Miro Way and Ayala Drive Project

Final Subsequent Environmental Impact Report SCH No. 2024070224

CITY OF RIALTO

150 S. Palm Avenue
Rialto, California 92376

August 2025

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MIRO WAY AND AYALA DRIVE PROJECT

FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT SCH NO. 2024070224

Prepared for	City of Rialto 150 Palm Avenue Rialto, California 92376
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Date	August 2025

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Attachment 1: Revised Biological Technical Report (July 2025)
Attachment 2: Traffic Study (no revisions, stamped copy included for reference)
Attachment 3: 2040 Horizon Year VMT Screening Tool Results

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1.0 SUMMARY OF THE FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

1.1 INTRODUCTION

The City of Rialto (City) has determined that a subsequent environmental impact report (SEIR) is required for the Miro Way and Ayala Drive Project (proposed Project or Project) pursuant to the requirements of the California Environmental Quality Act (CEQA). CEQA requires the preparation of an Environmental Impact Report prior to approving any project that may have a significant impact on the environment. For the purposes of CEQA, the term "proposed Project" refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]).

A Subsequent EIR (SEIR) is prepared when there have been substantial changes to the project, the circumstances under which the project is being undertaken, or new information has surfaced that was not known during the preparation of the original EIR. An SEIR focuses on the new significant environmental effects or an increase in the severity of previously identified significant effects that may arise due to these changes.

The City circulated a Notice of Preparation (NOP) of a SEIR for the proposed Project on July 8, 2024 to affected agencies, interested parties, and the public. A scoping meeting was held on August 1, 2024 at 6:00 PM at the Rialto City Hall, Council Chambers. The scoping period occurred from July 8, 2024 to August 7, 2024. A Draft Subsequent EIR (Draft SEIR) was prepared. The City published a public Notice of Availability (NOA) for the Draft SEIR on March 21, 2025, inviting comment from the general public, agencies, organizations, and other interested parties. The NOA was also mailed to various agencies, organizations, and individuals that had previously requested such notice. The NOA was filed with the State Clearinghouse (SCH# 2024070224) pursuant to the public noticing requirements of CEQA.

This Final SEIR was prepared to address comments received in response to the Draft SEIR. Acting as lead agency, the City has prepared a written response to the Draft SEIR; textual changes to the Draft SEIR were not warranted. The responses to the comments are set forth in Section 2.0 in this Final SEIR. Responses to comments received during the comment period do not require any new information to be added to the SEIR, thus the Final SEIR does not contain any new significant impacts or “significant new information” that would require recirculation of the Draft SEIR pursuant to CEQA Guidelines Section 15088.5.

1.2 PROJECT SUMMARY

The project site is located directly west of Ayala Drive, approximately 450 feet north of Baseline Road, and east of Linden Avenue within the 2016 Renaissance Specific Plan Area (RSPA), in the City of Rialto, County of San Bernardino, California. The project site consists of approximately 35-acre vacant and undeveloped land and ranges in elevation from 1,385 to 1,420 feet above mean sea level (amsl).

The project site has a Rialto General Plan (General Plan) land use designation of Specific Plan. The Specific Plan designation requires the implementation of a specific plan. The project site is located within the 2016 Renaissance Specific Plan Amendment (RSPA) area. Under the 2016 RSPA, the project site consists of Planning Areas 123, 126, and 133, which are zoned School, Public Park, and Employment with a Designated Park overlay, respectively. The Project would include the rezone of Planning Area 123 (north

of Miro Way) from School to General Commercial with a Residential overlay. The Project would also include the rezone of Planning Areas 126 and 133 (south of Miro Way) from Park and Employment with a designated Park overlay to Business Center, to allow for the development of two industrial warehouses. A Conditional Development Permit (CDP) would be required for Project development, as a warehouse is a conditionally permitted use within an industrial land use designation. The rezone described herein would be processed as an amendment to the Renaissance Specific Plan to change the Renaissance Specific Plan land use category for these Planning Areas. The Project proposes approximately 399,715 sf of warehouse space and 29,000 sf of ancillary office space. The warehouse development consists of Accessor's Parcel Number (APN) 0264-211-15 and -20; 0264-212-12; -17; -30; -44; -45; -46; and portions of 0264-212-05 and -06.

