**

Kimley»Horn

Exhibit A
CalEEMod Output Files

ESA

El Segundo 2021-2029 HEU_2030 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	El Segundo 2021-2029 HEU_2030
Operational Year	2030
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	17.6
Location	El Segundo, CA 90245, USA
County	Los Angeles-South Coast
City	El Segundo
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4534
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.19

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Low Rise	122	Dwelling Unit	7.63	129,320	12,932	—	361	—

Apartments Mid Rise	276	Dwelling Unit	7.26	264,960	26,496	—	817	—
Strip Mall	21.4	1000sqft	0.49	21,360	2,136	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.10	17.8	6.08	81.6	0.16	0.20	15.1	15.3	0.19	3.84	4.04	202	18,623	18,825	21.3	0.67	37.9	19,594
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.82	15.7	6.28	53.1	0.15	0.19	15.1	15.3	0.18	3.84	4.03	202	17,912	18,114	21.3	0.70	3.86	18,858
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.29	17.1	6.48	70.7	0.16	0.20	15.0	15.2	0.19	3.80	3.99	202	18,130	18,332	21.3	0.70	18.0	19,091
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.51	3.12	1.18	12.9	0.03	0.04	2.73	2.77	0.03	0.69	0.73	33.5	3,002	3,035	3.52	0.12	2.99	3,161

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.72	6.03	4.55	57.5	0.15	0.08	15.1	15.2	0.08	3.84	3.92	—	15,608	15,608	0.65	0.57	35.0	15,830
Area	2.23	11.7	0.22	23.6	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	64.2	64.2	< 0.005	< 0.005	—	64.4
Energy	0.15	0.08	1.31	0.57	0.01	0.11	—	0.11	0.11	—	0.11	—	2,868	2,868	0.30	0.02	—	2,882
Water	—	—	—	—	—	—	—	—	—	—	—	31.5	82.5	114	3.24	0.08	—	218
Waste	—	—	—	—	—	—	—	—	—	—	—	171	0.00	171	17.1	0.00	—	597
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.96	2.96
Total	9.10	17.8	6.08	81.6	0.16	0.20	15.1	15.3	0.19	3.84	4.04	202	18,623	18,825	21.3	0.67	37.9	19,594
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.66	5.97	4.97	52.5	0.15	0.08	15.1	15.2	0.08	3.84	3.92	—	14,962	14,962	0.67	0.60	0.91	15,158
Area	0.00	9.63	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
Energy	0.15	0.08	1.31	0.57	0.01	0.11	—	0.11	0.11	—	0.11	—	2,868	2,868	0.30	0.02	—	2,882
Water	—	—	—	—	—	—	—	—	—	—	—	31.5	82.5	114	3.24	0.08	—	218
Waste	—	—	—	—	—	—	—	—	—	—	—	171	0.00	171	17.1	0.00	—	597
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.96	2.96
Total	6.82	15.7	6.28	53.1	0.15	0.19	15.1	15.3	0.18	3.84	4.03	202	17,912	18,114	21.3	0.70	3.86	18,858
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	6.61	5.93	5.02	54.0	0.15	0.08	15.0	15.0	0.08	3.80	3.88	—	15,136	15,136	0.67	0.60	15.1	15,347
Area	1.53	11.1	0.15	16.2	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	44.0	44.0	< 0.005	< 0.005	—	44.1
Energy	0.15	0.08	1.31	0.57	0.01	0.11	—	0.11	0.11	—	0.11	—	2,868	2,868	0.30	0.02	—	2,882
Water	—	—	—	—	—	—	—	—	—	—	—	31.5	82.5	114	3.24	0.08	—	218
Waste	—	—	—	—	—	—	—	—	—	—	—	171	0.00	171	17.1	0.00	—	597
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.96	2.96
Total	8.29	17.1	6.48	70.7	0.16	0.20	15.0	15.2	0.19	3.80	3.99	202	18,130	18,332	21.3	0.70	18.0	19,091

4.2-2

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.21	1.08	0.92	9.85	0.03	0.02	2.73	2.75	0.01	0.69	0.71	—	2,506	2,506	0.11	0.10	2.50	2,541
Area	0.28	2.02	0.03	2.95	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	7.28	7.28	< 0.005	< 0.005	—	7.30
Energy	0.03	0.01	0.24	0.10	< 0.005	0.02	—	0.02	0.02	—	0.02	—	475	475	0.05	< 0.005	—	477
Water	—	—	—	—	—	—	—	—	—	—	—	5.21	13.7	18.9	0.54	0.01	—	36.1
Waste	—	—	—	—	—	—	—	—	—	—	—	28.3	0.00	28.3	2.82	0.00	—	98.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	1.51	3.12	1.18	12.9	0.03	0.04	2.73	2.77	0.03	0.69	0.73	33.5	3,002	3,035	3.52	0.12	2.99	3,161

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	2.61	2.34	1.77	22.3	0.06	0.03	5.88	5.91	0.03	1.49	1.52	—	6,065	6,065	0.25	0.22	13.6	6,152
Apartments Mid Rise	4.11	3.69	2.78	35.1	0.09	0.05	9.25	9.30	0.05	2.35	2.40	—	9,543	9,543	0.40	0.35	21.4	9,678
Strip Mall	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	0.00
Total	6.72	6.03	4.55	57.5	0.15	0.08	15.1	15.2	0.08	3.84	3.92	—	15,608	15,608	0.65	0.57	35.0	15,830
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	2.59	2.32	1.93	20.4	0.06	0.03	5.88	5.91	0.03	1.49	1.52	—	5,814	5,814	0.26	0.23	0.35	5,891
Apartments Mid Rise	4.07	3.65	3.04	32.1	0.09	0.05	9.25	9.30	0.05	2.35	2.40	—	9,147	9,147	0.41	0.37	0.55	9,268
Strip Mall	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	0.00
Total	6.66	5.97	4.97	52.5	0.15	0.08	15.1	15.2	0.08	3.84	3.92	—	14,962	14,962	0.67	0.60	0.91	15,158
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.47	0.42	0.36	3.83	0.01	0.01	1.06	1.07	0.01	0.27	0.28	—	974	974	0.04	0.04	0.97	987
Apartments Mid Rise	0.74	0.66	0.56	6.02	0.02	0.01	1.67	1.68	0.01	0.42	0.43	—	1,532	1,532	0.07	0.06	1.53	1,553
Strip Mall	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	0.00
Total	1.21	1.08	0.92	9.85	0.03	0.02	2.73	2.75	0.01	0.69	0.71	—	2,506	2,506	0.11	0.10	2.50	2,541

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	334	334	0.04	0.01	—	337
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	723	723	0.09	0.01	—	728
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	150	150	0.02	< 0.005	—	151

Total	—	—	—	—	—	—	—	—	—	—	—	—	1,207	1,207	0.15	0.02	—	1,216
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	334	334	0.04	0.01	—	337
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	723	723	0.09	0.01	—	728
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	150	150	0.02	< 0.005	—	151
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,207	1,207	0.15	0.02	—	1,216
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	55.3	55.3	0.01	< 0.005	—	55.8
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	120	120	0.02	< 0.005	—	121
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	24.8	24.8	< 0.005	< 0.005	—	25.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	200	200	0.03	< 0.005	—	201

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.06	0.03	0.50	0.21	< 0.005	0.04	—	0.04	0.04	—	0.04	—	638	638	0.06	< 0.005	—	639

Apartments	0.09	0.05	0.77	0.33	< 0.005	0.06	—	0.06	0.06	—	0.06	—	982	982	0.09	< 0.005	—	985
Strip Mall	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	41.0	41.0	< 0.005	< 0.005	—	41.1
Total	0.15	0.08	1.31	0.57	0.01	0.11	—	0.11	0.11	—	0.11	—	1,661	1,661	0.15	< 0.005	—	1,666
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.06	0.03	0.50	0.21	< 0.005	0.04	—	0.04	0.04	—	0.04	—	638	638	0.06	< 0.005	—	639
Apartments Mid Rise	0.09	0.05	0.77	0.33	< 0.005	0.06	—	0.06	0.06	—	0.06	—	982	982	0.09	< 0.005	—	985
Strip Mall	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	41.0	41.0	< 0.005	< 0.005	—	41.1
Total	0.15	0.08	1.31	0.57	0.01	0.11	—	0.11	0.11	—	0.11	—	1,661	1,661	0.15	< 0.005	—	1,666
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.01	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	106	106	0.01	< 0.005	—	106
Apartments Mid Rise	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	163	163	0.01	< 0.005	—	163
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.79	6.79	< 0.005	< 0.005	—	6.80
Total	0.03	0.01	0.24	0.10	< 0.005	0.02	—	0.02	0.02	—	0.02	—	275	275	0.02	< 0.005	—	276

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	8.89	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.23	2.11	0.22	23.6	< 0.005	0.01	—	0.01	0.01	—	0.01	—	64.2	64.2	< 0.005	< 0.005	—	64.4
Total	2.23	11.7	0.22	23.6	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	64.2	64.2	< 0.005	< 0.005	—	64.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	8.89	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.73	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	9.63	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	1.62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.28	0.26	0.03	2.95	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.28	7.28	< 0.005	< 0.005	—	7.30
Total	0.28	2.02	0.03	2.95	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	7.28	7.28	< 0.005	< 0.005	—	7.30

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.71	23.0	31.7	0.90	0.02	—	60.5
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	19.7	51.8	71.5	2.03	0.05	—	137
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.03	7.81	10.8	0.31	0.01	—	20.9
Total	—	—	—	—	—	—	—	—	—	—	—	31.5	82.5	114	3.24	0.08	—	218
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.71	23.0	31.7	0.90	0.02	—	60.5
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	19.7	51.8	71.5	2.03	0.05	—	137
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.03	7.81	10.8	0.31	0.01	—	20.9
Total	—	—	—	—	—	—	—	—	—	—	—	31.5	82.5	114	3.24	0.08	—	218
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartme Low Rise	—	—	—	—	—	—	—	—	—	—	—	1.44	3.80	5.24	0.15	< 0.005	—	10.0
Apartme nts Mid Rise	—	—	—	—	—	—	—	—	—	—	—	3.26	8.57	11.8	0.34	0.01	—	22.6
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	0.50	1.29	1.79	0.05	< 0.005	—	3.46
Total	—	—	—	—	—	—	—	—	—	—	—	5.21	13.7	18.9	0.54	0.01	—	36.1

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Low Rise	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170
Apartme nts Mid Rise	—	—	—	—	—	—	—	—	—	—	—	110	0.00	110	11.0	0.00	—	385
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	171	0.00	171	17.1	0.00	—	597
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartme nts Low Rise	—	—	—	—	—	—	—	—	—	—	—	48.6	0.00	48.6	4.86	0.00	—	170

449

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	110	0.00	110	11.0	0.00	—	385
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	—	42.3
Total	—	—	—	—	—	—	—	—	—	—	—	171	0.00	171	17.1	0.00	—	597
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	8.05	0.00	8.05	0.80	0.00	—	28.2
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	18.2	0.00	18.2	1.82	0.00	—	63.7
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	2.00	0.00	2.00	0.20	0.00	—	7.00
Total	—	—	—	—	—	—	—	—	—	—	—	28.3	0.00	28.3	2.82	0.00	—	98.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.93	0.93
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.90	1.90
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.96	2.96

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.93	0.93
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.90	1.90
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.13	0.13
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.96	2.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.15	0.15
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.31	0.31
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

455

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

Apartments Low Rise	807	807	807	294,610	8,293	8,293	8,293	3,026,834
Apartments Mid Rise	1,270	1,270	1,270	463,505	13,047	13,047	13,047	4,762,057
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	122
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	276
Conventional Wood Stoves	0

Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
798417	266,139	32,040	10,680	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	467,876	261	0.0330	0.0040	1,989,292
Apartments Mid Rise	1,011,770	261	0.0330	0.0040	3,065,489
Strip Mall	209,784	261	0.0330	0.0040	127,881

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

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Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Apartments Low Rise	4,547,404	221,669
Apartments Mid Rise	10,287,569	454,172
Strip Mall	1,582,189	29,957

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	90.2	—
Apartments Mid Rise	204	—
Strip Mall	22.4	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.52	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	32.1
AQ-PM	72.0
AQ-DPM	95.6
Drinking Water	8.95
Lead Risk Housing	48.9
Pesticides	0.00
Toxic Releases	89.9
Traffic	62.7
Effect Indicators	—
CleanUp Sites	58.6
Groundwater	69.2
Haz Waste Facilities/Generators	98.7
Impaired Water Bodies	58.7
Solid Waste	39.0
Sensitive Population	—
Asthma	12.8
Cardio-vascular	22.0

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Low Birth Weights	19.6
Socioeconomic Factor Indicators	—
Education	6.52
Housing	33.2
Linguistic	4.59
Poverty	23.7
Unemployment	58.4

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	82.8564096
Employed	92.6344155
Median HI	71.46156807
Education	—
Bachelor's or higher	79.82805081
High school enrollment	100
Preschool enrollment	35.76286411
Transportation	—
Auto Access	74.57975106
Active commuting	69.25445913
Social	—
2-parent households	91.08174002
Voting	57.05119979
Neighborhood	—
Alcohol availability	23.32862826

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Park access	81.35506224
Retail density	45.61786218
Supermarket access	2.399589375
Tree canopy	4.632362376
Housing	—
Homeownership	17.68253561
Housing habitability	76.6970358
Low-inc homeowner severe housing cost burden	78.73732837
Low-inc renter severe housing cost burden	95.39330168
Uncrowded housing	59.34813294
Health Outcomes	—
Insured adults	73.78416528
Arthritis	0.0
Asthma ER Admissions	84.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	68.8
Cognitively Disabled	87.2
Physically Disabled	80.2
Heart Attack ER Admissions	65.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0

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Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	31.0
Elderly	69.3
English Speaking	78.4
Foreign-born	14.4
Outdoor Workers	77.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	19.2
Traffic Density	43.5
Traffic Access	23.0
Other Indices	—
Hardship	11.3
Other Decision Support	—
2016 Voting	48.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	26.0

Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Trip rates based on: Kimley Horn, City of El Segundo Density Increase Trip Generation, August 27, 2023.
Operations: Hearths	No fireplaces or woodstoves for multi-family units.

