**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

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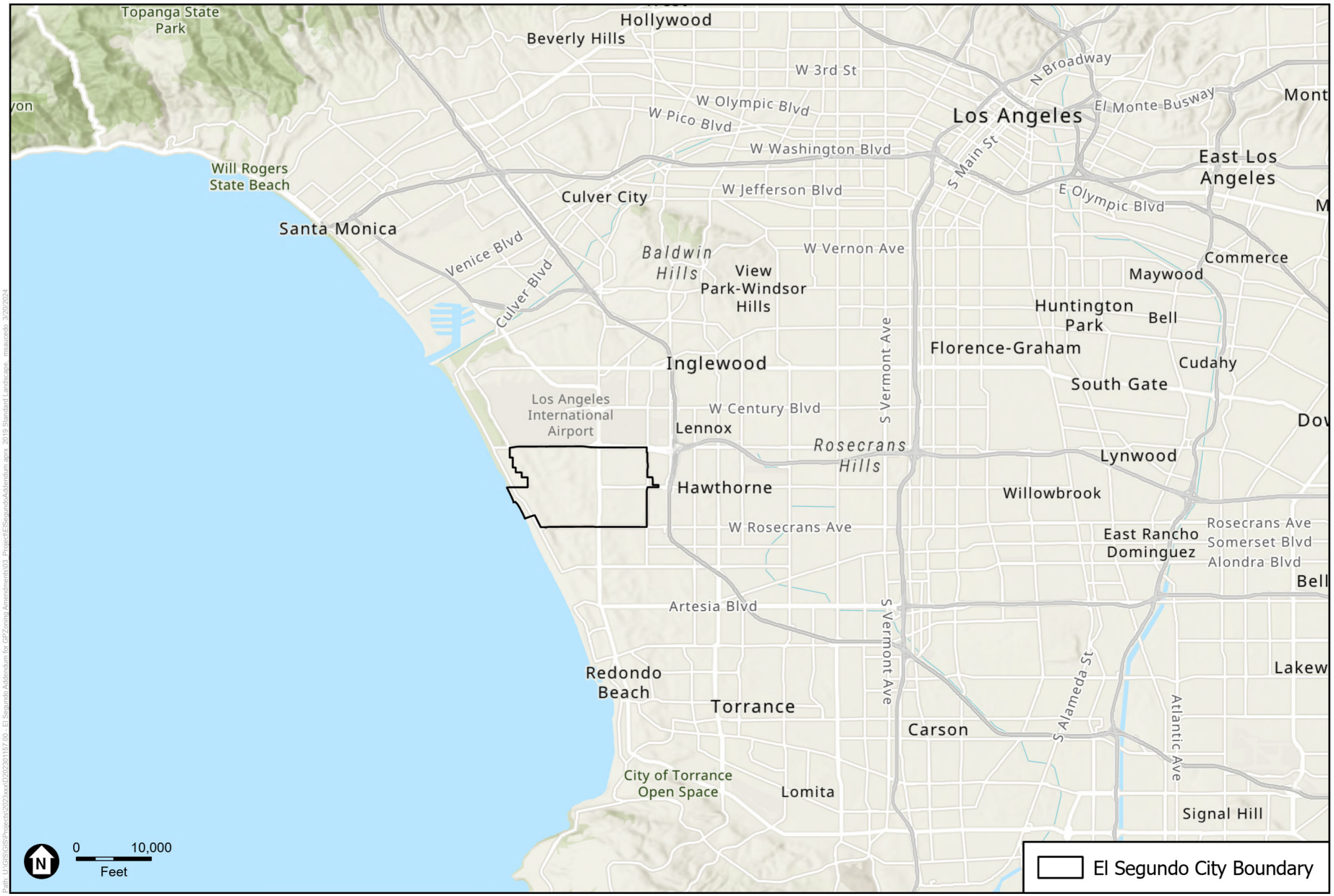
# CHAPTER 1
# Background

## 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

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## 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 5$^{th}$ Cycle Housing Element period, which are carried over to the current cycle. Therefore, the total requirement for the city during the 6$^{th}$ 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.

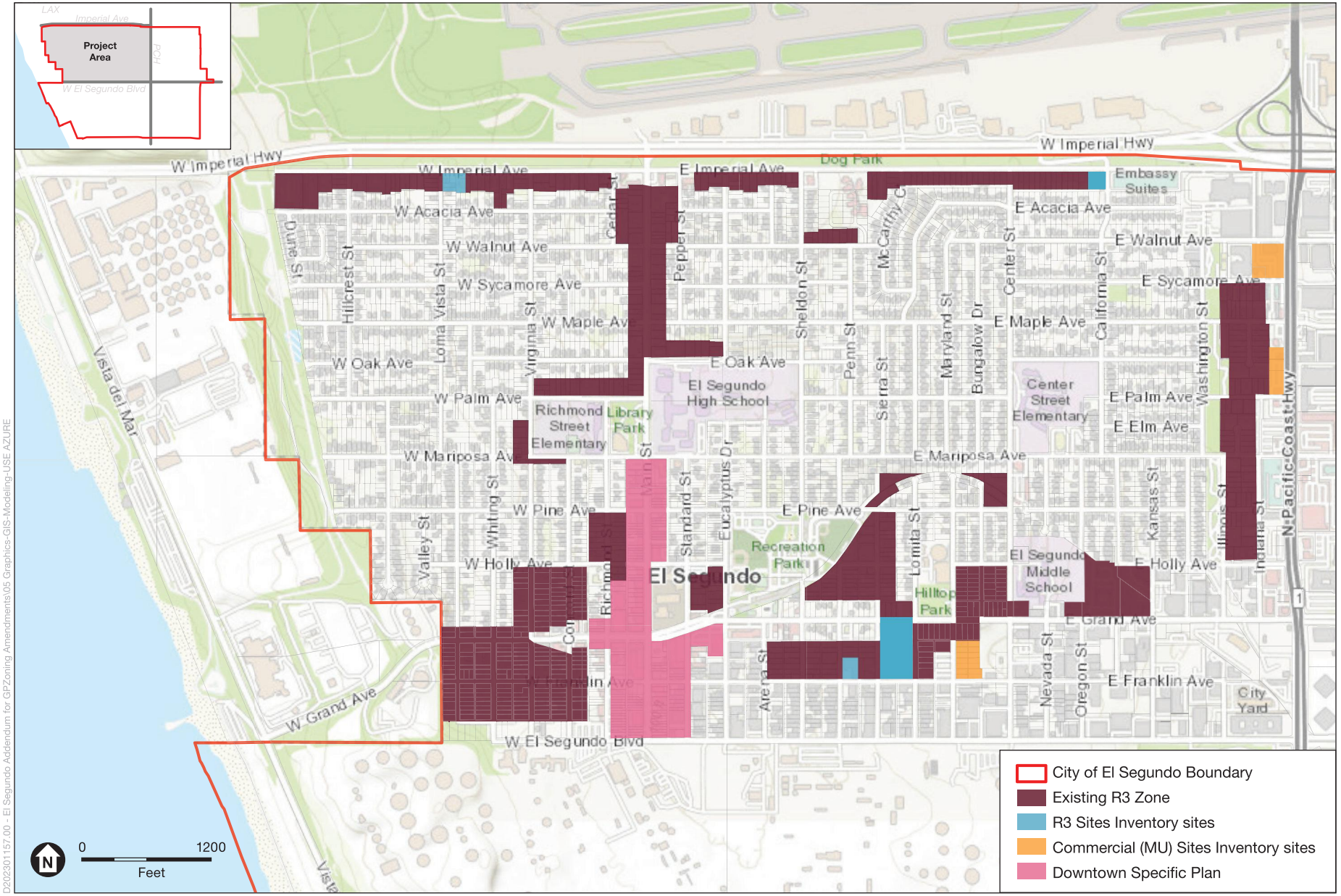
The City identified four approaches to increase the opportunities for housing development in the city to achieve the 6th cycle RHNA allocation of 521 units, which comprise the Project. The proposed approaches include:

- 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

City of El Segundo General Plan and Zoning Amendments

**Figure 2**
Proposed Areas for General Plan and Zoning Amendments

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**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

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.<br><br>-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.<br><br>-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.<br><br>- 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.<br><br>- 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.<br><br>- 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 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| | 0% of Exisiting Units | 25% of Existing Units (Rebuttable Presumption) | 50% of Existing Units | 75% of Existing Units | 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*

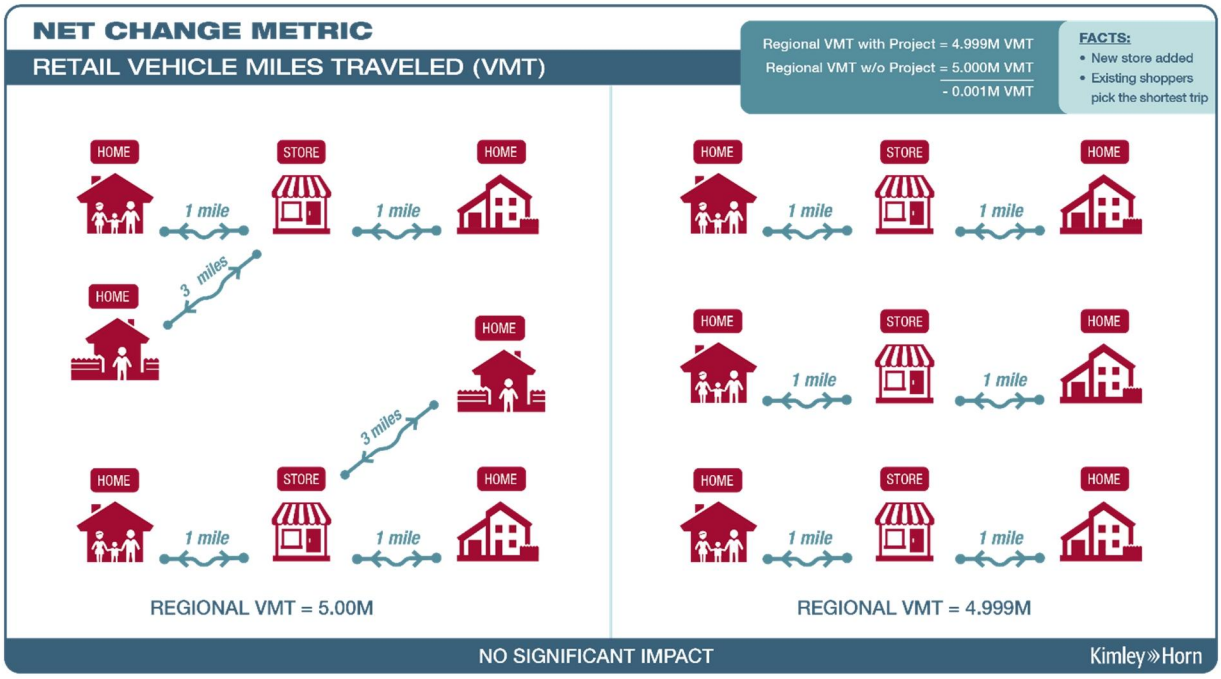
As described previously, the local-serving retail land uses were analyzed qualitatively. The City of El Segundo's VMT Analysis Guidelines specifically addresses some of the key issues surrounding how local serving land uses should be evaluated in terms of their VMT impact. As described, the threshold 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.

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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.

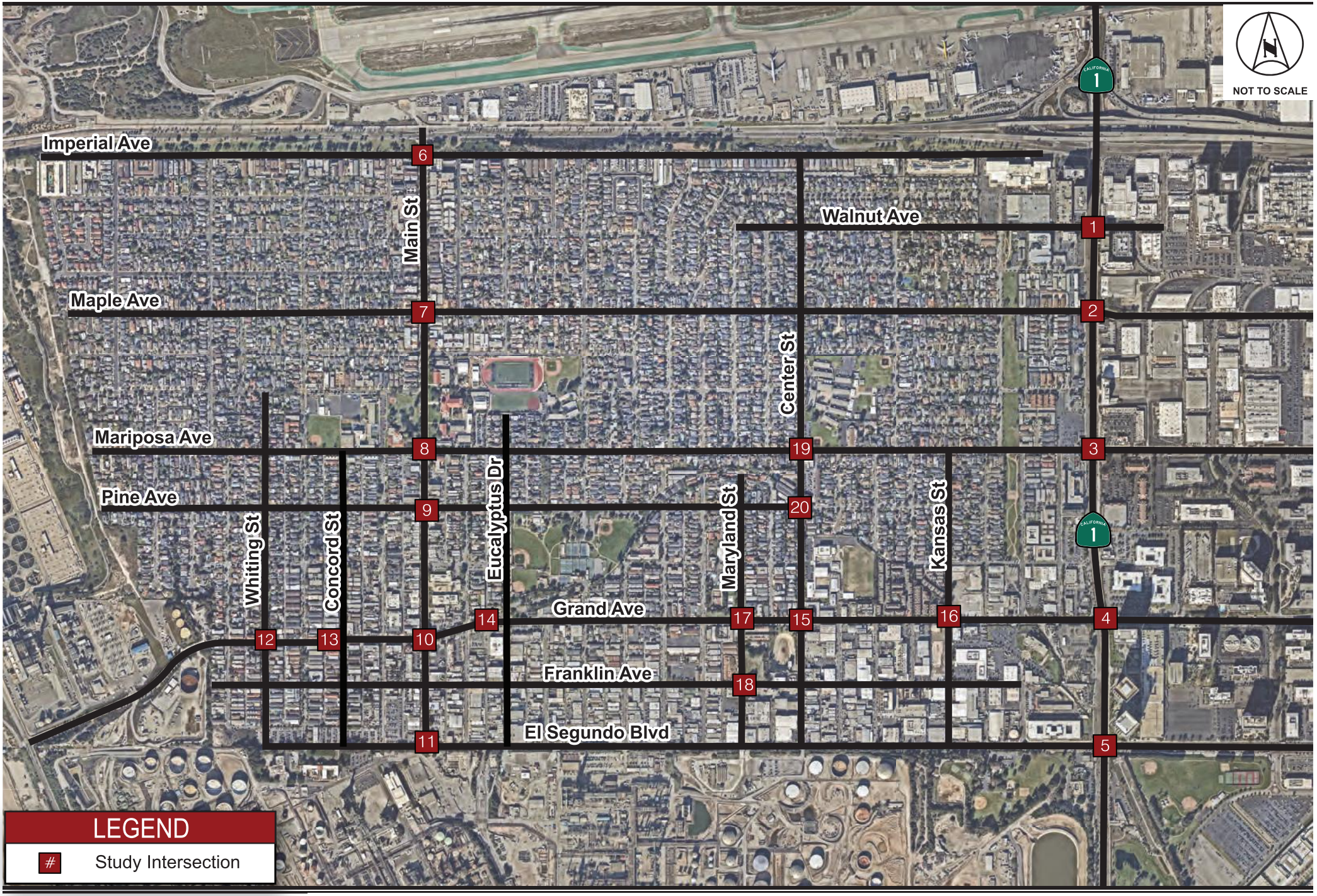
[3] *California Manual on Uniform Traffic Control Devices.* State of California Department of Transportation. January 2024.