1.3 PROJECT OBJECTIVES

Section 15124(b) of the State CEQA Guidelines (14 CCR) requires "A statement of objectives sought by the proposed Project. The following objectives have been identified for the Project.

- To implement the approved Renaissance Specific Plan as amended.
- To facilitate the redevelopment of the former Rialto Airport.
- To implement and facilitate the rezone of Planning Area 123.
- To implement and facilitate the development of the Planning Area 126 and 133 industrial/warehouse development.
- To facilitate development through efficient land use planning and phased infrastructure design.
- To create a range of job and economic development opportunities for local individuals and businesses.
- To continue to develop a master planned community that has a unique character and quality with a commitment to sustainability, flexible planning, high quality architecture and site design, and the provision of attractive on-site open space, public spaces, recreational facilities, and landscape design.

1.4 REQUIRED ACTIONS AND PERMITS

Pursuant to Section 15121 of the State CEQA Guidelines, an EIR is primarily an informational document intended to inform the public agency decision-makers and the general public of the potentially significant environmental effects of a project. Prior to taking action on the proposed Project, the City must consider the information in this SEIR and certify the Final SEIR.

The City of Rialto, as lead agency for the Project, has discretionary authority over the primary approvals. The Applicant has requested the consideration of the following discretionary actions.

1.4.1 City of Rialto

- Certification of the Miro Way and Ayala Drive Project Final Subsequent Environmental Impact Report
- Renaissance Specific Plan Amendment: The proposed Project proposes to change the existing land use designations of Planning Areas 126 and 133 to Business Center, and Planning Area 123 to General Commercial with a Residential overlay.
- Tentative Parcel Map (TPM): The proposed Project includes a TPM for the approximately 20.76-acre project site.
- Conditional Development Permit (CDP): The proposed Project includes a CDP for the development of two warehouse buildings, which is considered a conditionally permitted use in the Business Center zone within the City.
- Amended Development Agreement (DA): The proposed Project would include an amendment to the previous DA with the City for the development of the project site.
- Precise Plan of Design (PPD): The proposed Project includes the review of a PPD for two warehouse buildings totaling up to approximately 399,715 sf of warehouse space and 29,000 sf of office space. The total site area is approximately 20.76 acres.

In addition to the approvals identified above, the Project would be subject to other discretionary and ministerial actions by the City as part of Project implementation. Additional City approvals may include but are not limited to haul route permits, site development permits, grading permits, use permits, sign permits, and building permits.

1.4.2 Responsible Agencies

- Santa Ana Regional Water Quality Control Board (RWQCB): Issuance of a National Pollution Discharge Elimination System (NPDES) Permit and Construction General Permit.

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2.0 COMMENTS AND RESPONSES

2.1 INTRODUCTION TO COMMENTS AND RESPONSES

The purpose of this section is to present public comments and responses to comments received on the Draft Subsequent Environmental Impact Report (SEIR) (State Clearinghouse Number (SCH# 2024070224)) for the Miro Way and Ayala Drive (proposed Project or Project) located in the City of Rialto (City). The Draft SEIR was released for public review and comment by the City of Rialto on March 21, 2025 for a 45-day review period ending on May 5, 2025.

In accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15088, the City of Rialto, as the Lead Agency, has evaluated all substantive comments received on the Miro Way and Ayala Drive Draft SIR, and has prepared written responses to these comments. This document has been prepared in accordance with CEQA and represents the independent judgment of the Lead Agency.