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El Segundo 2021-2029 HEU_2035 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	El Segundo 2021-2029 HEU_2035
Operational Year	2035
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	17.6
Location	El Segundo, CA 90245, USA
County	Los Angeles-South Coast
City	El Segundo
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4534
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.19

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Low Rise	245	Dwelling Unit	15.3	259,700	25,970	—	725	—

Apartments Mid Rise	552	Dwelling Unit	14.5	529,920	52,992	—	1,634	—
Strip Mall	42.7	1000sqft	0.98	42,720	4,272	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.6	34.3	10.5	150	0.31	0.37	30.3	30.7	0.35	7.70	8.05	405	35,261	35,666	42.4	1.24	40.1	37,133
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	12.0	30.0	10.8	94.2	0.29	0.34	30.3	30.7	0.34	7.70	8.04	405	33,924	34,329	42.4	1.28	6.81	35,778
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.0	32.8	11.1	129	0.30	0.36	30.0	30.3	0.35	7.62	7.96	405	34,337	34,742	42.4	1.29	20.7	36,206
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.74	5.98	2.03	23.6	0.05	0.07	5.47	5.54	0.06	1.39	1.45	67.0	5,685	5,752	7.02	0.21	3.43	5,994

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.8	10.6	7.44	102	0.29	0.13	30.3	30.4	0.12	7.70	7.82	—	29,223	29,223	1.11	1.04	34.2	29,594
Area	4.46	23.5	0.43	47.3	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	129	129	0.01	< 0.005	—	129
Energy	0.31	0.15	2.63	1.15	0.02	0.21	—	0.21	0.21	—	0.21	—	5,744	5,744	0.60	0.04	—	5,772
Water	—	—	—	—	—	—	—	—	—	—	—	63.0	165	228	6.48	0.16	—	437
Waste	—	—	—	—	—	—	—	—	—	—	—	342	0.00	342	34.2	0.00	—	1,196
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.92	5.92
Total	16.6	34.3	10.5	150	0.31	0.37	30.3	30.7	0.35	7.70	8.05	405	35,261	35,666	42.4	1.24	40.1	37,133
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.7	10.6	8.13	93.1	0.27	0.13	30.3	30.4	0.12	7.70	7.82	—	28,015	28,015	1.14	1.09	0.89	28,368
Area	0.00	19.3	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
Energy	0.31	0.15	2.63	1.15	0.02	0.21	—	0.21	0.21	—	0.21	—	5,744	5,744	0.60	0.04	—	5,772
Water	—	—	—	—	—	—	—	—	—	—	—	63.0	165	228	6.48	0.16	—	437
Waste	—	—	—	—	—	—	—	—	—	—	—	342	0.00	342	34.2	0.00	—	1,196
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.92	5.92
Total	12.0	30.0	10.8	94.2	0.29	0.34	30.3	30.7	0.34	7.70	8.04	405	33,924	34,329	42.4	1.28	6.81	35,778
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.6	10.5	8.20	95.7	0.28	0.13	30.0	30.1	0.12	7.62	7.74	—	28,340	28,340	1.13	1.09	14.8	28,707
Area	3.06	22.2	0.30	32.4	< 0.005	0.02	—	0.02	0.01	—	0.01	0.00	88.0	88.0	< 0.005	< 0.005	—	88.3
Energy	0.31	0.15	2.63	1.15	0.02	0.21	—	0.21	0.21	—	0.21	—	5,744	5,744	0.60	0.04	—	5,772
Water	—	—	—	—	—	—	—	—	—	—	—	63.0	165	228	6.48	0.16	—	437
Waste	—	—	—	—	—	—	—	—	—	—	—	342	0.00	342	34.2	0.00	—	1,196
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.92	5.92
Total	15.0	32.8	11.1	129	0.30	0.36	30.0	30.3	0.35	7.62	7.96	405	34,337	34,742	42.4	1.29	20.7	36,206

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Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.12	1.91	1.50	17.5	0.05	0.02	5.47	5.49	0.02	1.39	1.41	—	4,692	4,692	0.19	0.18	2.45	4,753
Area	0.56	4.04	0.05	5.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	14.6	14.6	< 0.005	< 0.005	—	14.6
Energy	0.06	0.03	0.48	0.21	< 0.005	0.04	—	0.04	0.04	—	0.04	—	951	951	0.10	0.01	—	956
Water	—	—	—	—	—	—	—	—	—	—	—	10.4	27.4	37.8	1.07	0.03	—	72.3
Waste	—	—	—	—	—	—	—	—	—	—	—	56.6	0.00	56.6	5.66	0.00	—	198
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.98	0.98
Total	2.74	5.98	2.03	23.6	0.05	0.07	5.47	5.54	0.06	1.39	1.45	67.0	5,685	5,752	7.02	0.21	3.43	5,994

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	4.59	4.14	2.90	39.8	0.11	0.05	11.8	11.9	0.05	3.00	3.05	—	11,385	11,385	0.43	0.40	13.3	11,529
Apartments Mid Rise	7.20	6.48	4.54	62.3	0.17	0.08	18.5	18.6	0.08	4.70	4.78	—	17,838	17,838	0.68	0.63	20.9	18,065
Strip Mall	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	0.00
Total	11.8	10.6	7.44	102	0.29	0.13	30.3	30.4	0.12	7.70	7.82	—	29,223	29,223	1.11	1.04	34.2	29,594
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	4.57	4.11	3.17	36.3	0.11	0.05	11.8	11.9	0.05	3.00	3.05	—	10,914	10,914	0.44	0.42	0.35	11,051
Apartments Mid Rise	7.16	6.45	4.96	56.8	0.17	0.08	18.5	18.6	0.08	4.70	4.78	—	17,101	17,101	0.70	0.66	0.54	17,316
Strip Mall	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	0.00
Total	11.7	10.6	8.13	93.1	0.27	0.13	30.3	30.4	0.12	7.70	7.82	—	28,015	28,015	1.14	1.09	0.89	28,368
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.83	0.74	0.58	6.80	0.02	0.01	2.13	2.14	0.01	0.54	0.55	—	1,828	1,828	0.07	0.07	0.95	1,852
Apartments Mid Rise	1.30	1.17	0.91	10.7	0.03	0.01	3.34	3.35	0.01	0.85	0.86	—	2,864	2,864	0.11	0.11	1.49	2,901
Strip Mall	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	0.00
Total	2.12	1.91	1.50	17.5	0.05	0.02	5.47	5.49	0.02	1.39	1.41	—	4,692	4,692	0.19	0.18	2.45	4,753

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	671	671	0.08	0.01	—	677
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,446	1,446	0.18	0.02	—	1,457
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	300	300	0.04	< 0.005	—	302

Total	—	—	—	—	—	—	—	—	—	—	—	—	2,417	2,417	0.31	0.04	—	2,436
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	671	671	0.08	0.01	—	677
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,446	1,446	0.18	0.02	—	1,457
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	300	300	0.04	< 0.005	—	302
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,417	2,417	0.31	0.04	—	2,436
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	111	111	0.01	< 0.005	—	112
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	239	239	0.03	< 0.005	—	241
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	49.6	49.6	0.01	< 0.005	—	50.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	400	400	0.05	0.01	—	403

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.12	0.06	1.01	0.43	0.01	0.08	—	0.08	0.08	—	0.08	—	1,280	1,280	0.11	< 0.005	—	1,284

Apartments	0.18	0.09	1.55	0.66	0.01	0.13	—	0.13	0.13	—	0.13	—	1,965	1,965	0.17	< 0.005	—	1,970
Strip Mall	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.0	82.0	0.01	< 0.005	—	82.2
Total	0.31	0.15	2.63	1.15	0.02	0.21	—	0.21	0.21	—	0.21	—	3,327	3,327	0.29	0.01	—	3,336
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.12	0.06	1.01	0.43	0.01	0.08	—	0.08	0.08	—	0.08	—	1,280	1,280	0.11	< 0.005	—	1,284
Apartments Mid Rise	0.18	0.09	1.55	0.66	0.01	0.13	—	0.13	0.13	—	0.13	—	1,965	1,965	0.17	< 0.005	—	1,970
Strip Mall	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.0	82.0	0.01	< 0.005	—	82.2
Total	0.31	0.15	2.63	1.15	0.02	0.21	—	0.21	0.21	—	0.21	—	3,327	3,327	0.29	0.01	—	3,336
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.02	0.01	0.18	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	212	212	0.02	< 0.005	—	213
Apartments Mid Rise	0.03	0.02	0.28	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	325	325	0.03	< 0.005	—	326
Strip Mall	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.6	13.6	< 0.005	< 0.005	—	13.6
Total	0.06	0.03	0.48	0.21	< 0.005	0.04	—	0.04	0.04	—	0.04	—	551	551	0.05	< 0.005	—	552

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

8.14

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	17.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	1.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.46	4.22	0.43	47.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	129	129	0.01	< 0.005	—	129
Total	4.46	23.5	0.43	47.3	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	129	129	0.01	< 0.005	—	129
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	17.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	1.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	19.3	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	3.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.56	0.53	0.05	5.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	14.6
Total	0.56	4.04	0.05	5.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	14.6	14.6	< 0.005	< 0.005	—	14.6

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	17.5	46.1	63.6	1.80	0.04	—	122
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	39.4	104	143	4.06	0.10	—	273
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	6.06	15.6	21.7	0.62	0.02	—	41.7
Total	—	—	—	—	—	—	—	—	—	—	—	63.0	165	228	6.48	0.16	—	437
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	17.5	46.1	63.6	1.80	0.04	—	122
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	39.4	104	143	4.06	0.10	—	273
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	6.06	15.6	21.7	0.62	0.02	—	41.7
Total	—	—	—	—	—	—	—	—	—	—	—	63.0	165	228	6.48	0.16	—	437
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	2.90	7.63	10.5	0.30	0.01	—	20.1
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	6.53	17.1	23.7	0.67	0.02	—	45.3
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.00	2.59	3.59	0.10	< 0.005	—	6.91
Total	—	—	—	—	—	—	—	—	—	—	—	10.4	27.4	37.8	1.07	0.03	—	72.3

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	97.6	0.00	97.6	9.76	0.00	—	342
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	220	0.00	220	22.0	0.00	—	770
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	24.2	0.00	24.2	2.42	0.00	—	84.6
Total	—	—	—	—	—	—	—	—	—	—	—	342	0.00	342	34.2	0.00	—	1,196
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	97.6	0.00	97.6	9.76	0.00	—	342

4.81

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	220	0.00	220	22.0	0.00	—	770
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	24.2	0.00	24.2	2.42	0.00	—	84.6
Total	—	—	—	—	—	—	—	—	—	—	—	342	0.00	342	34.2	0.00	—	1,196
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	16.2	0.00	16.2	1.62	0.00	—	56.5
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	36.4	0.00	36.4	3.64	0.00	—	127
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.00	0.00	4.00	0.40	0.00	—	14.0
Total	—	—	—	—	—	—	—	—	—	—	—	56.6	0.00	56.6	5.66	0.00	—	198

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.86	1.86
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.80	3.80
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.92	5.92

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.86	1.86
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.80	3.80
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.27	0.27
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.92	5.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.31	0.31
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.63	0.63
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.04	0.04
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.98	0.98

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

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Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

Apartments Low Rise	1,621	1,621	1,621	591,636	16,653	16,653	16,653	6,078,477
Apartments Mid Rise	2,540	2,540	2,540	927,009	26,093	26,093	26,093	9,524,113
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	245
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	552
Conventional Wood Stoves	0

4888

Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
1598980.5	532,994	64,080	21,360	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	939,586	261	0.0330	0.0040	3,994,890
Apartments Mid Rise	2,023,540	261	0.0330	0.0040	6,130,977
Strip Mall	419,569	261	0.0330	0.0040	255,762

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Apartments Low Rise	9,132,081	445,156
Apartments Mid Rise	20,575,138	908,344
Strip Mall	3,164,378	59,913

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	181	—
Apartments Mid Rise	408	—
Strip Mall	44.9	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

4906

Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.52	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	32.1
AQ-PM	72.0
AQ-DPM	95.6
Drinking Water	8.95
Lead Risk Housing	48.9
Pesticides	0.00
Toxic Releases	89.9
Traffic	62.7
Effect Indicators	—
CleanUp Sites	58.6
Groundwater	69.2
Haz Waste Facilities/Generators	98.7
Impaired Water Bodies	58.7
Solid Waste	39.0
Sensitive Population	—
Asthma	12.8
Cardio-vascular	22.0

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Low Birth Weights	19.6
Socioeconomic Factor Indicators	—
Education	6.52
Housing	33.2
Linguistic	4.59
Poverty	23.7
Unemployment	58.4

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	82.8564096
Employed	92.6344155
Median HI	71.46156807
Education	—
Bachelor's or higher	79.82805081
High school enrollment	100
Preschool enrollment	35.76286411
Transportation	—
Auto Access	74.57975106
Active commuting	69.25445913
Social	—
2-parent households	91.08174002
Voting	57.05119979
Neighborhood	—
Alcohol availability	23.32862826

4695

Park access	81.35506224
Retail density	45.61786218
Supermarket access	2.399589375
Tree canopy	4.632362376
Housing	—
Homeownership	17.68253561
Housing habitability	76.6970358
Low-inc homeowner severe housing cost burden	78.73732837
Low-inc renter severe housing cost burden	95.39330168
Uncrowded housing	59.34813294
Health Outcomes	—
Insured adults	73.78416528
Arthritis	0.0
Asthma ER Admissions	84.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	68.8
Cognitively Disabled	87.2
Physically Disabled	80.2
Heart Attack ER Admissions	65.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0

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Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	31.0
Elderly	69.3
English Speaking	78.4
Foreign-born	14.4
Outdoor Workers	77.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	19.2
Traffic Density	43.5
Traffic Access	23.0
Other Indices	—
Hardship	11.3
Other Decision Support	—
2016 Voting	48.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	26.0

Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Trip rates based on: Kimley Horn, City of El Segundo Density Increase Trip Generation, August 27, 2023.
Operations: Hearths	No fireplaces or woodstoves for multi-family units.