## 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

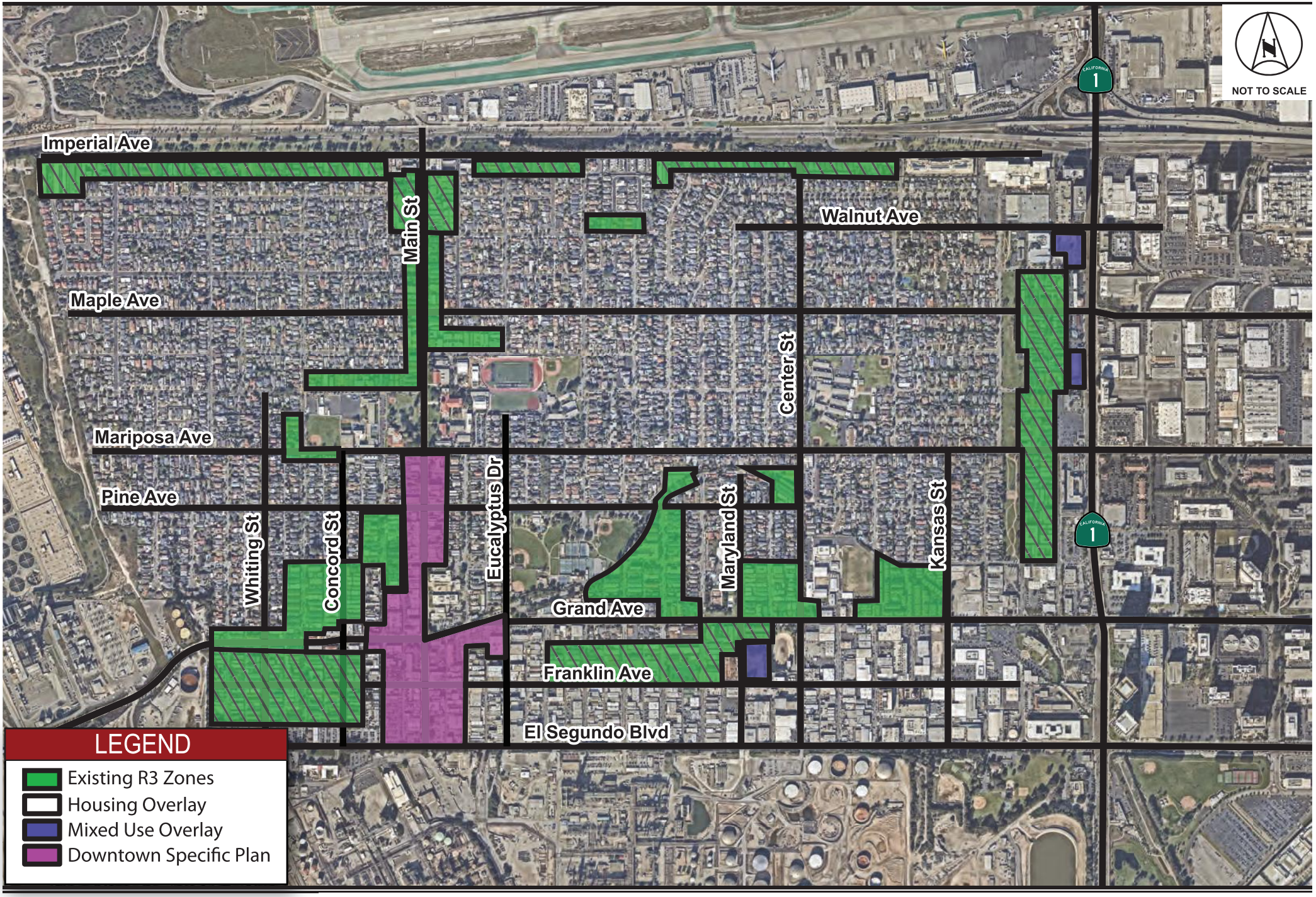
El Segundo - Housing Element Update




Kimley»Horn

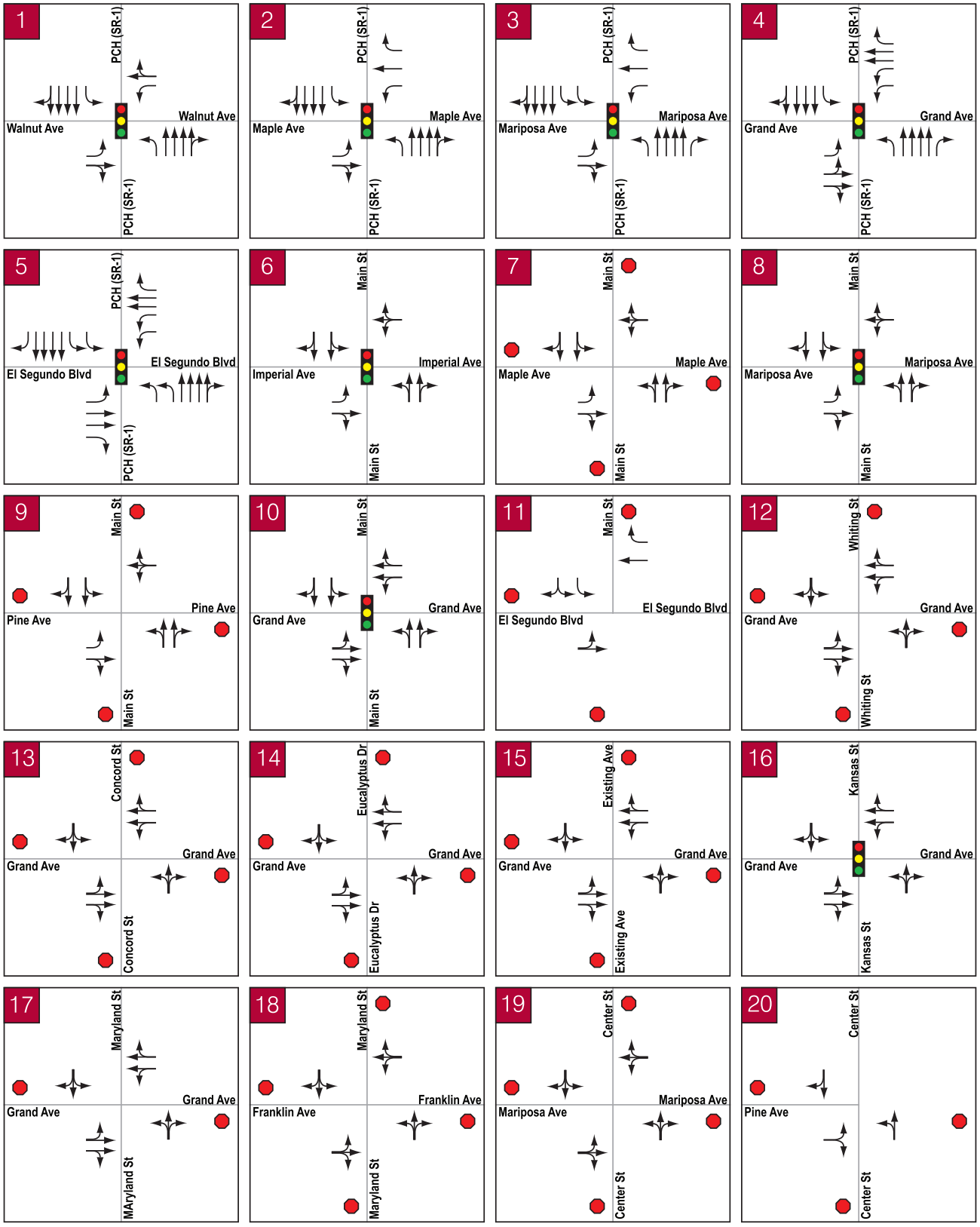
*Exhibit 1*
*Project Vicinity Map*

El Segundo - Housing Element Update




Kimley»Horn

*Exhibit 2*
*Project Locations Map*



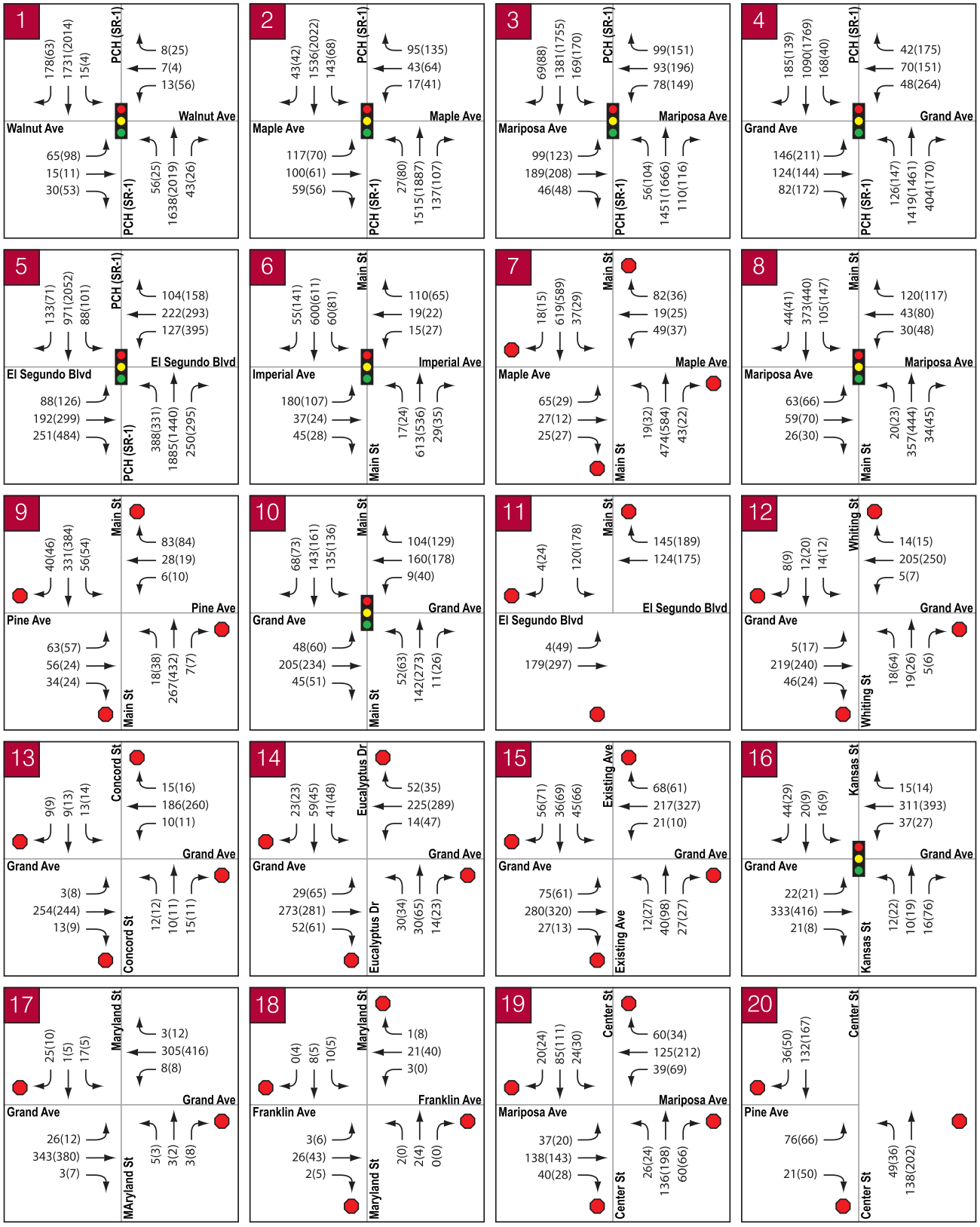

LEGEND

- # Study Intersection
- Stop Controlled Approach
- Signalized Intersection

NOT TO SCALE

Kimley»Horn

*Exhibit 3*
*Study Intersection, Traffic Control, and Lane Geometry*




## LEGEND

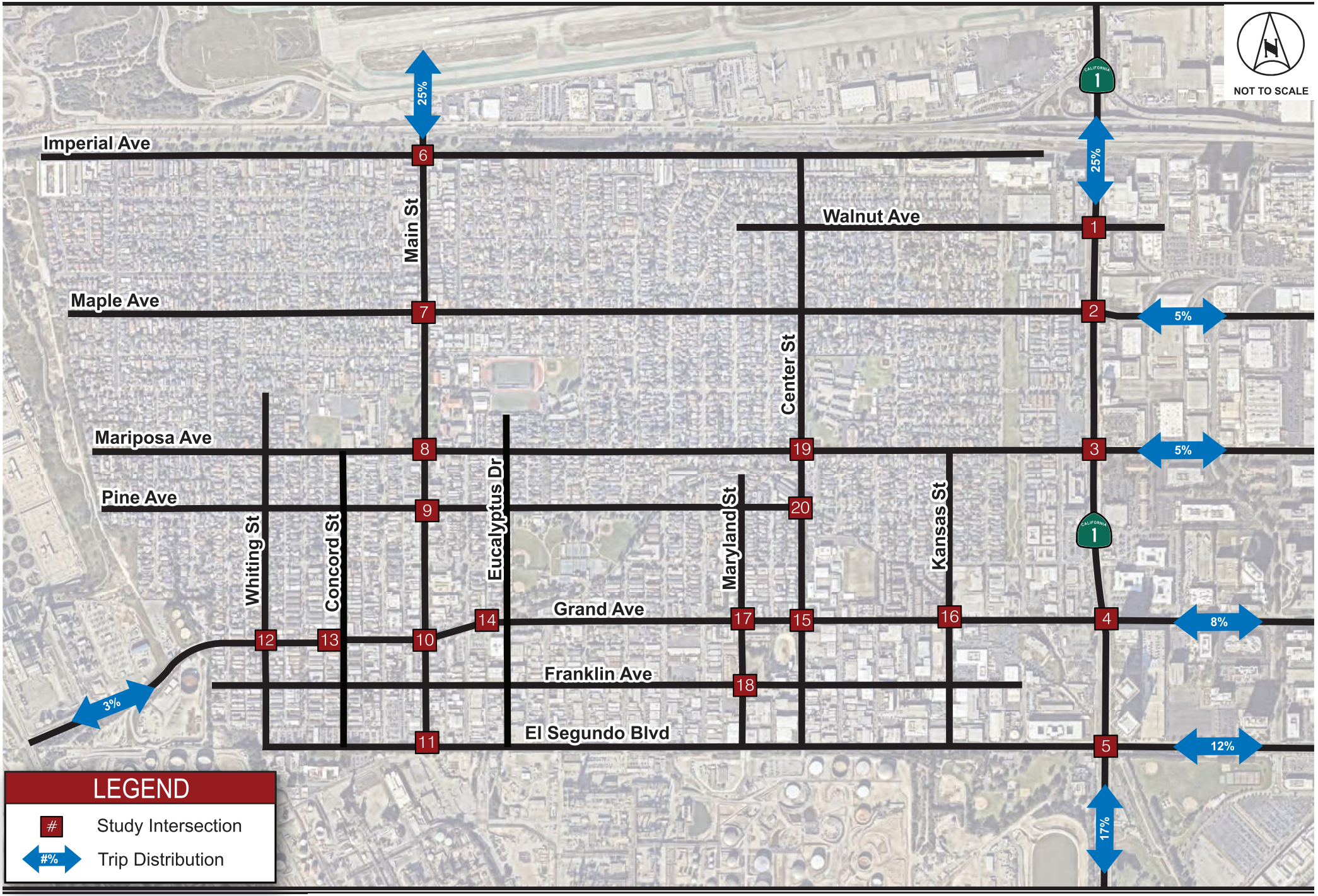
- # Study Intersection
- Stop Controlled Approach
- Signalized Intersection
- XX(YY) AM(PM) Peak Hour Volume

NOT TO SCALE

Kimley»Horn

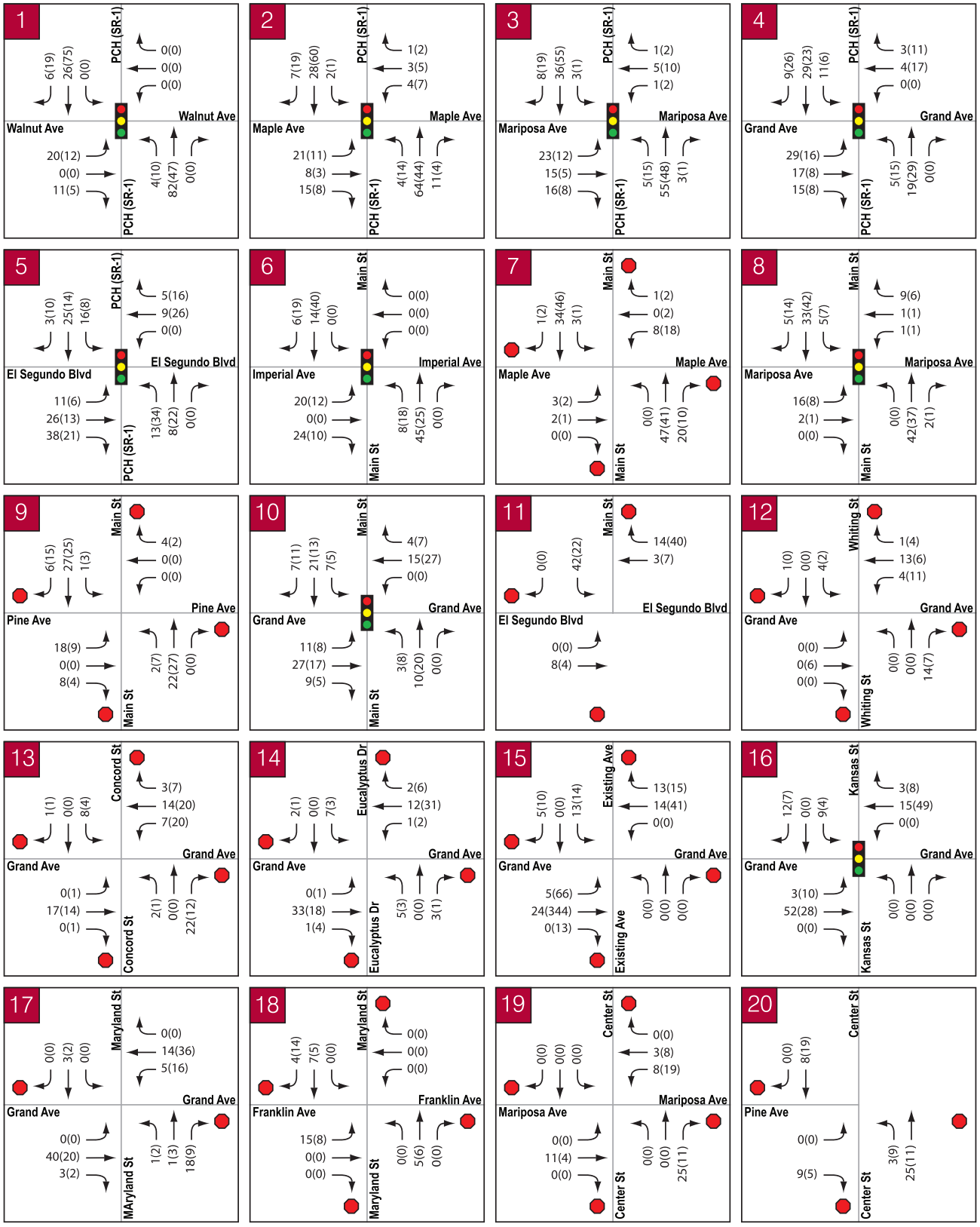
*Exhibit 4*
*Existing Conditions Peak-Hour Traffic Volumes*