The Final SEIR for the Miro Way and Ayala Drive Project consists of the Draft SEIR and its technical appendices; the Responses to Comments included herein; other written documentation prepared during the EIR process; and those documents which may be modified by the City Council at the time of consideration of certification of the Final SEIR. The City Council would also consider adoption of a Mitigation Monitoring and Reporting Program (MMRP), a Statement of Findings of Fact, and a Statement of Overriding Considerations as part of the approval process for the Project.

This Response to Comments is organized as follows:

Section 2.1 Provides a brief introduction to this section.

Section 2.2 Identifies the Draft SEIR commenters.

Section 2.3 Provides responses to substantive comments received on the Draft SEIR.

CEQA Guidelines Section 15204(a) directs persons and public agencies to focus their review of a Draft EIR be "on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects. At the same time, reviewers should be aware that the adequacy of an EIR is determined in terms of what is reasonably feasible…. CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR."

CEQA Guidelines Section 15204(c) further advises, "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence." Section 15204(d) states, "Each responsible agency and trustee agency shall focus its comments on environmental information germane to that agency's statutory responsibility." CEQA Guidelines Section 15204(e) states,

"This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."

In accordance with CEQA, Public Resources Code Section 21092.5, copies of the written responses to public agencies will be forwarded to those agencies at least ten days prior to certifying the EIR.

2.2 LIST OF RESPONDENTS

In accordance with the State CEQA Guidelines Section 15132, the following is a list of public agencies, organizations, and individuals and businesses that submitted comments on the Draft SEIR received as of close of the public review period on May 5, 2025.

The City of Rialto received comment letters from two agencies and two organizations. Responses are provided as shown below.

Commenter	Date of Correspondence	Page No.
Agencies		
California Department of Fish and Wildlife	May 5, 2025	2-5
California Department of Transportation	May 5, 2025	2-41
Organizations		
Center for Community Action and Environmental Justice	May 2, 2025	2-51
Mitchell M. Tsai Law Firm on behalf of the Western States Regional Council of Carpenters (WSRCC)	April 30, 2025	2-57

2.3 RESPONSES TO COMMENTS

Responses to comment letters are included in the following pages.

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A-1

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Boulevard, Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

May 5, 2025

Daniel Casey, Senior Planner
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Miro Way and Ayala Drive Project (PROJECT)
DRAFT SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (DSEIR)
SCH# 2024070224

Dear Daniel Casey:

A-1-1

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a DSEIR from the City of Rialto for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

A-1-2

PROJECT DESCRIPTION SUMMARY

Proponent: Lewis-Hillwood Rialto Company, LLC and City of Rialto

Objective: The 35-acre Project site is located within the 2016 Renaissance Specific Plan Amendment (RSPA) area (SCH# 2006071021), and proposes to rezone Planning Areas 123, 126, and 133. Planning Areas 126 and 133 would be rezoned from Public Park and Employment to a Business Center that would allow for the construction of two industrial warehouse buildings, Building 1 would be 53,640 square feet (sf) and Building 2 approximately 375,075 sf, on a 20.76 acre site. Warehouse development activities include associated landscaping totaling 155,000 sf, outdoor lighting, and on- and off-site improvements that are comprised of the reconfiguration and construction of Miro Way and

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

A-1-2 continued

associated street improvements, and utility and roadway improvements north of Miro Way and within the right-of-way of Linden Avenue and Ayala Drive. The construction footprint for proposed activities and off-site improvements totals 27.19 acres.

Planning Area 123 would be rezoned from School to General Commercial with a Residential Overlay. No development of Planning Area 123 is proposed as part of the Project.

Location: The Project is located within the south-eastern region of the RSPA, west of Ayala Drive, east of Linden Avenue, 215 feet north of Baseline Road, and 0.65 miles south of the State Route 210, in the City of Rialto, San Bernardino County; Assessor's Parcel Numbers [APN] 0264-211-15 and 20, 0264-212-12, -17, -30, -44-46, -54. The latitude and longitude for the Project are 34.124582, -117.398001.

Timeframe: The DSEIR states the Project is expected to commence in 2025 with a construction duration of approximately 13 months and would be completed in one phase of construction.