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El Segundo 2021-2029 HEU_2040 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	El Segundo 2021-2029 HEU_2040
Operational Year	2040
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	17.6
Location	El Segundo, CA 90245, USA
County	Los Angeles-South Coast
City	El Segundo
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4534
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.19

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Low Rise	367	Dwelling Unit	22.9	389,020	38,902	—	1,086	—

Apartments Mid Rise	828	Dwelling Unit	21.8	794,880	79,488	—	2,451	—
Strip Mall	64.1	1000sqft	1.47	64,077	6,408	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	23.5	50.2	14.5	216	0.44	0.52	45.5	46.0	0.50	11.5	12.0	607	51,142	51,748	63.3	1.76	32.0	53,887
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.7	43.8	14.8	133	0.42	0.49	45.5	45.9	0.47	11.5	12.0	607	49,201	49,808	63.3	1.82	9.48	51,944
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	21.2	48.0	15.3	185	0.43	0.51	44.9	45.5	0.49	11.4	11.9	607	49,803	50,410	63.3	1.83	18.8	52,557
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.87	8.77	2.80	33.7	0.08	0.09	8.20	8.30	0.09	2.08	2.17	100	8,245	8,346	10.5	0.30	3.12	8,701

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16.3	14.7	9.95	144	0.41	0.17	45.5	45.6	0.16	11.5	11.7	—	42,089	42,089	1.46	1.46	23.1	42,583
Area	6.71	35.2	0.65	70.9	< 0.005	0.04	—	0.04	0.03	—	0.03	0.00	193	193	0.01	< 0.005	—	193
Energy	0.46	0.23	3.94	1.72	0.03	0.32	—	0.32	0.32	—	0.32	—	8,612	8,612	0.90	0.06	—	8,654
Water	—	—	—	—	—	—	—	—	—	—	—	94.4	248	342	9.72	0.23	—	655
Waste	—	—	—	—	—	—	—	—	—	—	—	512	0.00	512	51.2	0.00	—	1,793
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.88	8.88
Total	23.5	50.2	14.5	216	0.44	0.52	45.5	46.0	0.50	11.5	12.0	607	51,142	51,748	63.3	1.76	32.0	53,887
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16.3	14.7	10.9	131	0.40	0.17	45.5	45.6	0.16	11.5	11.7	—	40,341	40,341	1.50	1.53	0.60	40,834
Area	0.00	28.9	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
Energy	0.46	0.23	3.94	1.72	0.03	0.32	—	0.32	0.32	—	0.32	—	8,612	8,612	0.90	0.06	—	8,654
Water	—	—	—	—	—	—	—	—	—	—	—	94.4	248	342	9.72	0.23	—	655
Waste	—	—	—	—	—	—	—	—	—	—	—	512	0.00	512	51.2	0.00	—	1,793
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.88	8.88
Total	16.7	43.8	14.8	133	0.42	0.49	45.5	45.9	0.47	11.5	12.0	607	49,201	49,808	63.3	1.82	9.48	51,944
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	16.1	14.6	10.9	135	0.40	0.17	44.9	45.1	0.16	11.4	11.6	—	40,811	40,811	1.49	1.53	9.96	41,314
Area	4.60	33.2	0.44	48.6	< 0.005	0.02	—	0.02	0.02	—	0.02	0.00	132	132	0.01	< 0.005	—	132
Energy	0.46	0.23	3.94	1.72	0.03	0.32	—	0.32	0.32	—	0.32	—	8,612	8,612	0.90	0.06	—	8,654
Water	—	—	—	—	—	—	—	—	—	—	—	94.4	248	342	9.72	0.23	—	655
Waste	—	—	—	—	—	—	—	—	—	—	—	512	0.00	512	51.2	0.00	—	1,793
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.88	8.88
Total	21.2	48.0	15.3	185	0.43	0.51	44.9	45.5	0.49	11.4	11.9	607	49,803	50,410	63.3	1.83	18.8	52,557

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Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.94	2.66	2.00	24.6	0.07	0.03	8.20	8.23	0.03	2.08	2.11	—	6,757	6,757	0.25	0.25	1.65	6,840
Area	0.84	6.07	0.08	8.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	21.9	21.9	< 0.005	< 0.005	—	21.9
Energy	0.08	0.04	0.72	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,426	1,426	0.15	0.01	—	1,433
Water	—	—	—	—	—	—	—	—	—	—	—	15.6	41.0	56.7	1.61	0.04	—	108
Waste	—	—	—	—	—	—	—	—	—	—	—	84.8	0.00	84.8	8.48	0.00	—	297
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.47	1.47
Total	3.87	8.77	2.80	33.7	0.08	0.09	8.20	8.30	0.09	2.08	2.17	100	8,245	8,346	10.5	0.30	3.12	8,701

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	6.35	5.74	3.87	55.9	0.16	0.07	17.7	17.8	0.06	4.49	4.56	—	16,383	16,383	0.57	0.57	8.98	16,576
Apartments Mid Rise	9.96	9.01	6.08	87.8	0.25	0.10	27.8	27.9	0.10	7.05	7.15	—	25,706	25,706	0.89	0.89	14.1	26,007
Strip Mall	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	0.00
Total	16.3	14.7	9.95	144	0.41	0.17	45.5	45.6	0.16	11.5	11.7	—	42,089	42,089	1.46	1.46	23.1	42,583
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	6.33	5.72	4.23	50.9	0.15	0.07	17.7	17.8	0.06	4.49	4.56	—	15,703	15,703	0.58	0.59	0.23	15,895
Apartments Mid Rise	9.94	8.98	6.64	79.9	0.24	0.10	27.8	27.9	0.10	7.05	7.15	—	24,638	24,638	0.91	0.93	0.37	24,939
Strip Mall	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	0.00
Total	16.3	14.7	10.9	131	0.40	0.17	45.5	45.6	0.16	11.5	11.7	—	40,341	40,341	1.50	1.53	0.60	40,834
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.15	1.03	0.78	9.56	0.03	0.01	3.19	3.20	0.01	0.81	0.82	—	2,630	2,630	0.10	0.10	0.64	2,663
Apartments Mid Rise	1.80	1.62	1.22	15.0	0.04	0.02	5.01	5.03	0.02	1.27	1.29	—	4,127	4,127	0.15	0.15	1.01	4,178
Strip Mall	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	0.00
Total	2.94	2.66	2.00	24.6	0.07	0.03	8.20	8.23	0.03	2.08	2.11	—	6,757	6,757	0.25	0.25	1.65	6,840

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,006	1,006	0.13	0.02	—	1,013
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	2,169	2,169	0.27	0.03	—	2,185
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	450	450	0.06	0.01	—	453

Total	—	—	—	—	—	—	—	—	—	—	—	—	3,624	3,624	0.46	0.06	—	3,652
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	1,006	1,006	0.13	0.02	—	1,013
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	2,169	2,169	0.27	0.03	—	2,185
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	450	450	0.06	0.01	—	453
Total	—	—	—	—	—	—	—	—	—	—	—	—	3,624	3,624	0.46	0.06	—	3,652
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	166	166	0.02	< 0.005	—	168
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	359	359	0.05	0.01	—	362
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	74.4	74.4	0.01	< 0.005	—	75.0
Total	—	—	—	—	—	—	—	—	—	—	—	—	600	600	0.08	0.01	—	605

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.18	0.09	1.51	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,918	1,918	0.17	< 0.005	—	1,923

Apartments	0.27	0.14	2.32	0.99	0.01	0.19	—	0.19	0.19	—	0.19	—	2,947	2,947	0.26	0.01	—	2,956
Strip Mall	0.01	0.01	0.10	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	123	123	0.01	< 0.005	—	123
Total	0.46	0.23	3.94	1.72	0.03	0.32	—	0.32	0.32	—	0.32	—	4,988	4,988	0.44	0.01	—	5,002
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.18	0.09	1.51	0.64	0.01	0.12	—	0.12	0.12	—	0.12	—	1,918	1,918	0.17	< 0.005	—	1,923
Apartments Mid Rise	0.27	0.14	2.32	0.99	0.01	0.19	—	0.19	0.19	—	0.19	—	2,947	2,947	0.26	0.01	—	2,956
Strip Mall	0.01	0.01	0.10	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	123	123	0.01	< 0.005	—	123
Total	0.46	0.23	3.94	1.72	0.03	0.32	—	0.32	0.32	—	0.32	—	4,988	4,988	0.44	0.01	—	5,002
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.03	0.02	0.28	0.12	< 0.005	0.02	—	0.02	0.02	—	0.02	—	318	318	0.03	< 0.005	—	318
Apartments Mid Rise	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	488	488	0.04	< 0.005	—	489
Strip Mall	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	20.4	20.4	< 0.005	< 0.005	—	20.4
Total	0.08	0.04	0.72	0.31	< 0.005	0.06	—	0.06	0.06	—	0.06	—	826	826	0.07	< 0.005	—	828

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	26.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	2.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	6.71	6.34	0.65	70.9	< 0.005	0.04	—	0.04	0.03	—	0.03	—	193	193	0.01	< 0.005	—	193
Total	6.71	35.2	0.65	70.9	< 0.005	0.04	—	0.04	0.03	—	0.03	0.00	193	193	0.01	< 0.005	—	193
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	26.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	2.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	28.9	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	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
Consumer Products	—	4.87	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.84	0.79	0.08	8.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.9	21.9	< 0.005	< 0.005	—	21.9
Total	0.84	6.07	0.08	8.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	21.9	21.9	< 0.005	< 0.005	—	21.9

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	26.2	69.1	95.3	2.70	0.06	—	182
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	59.1	155	214	6.08	0.15	—	410
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	9.10	23.4	32.5	0.94	0.02	—	62.6
Total	—	—	—	—	—	—	—	—	—	—	—	94.4	248	342	9.72	0.23	—	655
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	26.2	69.1	95.3	2.70	0.06	—	182
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	59.1	155	214	6.08	0.15	—	410
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	9.10	23.4	32.5	0.94	0.02	—	62.6
Total	—	—	—	—	—	—	—	—	—	—	—	94.4	248	342	9.72	0.23	—	655
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	4.34	11.4	15.8	0.45	0.01	—	30.1
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	9.79	25.7	35.5	1.01	0.02	—	67.9
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	1.51	3.88	5.38	0.15	< 0.005	—	10.4
Total	—	—	—	—	—	—	—	—	—	—	—	15.6	41.0	56.7	1.61	0.04	—	108

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.6	0.00	—	512
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	330	0.00	330	33.0	0.00	—	1,155
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	36.3	0.00	36.3	3.62	0.00	—	127
Total	—	—	—	—	—	—	—	—	—	—	—	512	0.00	512	51.2	0.00	—	1,793
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.6	0.00	—	512

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	330	0.00	330	33.0	0.00	—	1,155
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	36.3	0.00	36.3	3.62	0.00	—	127
Total	—	—	—	—	—	—	—	—	—	—	—	512	0.00	512	51.2	0.00	—	1,793
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	24.2	0.00	24.2	2.42	0.00	—	84.7
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	54.6	0.00	54.6	5.46	0.00	—	191
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	6.00	0.00	6.00	0.60	0.00	—	21.0
Total	—	—	—	—	—	—	—	—	—	—	—	84.8	0.00	84.8	8.48	0.00	—	297

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.79	2.79
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.69	5.69
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.88	8.88

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.79	2.79
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.69	5.69
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.88	8.88
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.94	0.94
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.47	1.47

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

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Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

Apartments Low Rise	2,428	2,428	2,428	886,246	24,946	24,946	24,946	9,105,311
Apartments Mid Rise	3,810	3,810	3,810	1,390,514	39,140	39,140	39,140	14,286,170
Strip Mall	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	367
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	828
Conventional Wood Stoves	0

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Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
2397397.5	799,133	96,116	32,039	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	1,407,462	261	0.0330	0.0040	5,984,183
Apartments Mid Rise	3,035,311	261	0.0330	0.0040	9,196,466
Strip Mall	629,324	261	0.0330	0.0040	383,625

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Apartments Low Rise	13,679,485	666,825
Apartments Mid Rise	30,862,706	1,362,516
Strip Mall	4,746,345	89,865

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	271	—
Apartments Mid Rise	612	—
Strip Mall	67.3	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

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Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.52	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

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

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	32.1
AQ-PM	72.0
AQ-DPM	95.6
Drinking Water	8.95
Lead Risk Housing	48.9
Pesticides	0.00
Toxic Releases	89.9
Traffic	62.7
Effect Indicators	—
CleanUp Sites	58.6
Groundwater	69.2
Haz Waste Facilities/Generators	98.7
Impaired Water Bodies	58.7
Solid Waste	39.0
Sensitive Population	—
Asthma	12.8
Cardio-vascular	22.0

Low Birth Weights	19.6
Socioeconomic Factor Indicators	—
Education	6.52
Housing	33.2
Linguistic	4.59
Poverty	23.7
Unemployment	58.4

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	82.8564096
Employed	92.6344155
Median HI	71.46156807
Education	—
Bachelor's or higher	79.82805081
High school enrollment	100
Preschool enrollment	35.76286411
Transportation	—
Auto Access	74.57975106
Active commuting	69.25445913
Social	—
2-parent households	91.08174002
Voting	57.05119979
Neighborhood	—
Alcohol availability	23.32862826

Park access	81.35506224
Retail density	45.61786218
Supermarket access	2.399589375
Tree canopy	4.632362376
Housing	—
Homeownership	17.68253561
Housing habitability	76.6970358
Low-inc homeowner severe housing cost burden	78.73732837
Low-inc renter severe housing cost burden	95.39330168
Uncrowded housing	59.34813294
Health Outcomes	—
Insured adults	73.78416528
Arthritis	0.0
Asthma ER Admissions	84.5
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	68.8
Cognitively Disabled	87.2
Physically Disabled	80.2
Heart Attack ER Admissions	65.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0

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Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	31.0
Elderly	69.3
English Speaking	78.4
Foreign-born	14.4
Outdoor Workers	77.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	19.2
Traffic Density	43.5
Traffic Access	23.0
Other Indices	—
Hardship	11.3
Other Decision Support	—
2016 Voting	48.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	26.0

Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Trip rates based on: Kimley Horn, City of El Segundo Density Increase Trip Generation, August 27, 2023.
Operations: Hearths	No fireplaces or woodstoves for multi-family units.

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RESOLUTION NO. 2935
EXHIBIT "B"

El Segundo General Plan Land Use Element Excerpt - Page 3-6

Modify the following text on page 3-6

Residential Designations

Single-Family Residential
Permits one single-family home on one legal lot at a maximum density of eight dwelling units per acre. The minimum lot size for new lots is 5,000 square feet.

Two-Family Residential
Permits two residences on one legal lot, either attached or detached, at a maximum density of 12 dwelling units per acre. The minimum lot size for new lots is 7,000 square feet.