El Segundo - Housing Element Update




Kimley»Horn

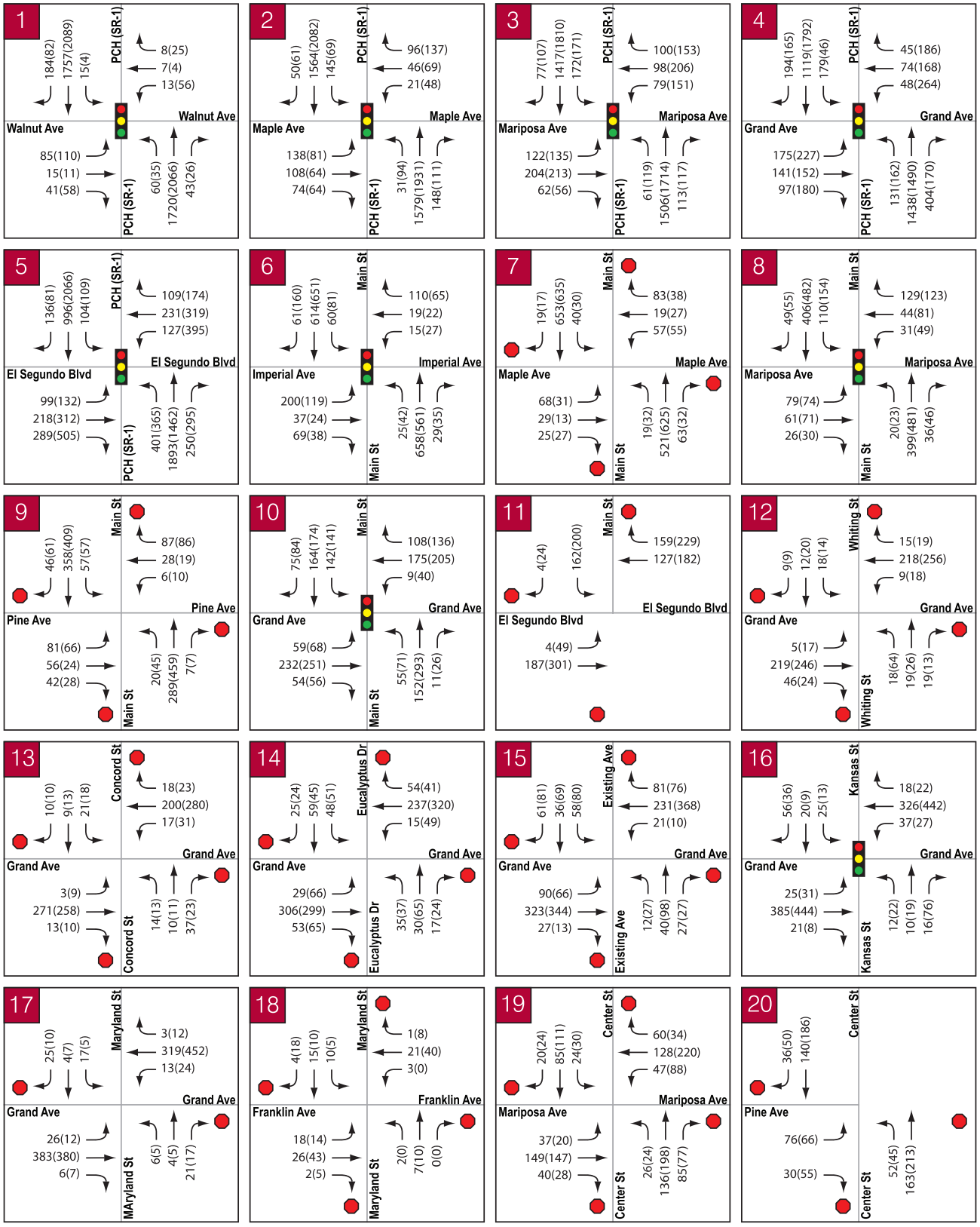
*Exhibit 5*
*Project Trip Distribution*




LEGEND

- # Study Intersection
- Stop Controlled Approach
- Signalized Intersection
- XX(YY) AM(PM) Peak Hour Volume

NOT TO SCALE




## 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

**ID:** 24-020046-001
**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 (PCH (SR-1))

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 178 | 1731 | 15 | 22 | 1733 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 63 | 2014 | 4 | 28 | 2170 | PM |

0 4 1 0

### EASTBOUND (Walnut Ave)

| AM | NOON | PM | |
|---|---|---|---|
| 241 | 0 | 92 | |
| 0 | 0 | 0 | 0 |
| 65 | 0 | 98 | 1 |
| 15 | 0 | 11 | 0.5 |
| 30 | 0 | 53 | 0.5 |

### WESTBOUND (Walnut Ave)

| PM | NOON | AM | |
|---|---|---|---|
| 25 | 0 | 8 | 0.5 |
| 4 | 0 | 7 | 0.5 |
| 56 | 0 | 13 | 1 |
| 0 | 0 | 0 | 0 |
| 41 | 0 | 73 | |

### CONTROL

Signalized

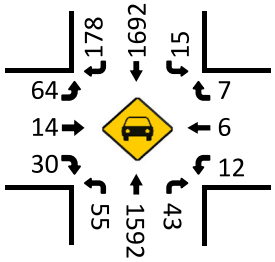
| | | | |
|---|---|---|---|
| TEV | 3825 | 0 | 4437 |
| | AM | NOON | PM |
| PHF | 0.98 | | 0.96 |

0 1 4 0

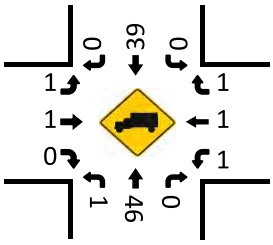
### NORTHBOUND (PCH (SR-1))

| | | | | | |
|---|---|---|---|---|---|
| PM | 2134 | 11 | 25 | 2019 | 26 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 1778 | 4 | 56 | 1638 | 43 | AM |

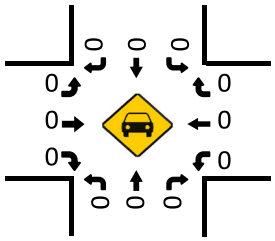
### Cars (AM)



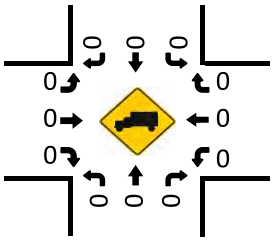

### HT (AM)



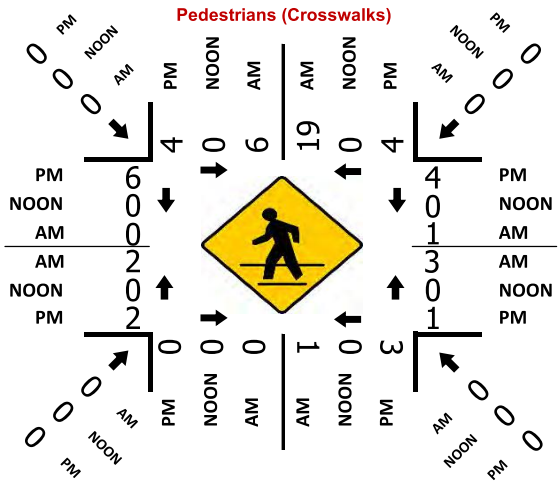

### Cars (NOON)




### HT (NOON)




### Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
4
0
6
PM
6
0
0
NOON
0
0
AM
2
0
2
AM
NOON
PM
0
0
0
0
0
0
0
0
0
0
0

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**

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 | 43 | 1536 | 143 | 9 | 1736 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 42 | 2022 | 68 | 11 | 2103 | PM |

### 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 |

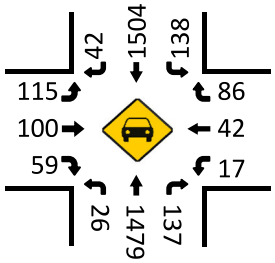
| | | | |
|---|---|---|---|
| 0 | 4 | 1 | 0 |
| 0 | 1 | 4 | 0 |

### CONTROL

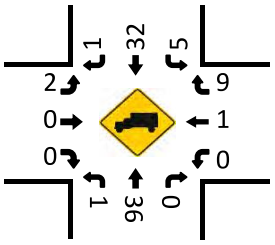
Signalized

| | | | |
|---|---|---|---|
| TEV | 3868 | 0 | 4680 |
| | AM | NOON | PM |
| PHF | 0.96 | | 0.98 |

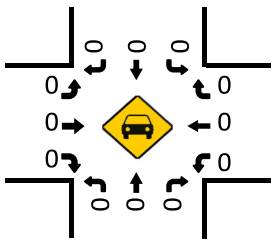
### Cars (AM)



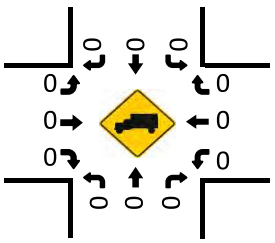

### HT (AM)



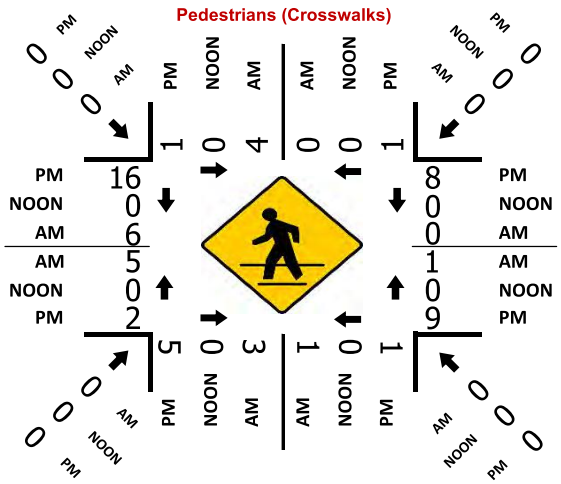

### Cars (NOON)




### HT (NOON)




### Pedestrians (Crosswalks)


PM
NOON
AM
16
0
6
5
0
2
1
0
4
0
0
1
8
0
0
1
0
9
0
0
0
0
0
0
0
0
0
0
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

**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 | 69 | 1381 | 169 | 29 | 1678 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 88 | 1755 | 170 | 44 | 1984 | PM |

0 4 2 0

### 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 |

### CONTROL

Signalized

| | | | |
|---|---|---|---|
| TEV | 3884 | 0 | 4850 |
| | AM | NOON | PM |
| PHF | 0.94 | | 0.96 |

### WESTBOUND (Mariposa Ave)

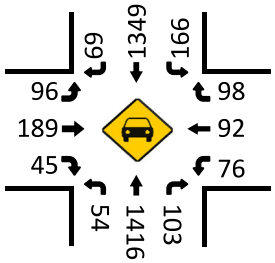
| PM | NOON | AM | |
|---|---|---|---|
| 151 | 0 | 99 | 1 |
| 196 | 0 | 93 | 1 |
| 149 | 0 | 78 | 1 |
| 0 | 0 | 1 | 0 |
| 494 | 0 | 469 | |

0 1 4 1

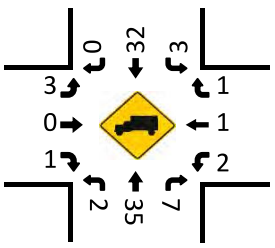
### NORTHBOUND (PCH (SR-1))

| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 1984 | 32 | 104 | 1666 | 116 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 1519 | 14 | 56 | 1451 | 110 | AM |

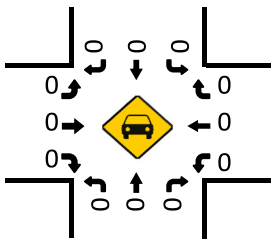
### Cars (AM)



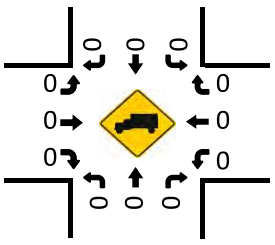

### HT (AM)



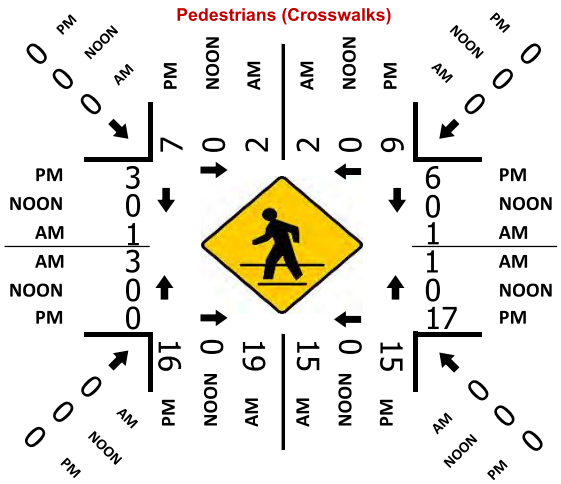

### Cars (NOON)



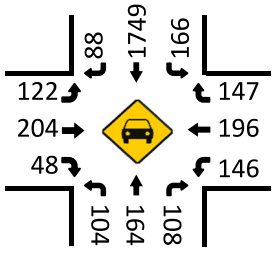

### HT (NOON)



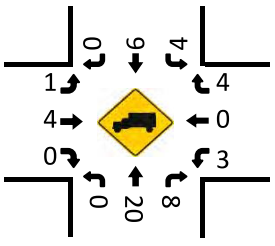

### Pedestrians (Crosswalks)




### Cars (PM)




### 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**

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 | 185 | 1090 | 168 | 17 | 1624 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 139 | 1769 | 40 | 13 | 1860 | PM |

0 4 1 0

### 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 |
|---|---|---|---|
| 1 | 175 | 0 | 42 |
| 2 | 151 | 0 | 70 |
| 2 | 264 | 0 | 48 |
| 0 | 0 | 0 | 0 |
| | 354 | 0 | 696 |

### CONTROL

Signalized

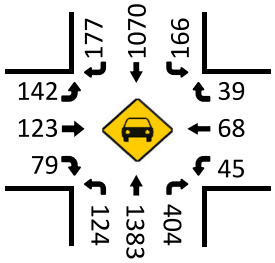
| | | | |
|---|---|---|---|
| TEV | 3931 AM | 0 NOON | 4868 PM |
| PHF | 0.94 | | 0.94 |

0 1 4 1

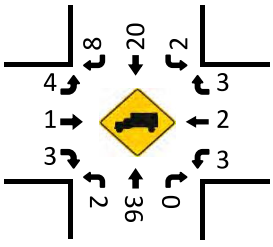
### NORTHBOUND (PCH (SR-1))

| | | | | | |
|---|---|---|---|---|---|
| PM | 2217 | 12 | 147 | 1461 | 170 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 1230 | 10 | 126 | 1419 | 404 | AM |