A-1-3

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the City of Rialto in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

A-1-4

COMMENT 1: Burrowing Owl (*Athene cunicularia*)

DSEIR Section 4.3, Page 22-23

Issue: Western burrowing owl is a candidate species protected under CESA, and as such is granted the full protection of a threatened or endangered species under CESA. The Project has the potential to result in permanent and temporary loss and degradation of burrowing owl habitat and take of the species. CDFW is concerned that impacts to burrowing owls and how they utilize the Project site are not adequately identified nor fully defined in the DSEIR.

A-1-5

Specific impact: The DSEIR indicates that focused burrowing owl surveys were completed during the breeding season, however, the dedicated burrowing owl section does not provide survey dates, if surveys were repeated in separate years, the numbers of owls observed on-site and within adjacent areas, and the protocols used. To address this absence of data, the burrowing owl survey methods and findings from the Biological Technical Report (BTR), Appendix D, prepared by Rocks Biological Consulting (March 2025) should be incorporated into the DSEIR to comply with CEQA requirements of meaningful disclosure regarding environmental impacts. The BTR indicates that focused burrowing owl surveys were conducted during the breeding season, using breeding survey protocols set forth in *Staff Report on Burrowing Owl Mitigation* (Department of Fish and Game, March 2012)[2], on February 16, April 26, June 12, and July 3, 2023, and further discloses that two owls were present on-site during the initial survey, and absent during the subsequent surveys.

A-1-6

The DSEIR states (pg 4.3-22) "*Burrowing owl (State candidate for listing under CEQA) was detected on-site during focused surveys and has potential to inhabit the site in the future;[...]The project site has moderate potential to support burrowing owl. No burrowing owl, active burrows, or burrowing owl sign were observed during biological surveys. As such, the absence of burrowing owl during the peak breeding season suggests that the project site is not currently used by burrowing owl for nesting. However, there is evidence that the project site is used by burrowing owl for refuge and foraging outside of nesting season.*" Given that burrowing owls are known to be adaptable and can utilize highly degraded and marginal habitats where existing

[2] California Department of Fish and Game(CDFG). 2012 Staff report on burrowing owl mitigation. State of California, Natural Resource Agency. BUOW Staff Report Final 030712.pdf.

burrows are available, and that the species has been observed both on-site and within the immediate area, in addition to historic colony documentation within the RSPA, the Project site has a *high* potential to support burrowing owls.

A-1-6 continued

In addition to the 2023 focused breeding season surveys, two general biological surveys were conducted on October 11, 2022, and July 31, 2024. Although no signs of burrowing owls were detected during these two surveys, the surveys were implemented outside the species' peak breeding season (April 15 – July 15) with an insufficient survey methodology (not protocol focused). As such, the results of these surveys are not reliable indicators of burrowing owl presence or absence and should not be considered conclusive evidence of how the site is currently being used by the species. To properly assess site usage, annual focused surveys during both the breeding and non-breeding seasons would need to be completed to accurately determine site utilization and scope of impacts due to Project implementation. It is important to note that failure to locate burrowing owls during one field season does not constitute evidence that the site is no longer occupied.

A-1-7

CDFW appreciates that focused breeding survey methods employed did adhere to the guidelines outlined in the 2012 Staff Report, although additional focused surveys would have been beneficial following the positive sighting of burrowing owls during the initial survey. Additional surveys following the positive observation could have allowed for a more comprehensive understanding of site utilization by determining if the owls were migratory or year-round residents, estimation of the home ranges of each individual or family units, further assessment of which burrows were being occupied, and estimation of foraging areas. Moreover, detailed information on what behavior and activity of the burrowing owls present should have been provided in the BTR.