Multi-Family Residential
Permits multiple dwelling units in either a condominium or apartment configuration. A condominium or apartment is a structure or group of structures containing three or more dwelling units, as defined by the Zoning Code. The maximum permitted density for multi-family residential is ~~27~~**30** dwelling units per acre ~~on properties equal to or less than 15,000 square feet and 18 du/ac on properties greater than 15,000 square feet.~~ **except for properties that have the Housing Overlay (H-O) designation that permits a maximum density of 60 dwelling units per acre."**

540 East Imperial Avenue Specific Plan
Permits a mix of residential uses with two possible development options. Option 1 would allow up to a maximum of 304 units in a Senior Housing Community with a Multi- Family Residential (R- 3) component, or Option 2 would allow up to a maximum of 58 units in a Mixed Residential Development (single-family and multi-family units). This designation is intended to encourage design flexibility and provide transitional densities and uses that are compatible with surrounding land uses. This designation is not intended to be used elsewhere within the City.

Pacific Coast Commons Specific Plan
Permits a mix of hotel, commercial, and residential uses. The existing Fairfield Inn & Suites by Marriott and Aloft Hotels, which have 350 and 246 rooms respectively remain and are considered conforming uses. The maximum allowed gross floor area for the commercial uses is 11,252 square feet. The maximum number of residential units is 263.

“**Housing Overlay**
The overlay applies in combination with the Multi-Family Residential designation to properties identified in the General Plan Housing Element. Permits multiple dwelling units at high densities to facilitate meeting the City’s Regional Housing Needs Allocation (RHNA) and Housing Element goals. The maximum permitted density in the Housing Overlay is 60 dwelling units per acre.”

“Mixed-Use Overlay
The overlay applies in combination with Commercial designations to properties identified in the General Plan Housing Element. Permits multiple dwelling units at high densities in combination with permitted commercial uses to facilitate meeting the City’s Regional Housing Needs Allocation (RHNA) and Housing Element goals. The maximum permitted residential density in the Mixed-Use Overlay is 75 dwelling units per acre.”

RESOLUTION NO. 2935
EXHIBIT "C"

General Plan Land Use Plan Excerpt Pages 3-10 thru 3-12

Modify the following text on pages 3-10 and 3-12:

Proposed Land Use Plan

"The following is a discussion of the 1992 Land Use Plan, which indicates future land uses for the entire City. For ease of discussion, the City is divided into four quadrants and the proposedland use designations within that quadrant are discussed. To knowwhat is allowed under each designation, please reference the land use definitions listed above.

Northwest Quadrant

The northwest quadrant of the City has the most varied mix of uses within the City. All of the City's residential units, the Downtown area, the Civic Center, and the older industrial area of SmokyHollow, are located in this quadrant. The 1992 Plan retains the three residential designations found on the old Plan: single-family, two-family, and multi-family, ~~plus two new designations of~~**the** 540 East Imperial Avenue Specific Plan **(2012),** and **the** Pacific Coast Commons Specific Plan **(2022)**, which is a mixed-use, high-density residential and commercial designation. **In addition, this quadrant contains two high-density overlay designations added in 2024: the Mixed-Use Overlay and the Housing Overlay. These two designations occupy 4.47 and 5.56 acres respectively and apply over the existing multi-family and commercial designations. The overlay designations are projected to generate approximately 678 additional dwelling units to help meet the 2021-2029 Housing Element Regional Housing Needs Allocation (RHNA) goals.** The Plan shows 357.2 acres of single-family, 57.4 acres of two-family, 126.74 acres of multi- family, 5.65 acres of 540 East Imperial Avenue Specific Plan**,** and 6.38 acres of Pacific Coast Commons Specific Plan. The total number of dwelling units projected by the Plan is ~~8,089~~[1]**8,767**. One of the major goals of the 1992 Plan is to preserve the residential neighborhoods.

The Smoky Hollow area, which houses many of the City's older industrial uses, has been designated Smoky Hollow Specific Plan. The Specific Plan allows a combination of office, industrial, research and development, public facilities, parking facilities, and limited retail and restaurant uses. The Smoky Hollow area is approximately 94.3

acres.

The 222 Kansas Street Specific Plan (222 KSSP) consists of 4.83 acres, which were previously a part of the Smoky Hollow area. The 222 Kansas Street Specific Plan permits primarily office, light industrial, manufacturing, and research and development uses. The southerly portion may be used for governmental purposessubject to a development agreement. Commercial retail and restaurant uses are prohibited.

The Downtown area is designated as Downtown Commercial (8.4acres) and Downtown Specific Plan (26.3 acres), where existing uses are already of a community-serving nature. There are also 7.0 acres designated for Neighborhood Commercial uses along Grand and Imperial Avenues and at Mariposa and Center Streets. These have been designated only where there are existing neighborhood-serving commercial uses.

The public schools, private schools, Library, and other public uses are all shown as Public Facilities. The Civic Center is included in the Downtown Specific Plan area. In addition, each of the existing public parks are designated as such. The open space areas under utility transmission corridors and the preserve for the Blue Butterfly are designated as Open Space.

The areas designated for parking on the Plan include public- and privately-owned lots which are necessary to serve existing businesses and the Downtown area.

The southwest corner of Pacific Coast Highway and Imperial Avenue is designated Corporate Office (17.8 ac) allowing a mix of office uses, similar to what exists there now, with retail in the lobby.

There are General Commercial uses indicated along Pacific Coast Highway, where there are existing commercial uses. There is also one General Commercial area along Imperial Avenue, where the Crown Sterling Suites Hotel now exists."

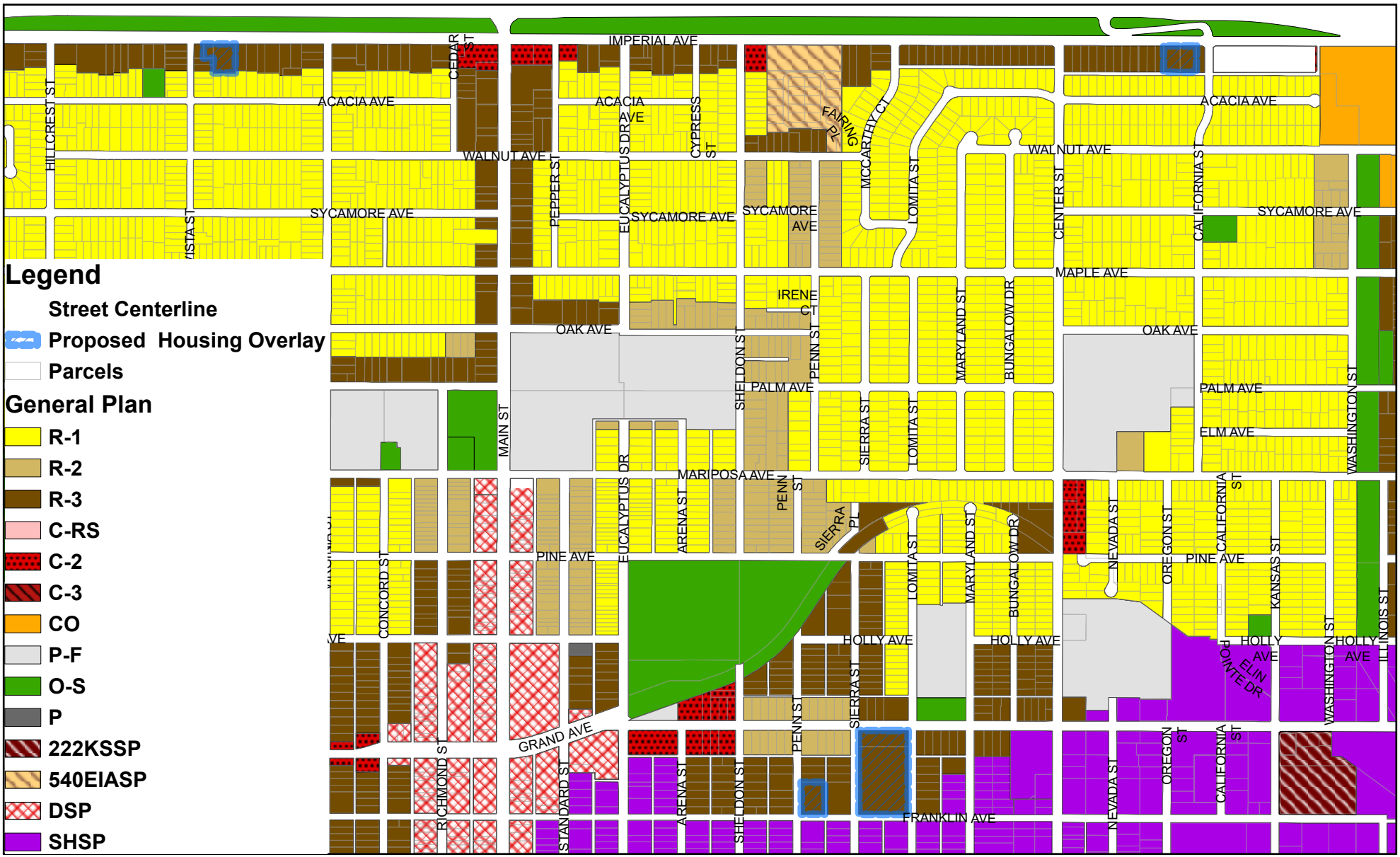
~~[1] The new total of 8,089 represents the maximum number of units developed under Option 1 of the 540 East Imperial Avenue Specific Plan. This number will be lower (7,843 units) if Option 2 is developed with a maximum of 58 units.~~

RESOLUTION NO. 2935
EXHIBIT "D"
GENERAL PLAN LAND USE PLAN EXISTING TRENDS BUILDOUT

1992 General Plan Summary of Existing Trends Buildout			
Land Use Category	Acres	Dwelling Units	Square Footage
Single-Family Residential	357.2	2,858	-
Two-Family Residential	57.4	934	-
540 East Imperial Avenue Specific Plan	-	-	-
	5.65	~~304~~[3] **58**	-
Multi-Family Residential	119.7	3,531	-
Pacific Coast Commons Specific Plan	6.38	263	293,650
Mixed-Use Overlay[3]	-	**335**	-
Housing Overlay[3]	-	**195**	-
Neighborhood Commercial	6.6	85[1]	89,110
Downtown Commercial	8.8	18[1]	383,328
General Commercial	32.62	-	1,421,093
Corporate Office	213.62	-	12,461,324
Commercial Center	85.8	-	850,000
Smoky Hollow Specific Plan	94.3	126	2,973,010
Urban Mixed-Use North	232.5	-	13,166,010
Urban Mixed-Use South	70.6	-	3,997,936
124th Street Specific Plan	3.9	1	73,530
Aviation Specific Plan	5.4	-	66,000
Downtown Specific Plan	26.3	232[1]	1,145,628
Corporate Campus Specific Plan	46.5	-	2,550,000
199 North Continental Boulevard Specific Plan	1.75	-	70,132
222 Kansas Street Specific Plan	4.65	-	121,532
888 No. Sepulveda Boulevard Specific Plan	2.98	-	206,710
El Segundo South Campus Specific Plan	142.28	-	4,231,547
Parking	9.95	-	-
Light Industrial	213.82	-	16,190,266
Heavy Industrial	1001	-	-[2]
Public Facilities	87.9	-	-
Federal Government	90.6	-	-
Open Space	77.0	-	-
Parks	50		-
Street and Railroad R.O.W	442.6	-	-
Totals	3,497	~~8,352~~**8,617**	60,290,806
Population Projection	17,287		

1 Existing construction and recently constructed, renovated commercial centers and legal non-conforming residential uses at densities that are currently higher than allowed by the land use designations in this plan will not realistically be converted to mixed commercial/residential uses and these buildings are expected to remain for the life of the Plan.
2 The heavy industrial shown on this plan includes the Chevron Refinery and former Southern California Edison Generation Station. These facilities have processing equipment and tanks rather than buildings and are expected to remain for the life of the Plan. Therefore, no estimated building square footage is shown.
3 ~~This number represents the maximum number of dwelling units that can be developed in Option 1 of the 540 East Imperial Avenue Specific Plan. If Option 1 is not built, the maximum number of units that can be developed in Option 2 of the 540 East Imperial Avenue Specific Plan is 58 residential dwelling units.~~**The Mixed-Use Overlay and the Housing Overlay apply to nine sites over (and in addition to) the existing multi-family and commercial land use designations. The projected number of dwelling units within the overlays are in addition to any existing dwelling units on the applicable sites.**

Resolution No. 2935 - Exhibit "E"