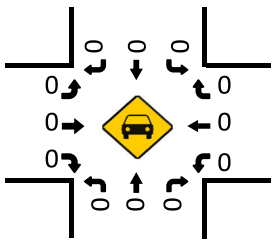
### Cars (AM)



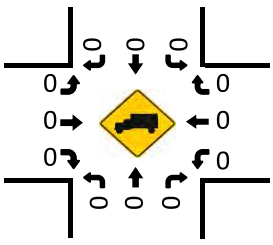

### HT (AM)



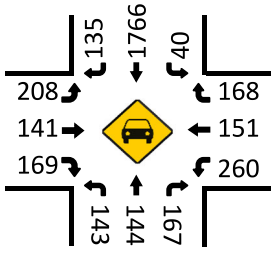

### Cars (NOON)



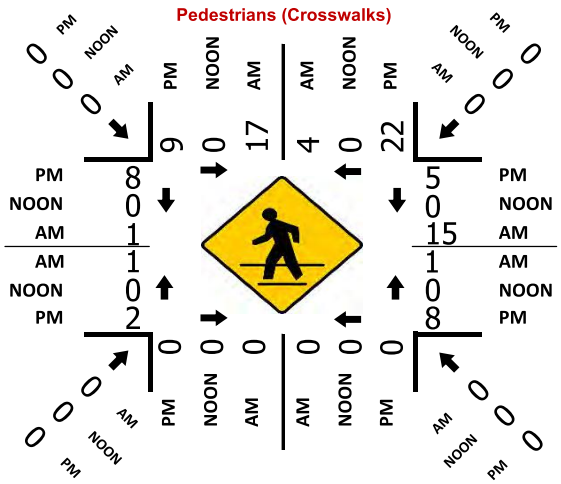

### HT (NOON)



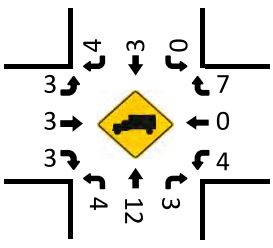

### Cars (PM)




### 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 |
| AM | NOON | PM | |

### 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 | |
| PM | NOON | AM | |

### CONTROL

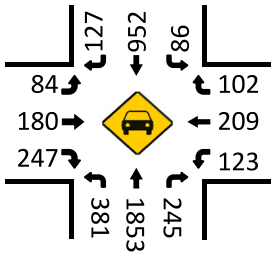
Signalized

| | | | |
|---|---|---|---|
| TEV | 4741 AM | 0 NOON | 6094 PM |
| PHF | 0.96 | | 0.97 |

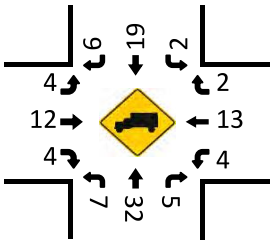
### NORTHBOUND (PCH (SR-1))

| | | | | | | |
|---|---|---|---|---|---|---|
| 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 | | |

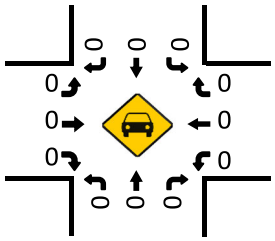
### Cars (AM)



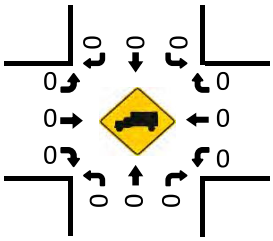

### HT (AM)



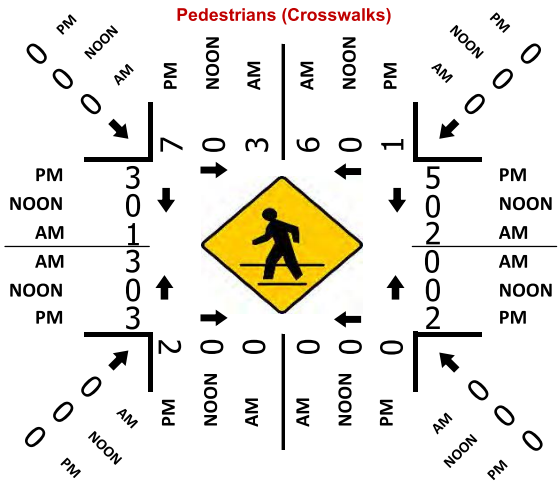

### Cars (NOON)



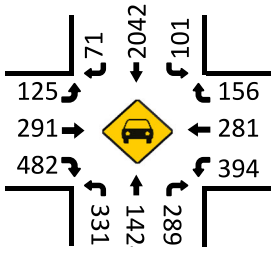

### HT (NOON)



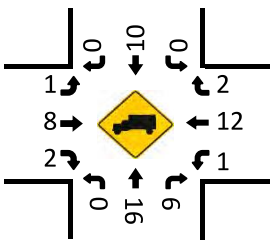

### Pedestrians (Crosswalks)




### 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 |

### SOUTHBOUND (Main St)

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 55 | 600 | 60 | 0 | 903 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 141 | 611 | 81 | 0 | 708 | PM |

### 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 |

### WESTBOUND (Imperial Ave)

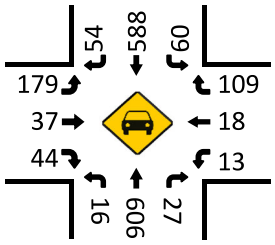
| PM | NOON | AM | |
|---|---|---|---|
| 65 | 0 | 110 | 0 |
| 22 | 0 | 19 | 1 |
| 27 | 0 | 15 | 0 |
| 0 | 0 | 0 | 0 |
| 140 | 0 | 126 | |

### NORTHBOUND (Main St)

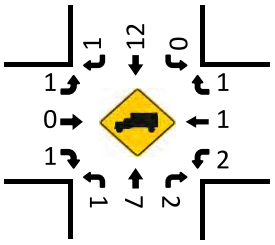
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 666 | 0 | 24 | 536 | 35 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 660 | 0 | 17 | 613 | 29 | AM |

| CONTROL | | | |
|---|---|---|---|
| Signalized | | | |
| TEV | 1780 | 0 | 1701 |
| | AM | NOON | PM |
| PHF | 0.81 | | 0.95 |

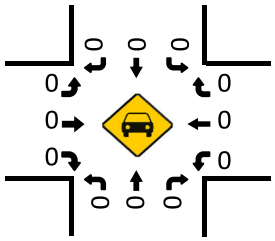
Cars (AM)



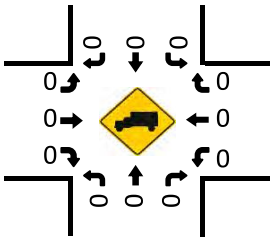

HT (AM)



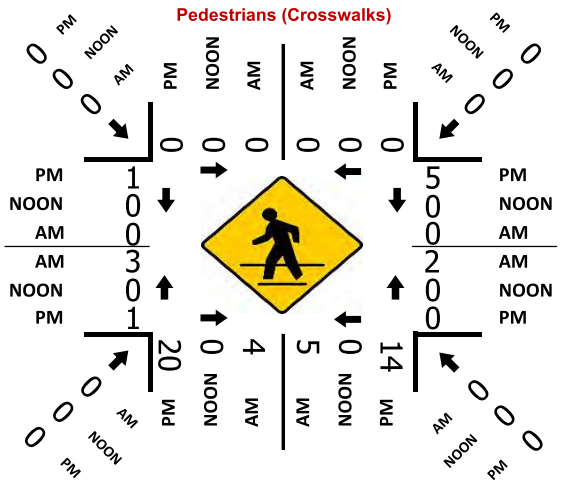

Cars (NOON)



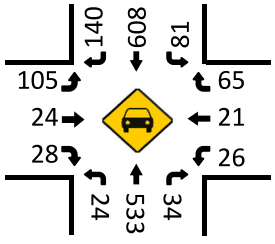

HT (NOON)



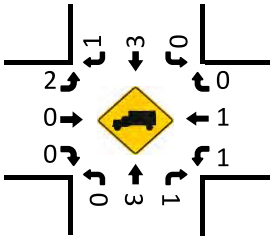

Pedestrians (Crosswalks)




Cars (PM)




HT (PM)



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 | 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 |

### 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 | |

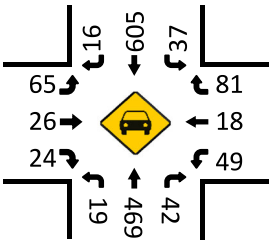
### NORTHBOUND (Main St)

| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 653 | 0 | 32 | 584 | 22 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 693 | 0 | 19 | 474 | 43 | AM |

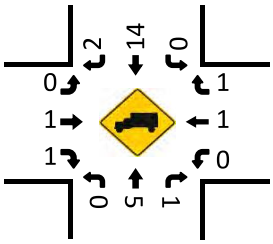
| | | | | |
|---|---|---|---|---|
| | 0 | 2 | 0 | 0 |
| | 0 | 0 | 2 | 0 |

| CONTROL | | | |
|---|---|---|---|
| 4-Way Stop | | | |
| TEV | 1477 | 0 | 1437 |
| | AM | NOON | PM |
| PHF | 0.75 | | 0.92 |

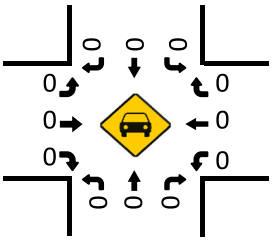
### Cars (AM)



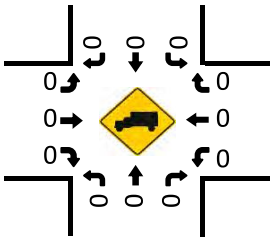

### HT (AM)



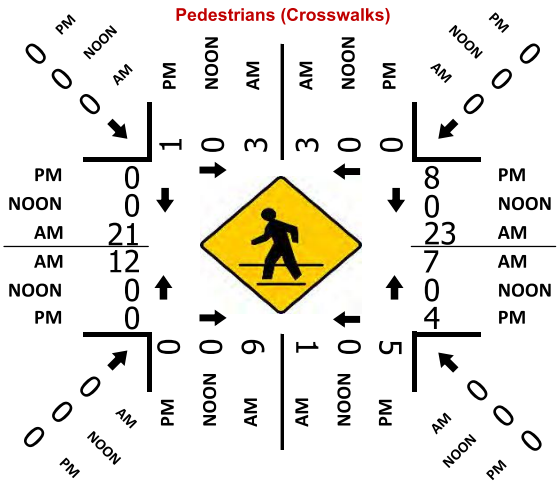

### Cars (NOON)



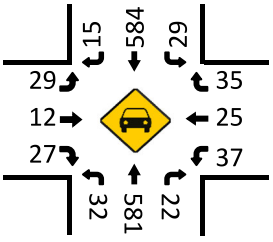

### HT (NOON)



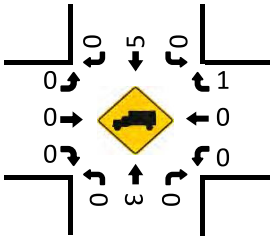

### Pedestrians (Crosswalks)




### Cars (PM)




### 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)

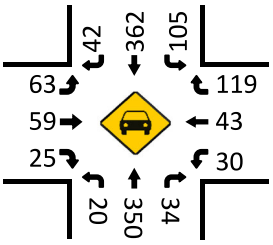
| PM | NOON | AM | |
|---|---|---|---|
| 117 | 0 | 120 | 0 |
| 80 | 0 | 43 | 1 |
| 48 | 0 | 30 | 0 |
| 0 | 0 | 0 | 0 |
| 262 | 0 | 198 | |
| PM | NOON | AM | |

### NORTHBOUND (Main St)

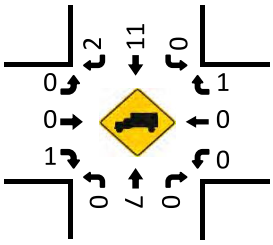
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 518 | 0 | 23 | 444 | 45 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 429 | 0 | 20 | 357 | 34 | AM |

| CONTROL | | | |
|---|---|---|---|
| Signalized | | | |
| TEV | 1274 AM | 0 NOON | 1551 PM |
| PHF | 0.81 | | 0.92 |

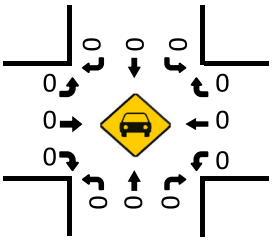
Cars (AM)



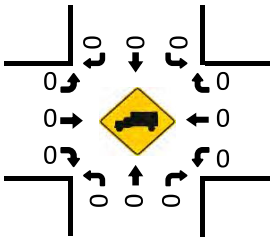

HT (AM)



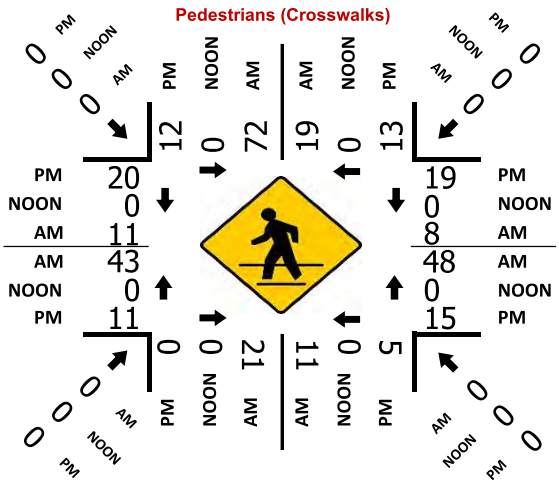

Cars (NOON)



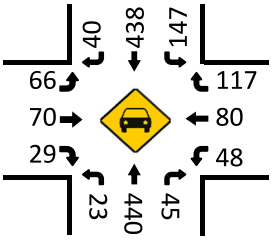

HT (NOON)



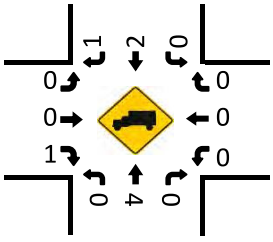

Pedestrians (Crosswalks)




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)

| | L | T | R | U | Total | |
|---|---|---|---|---|---|---|
| AM | 40 | 331 | 56 | 0 | 413 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 46 | 384 | 54 | 0 | 573 | PM |

### EASTBOUND (Pine Ave)

| | L | T | R | U | Total | |
|---|---|---|---|---|---|---|
| AM | 34 | 0 | 24 | 0 | 58 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 56 | 0 | 24 | 1 | 81 | PM |

### WESTBOUND (Pine Ave)

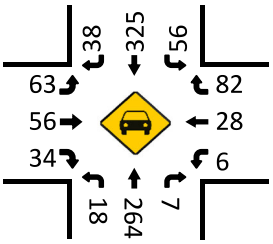
| | L | T | R | U | Total | |
|---|---|---|---|---|---|---|
| AM | 10 | 0 | 6 | 0 | 16 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 19 | 0 | 28 | 1 | 48 | PM |

### NORTHBOUND (Main St)

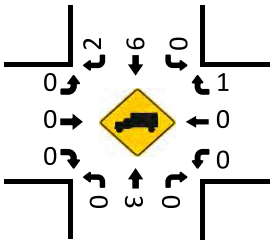
| | L | T | R | U | Total | |
|---|---|---|---|---|---|---|
| AM | 86 | 0 | 103 | 0 | 189 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 84 | 0 | 83 | 0 | 167 | PM |

| CONTROL | | | |
|---|---|---|---|
| 4-Way Stop | | | |
| TEV | 989 AM | 0 NOON | 1179 PM |
| PHF | 0.87 | | 0.92 |

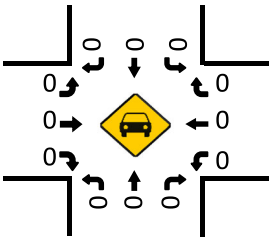
### Cars (AM)



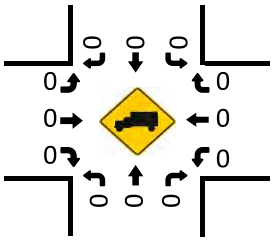

### HT (AM)



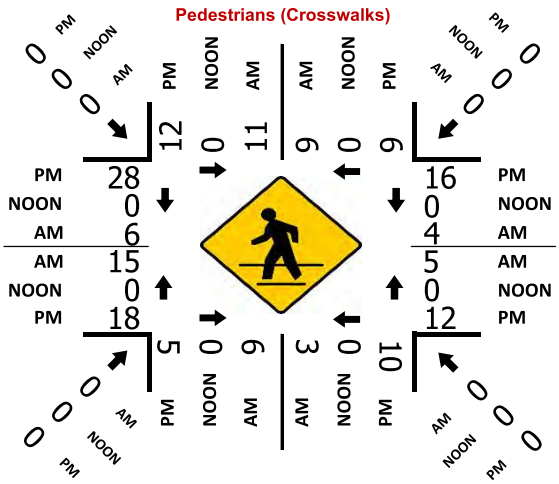

### Cars (NOON)




### HT (NOON)




### Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
12
0
11
6
0
9
28
0
6
16
0
4
15
0
18
5
0
12
0
0
0
0
0
0
0
0
0
0
0