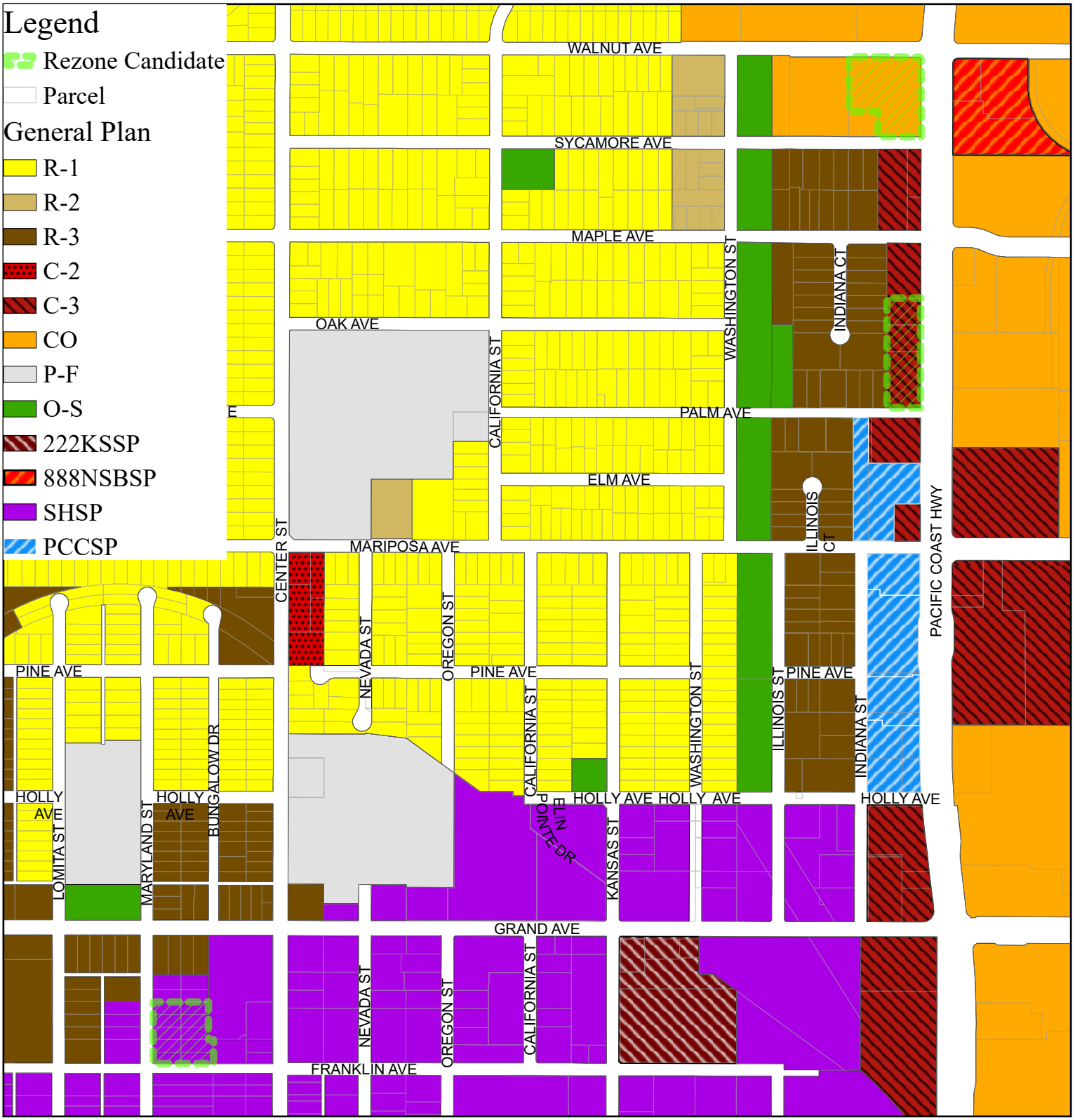


City of El Segundo

Proposed Housing Overlay
over the existing General Plan

538

Resolution No. 2935 - Exhibit "E"



City of El Segundo

Proposed Mixed-Use Overlay
over the existing General Plan

N W E S

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EXHIBIT "F" TO PLANNING COMMISSION RESOLUTION NO. 2935

ORDINANCE NO. ____

AN ORDINANCE APPROVING ZONE CHANGE NO. ZC 23-01 AND ZONE TEXT AMENDMENT NO. ZTA 23-01 IMPLEMENTING HOUSING ELEMENT PROGRAM NO. 6 (PROVISION OF ADEQUATE SITES) AND PROGRAM NO. 9 (EL SEGUNDO MUNICIPAL CODE AMENDMENTS).

The City Council of the city of El Segundo does ordain as follows:

SECTION 1: The Council finds and declares as follows:

A. On November 15, 2022, the City Council adopted a general plan amendment approving the City's updated 2021-2029 Housing Element;

B. On January 17, 2023 the Department of Housing and Community Development ("HCD") indicated in correspondence to the City that the Housing Element was consistent with State Housing Law, however, it conditioned certification of the Housing Element on completion of the rezoning identified in Program No. 6 (Provision of Adequate Sites) and on making sufficient progress on the implementation of all other Housing Element programs;

C. On March 22, 2023, the City initiated an application for Environmental Assessment No. EA 1344, General Plan Amendment No. GPA 23-01, Zone Change No. ZC 23-01, and Zone Text Amendment No. ZTA 23-01 to adopt an addendum to the previously certified environmental impact report ("EIR") for the El Segundo General Plan, approve a general plan amendment, and adopt a zone change and zone text amendment implementing Housing Element Program No. 6 (Provision Of Adequate Sites) and Program No. 9 (El Segundo Municipal Code ("ESMC") (Amendments);

D. The City reviewed the project's environmental impacts under the California Environmental Quality Act (Public Resources Code §§ 21000, *et seq.*, "CEQA"), the regulations promulgated thereunder (14 Cal. Code of Regulations §§15000, *et seq.*, the "CEQA Guidelines");

E. The Community Development Department completed its review and scheduled a public hearing regarding the application before the Planning Commission for March 28, 2024;

F. On March 14, 2024, notice of a public hearing on the proposed amendments to ESMC Title 14 (Subdivision), ESMC Title 15, the General Plan Land Use Element, the General Plan Land Use Map, and the Zoning Map was published in the *El Segundo Herald* and mailed to all property owners within 300 feet of the proposed overlay districts;

G. On March 28, 2024, the Planning Commission held a public hearing to receive public testimony and other evidence regarding the application including, without limitation, information provided to the Planning Commission by city staff; and, adopted Resolution No. 2935 recommending that the City Council approve the proposed amendments set forth in this Ordinance;

H. On _____, 2024, notice of a public hearing on the proposed amendments to ESMC Title 14 (Subdivision), ESMC Title 15 (Zoning), the General Plan Land Use Element, the General Plan Land Use Map, and the Zoning Map was published in the *El Segundo Herald* and mailed to all property owners within 300 feet of the proposed overlay districts;

I. On _____, 2024, the City Council held a public hearing and considered the information provided by City staff and public testimony regarding this Ordinance; and

J. This Ordinance and its findings are made based upon the entire administrative record including, without limitation, testimony and evidence presented to the City Council at its _____, 2024 hearing and the staff report submitted by the Community Development Department.

SECTION 2: *Factual Findings and Conclusions*. The City Council finds as follows:

A. Government Code Section 65583 establishes the required contents and analysis in the General Plan Housing Elements in local jurisdictions;

B. Government Code Section 65584 mandates HCD to provide a determination of a region's existing and projected housing needs. It also mandates the Southern California Association of Governments ("SCAG") to allocate the housing needs among local jurisdictions in the SCAG region in the Regional Housing Needs Assessment ("RHNA") process;

C. The RHNA allocation for El Segundo during the 2021-2029 period is 521 dwelling units that are affordable to households of different income levels, including 131 units at above moderate income, 84 at moderate income, 99 at low income, and 207 at very low income;

D. Program 6 (Provision of Adequate Sites) of the 2021-2029 Housing Element calls for specific rezoning actions, the establishment of objective development standards, and streamlining of residential development projects containing affordable units, to help the City meet its RHNA allocation goal;

E. Program 9 (ESMC Amendments) calls for specific amendments to the municipal code that will remove constraints from and incentivize the construction of housing, including transitional and supportive housing, micro-unit housing, residential care facilities, emergency shelters, low barrier navigation centers, employee housing senior housing, and housing for individuals with disabilities. The program also calls for increasing the maximum permitted density in the R-3 zone and revising the site plan review application findings to make them objective and provide more certainty in application outcomes;

F. The proposed General Plan Amendment will create a new Mixed-Use Overlay designation that applies to four sites covering 4.47 acres. The overlay applies over—and in addition to— the existing Corporate Office, General Commercial, and Parking land use designations for the sites (Exhibit B). The maximum permitted density in the Mixed-Use Overlay designation is 75 dwelling units per acre and will result in the construction of up to 335 additional dwelling units (Exhibit D);

G. The proposed General Plan Amendment will create a new Housing Overlay designation that applies to five sites covering 5.56 acres. The overlay applies over—and in addition to—the existing Multi-Family Residential land use designation for the sites. The maximum permitted density in the Mixed-Use Overlay designation is 65 dwelling units per acre and will result in the construction of up to 193 additional dwelling units (Exhibit D);

H. The proposed General Plan Amendment will change the maximum permitted density in the Multi-Family Residential land use designation from 27 dwelling units per acre to 30 dwelling units per acre;

I. The proposed Zone Change will apply a new Mixed-Use Overlay to four sites covering 4.47 acres. The overlay will apply over—-and in addition to—the existing Corporate Office (CO), General Commercial (C-3), and Parking (P) zoning for the sites (Exhibit F);

J. The proposed Zone Change will apply a new Housing Overlay to five sites covering 5.56 acres. The overlay will apply over—and in addition to—the existing Multi-Family Residential (R-3) zoning for the sites (Exhibit F);

K. The proposed Zone Text Amendment will:

1. add the Mixed-Use Overlay (MU-O) and Housing Overlay (HO) to ESMC Section 15-3-1 (Designation of Zone Names);

2. amend ESMC Article 15-4D Multi-Family Residential (R-3) zone to change the maximum permitted density to 30 dwelling units per acre and update other development standards in the R-3 zone.

3. add a new ESMC Article 15-7(C) Mixed Use Overlay (MU-O) incorporating development standards for higher density mixed-use commercial and residential projects;

4. add a new ESMC Article 15-7(D) Housing Overlay (H-O) incorporating development standards for higher density residential projects;

5. amend ESMC Section 15-25-4 Site Plan Review Findings to streamline and ensure approval of multi-family residential projects; and

6. amend ESMC Title 14 (Subdivisions) to permit subdivisions involving up to 10-lots or units ministerially, without discretion or public hearings.

SECTION 3: *Zone Change Findings.* As required under ESMC § 15-27-3 and based on the findings set forth in Section 2, the City Council finds:

A. The amendment is consistent with the General Plan.

The proposed zoning amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment will increase the density and permitted height only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on the vast majority of properties in the northwest quadrant of the City.

The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it will preserve and protect existing Single-Family Residential uses. The proposed amendment does not alter the zoning of any existing Single-Family Residential (R-1) properties; it affects only properties zoned Commercial or Multi-Family Residential (R-3).

The proposed general plan amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and proposed densities are adequate to meet the City's 6th cycle RHNA

requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

Further, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment direct implements the Fair Housing Program objective to rezone adequate sites to allow high density residential development and meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

B. The amendment is necessary to serve the public health, safety, and general welfare.

The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new zoning overlays that allow high density residential development on nine specific sites. Four of those sites currently have a commercial zoning designation and will allow high density residential uses in combination with other permitted commercial uses. Five of the sites are currently zoned Multi-Family Residential (R-3) and will allow high density residential uses in a manner that is compatible with surrounding uses.

Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will rezone an adequate number of sites to meet the 6th cycle RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of CEQA. It was determined that the proposed amendments will not result in greater impacts than the impacts analyzed in the previously certified EIR for the General Plan.

C. There are changed conditions since the existing zoning became effective to warrant other or additional zoning.

There are changed conditions since the existing zoning became effective to warrant the addition of the proposed Mixed-Use and Housing Overlays. In 2019, the California enacted the Housing Crisis Act of 2019 (SB 330), which declared a housing crisis in California. This and other laws adopted recently

imposed obligations on cities to facilitate housing production, including strict requirements on local housing elements. For the 6th cycle RHNA, El Segundo's allocation is 521 housing units, including 279 affordable housing units. The City conducted an analysis of the feasibility of facilitating construction of 521 under existing zoning and determined that it would infeasible. Consequently, on November 15, 2022, the City adopted its 2021-2029 Housing Element, which includes Program No. 6 to rezone an adequate number of sites allow high density residential development. The proposed amendment directly implements Housing Element Program No. 6, which is critical in meeting the City's RHNA obligations.

D. The benefits of the proposed change of zone will clearly outweigh any potential adverse effects to adjoining property or the area.

The proposed zone change will help the City meets its General Plan Housing Element Goal No. 3 to provide opportunities for new housing construction in a variety of locations and a variety of densities. The proposed Mixed-Use and Housing overlays provide an opportunity and variety of locations for the construction of new housing units at high densities. The City provides existing locations that permit construction of single-family, low density residential developments in its Single-Family Residential (R-1) and Two-Family Residential (R-2) zones. It also provides locations that permit construction of multi-family, medium density residential developments in its Multi-Family Residential (R-3) zone. Thus, the proposed overlays will address the need for high density residential locations in the City.

The proposed zone change directly implements Housing Element Program No. 6 to provide adequate sites to meet the assigned RHNA of 521 housing units, including 279 affordable housing units at the moderate, low, and very low income categories. In addition, the zone change helps address the need for housing for various population groups, which is identified in the Housing Element.

Further, the proposed zone change directly addresses an HCD requirement that will result in full certification of City's Housing Element, with all the accompanying benefits of certification, such as the ability to qualify for HCD and other State grant funding.

There is no evidence in the record to suggest that there will be significant adverse effects as a result of the proposed zone change.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of CEQA. It was determined that the proposed amendments will not result in greater impacts than the impacts analyzed in the previously certified EIR for the General Plan.

SECTION 4: *Zone Text Amendment Findings*. As required under ESMC § 15-27-3 and based on the findings set forth in Section 2, the City Council finds:

A. The amendment is consistent with the General Plan.

The proposed general plan amendment is consistent with General Plan Land Use Element Goal LU1: Maintenance of El Segundo's "Small Town" Atmosphere in that it preserves and maintains the City's low-medium density residential nature, with low building height profile and character, and minimum development standards. The proposed amendment will establish density, height, and other standards, to facilitate high density residential developments only on a limited number of properties in the proposed Mixed-Use and Housing overlays, thereby preserving the medium density and low building profile on vast majority of properties in the northwest quadrant of the City.

The proposed amendment is also consistent with General Plan Land Use Element Goal LU3: Proper Distribution of Residential Land Uses, in that it will preserve and protect existing Single-Family Residential uses. The proposed amendment does not alter the standards or designation of any existing Single-Family Residential properties; it affects only properties designated as Commercial or Multi-Family Residential.

The proposed zone text amendment is consistent with General Plan Housing Element Goal 3: Provide Opportunities for New Housing Construction in a Variety of Locations and Variety of Densities, in that the proposed amendment directly implements Program No. 6: Provision of Adequate Sites. Specifically, the proposed amendment implements the Mixed-Use Overlay and the Housing Overlay, which effectively rezone nine sites to allow high density residential development. The number of sites and proposed densities are adequate to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units. The proposed amendment also amends the ESMC to provide by right approval of projects on rezoned sites for lower income RHNA if the project provides 20 percent of the units as affordable housing for lower income households.

In addition, the proposed amendment is consistent with Housing Element Program No. 9: El Segundo Municipal Code Amendments (ESMC). The proposed amendment will increase the permitted maximum density in the

Multi-Family Residential (R-3) zone to 30 dwelling units per acre, which is adequate pursuant to Government Code section 65583.2(c)(3) to facilitate the development of low-and very low-income housing. The proposed amendment will also revise the findings for site plan review applications to ensure that the findings are objective and provide certainty in outcomes, which will help streamline and encourage construction of new housing.

Further, the proposed amendment is consistent with and directly implements Program No. 11: Fair Housing Program, which requires the City to undertake a number actions to affirmatively further fair housing. The proposed amendment directly implements the Fair Housing Program objective to rezone adequate sites and establish standards for high density residential development to meet the City's 6th cycle RHNA requirement of 279 units, including 184 very low income, 18 low income, and 77 moderate income units.

B. The amendment is necessary to serve the public health, safety, and general welfare.

The proposed amendment is necessary to serve the public health, safety, and general welfare in that it consists of planning for the orderly use of the City's land resources. The proposed amendment establishes two new overlays in the ESMC that allow high density residential development. The amendment establishes development standards for the two new overlays that will allow high density residential uses designed in a manner that is compatible with surrounding uses.

In addition, the proposed amendment will increase the permitted maximum density in the Multi-Family Residential (R-3) zone to 30 dwelling units per acre, which helps focus the increased density in the City's multi-family residential neighborhoods and preserves the character of those areas zoned Single-Family Residential (R-1).

Further, proposed amendment will directly facilitate and increase the opportunities for the construction of new housing to satisfy the housing needs of all segments of the community as described in General Plan Housing Element Program 6: Provision of Adequate Sites. The proposed amendment will help establish two new high density residential overlays on an adequate number of sites and it will streamline the Site Plan Review process to meet the 6th cycle RHNA requirement for 279 affordable housing units, including 184 very low income, 18 low income, and 77 moderate income units.

The proposed amendment is also necessary in that it is a requirement for the City to comply with State Housing Element Law and to maintain a certified Housing Element.

Finally, the potential environmental impacts generated by the proposed amendment were analyzed consistent with the requirements of the California Environmental Quality Act (CEQA). It was determined that the proposed amendments will have no greater impacts than the impacts analyzed in the Environmental Impact Report (EIR) for the General Plan.

SECTION 5: *Environmental Assessment.* The proposed project was analyzed for its environmental impacts and an Addendum to the previously certified EIR for the General Plan was prepared pursuant to CEQA Guidelines Section 15164. Under CEQA, an Addendum to a previously certified EIR is appropriate if minor changes or additions to the EIR are necessary to reflect the proposed modifications to the project in the environmental analysis and none of the conditions described in Section 15162 of the CEQA Guidelines calling for the preparation of a subsequent EIR or negative declaration have occurred (CEQA Guidelines §15164). Generally, the conditions described in Section 15162 have not occurred if the proposed modifications do not result in any new significant impacts or a substantial increase in the severity of previously identified significant impacts. The Addendum need not be circulated for public review (CEQA Guidelines §15164(c)); however, an addendum must be considered by the decision-making body before making a decision on the project (CEQA Guidelines §15164(d)).

This Addendum to the previously-certified EIR demonstrates that the environmental analysis, impacts, and mitigation measures identified in the 1992 EIR for the General Plan remain substantively unchanged despite the proposed project revisions. It supports the finding that the proposed project does not raise any new issues and does not exceed the significance level of impacts identified in the previously certified EIR. The mitigation measures listed in the certified EIR for the General Plan, are sufficient to reduce the identified environmental impacts to a less than significant level.

To evaluate the potential environmental impacts of the actions proposed in this Ordinance and the need for additional environmental review, the City conducted an initial study. Based on the findings of the initial study, an addendum was prepared. The Initial Study/Addendum dated March 2024, is incorporated herein by this reference, as though fully set forth.

Based on the findings and information yielded by the initial study/addendum:

1. There are no substantial changes proposed for the project that will require preparation of a subsequent or supplemental EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects.

   The proposed amendments would approve minor changes and additions described and analyzed in the previously certified final EIR ("FEIR"). There are no substantial changes resulting from the Ordinance that require major revisions to the FEIR. As detailed in the Initial Study/Addendum, the

Ordinance will not result in any new or increased environmental effects beyond those that were previously identified in the FEIR. In addition, all applicable mitigation measures set forth in the FEIR would continue to be implemented.

2. No substantial changes have occurred with respect to the circumstances under which the project is undertaken that would require preparation of a subsequent or supplemental EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

   There are no substantial changes to the facts, data, and mitigation measures included in the FEIR. The proposed amendments will not result in a General Plan that is substantially different from the plan evaluated in the FEIR, and the environmental circumstances applicable to the city have not changed substantially.

3. There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous FEIR was certified as complete, that shows any of the following: (i) The project will have one or more significant effects not discussed in the previous FEIR; (ii) Significant effects previously examined will be substantially more severe than shown in the previous FEIR; (iii) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or (iv) Mitigation measures or alternatives which are considerably different from those analyzed in the previous FEIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

No subsequent environmental review is required pursuant to Section 15162 of the CEQA Guidelines. Therefore, the proposed amendments to the Zoning Map and Zoning Code contemplated herein are within the scope of the project covered by the General Plan EIR and, pursuant to Section 15168(c)(2) of the CEQA Guidelines, no further environmental review is required.

In addition, the proposed zone text amendments to the Subdivision, Site Plan Review, and certain affordable housing application procedures are exempt from the requirements of CEQA, pursuant to the “common sense” exemption in CEQA Guidelines Section 15061(b)(3), because they consist only of minor revisions to existing zoning regulations and related procedures and do not have the potential for causing a significant effect on the environment.

SECTION 6: ESMC Section 14-1-4 is amended to add the following subsection E:

* * *

E. Residential 10-lot subdivision: Notwithstanding the above, residential subdivision requests for up to 10 lots must be approved by the Community Development Director if said subdivision requests comply with the provisions and applicable requirements specified in ESMC Chapter 15-4 (Residential Zones) and Government Code section 66499.41. No public hearing or public hearing notification shall be required.

SECTION 7: ESMC Section 15-3-1 (Designation of Zone Names) is amended in its entirety to read as follows:

15-3-1: DESIGNATION OF ZONE NAMES:

In order to classify, regulate, restrict and segregate the uses of lands and buildings, to regulate and restrict the height and bulk of buildings, to regulate the area of yards and other open spaces about buildings, and to regulate the density of population, the classes of use zones are by this title established, to be known as follows:

R-1	Single-Family Residential Zone
R-2	Two-Family Residential Zone
R-3	Multi-Family Residential Zone
C-RS	Downtown Commercial Zone
C-2	Neighborhood Commercial Zone
C-3	General Commercial Zone
CO	Corporate Office Zone
MU-N	Urban Mixed Use North Zone
MU-S	Urban Mixed Use South Zone
C-4	Commercial Center Zone
M-1	Light Industrial Zone
M-2	Heavy Industrial Zone
MDR	Medium Density Residential Overlay Zone
MMO	Multimedia Overlay District
MU-O	Mixed-Use Overlay
H-O	Housing Overlay
O-S	Open Space Zone
P	Automobile Parking Zone
P-F	Public Facilities Zone

SECTION 8: ESMC Section 15-4D-3 (R-3 zone Site Development Standards) is amended as follows:

15-4D-3: SITE DEVELOPMENT STANDARDS:

* * *

F. Minimum Unit Size ~~and Density~~: The minimum dwelling unit size shall be 250 square feet ~~and the density shall be as follows:~~

~~1. On property of 15,000 square feet or less in size, one unit for every 1,613 square feet of lot area is allowed. A fraction of a lot greater than 1,075 square feet will allow an additional unit.~~

~~2. On property greater than 15,000 square feet in size, one unit for every 2,420 square feet of lot area is allowed. A fraction of a lot greater than 1,613 square feet will allow an additional unit~~.

G. Density: The maximum permitted density shall be 30 dwelling units per acre.

~~G~~H. Placement of buildings and structures:

1. A minimum distance of three feet must be maintained between buildings;

2. A detached accessory structure in the rear one-third of the lot may be located on the rear and one interior side lot line, unless one of the following conditions exists:

a. Where the lot rears upon an alley and the vehicular entrance to the detached accessory structure is from the alley, such detached accessory structure shall be set back a distance measured from the opposite side of the alley that will provide a turning radius as follows:

90 degrees - 25 feet
75 degrees - 21 feet
60 degrees - 18 feet
45 degrees - 15 feet

b. On the rear third of a reversed corner lot, a detached accessory structure may be built to the interior lot side line, but no building shall be erected closer than five feet to the property line of any abutting lot to the rear. However, if an alley intervenes and the vehicular entrance to the detached accessory building is directly from the street side, a detached accessory building may be built to the rear lot line.

c. Notwithstanding the above, a detached accessory dwelling unit must be set back at least four feet from interior side and rear property lines.

~~H~~I. Lot Coverage: All buildings, including detached accessory buildings, shall not cover more than 53 percent of the area of the lot.

~~I~~J. Open space and recreation requirements: The following minimum open space and

recreational facilities must be provided:

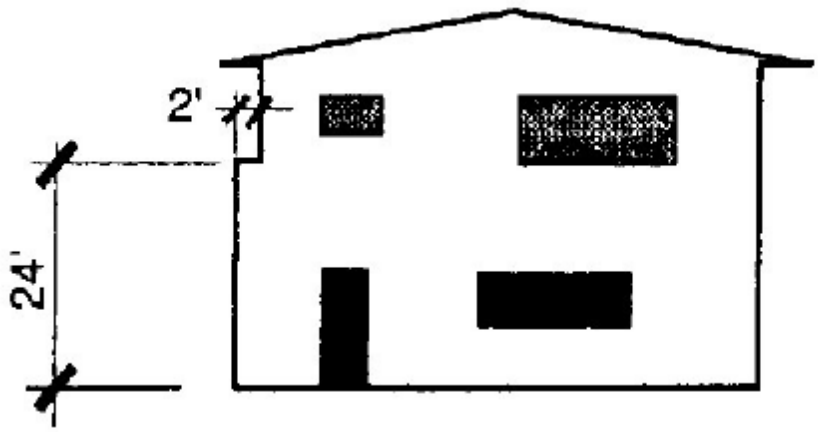
Number Of Units	Private Open Space Per Unit	Common Open Space Per Unit	Recreational Facilities Per Unit
4 or fewer	50 square feet	150 square feet	
5 - 9	50 square feet	200 square feet	
10 - 20	50 square feet	250 square feet	
21 and above	50 square feet	250 square feet	50 square feet

All required open space and recreational facilities are in addition to the required front and street side setbacks. Interior side and rear setbacks may be considered as required open spaces and recreation facilities. All required common open space must: 1) be ~~physically or visually~~ accessible to ~~the~~all residents, 2) be a minimum of five feet in both length and width, and 3) include a minimum of 50 percent of softscape landscaping.

1. Adjustments: The Director may approve adjustments from the minimum open space dimensions and landscaping percentage standards as provided in Chapters 22 and 23 of this Title.

~~J~~K. Building Wall Modulation: No plane of a building wall facing a property line shall exceed 24 feet in height or length without at least a two-foot offset for a minimum length of six feet in the wall plane. When expanding or adding onto the height or length of an existing building wall, only the expansion or addition shall not exceed 24 feet without wall modulation. Below is an example of wall modulation for walls up to 30 feet:

Total wall length or height (in feet)	Maximum length of unbroken wall plane (in feet)	Minimum length of 2-foot offset (in feet)
24	24	0
25	24	1
26	24	2
27	24	3
28	24	4
29	24	5
30	24	6


2'
24'

L. Landscaping:

1. Except where not allowed per the placement of existing utilities, one deciduous or evergreen on-site tree must be provided per 25 feet of street-facing frontage length along the front-yard, rear-yard, and street-facing side-yard setbacks.

a. Trees must be planted within a maximum of ten feet of the property line.

2. Those setback areas fronting upon a public street must incorporate a minimum of 50 percent softscape and a maximum of 50 percent hardscape in the landscape, except for those portions devoted to vehicular parking. In addition, those portions of the property which abut a different zoning classification must be landscaped with trees and shrubs to provide an effective buffer from adjoining property.

3. The setback areas may contain artificial turf or synthetic grass in the side and rear yards only, provided that it: 1) is not harmful to the environment (such as containing lead based or other hazardous materials); 2) includes a pervious surface to address percolation, drainage, runoff, and stormwater detention requirements; and 3) is incorporated into a comprehensive landscaping design and site plan.

4. Drought-tolerant plants must be utilized in the landscape.

~~K~~M. Condominium Conversions: Condominiums and stock cooperatives converted from multiple-family dwellings shall meet all the requirements for condominiums in effect at the time they were originally constructed. If there were no condominium standards in effect at the time of construction, the conversion shall comply with the condominium standards of ordinance 898, adopted January 20, 1976.

~~L~~N. Detached Accessory Buildings:

1. Unless permitted as an accessory dwelling unit pursuant to article 15-4E of this title, buildings shall not contain a kitchen or kitchen facilities, a bathtub or shower and shall not be used for sleeping purposes.

2. Detached accessory buildings, except detached accessory dwelling units, shall not be rented or used as a separate dwelling unit or as an "R" occupancy, as defined by the California Building Code, except that they may contain a sink and a toilet.

3. Prior to issuance of a building permit for a detached accessory structure, except a detached accessory dwelling unit, the Director shall require the recording of a covenant to run with the land, which states that the accessory structure shall not be used as a dwelling unit or used in violation of this subsection.

SECTION 9: A new Article C (Mixed Use Overlay (MU-O) Zone) is added to Chapter 7 of Title 15 of the EMSC to read as follows:

ARTICLE C. MIXED-USE OVERLAY (MU-O) ZONE

SECTION:

15-7C-1: Purpose

15-7C-2: Development Standards

15-7C-3: Landscape

15-7C-4: Off Street Parking and Loading Spaces

15-7C-5: Signs

15-7C-6: Vehicular Access

15-7C-7: Affordable Housing Developments

15-7C-1: PURPOSE:

The purpose of this zone is to provide consistency with and implement policies related to those locations which are designated Mixed-Use Overlay on the General Plan land use map and in the General Plan text. This overlay permits multiple dwelling units at high densities in combination with permitted commercial uses to facilitate meeting the City's Regional Housing Needs Assessment (RHNA) allocation and Housing Element goals.

15-7C-2: DEVELOPMENT STANDARDS:

A. General Provisions:

1. As provided by chapter 2 of this title.
2. New dwelling units must be internally integrated and connected.
3. An addition to, or extension of, a dwelling unit, except a garage, must share a common wall and be internally integrated and connected to the existing dwelling unit.