Prepared by National Data & Surveying Services

# Main St & Grand Ave

## Peak Hour Turning Movement Count

**ID:** 24-020046-010
**City:** El Segundo

**Day:** Tuesday
**Date:** 2/13/2024

**PEAK HOURS**

AM: 08:00 AM - 09:00 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 | 68 | 143 | 135 | 0 | 294 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 73 | 161 | 136 | 0 | 462 | PM |

### EASTBOUND (Grand Ave)

| AM | NOON | PM | |
|---|---|---|---|
| 280 | 0 | 314 | |
| 0 | 0 | 0 | 0 |
| 48 | 0 | 60 | 0 |
| 205 | 0 | 234 | 2 |
| 45 | 0 | 51 | 0 |

### WESTBOUND (Grand Ave)

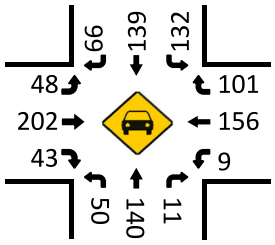
| PM | NOON | AM | |
|---|---|---|---|
| 129 | 0 | 104 | 0 |
| 178 | 0 | 160 | 2 |
| 40 | 0 | 9 | 0 |
| 0 | 0 | 0 | 0 |
| 396 | 0 | 351 | |

### NORTHBOUND (Main St)

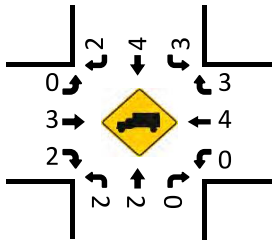
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 252 | 0 | 63 | 273 | 26 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 197 | 0 | 52 | 142 | 11 | AM |

| CONTROL | | | |
|---|---|---|---|
| Signalized | | | |
| TEV | 1122 AM | 0 NOON | 1424 PM |
| PHF | 0.88 | | 0.97 |

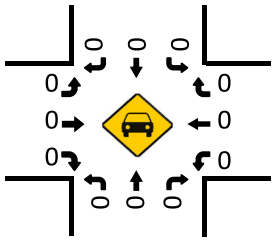
Cars (AM)



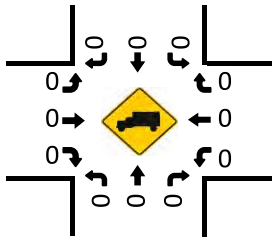

HT (AM)



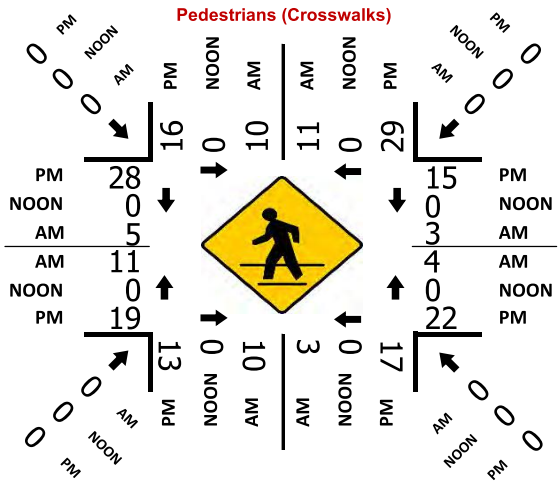

Cars (NOON)



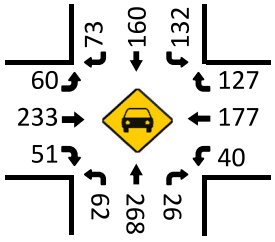

HT (NOON)



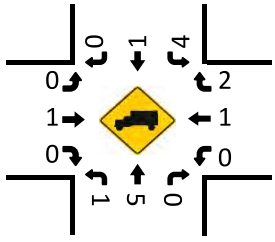

Pedestrians (Crosswalks)




Cars (PM)




HT (PM)



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 |
|---|---|---|---|
| 1 | 189 | 0 | 145 |
| 1 | 175 | 0 | 124 |
| 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 |

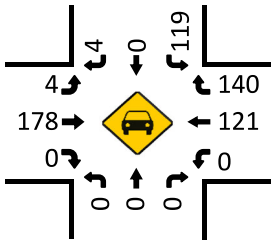
| | 0.5 | 0 | 1.5 | 0 |
|---|---|---|---|---|
| | 0 | 0 | 0 | 0 |

**CONTROL**

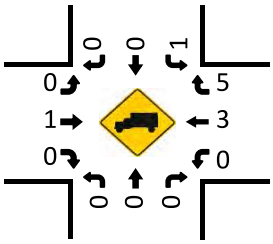
3-Way Stop(SB/EB/WB)

| | | | |
|---|---|---|---|
| TEV | 577 AM | 0 NOON | 912 PM |
| PHF | 0.85 | | 0.89 |

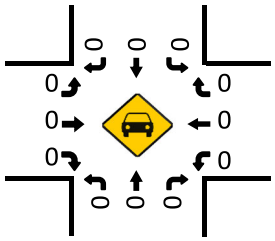
### Cars (AM)



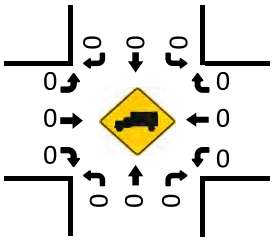

### HT (AM)



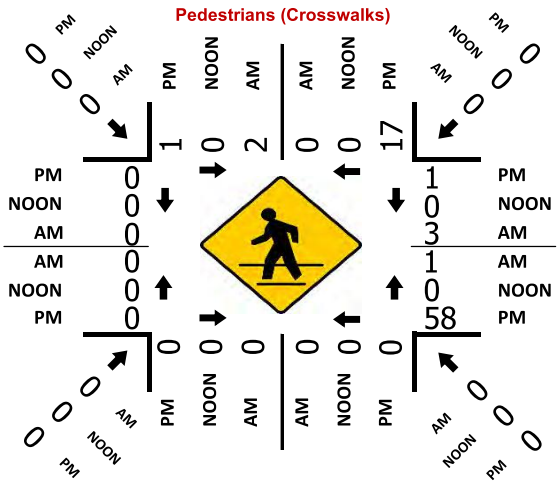

### Cars (NOON)




### HT (NOON)




### Pedestrians (Crosswalks)


PM
NOON
AM
0
0
0
1
0
2
0
0
17
1
0
3
0
0
58
0
0
0
0
0
0
0
0
0
0
0
0

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 |
| | 0 | 1 | 0 | 0 | | |

### 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 | |

### CONTROL

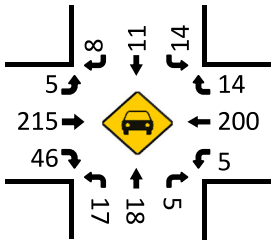
4-Way Stop

| | | | |
|---|---|---|---|
| TEV | 570 AM | 0 NOON | 690 PM |
| PHF | 0.93 | | 0.89 |

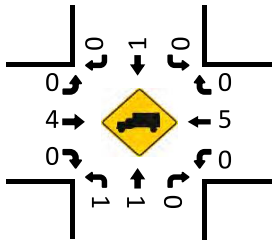
### NORTHBOUND (Whiting St)

| | | | | | |
|---|---|---|---|---|---|
| PM | 51 | 0 | 64 | 26 | 6 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 63 | 0 | 18 | 19 | 5 | AM |
| | | 0 | 0 | 1 | 0 | |

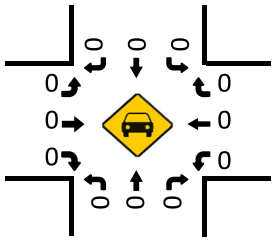
### Cars (AM)



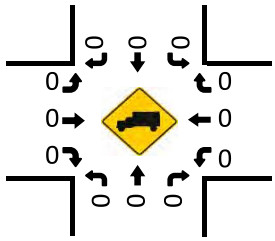

### HT (AM)



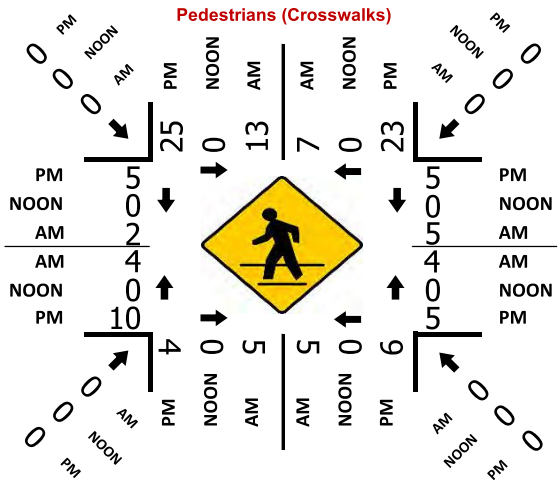

### Cars (NOON)



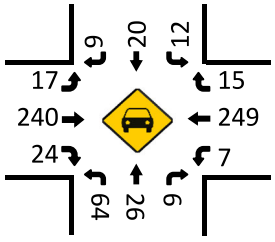

### HT (NOON)



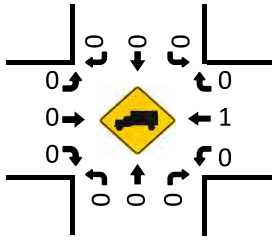

### Pedestrians (Crosswalks)




### 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 | 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 (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 |

### WESTBOUND (W Grand Ave)

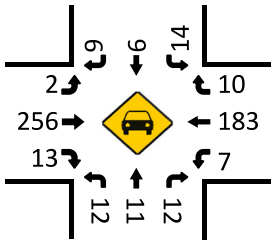
| PM | NOON | AM | |
|---|---|---|---|
| 16 | 0 | 10 | 0 |
| 260 | 0 | 187 | 2 |
| 11 | 0 | 7 | 0 |
| 8 | 0 | 12 | 0 |
| 277 | 0 | 297 | |

### NORTHBOUND (Concord St)

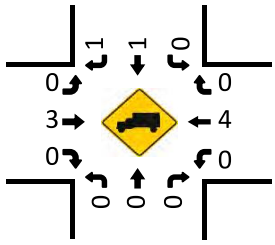
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 33 | 0 | 12 | 11 | 11 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 27 | 0 | 12 | 11 | 12 | AM |

| CONTROL | | | |
|---|---|---|---|
| 4-Way Stop | | | |
| TEV | 560 AM | 0 NOON | 632 PM |
| PHF | 0.90 | | 0.94 |

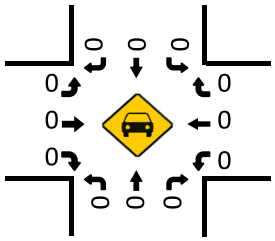
Cars (AM)



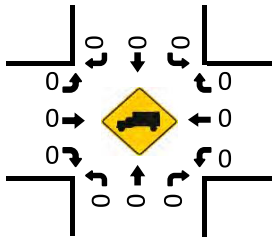

HT (AM)



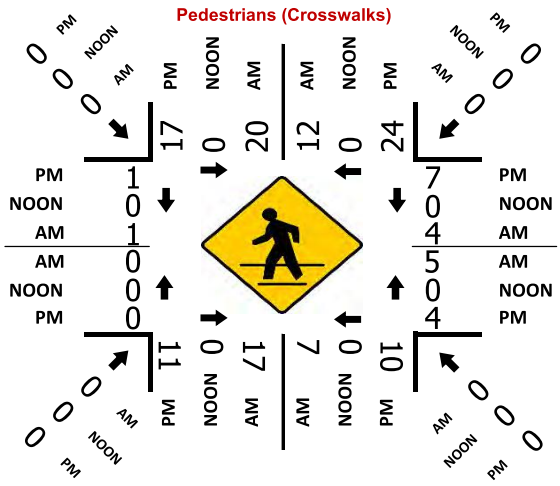

Cars (NOON)



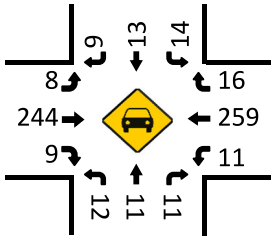

HT (NOON)



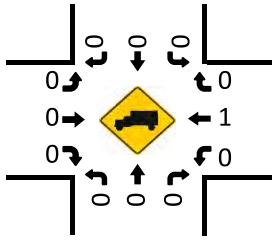

Pedestrians (Crosswalks)




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 |

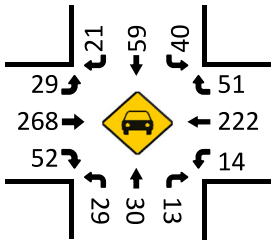
### CONTROL

4-Way Stop

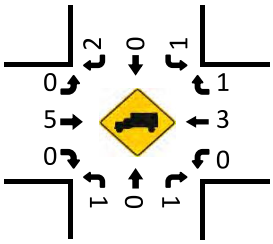
| | | | |
|---|---|---|---|
| TEV | 842 | 0 | 1016 |
| | AM | NOON | PM |
| PHF | 0.80 | | 0.98 |

Turning movements: 0 1 0 0 | 0 0 1 0

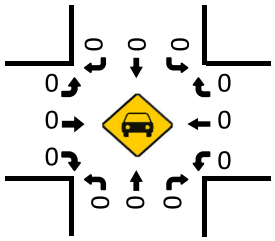
### Cars (AM)



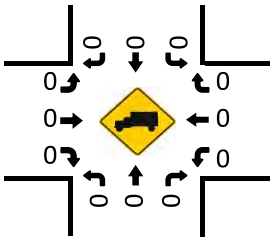

### HT (AM)



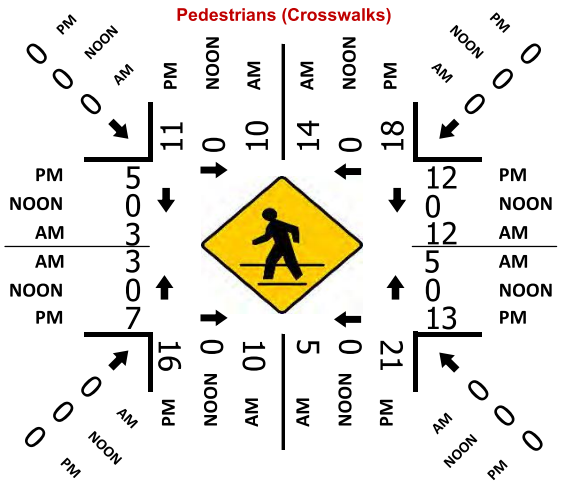

### Cars (NOON)



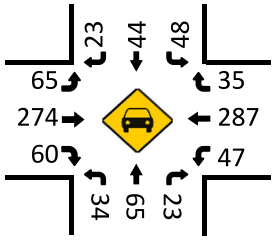

### HT (NOON)



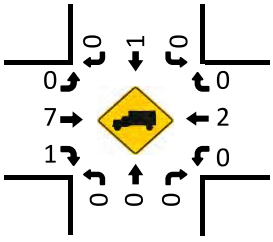

### Pedestrians (Crosswalks)




### 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 | COUNT PERIODS |
|---|---|
| 07:45 AM - 08:45 AM | 7:00 AM - 09:00 AM |
| NONE | NONE |
| 04:15 PM - 05:15 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 |

### 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 | |

### NORTHBOUND (Center St)

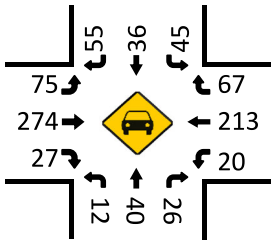
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 92 | 0 | 27 | 98 | 27 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 84 | 0 | 12 | 40 | 27 | AM |