B. Lot Area: A minimum of 7,000 square feet.

C. Height:

1. The height of all buildings or structures with a pitched roof shall not exceed 58 feet and four stories. Buildings or structures with a flat roof must not exceed 52 feet and four stories.

2. A maximum grade differential of six feet is permitted on sloping lots. The vertical height which exceeds the maximum grade differential limit is included in measuring the maximum building height. On sloped lots, a segmented grade plane may be applied to different portions of a building.

3. See section 15-2-3 of this title for exceptions to building height.

D. Setbacks:

1. Front Yard: Structures must maintain a minimum setback of 15 feet with the exception of structures fronting Franklin Avenue, where no setback is required. Entry gates for vehicular access must maintain a minimum setback of 20 feet.

a. Porches, verandas, courtyards, raised decks, or pergolas may encroach into the front-yard setback a maximum of six feet.

2. Side yard facing a side street: Ten percent of the width of the lot, but shall never be less than three feet and need not be more than five feet, except if parking garages or covered parking spaces face a street, then the setback shall be 20 feet.

3. Side yard facing an adjacent lot: Ten percent of the width of the lot on each side of the lot, but shall never be less than three feet and need not be more than five feet. Detached accessory structures, located in the rear one-third of the lot, are allowed zero setback on one interior side lot line.

4. Side yard, reversed corner: Reversed corner lots shall have the following side yard with a triangular area described as follows: one angle shall be formed by the rear and street side property lines, and the sides of this angle shall be 15 feet in length, measured along the rear and street side property lines. The third side of this triangle shall be a straight line connecting the two other lines at their endpoints. This triangular side yard setback area shall be in addition to the other side yard setback requirements described in subsections D2 and D3 of this section.

5. Rear Yard: A minimum of 10 feet.

6. Rear Yard: Detached accessory structures are allowed zero setback on the rear property line and on one interior lot side line in the rear one-third of the lot.

E. Lot Width: A minimum of 50 feet.

F. Unit size:

1. The minimum unit size per dwelling unit shall be 250 square feet.

2. The average unit size for all dwelling units shall be 600 square feet.

G. Density: The maximum permitted density shall be 75 dwelling units per acre.

H. Placement Of Buildings And Structures:

1. A minimum distance of three feet must be maintained between buildings.

2. A detached accessory structure in the rear one-third of the lot may be located on the rear and one interior side lot line, unless one of the following conditions exists:

a. Where the lot rears upon an alley and the vehicular entrance to the detached accessory structure is from the alley, such detached accessory structure shall be set back a distance measured from the opposite side of the alley that will provide a turning radius as follows:

i. 90 degrees – 25 feet

ii. 75 degrees – 21 feet

iii. 60 degrees – 18 feet

iv. 45 degrees – 18 feet

b. On the rear third of a reversed corner lot, a detached accessory structure may be built to the interior lot side line, but no building shall be erected closer than five feet to the property line of any abutting lot to the rear. However, if an alley intervenes and the vehicular entrance to the detached accessory building is directly from the street side, a detached accessory building may be built to the rear lot line.

c. Notwithstanding the above, a detached accessory dwelling unit must be set back at least four feet from interior side and rear property lines.

I. Lot Coverage: All buildings, including detached accessory buildings, may cover 100 percent of the lot area, except for any required setback and/or open space areas

J. Common Recreation Facility Requirements: A minimum of 50 square feet of common recreational facility space is required per unit for buildings with 21 or more units.

K. Building Frontage: No plane of a building wall facing a property line shall exceed 140 feet in width.

1. Developments that include more than one building shall maintain a minimum 25 feet open-to-the-sky separation to allow for landscape, courtyards, and passageways.

L. Massing Modulation: The top story of all new developments must be a maximum 70 percent of the largest floor area of the building.

1. If more than ten percent of the total number of dwelling units in a building are three or more-bedroom units, the top story must be a maximum of 90 percent of the largest floor area of the building.

M. Building Wall Modulation: No plane of a building wall facing a property line shall exceed 36 feet in height or length without at least a two-foot offset for a minimum length of six feet in the wall plane. When expanding or adding onto the height or length of an existing building wall, only the expansion or addition shall not exceed 36 feet without wall modulation. Below is an example of wall modulation for walls up to 43 feet:

Total Wall Length Or Height	Maximum Length Of Unbroken Wall Plane	Minimum Length Of 2 Foot Offset
36 feet	36 feet	0 feet
37 feet	36 feet	1 foot
38 feet	36 feet	2 feet
39 feet	36 feet	3 feet
40 feet	36 feet	4 feet
41 feet	36 feet	5 feet
42 feet	36 feet	6 feet

1. Buildings are exempt from the above wall modulation standard if at least one of the following components are integrated into the building design:

a. Windows that are recessed or projected at least three inches from the wall plane.

b. Three feet of landscaped building setback on street-facing sides in addition to the existing setback standards.

c. Two or more materials on street-facing facades.

N. Balconies: External Balconies facing R-1 zoned neighborhoods are prohibited.

O. Condominium Conversions: Condominiums and stock cooperatives converted from multiple-family dwellings shall meet all the requirements for condominiums in effect at the time they were originally constructed. If there were no condominium standards in effect at the time of construction, the conversion shall comply with the condominium standards of ordinance 898, adopted January 20, 1976.

P. Detached Accessory Buildings:

1. Unless permitted as an accessory dwelling unit pursuant to article 15-4E of this title, detached accessory buildings shall not contain a kitchen or kitchen facilities, a bathtub or shower and shall not be used for sleeping purposes. Each multi-family lot is permitted no more than two detached accessory dwelling units.

2. Detached accessory buildings, except detached accessory dwelling units, shall not be rented or used as a separate dwelling unit or as an "R" occupancy, as defined by the California Building Code, except that they may contain a sink and a toilet.

3. Prior to issuance of a building permit for a detached accessory structure, except a detached accessory dwelling unit, the Director shall require the recording of a covenant to run with the land, which states that the accessory structure shall not be used in violation of this subsection.

Q. Parking:

1. A minimum of one parking space per bedroom is required. No more than two parking spaces are required per unit.

2. See Section 15-15-6 for number of required commercial parking spaces.

3. Tandem and mechanical parking shall be permitted for two or more-bedroom units.

4. Notwithstanding the standards in this section, see Section 15-5-5 for additional parking area design standards.

15-7C-3: LANDSCAPING:

5. Except where not allowed per the placement of existing utilities, one deciduous or evergreen on-site tree must be provided per 25 feet of street-facing frontage length along the front-yard, rear-yard, and street-facing side-yard setbacks.

a. Trees must be planted within a maximum of ten feet of the property line.

6. Those setback areas fronting upon a public street must incorporate a minimum of 50 percent softscape and a maximum of 50 percent hardscape in the landscape, except for those portions devoted to vehicular parking. In addition, those portions of the property which abut a different zoning classification must be landscaped with trees and shrubs to provide an effective buffer from adjoining property.

7. The setback areas may contain artificial turf or synthetic grass in the side and rear yards only, provided that it: 1) is not harmful to the environment (such as containing lead based or other hazardous materials); 2) includes a pervious surface to address percolation, drainage, runoff, and stormwater detention requirements; and 3) is incorporated into a comprehensive landscaping design and site plan.

8. Drought-tolerant plants must be utilized in the landscape.

15-7C-4: OFF STREET PARKING AND LOADING SPACES:

Off-street parking shall be provided as required by Chapter 15 of this title.

15-7C-5: SIGNS:

Signs in the Mixed-Use Overlay Zone shall comply with the requirements of chapter 18 of this title.

15-7C-6: VEHICULAR ACCESS:

Where a Mixed-Used Overlay lot abuts an alley, vehicular access to the lot must be from the alley. Curb cuts and driveways must be installed in conformance with section 15-15-5 of this title.

15-7C-7: AFFORDABLE HOUSING DEVELOPMENTS

Mixed-use developments in which at least 20 percent of residential units are affordable to lower-income households shall be considered a by right use as defined in Government Code Section 65583.2.

SECTION 10: A new Article D (Housing Overlay (H-O) Zone) is added to Chapter 7 of Title 15 of the ESMC to read as follows:

ARTICLE D. HOUSING OVERLAY (H-O) ZONE

SECTION:

15-7D-1: Purpose

15-7D-2: Development Standards

15-7D-3: Landscape

15-7D-4: Off Street Parking and Loading Spaces

15-7D-5: Signs

15-7D-6: Vehicular Access

15-7D-7: Affordable Housing Developments

15-7D-1: PURPOSE:

The purpose of this zone is to provide consistency with and implement policies related to those locations which are designated Housing Overlay on the General Plan land use map and in the General Plan text. This overlay permits multiple dwelling units at high densities to facilitate meeting the City's Regional Housing Needs Assessment (RHNA) allocation and Housing Element goals.

15-7D-2: DEVELOPMENT STANDARDS:

The following development standards apply to the Housing Overlay parcels located in these four neighborhoods.

A. General Provisions:

1. As provided by chapter 2 of this title.
2. New dwelling units must be internally integrated and connected.

3. An addition to, or extension of, a dwelling unit, except a garage, must share a common wall and be internally integrated and connected to the existing dwelling unit.

B. Lot Area: A minimum of 7,000 square feet.

C. Height:

1. The height of all buildings or structures with a pitched roof shall not exceed 47 feet and three stories. Buildings or structures with a flat roof must not exceed 41 feet and three stories.

2. A maximum grade differential of six feet is permitted on sloping lots. The vertical height which exceeds the maximum grade differential limit is included in measuring the maximum building height. On sloped lots, a segmented grade plane may be applied to different portions of a building.

3. See section 15-2-3 of this title for exceptions to building height.

D. Setbacks:

1. Front Yard: Structures must maintain a minimum setback of 15 feet with the exception of structures fronting Franklin Avenue, where no setback is required. Entry gates for vehicular access must maintain a minimum setback of 20 feet.

a. Porches, verandas, courtyards, raised decks, or pergolas may encroach into the front-yard setback a maximum of six feet.

2. Side yard facing a side street: Ten percent of the width of the lot, but shall never be less than three feet and need not be more than five feet, except if parking garages or covered parking spaces face a street, then the setback shall be 20 feet.

3. Side yard facing an adjacent lot: Ten percent of the width of the lot on each side of the lot, but shall never be less than three feet and need not be more than five feet. Detached accessory structures, located in the rear one-third of the lot, are allowed zero setback on one interior side lot line.

4. Side yard, reversed corner: Reversed corner lots shall have the following side yard with a triangular area described as follows: one angle shall be formed by the rear and street side property lines, and the sides of this angle shall be 15 feet in length, measured along the rear and street side property lines. The third side of this triangle shall be a straight line connecting the two other lines at their endpoints. This triangular side yard setback area shall be in addition to the other side yard setback requirements described in subsections D2 and D3 of this section.

5. Rear Yard: A minimum of 10 feet.

6. Rear Yard: Detached accessory structures are allowed zero setback on the rear property line and on one interior lot side line in the rear one-third of the lot.

E. Lot Width: A minimum of 50 feet.

F. Unit size:

1. The minimum unit size per dwelling unit shall be 250 square feet.

2. The average unit size for all dwelling units shall be 600 square feet.

G. Density: The maximum permitted density shall be 65 dwelling units per acre.

H. Placement Of Buildings And Structures:

1. A minimum distance of three feet must be maintained between buildings.

2. A detached accessory structure in the rear one-third of the lot may be located on the rear and one interior side lot line, unless one of the following conditions exists:

a. Where the lot rears upon an alley and the vehicular entrance to the detached accessory structure is from the alley, such detached accessory structure shall be set back a distance measured from the opposite side of the alley that will provide a turning radius as follows:

i. 90 degrees – 25 feet

ii. 75 degrees – 21 feet

iii. 60 degrees – 18 feet

iv. 45 degrees – 18 feet

b. On the rear third of a reversed corner lot, a detached accessory structure may be built to the interior lot side line, but no building shall be erected closer than five feet to the property line of any abutting lot to the rear. However, if an alley intervenes and the vehicular entrance to the detached accessory building is directly from the street side, a detached accessory building may be built to the rear lot line.

c. Notwithstanding the above, a detached accessory dwelling unit must be set back at least four feet from interior side and rear property lines.

I. Lot Coverage: All buildings, including detached accessory buildings, may cover 100 percent of the lot area, except for any required setback and/or open space areas.

J. Common Recreation Facility Requirements: A minimum of 50 square feet of common recreational facility space is required per unit for buildings with 21 or more units.

K. Building Frontage: No plane of a building wall facing a property line shall exceed 140 feet in width.

1. Developments that include more than one building shall maintain a minimum 25 feet open-to-the-sky separation to allow for landscape, courtyards, and passageways.

L. Massing Modulation: The top story of all new developments must be a maximum 70 percent of the largest floor area of the building.

1. If more than ten percent of the total number of dwelling units in a building are three or more-bedroom units, the top story must be a maximum of 90 percent of the largest floor area of the building.

M. Building Wall Modulation: No plane of a building wall facing a property line shall exceed 36 feet in height or length without at least a two-foot offset for a minimum length of six feet in the wall plane. When expanding or adding onto the height or length of an existing building wall, only the expansion or addition shall not exceed 36 feet without wall modulation. Below is an example of wall modulation for walls up to 43 feet:

Total Wall Length Or Height	**Maximum Length Of Unbroken Wall Plane**	**Minimum Length Of 2 Foot Offset**
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40 feet	36 feet	4 feet
41 feet	36 feet	5 feet
42 feet	36 feet	6 feet

1. Buildings are exempt from the above wall modulation standard if at least one of the following components are integrated into the building design:

a. Windows that are recessed or projected at least three inches from the wall plane.

b. Three feet of landscaped building setback on street-facing sides in addition to the existing setback standards.

c. Two or more materials on street-facing facades.

N. Balconies: External Balconies facing R-1 zoned neighborhoods are prohibited.

O. Condominium Conversions: Condominiums and stock cooperatives converted from multiple-family dwellings shall meet all the requirements for condominiums in effect at the time they were originally constructed. If there were no condominium standards in effect at the time of construction, the conversion shall comply with the condominium standards of ordinance 898, adopted January 20, 1976.