### CONTROL

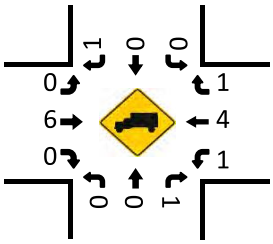
4-Way Stop

| | | | |
|---|---|---|---|
| TEV | 904 AM | 0 NOON | 1150 PM |
| PHF | 0.76 | | 0.95 |

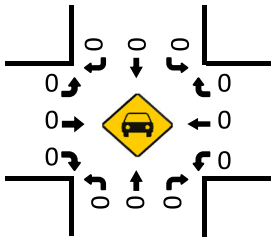
### Cars (AM)



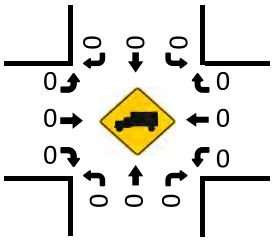

### HT (AM)



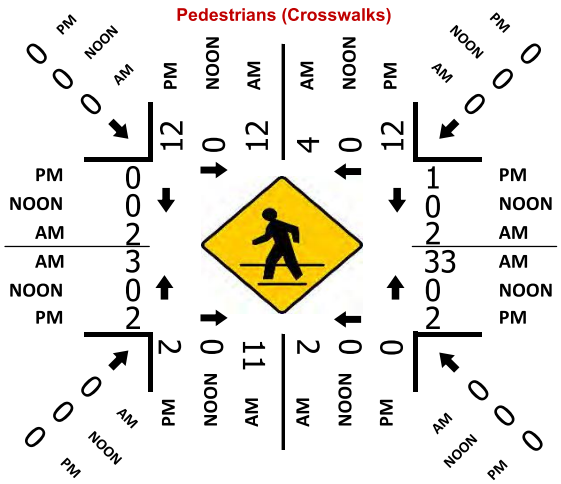

### Cars (NOON)



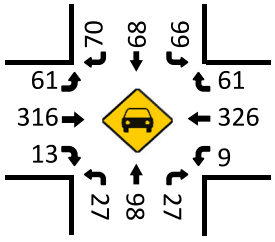

### HT (NOON)



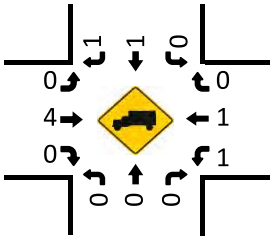

### Pedestrians (Crosswalks)




### 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 | COUNT PERIODS |
|---|---|
| 07:45 AM - 08:45 AM | 7:00 AM - 09:00 AM |
| NONE | NONE |
| 04:00 PM - 05:00 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)

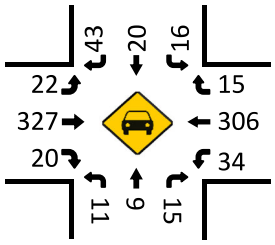
| PM | NOON | AM | |
|---|---|---|---|
| 14 | 0 | 15 | 0 |
| 393 | 0 | 311 | 2 |
| 27 | 0 | 37 | 0 |
| 0 | 0 | 0 | 0 |
| 501 | 0 | 365 | |
| PM | NOON | AM | |

### NORTHBOUND (Kansas St)

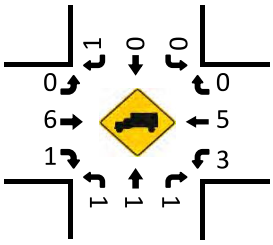
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 44 | 0 | 22 | 19 | 76 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 78 | 0 | 12 | 10 | 16 | AM |

| CONTROL | | | |
|---|---|---|---|
| Signalized | | | |
| TEV | 857 AM | 0 NOON | 1044 PM |
| PHF | 0.85 | | 0.93 |

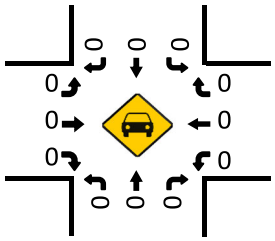
Cars (AM)



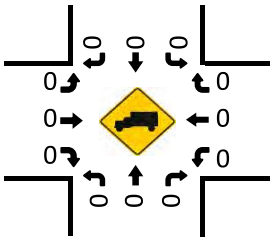

HT (AM)



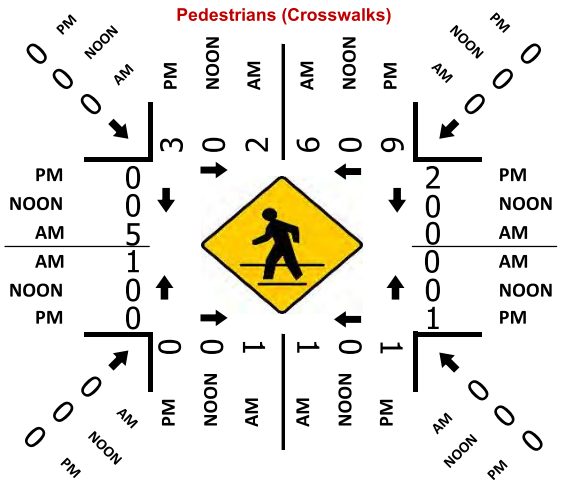

Cars (NOON)



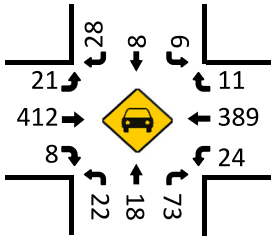

HT (NOON)



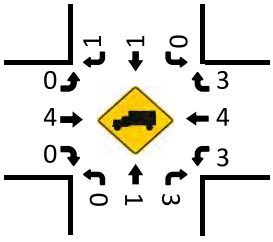

Pedestrians (Crosswalks)




Cars (PM)




HT (PM)



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 | ⇨ | |

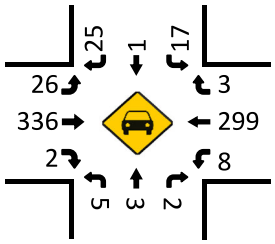
### NORTHBOUND (Maryland St)

| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 20 | 0 | 3 | 2 | 8 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 12 | 0 | 5 | 3 | 3 | AM |

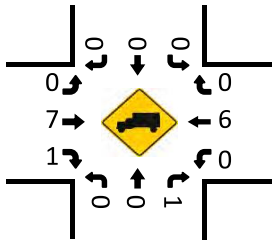
**CONTROL:** 2-Way Stop(NB/SB)

| | | | |
|---|---|---|---|
| TEV | 742 AM | 0 NOON | 868 PM |
| PHF | 0.71 | | 0.96 |

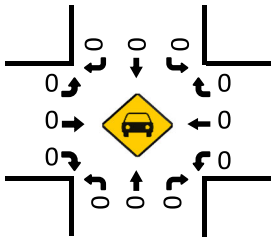
### Cars (AM)



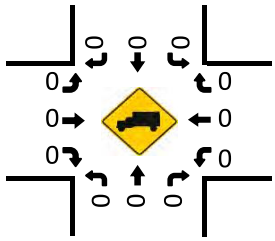

### HT (AM)



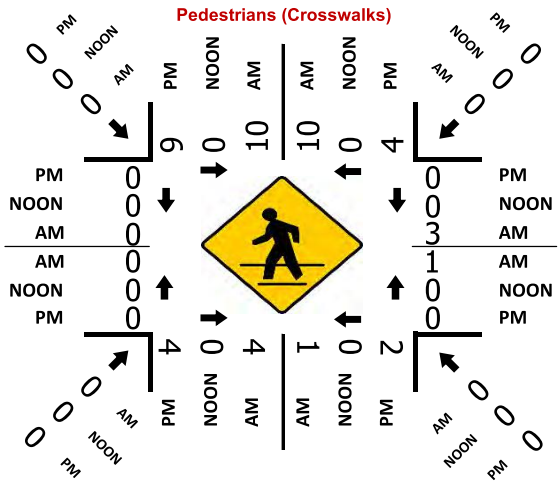

### Cars (NOON)



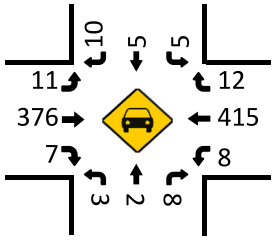

### HT (NOON)



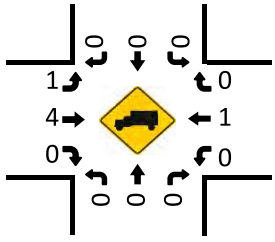

### Pedestrians (Crosswalks)




### 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)

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| AM | 0 | 8 | 10 | 0 | 6 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 4 | 5 | 5 | 0 | 18 |

### EASTBOUND (Franklin Ave)

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| AM | 24 | 0 | 44 | 0 | 1 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 1 | 0 | 0 | 0 | 0 |

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| AM | 3 | 0 | 6 | 0 | 0 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 26 | 0 | 43 | 1 | 0 |

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| AM | 2 | 0 | 5 | 0 | 0 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| PM | 10 | 0 | 0 | 4 | 0 |

### WESTBOUND (Franklin Ave)

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| PM | 8 | 0 | 1 | 0 | 0 |
| NOON | 40 | 0 | 21 | 1 | 0 |
| AM | 0 | 0 | 3 | 0 | 0 |

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| PM | 0 | 0 | 0 | 0 | 0 |
| NOON | 48 | 0 | 36 | 0 | 0 |
| AM | 13 | 0 | 2 | 2 | 0 |

### NORTHBOUND (Maryland St)

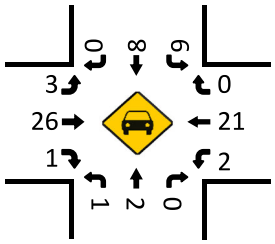
| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| PM | 4 | 0 | 3 | 3 | 0 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 0 | 1 | 0 | 0 | 1 |

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| PM | 0 | 0 | 0 | 0 | 0 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 1 | 0 | 0 | 0 | 0 |

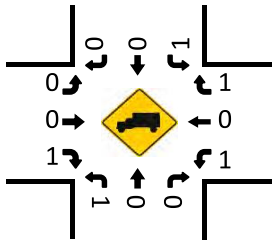
| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| PM | 1 | 0 | 0 | 1 | 0 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 0 | 0 | 0 | 0 | 0 |

| | Left | Thru | Right | U-Turn | |
|---|---|---|---|---|---|
| PM | 0 | 0 | 0 | 4 | 0 |
| NOON | 0 | 0 | 0 | 0 | 0 |
| AM | 0 | 0 | 0 | 0 | 0 |

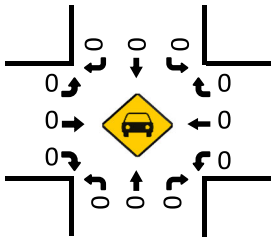
### Cars (AM)



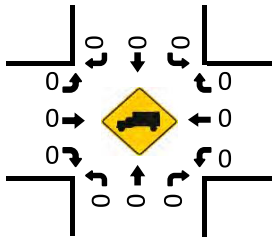

### HT (AM)



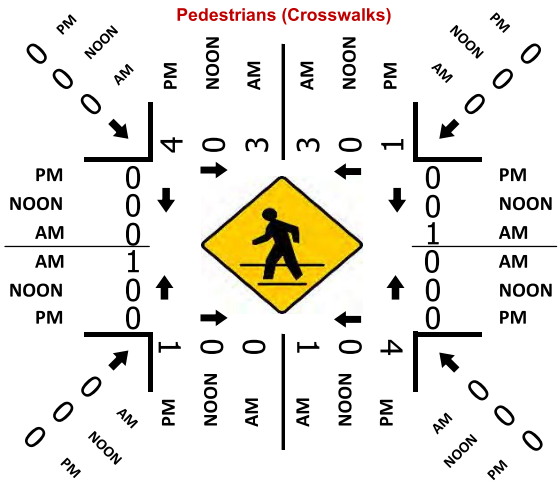

### Cars (NOON)



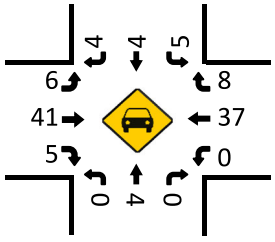

### HT (NOON)



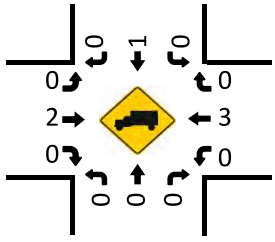

### Pedestrians (Crosswalks)




### Cars (PM)




### HT (PM)



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 | |

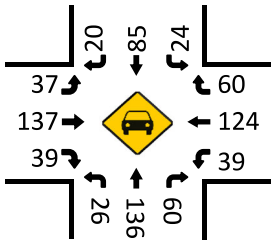
### NORTHBOUND (Center St)

| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 208 | 0 | 24 | 198 | 66 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 164 | 0 | 26 | 136 | 60 | AM |

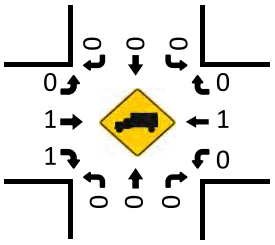
**CONTROL:** 4-Way Stop

| | | | |
|---|---|---|---|
| TEV | 790 AM | 0 NOON | 959 PM |
| PHF | 0.80 | | 0.99 |

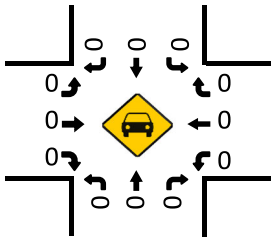
Cars (AM)



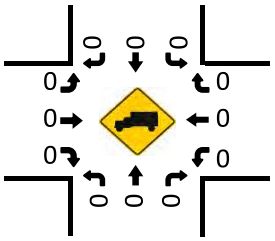

HT (AM)



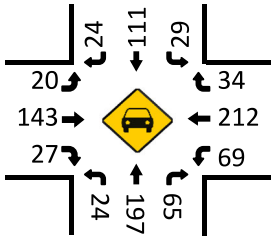

Cars (NOON)



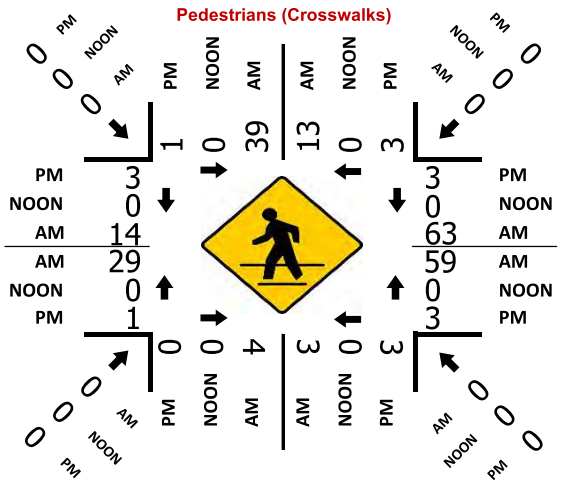

HT (NOON)



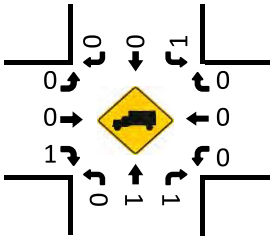

Cars (PM)




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 | COUNT PERIODS |
|---|---|
| 07:30 AM - 08:30 AM | 7:00 AM - 09:00 AM |
| NONE | NONE |
| 04:15 PM - 05:15 PM | 4:00 PM - 06:00 PM |

### SOUTHBOUND (Center St)

| | | | | | | |
|---|---|---|---|---|---|---|
| AM | 36 | 132 | 0 | 0 | 214 | AM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| PM | 50 | 167 | 0 | 0 | 268 | PM |

### EASTBOUND (Pine Ave)

| AM | NOON | PM | |
|---|---|---|---|
| 85 | 0 | 86 | |
| 0 | 0 | 0 | 0 |
| 76 | 0 | 66 | 0 |
| 0 | 0 | 0 | 1 |
| 21 | 0 | 50 | 0 |

### WESTBOUND (Pine Ave)

| PM | NOON | AM | |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | |

### NORTHBOUND (Center St)

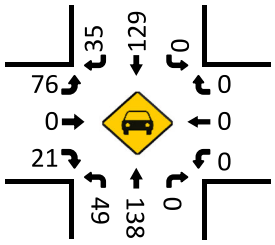
| | | | | | | |
|---|---|---|---|---|---|---|
| PM | 219 | 2 | 36 | 202 | 0 | PM |
| NOON | 0 | 0 | 0 | 0 | 0 | NOON |
| AM | 154 | 1 | 49 | 138 | 0 | AM |

### CONTROL

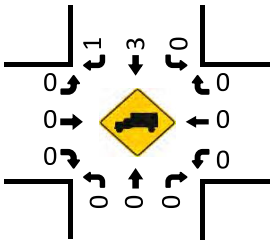
3-Way Stop(NB/SB/EB)

| | | | |
|---|---|---|---|
| TEV | 453 AM | 0 NOON | 573 PM |
| PHF | 0.66 | | 0.91 |

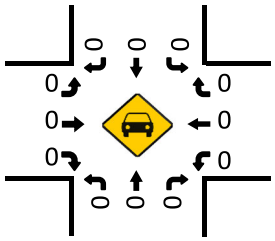
Cars (AM)



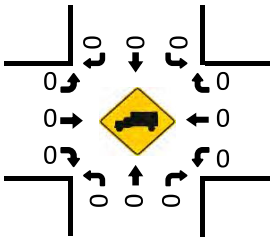

HT (AM)



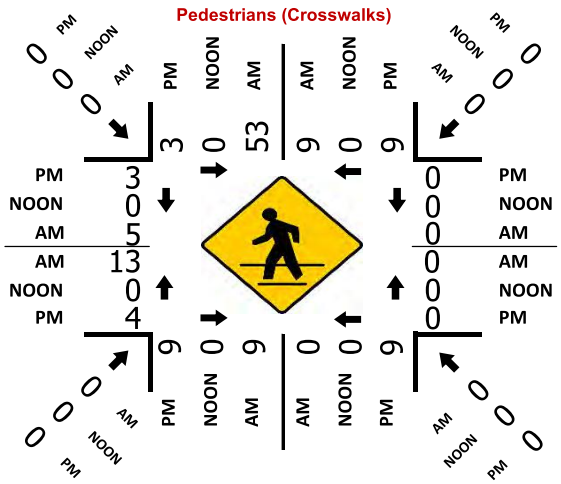

Cars (NOON)



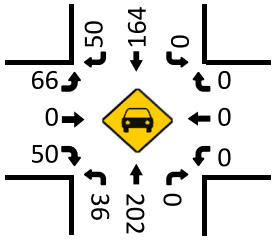

HT (NOON)



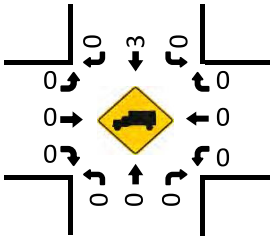

Pedestrians (Crosswalks)




Cars (PM)




HT (PM)



Kimley»Horn

# Attachment B

Existing Conditions Analysis Worksheets



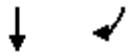
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 65 | 15 | 30 | 13 | 7 | 8 | 4 | 56 | 1638 | 43 | 22 | 15 |
| Future Volume (veh/h) | 65 | 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 | | | | |

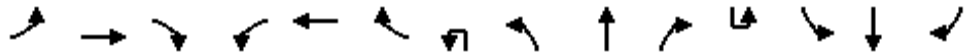
| Intersection Summary | | | |
|---|---|---|---|
| HCM 6th Ctrl Delay | | 6.7 | |
| HCM 6th LOS | | A | |

**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.



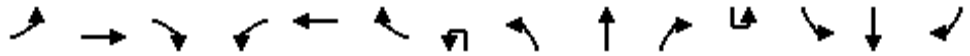
| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 99 | 189 | 46 | 1 | 78 | 93 | 99 | 14 | 56 | 1451 | 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 |



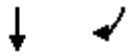
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 98 | 11 | 53 | 56 | 4 | 25 | 11 | 25 | 2019 | 26 | 28 | 4 |
| Future Volume (veh/h) | 98 | 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 | | | | |

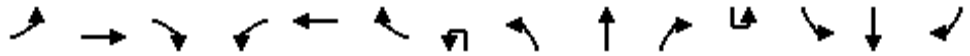
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 7.6 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

**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 | | |



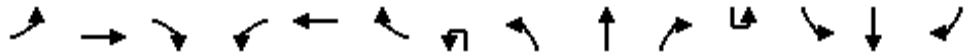
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 70 | 61 | 56 | 41 | 64 | 135 | 36 | 80 | 1887 | 107 | 11 | 68 | 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 | 14.8 | 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.



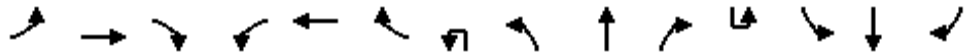
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 123 | 208 | 48 | 149 | 196 | 151 | 32 | 104 | 1666 | 116 | 44 | 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 |



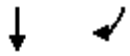
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 65 | 15 | 30 | 13 | 7 | 8 | 4 | 56 | 1638 | 43 | 22 | 15 |
| Pedestrians | | | | | | | | | | | | |
| 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 |

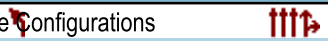
| Summary | EB WB | NB SB | Combined |
|---|---|---|---|
| Protected Option (s) | 19.0 | 47.7 | |
| Permitted Option (s) | 16.8 | 64.3 | |
| Split Option (s) | 19.0 | 72.0 | |
| Minimum (s) | 16.8 | 47.7 | 64.5 |

| 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 | | |



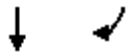
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 117 | 100 | 59 | 17 | 43 | 95 | 27 | 27 | 1515 | 137 | 9 | 143 |
| Pedestrians | | | | | | | | | | | | |
| 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 |

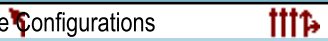
| Summary | EB WB | NB SB | Combined |
|---|---|---|---|
| Protected Option (s) | 24.6 | 48.2 | |
| Permitted Option (s) | 21.5 | 156.1 | |
| Split Option (s) | 24.6 | 65.7 | |
| Minimum (s) | 21.5 | 48.2 | 69.6 |

| 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 |

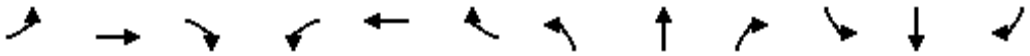
| Right Turns | EBR | WBR | SBR |
|---|---|---|---|
| Adj Reference Time (s) | 23.2 | 12.2 | 14.4 |
| Cross Thru Ref Time (s) | 40.1 | 51.8 | 22.3 |
| Oncoming Left Ref Time (s) | 9.5 | 10.4 | 18.7 |
| Combined (s) | 72.7 | 74.4 | 55.4 |

| 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



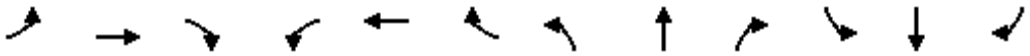
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 180 | 37 | 45 | 15 | 19 | 110 | 17 | 613 | 29 | 60 | 600 | 55 |
| Pedestrians | | | | | | | | | | | | |
| 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.



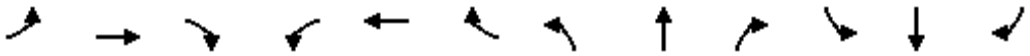
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 65 | 27 | 25 | 49 | 19 | 82 | 19 | 474 | 43 | 37 | 619 | 18 |
| Pedestrians | | | | | | | | | | | | |
| 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.



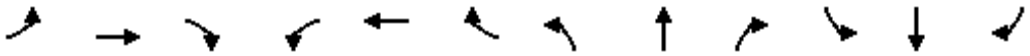
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 63 | 59 | 26 | 30 | 43 | 120 | 20 | 357 | 34 | 105 | 373 | 44 |
| Pedestrians | | | | | | | | | | | | |
| 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.



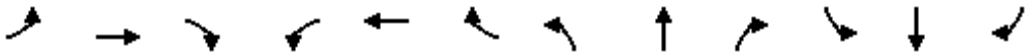
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 63 | 56 | 34 | 6 | 28 | 83 | 18 | 267 | 7 | 56 | 331 | 40 |
| Pedestrians | | | | | | | | | | | | |
| 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.



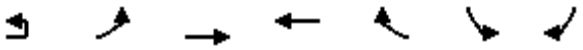
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 48 | 205 | 45 | 9 | 160 | 104 | 52 | 142 | 11 | 135 | 143 | 68 |
| Pedestrians | | | | | | | | | | | | |
| 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.



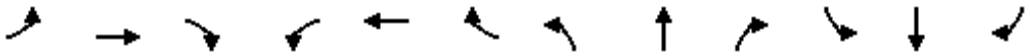
| Movement | EBU | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Volume (vph) | 1 | 4 | 179 | 124 | 145 | 120 | 4 |
| Pedestrians | | | | | | | |
| Ped Button | | | | | | | |
| Pedestrian Timing (s) | | | | | | | |
| Free Right | | | | | 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) |

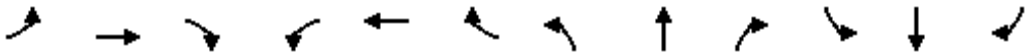
| Intersection Summary | | | |
|---|---|---|---|
| Intersection Capacity Utilization | 27.1% | ICU Level of Service | A |

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



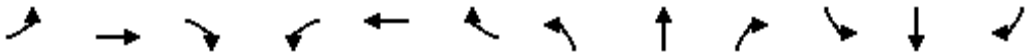
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 273 | 52 | 14 | 225 | 52 | 30 | 30 | 14 | 41 | 59 | 23 |
| Pedestrians | | | | | | | | | | | | |
| 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.



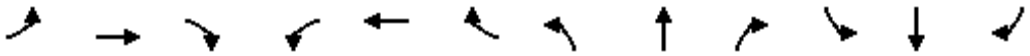
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 75 | 280 | 27 | 21 | 217 | 68 | 12 | 40 | 27 | 45 | 36 | 56 |
| Pedestrians | | | | | | | | | | | | |
| 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.



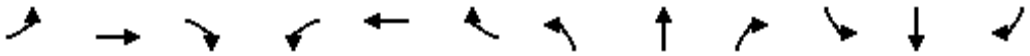
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 22 | 333 | 21 | 37 | 311 | 15 | 12 | 10 | 16 | 16 | 20 | 44 |
| Pedestrians | | | | | | | | | | | | |
| 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 |

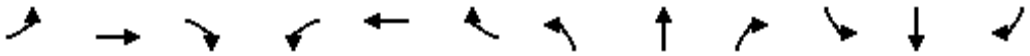
| Right Turns |
|---|
| Adj Reference Time (s) |
| Cross Thru Ref Time (s) |
| Oncoming Left Ref Time (s) |
| Combined (s) |

| 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.



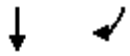
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 98 | 11 | 53 | 56 | 4 | 25 | 11 | 25 | 2019 | 26 | 28 | 4 |
| Pedestrians | | | | | | | | | | | | |
| 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 | | |



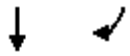
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 61 | 56 | 41 | 64 | 135 | 36 | 80 | 1887 | 107 | 11 | 68 |
| Pedestrians | | | | | | | | | | | | |
| 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 | | |

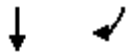
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 123 | 208 | 48 | 149 | 196 | 151 | 32 | 104 | 1666 | 116 | 44 | 170 |
| Pedestrians | | | | | | | | | | | | |
| 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 |

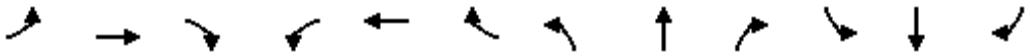
| Right Turns | EBR | WBR | SBR |
|---|---|---|---|
| Adj Reference Time (s) | 40.5 | 16.2 | 9.8 |
| Cross Thru Ref Time (s) | 57.3 | 45.0 | 27.3 |
| Oncoming Left Ref Time (s) | 18.0 | 13.1 | 17.1 |
| Combined (s) | 115.8 | 74.3 | 54.2 |

| 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



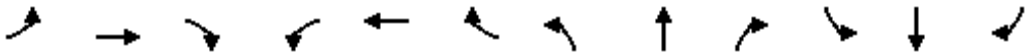
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 107 | 24 | 28 | 27 | 22 | 65 | 24 | 536 | 35 | 81 | 611 | 141 |
| Pedestrians | | | | | | | | | | | | |
| 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.



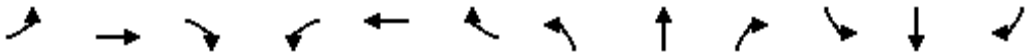
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 12 | 27 | 37 | 25 | 36 | 32 | 584 | 22 | 29 | 589 | 15 |
| Pedestrians | | | | | | | | | | | | |
| 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.



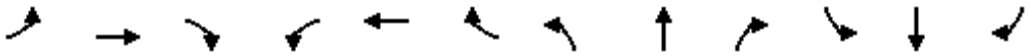
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 66 | 70 | 30 | 48 | 80 | 117 | 23 | 444 | 45 | 147 | 440 | 41 |
| Pedestrians | | | | | | | | | | | | |
| 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.



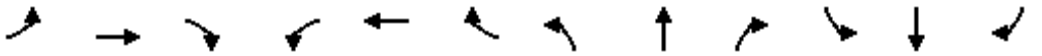
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 57 | 24 | 24 | 10 | 19 | 84 | 38 | 432 | 7 | 54 | 384 | 46 |
| Pedestrians | | | | | | | | | | | | |
| 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.



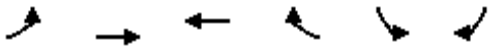
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 234 | 51 | 40 | 178 | 129 | 63 | 273 | 26 | 136 | 161 | 73 |
| Pedestrians | | | | | | | | | | | | |
| 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.



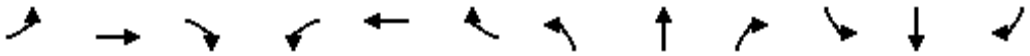
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 49 | 297 | 175 | 189 | 178 | 24 |
| Pedestrians | | | | | | |
| Ped Button | | | | | | |
| Pedestrian Timing (s) | | | | | | |
| Free Right | | | | No | | No |
| Ideal Flow | 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.



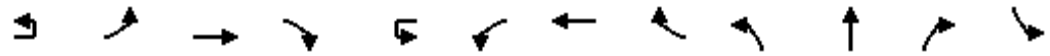
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 17 | 240 | 24 | 7 | 250 | 15 | 64 | 26 | 6 | 12 | 20 | 9 |
| Pedestrians | | | | | | | | | | | | |
| 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 |

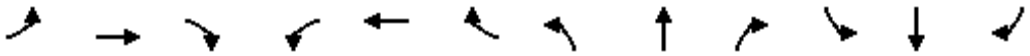
| Right Turns |
|---|
| Adj Reference Time (s) |
| Cross Thru Ref Time (s) |
| Oncoming Left Ref Time (s) |
| Combined (s) |

| 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 | | |



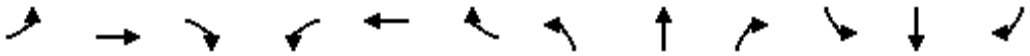
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 65 | 281 | 61 | 47 | 289 | 35 | 34 | 65 | 23 | 48 | 45 | 23 |
| Pedestrians | | | | | | | | | | | | |
| 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.



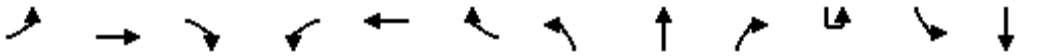
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 61 | 320 | 13 | 10 | 327 | 61 | 27 | 98 | 27 | 66 | 69 | 71 |
| Pedestrians | | | | | | | | | | | | |
| 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) |

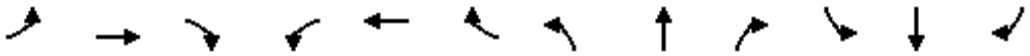
| Intersection Summary | | | |
|---|---|---|---|
| Intersection Capacity Utilization | 44.6% | ICU Level of Service | A |

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



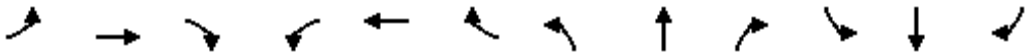
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 12 | 380 | 7 | 8 | 416 | 12 | 3 | 2 | 8 | 5 | 5 | 10 |
| Pedestrians | | | | | | | | | | | | |
| 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



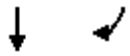
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 85 | 15 | 41 | 13 | 7 | 8 | 4 | 60 | 1720 | 43 | 22 | 15 |
| Future Volume (veh/h) | 85 | 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 | | | | |

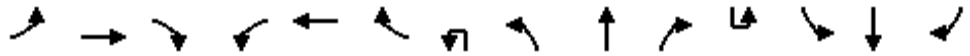
| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | 7.3 | |
| HCM 6th LOS | A | |

**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.



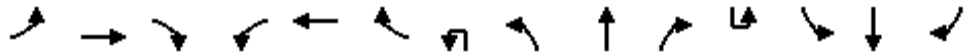
| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 122 | 204 | 62 | 1 | 79 | 98 | 100 | 14 | 61 | 1506 | 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 | 5.2 | 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 |



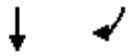
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 98 | 11 | 53 | 56 | 4 | 25 | 11 | 25 | 2019 | 26 | 28 | 4 |
| Future Volume (veh/h) | 98 | 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 | | | | |

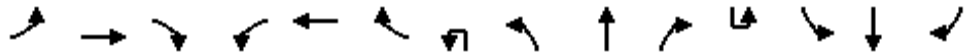
| Intersection Summary | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HCM 6th Ctrl Delay | | | 7.6 | | | | | | | | | |
| HCM 6th LOS | | | A | | | | | | | | | |

**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 | | |



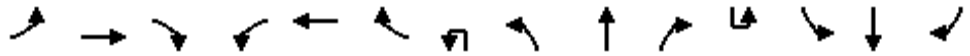
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 70 | 61 | 56 | 41 | 64 | 135 | 36 | 80 | 1887 | 107 | 11 | 68 | 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 | 14.8 | 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.