P. Detached Accessory Buildings:

1. Unless permitted as an accessory dwelling unit pursuant to article 15-4E of this title, detached accessory buildings shall not contain a kitchen or kitchen facilities, a

bathtub or shower and shall not be used for sleeping purposes. Each multi-family lot is permitted no more than two detached accessory dwelling units.

2. Detached accessory buildings, except detached accessory dwelling units, shall not be rented or used as a separate dwelling unit or as an "R" occupancy, as defined by the California Building Code, except that they may contain a sink and a toilet.

3. Prior to issuance of a building permit for a detached accessory structure, except a detached accessory dwelling unit, the Director shall require the recording of a covenant to run with the land, which states that the accessory structure shall not be used in violation of this subsection.

Q. Parking:

1. A minimum of one parking space per bedroom is required. No more than two parking spaces are required per unit.

2. Standard residential parking dimensions in the Housing Overlay shall be 8.5' W X 18' L.

3. Tandem and mechanical parking shall be permitted for two or more-bedroom units.

4. Notwithstanding the standards in this section, see Section 15-5-5 for additional parking area design standards.

15-7D-3: LANDSCAPING:

A. Except where not allowed per the placement of existing utilities, one deciduous or evergreen on-site tree must be provided per 25 feet of street-facing frontage length along the front-yard, rear-yard, and street-facing side-yard setbacks.

1. Trees must be planted within a maximum of ten feet of the property line.

B. Those setback areas fronting upon a public street must incorporate a minimum of 50 percent softscape and a maximum of 50 percent hardscape in the landscape, except for those portions devoted to vehicular parking. In addition, those portions of the property which abut a different zoning classification must be landscaped with trees and shrubs to provide an effective buffer from adjoining property.

C. The setback areas may contain artificial turf or synthetic grass in the side and rear yards only, provided that it: 1) is not harmful to the environment (such as containing lead based or other hazardous materials); 2) includes a pervious surface to address percolation, drainage, runoff, and stormwater detention requirements; and 3) is incorporated into a comprehensive landscaping design and site plan.

D. Drought-tolerant plants must be utilized in the landscape.

15-7D-4: OFF STREET PARKING AND LOADING SPACES:

Off street parking shall be provided as required by Chapter 15 of this title.

15-7D-5: SIGNS:

Signs in the Housing Overlay Zone shall comply with the requirements of chapter 18 of this title.

15-7D-6: VEHICULAR ACCESS:

Where a Housing Overlay lot abuts an alley, vehicular access to the lot must be from the alley. Curb cuts and driveways must be installed in conformance with section 15-15-5 of this title.

15-7D-6: AFFORDABLE HOUSING DEVELOPMENTS

Housing developments in which at least 20 percent of residential units are affordable to lower-income households shall be considered a by right use as defined in Government Code Section 65583.2.

SECTION 11: ESMC Section 15-25-4 (Site Plan Review Findings) is amended to read as follows:

15-25-4: FINDINGS:

In order to approve or conditionally approve the site plan, the approval authority shall make the following findings:

~~A. The proposed development, including the general uses and the physical design of the development, is consistent with the General Plan;~~

~~B. The proposed development, including the general uses and the physical design of the development, is consistent with the intent and general purpose of the provisions of this Code and any applicable development agreement; and~~

~~C. The proposed development, including the general uses and the physical design of the development, will not adversely affect the orderly and harmonious development of the area and the general welfare of the City.~~

A. The physical location, size, massing, setbacks, and placement of proposed structures on the site and the location of proposed uses within the project are consistent with applicable development standards and objective design standards in the subject specific plan, zone, and/or overlay district;

B. The project is consistent with the General Plan goals, objectives, and policies and provisions of any applicable development agreement;

C. The project has no specific adverse impact on public health or safety;

D. A consistent architectural style is used on all sides of the building or structure, including roofing, materials, windows, doors, openings, textures, and colors; and

E. The existing or proposed public infrastructure (e.g., utilities, sewers, parkways, sidewalks, storm drains, street lights, traffic control devices, and the width and pavement of adjoining streets and alleys) and health and safety services (e.g., police and fire) are sufficient to accommodate the new development.

If such findings cannot be made, the site plan shall be denied.

SECTION 12: *Actions*. The City Council approves Zone Change No. ZC 23-01 as set forth in Exhibit "A," which is incorporated into this Ordinance by reference and Zone Text Amendment No. ZTA 23, as set forth above, to implement Housing Element Program No. 6 (Provision of Adequate Sites) and Program No. 9 (El Segundo Municipal Code Amendments).

SECTION 13: *CONSTRUCTION*. This Ordinance must be broadly construed in order to achieve the purposes stated in this Ordinance. It is the City Council's intent that the provisions of this Ordinance be interpreted or implemented by the City and others in a manner that facilitates the purposes set forth in this Ordinance.

SECTION 14: *ENFORCEABILITY*. Repeal of any provision of the ESMC does not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 15: *VALIDITY OF PREVIOUS CODE SECTIONS*. If this entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal or amendment of the ESMC or other city ordinance by this Ordinance will be rendered void and cause such previous ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 16: *SEVERABILITY.* If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the City Council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 17: The City Clerk is directed to certify the passage and adoption of this Ordinance; cause it to be entered into the City of El Segundo's book of original ordinances; make a note of the passage and adoption in the records of this meeting; and, within fifteen (15) days after the passage and adoption of this Ordinance, cause a summary thereof to be published or posted in accordance with California law.

SECTION 18: This Ordinance shall take effect 30 days after its passage and adoption.

PASSED AND ADOPTED this ___ day of _____, 2024.

_____
Drew Boyles, Mayor

APPROVED AS TO FORM:

By: _____
Mark D. Hensley, City Attorney

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

I, Tracy Weaver, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. _____ was duly introduced by said City Council at a regular meeting held on the ___ day of _____ 2024, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the ___ day of _____, 2024, and the same was so passed and adopted by the following vote:

AYES:

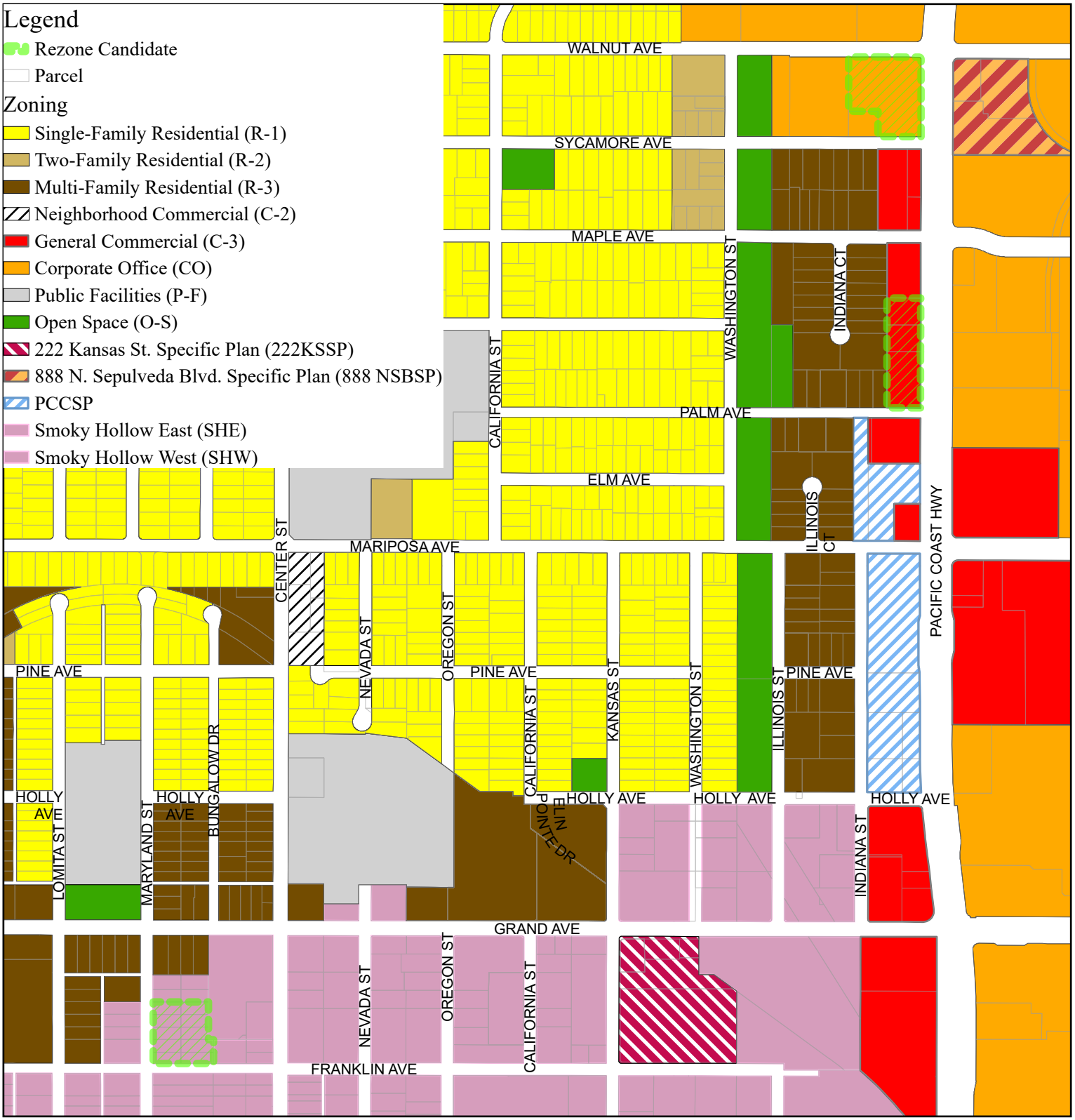
NOES:

ABSENT:

ABSTAIN:

_____
Tracy Weaver, City Clerk

Exhibit "A"



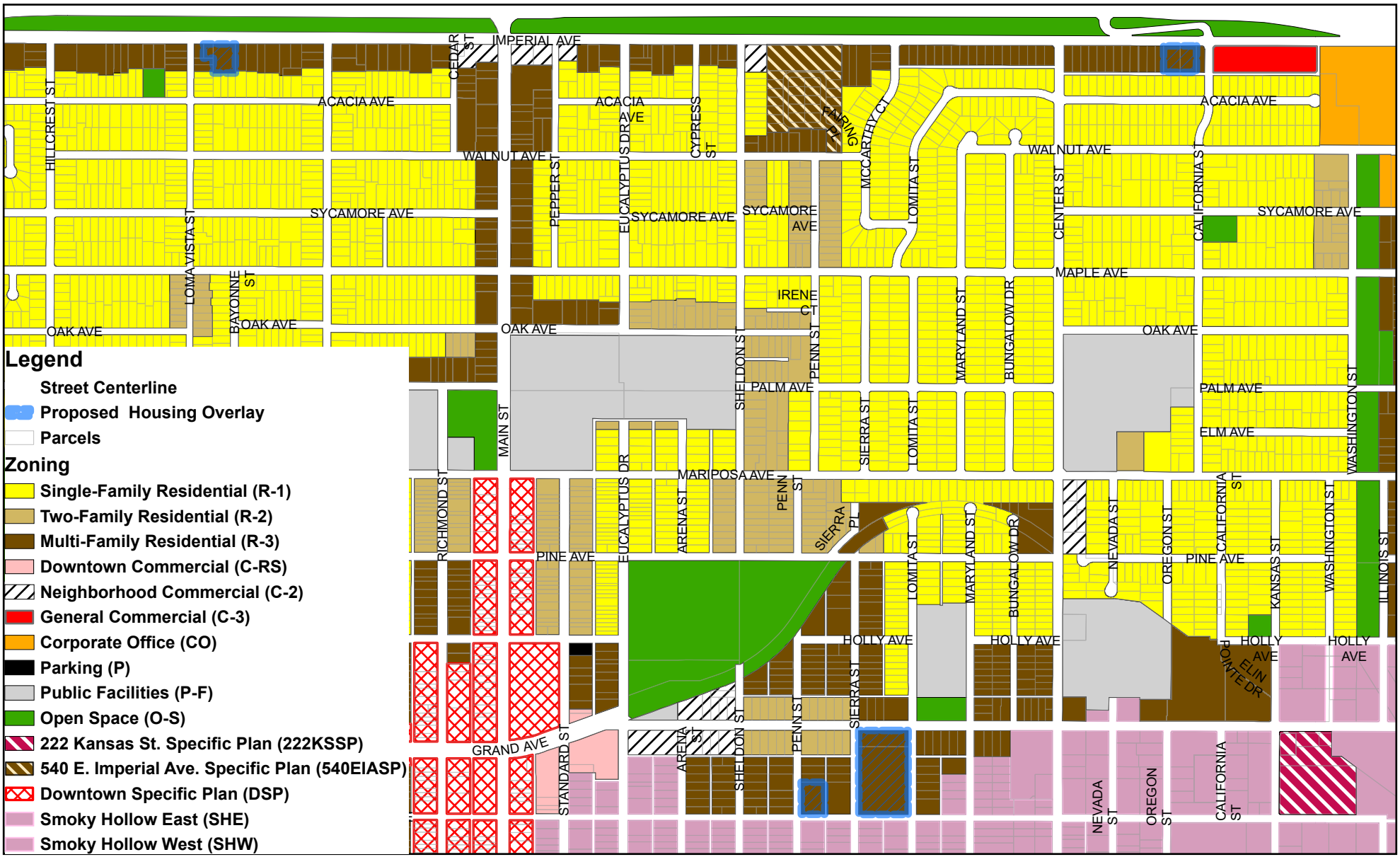
City of El Segundo

Proposed Mixed-Use Overlay
Over Existing Zoning

N W E S

568

Exhibit "A"



Legend

- Street Centerline
- Proposed Housing Overlay
- Parcels

Zoning

- Single-Family Residential (R-1)
- Two-Family Residential (R-2)
- Multi-Family Residential (R-3)
- Downtown Commercial (C-RS)
- Neighborhood Commercial (C-2)
- General Commercial (C-3)
- Corporate Office (CO)
- Parking (P)
- Public Facilities (P-F)
- Open Space (O-S)
- 222 Kansas St. Specific Plan (222KSSP)
- 540 E. Imperial Ave. Specific Plan (540EIASP)
- Downtown Specific Plan (DSP)
- Smoky Hollow East (SHE)
- Smoky Hollow West (SHW)

City of El Segundo

Proposed Housing Overlay
over the Existing Zoning

N
W
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