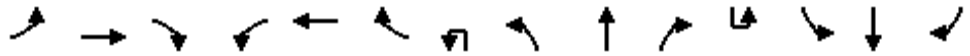
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 123 | 208 | 48 | 149 | 196 | 151 | 32 | 104 | 1666 | 116 | 44 | 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 |



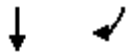
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 85 | 15 | 41 | 13 | 7 | 8 | 4 | 60 | 1720 | 43 | 22 | 15 |
| Pedestrians | | | | | | | | | | | | |
| 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 | | |



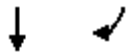
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 138 | 108 | 74 | 21 | 46 | 96 | 27 | 31 | 1579 | 148 | 9 | 145 |
| Pedestrians | | | | | | | | | | | | |
| 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

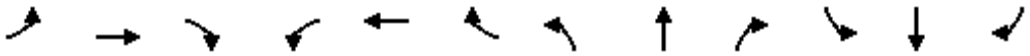
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 200 | 37 | 69 | 15 | 19 | 110 | 25 | 658 | 29 | 60 | 614 | 61 |
| Pedestrians | | | | | | | | | | | | |
| 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.

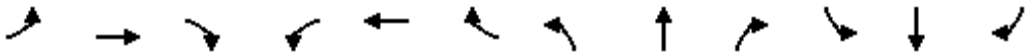
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 79 | 61 | 26 | 31 | 44 | 129 | 20 | 399 | 36 | 110 | 406 | 49 |
| Pedestrians | | | | | | | | | | | | |
| 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.

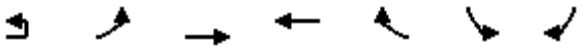
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 59 | 232 | 54 | 9 | 175 | 108 | 55 | 152 | 11 | 142 | 164 | 75 |
| Pedestrians | | | | | | | | | | | | |
| 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.



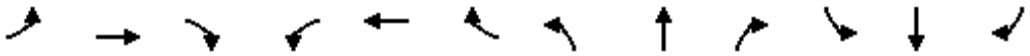
| Movement | EBU | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Volume (vph) | 1 | 4 | 187 | 127 | 159 | 162 | 4 |
| Pedestrians | | | | | | | |
| Ped Button | | | | | | | |
| Pedestrian Timing (s) | | | | | | | |
| Free Right | | | | | 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) |

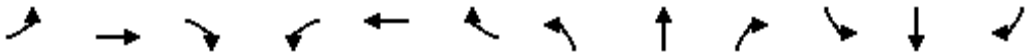
| Intersection Summary | | | |
|---|---|---|---|
| Intersection Capacity Utilization | 29.7% | ICU Level of Service | A |

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



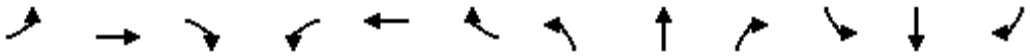
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 29 | 306 | 53 | 15 | 237 | 54 | 35 | 30 | 17 | 48 | 59 | 25 |
| Pedestrians | | | | | | | | | | | | |
| 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.



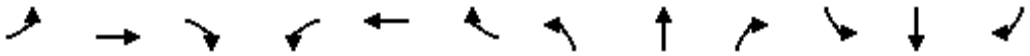
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 90 | 323 | 27 | 21 | 231 | 81 | 12 | 40 | 27 | 58 | 36 | 61 |
| Pedestrians | | | | | | | | | | | | |
| 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.



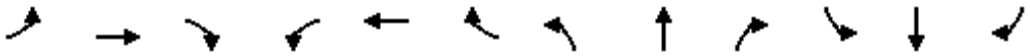
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 25 | 385 | 21 | 37 | 326 | 18 | 12 | 10 | 16 | 25 | 20 | 56 |
| Pedestrians | | | | | | | | | | | | |
| 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.

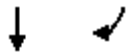
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 110 | 11 | 58 | 56 | 4 | 25 | 11 | 35 | 2066 | 26 | 28 | 4 |
| Pedestrians | | | | | | | | | | | | |
| 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 | | |

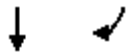
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 227 | 152 | 180 | 264 | 168 | 186 | 12 | 162 | 1490 | 170 | 13 | 46 |
| Pedestrians | | | | | | | | | | | | |
| 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 |

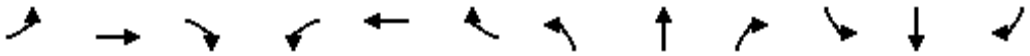
| Intersection Summary | | | |
|---|---|---|---|
| Intersection Capacity Utilization | 98.9% | ICU Level of Service | F |

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.

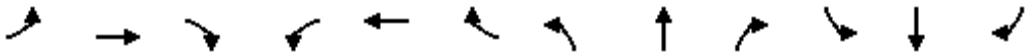
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 31 | 13 | 27 | 55 | 27 | 38 | 32 | 625 | 32 | 30 | 635 | 17 |
| Pedestrians | | | | | | | | | | | | |
| 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.



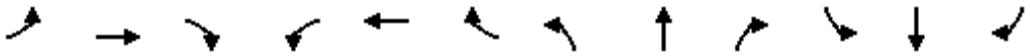
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 74 | 71 | 30 | 49 | 81 | 123 | 23 | 481 | 46 | 154 | 482 | 55 |
| Pedestrians | | | | | | | | | | | | |
| 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.

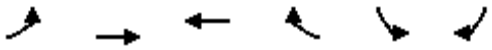
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 68 | 251 | 56 | 40 | 205 | 136 | 71 | 293 | 26 | 141 | 174 | 84 |
| Pedestrians | | | | | | | | | | | | |
| 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.



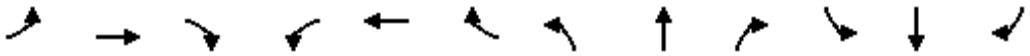
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (vph) | 49 | 301 | 182 | 229 | 200 | 24 |
| Pedestrians | | | | | | |
| Ped Button | | | | | | |
| Pedestrian Timing (s) | | | | | | |
| Free Right | | | | No | | No |
| Ideal Flow | 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.



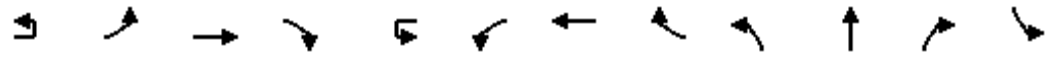
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 17 | 246 | 24 | 18 | 256 | 19 | 64 | 26 | 13 | 14 | 20 | 9 |
| Pedestrians | | | | | | | | | | | | |
| 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 | | |

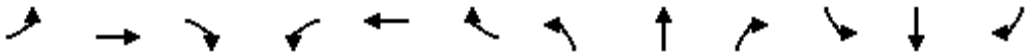
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 66 | 299 | 65 | 49 | 320 | 41 | 37 | 65 | 24 | 51 | 45 | 24 |
| Pedestrians | | | | | | | | | | | | |
| 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.



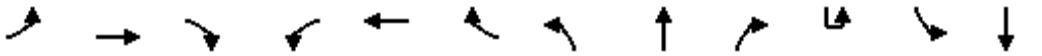
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 66 | 344 | 13 | 10 | 368 | 76 | 27 | 98 | 27 | 80 | 69 | 81 |
| Pedestrians | | | | | | | | | | | | |
| 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) |

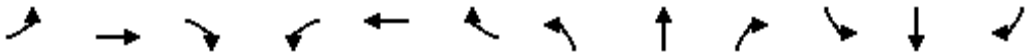
| Intersection Summary | | | |
|---|---|---|---|
| Intersection Capacity Utilization | 47.0% | ICU Level of Service | A |

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.

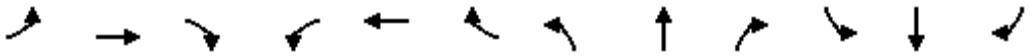
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 14 | 43 | 5 | 0 | 40 | 8 | 0 | 10 | 0 | 5 | 10 | 18 |
| Pedestrians | | | | | | | | | | | | |
| Ped 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**

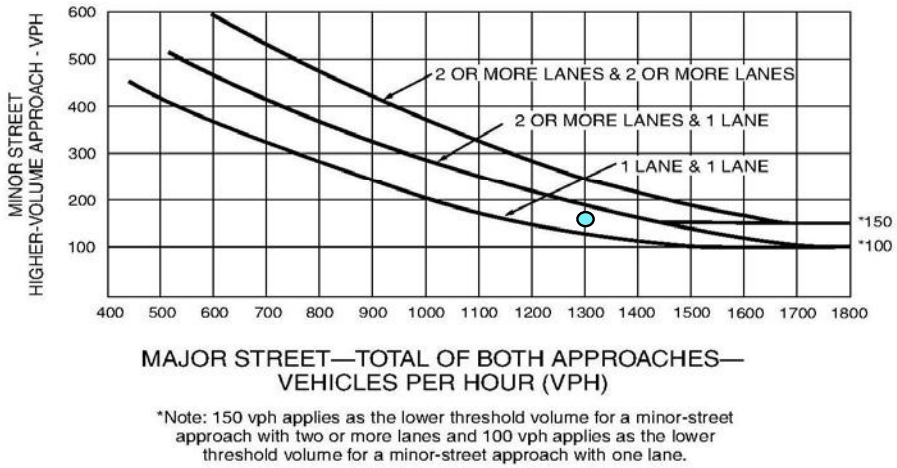
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; AND — Yes
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving 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**

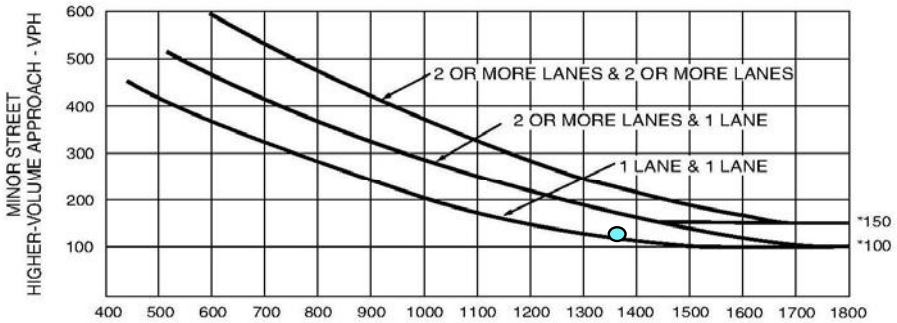
| | | |
|---|---|---|
| 1. | The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle hours for a two-lane approach; AND | No |
| 2. | The volume on the same minor street approach equals 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

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300 phone
213.599.4301 fax

esassoc.com

# technical memorandum

| | |
|---|---|
| date | October 31, 2023 |
| to | Michael Allen |
| cc | |
| from | Alan Sako, LLED AP BD+C<br>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 $\mu g/m^3$ 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 $\mu g/m^3$ 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:

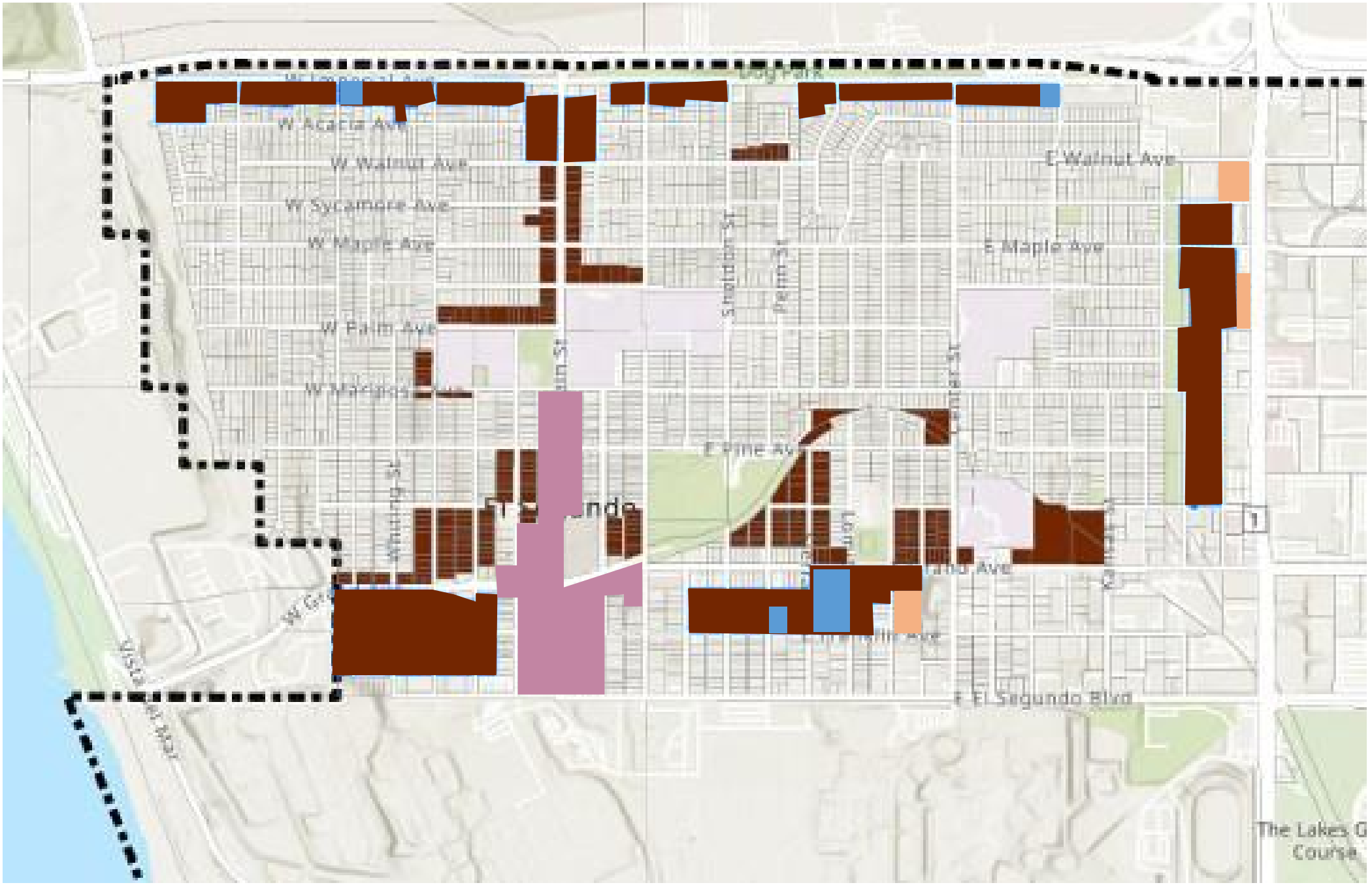
> *Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR [noise level reduction] of at least 25 dB to 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be 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.




- 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** |

# 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 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 1.44 | 3.80 | 5.24 | 0.15 | < 0.005 | — | 10.0 |
| Apartments 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 48.6 | 0.00 | 48.6 | 4.86 | 0.00 | — | 170 |
| 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 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Apartments Low Rise | — | — | — | — | — | — | — | — | — | — | — | 48.6 | 0.00 | 48.6 | 4.86 | 0.00 | — | 170 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

| 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

| 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 |

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 |

| | |
|---|---|
| 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. |

# 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 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

| 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 |

| | |
|---|---|
| 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 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 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 |

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 |

| | |
|---|---|
| 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. |

# El Segundo 2021-2029 HEU_2040 Detailed Report

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8. User Changes to Default Data

# 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 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

| 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 |

| | |
|---|---|
| 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 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 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 |

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 |

| | |
|---|---|
| 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. |