A-1-8

Lastly, the DSEIR asserts that implementation of proposed Mitigation Measures BIO-1A, 1B, 3A, 3B, 3C and 3D, to address Project impacts to burrowing owls would result in less than significant impacts with mitigation. CDFW would like to emphasize that these measures are intended to minimize and avoid impacts, but they may not provide adequate mitigation. CDFW recommends the City mitigate as outlined in the 2012 Staff Report, which states that "*current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence or burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow*". The 2012 Staff Report considers a site occupied if at least one burrowing owl has been observed on-site within the last three years. The DSEIR does not provide or propose mitigation to ensure the permanent conservation of equivalent or greater habitat for burrowing owls, a CESA candidate species, to compensate for habitat loss, and as such recommends the City requires the Project proponent to purchase and to conserve in-perpetuity similar habitat nearby and revise the DSEIR to include this information. If the DSEIR is recirculated without addressing these mitigation concerns, CDFW recommends the impact analysis to the burrowing owls be elevated to Potentially Significant Impacts.

Why impact would occur: Burrowing owls are well-adapted to open, relatively flat expanses and vacant lots and prefer habitats with generally short sparse vegetation with few shrubs such as those occurring on the Project site. Burrowing owls are dependent on burrows at all times of the year for survival and/or reproduction, evicting the nesting, roosting, and satellite burrows may lead to indirect impacts or take. Loss of access to burrows will likely result in varying levels of increased stress on burrowing owls and could depress reproduction, increase predation, increase energetic costs, and introduce risks posed by having to find and compete for available burrows. Burrowing owls are also dependent on adjacent habitat, and forage within 600 meters of nest burrow.

Evidence impact would be significant: On October 10, 2024, the California Fish and Game Commission accepted a petition to list Western Burrowing Owl as endangered under CESA, determining the listing "may be warranted" and advancing the species to the candidacy stage of the CESA listing process. As a candidate species, Western

A-1-9

A-1-9 continued

Burrowing Owl is granted full protection of a threatened species under CESA. If Project activities could result in take, appropriate CESA authorization (i.e., Incidental Take Permit under Fish and Game Code section 2081) should be obtained prior to commencement of Project activities. Take of any endangered, threatened, or candidate species that results from the Project is prohibited, except as authorized by State law (Fish & G. Code, §§ 86, 2062, 2067, 2068, 2080, 2085; Cal. Code Regs., tit. 14, § 786.9). Take of individual burrowing owls and their nests is defined by Fish and Game Code section 86, and prohibited by sections 3503, 3503.5 and 3513. It is recommended that the RSPA EIR (2016) be amended, and impacts to burrowing owl be reevaluated and reassessed. It is important to note that CDFW has physical documentation of two separate instances, within the RSPA, where during groundbreaking activities, actively used burrows were collapsed by the construction crew and the designated biologist were not aware until afterwards. Given these two incidences, there is a probability that past projects may have operated similarly, and CEQA mitigation measures set in place to mitigate for burrowing owls may have had laxed enforcement, and therefore not mitigated to the extent feasible.

The Renaissance Specific Plan encompasses a total of 1,445.3 acres in highly suitable, and historically occupied, burrowing owl habitat. Currently, approximately 1,250 acres of the RSPA have been developed. The Project site is currently situated within one of the largest remaining intact prime habitats for burrowing owls in the City of Rialto and the last remaining vacant spaces of the RSPA. As such, implementation of the Project has the potential to contribute to a decline in the burrowing owl population and lead to local extirpation of the species.

Recommended Potentially Feasible Mitigation Measure to reduce impacts to less than significant: CDFW recommends removing Mitigation Measures 3B, 3C, and 3D and strongly encourages the adoption of the following new measure, BIO-3B (edits are in ~~strikethrough~~ and **bold**), for inclusion in the DSEIR:

Mitigation Measure BIO-3B (New)

Suitable burrowing owl habitat and burrowing owls presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the *Staff Report on Burrowing Owl Mitigation* (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of Project construction and surrounding 500 ft radius.

Take avoidance surveys shall be conducted no less than 14 days prior to initiation of Project-related activities. Burrowing owls may re-colonize a site after only a few days. Time lapses between Project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the *Staff Report on Burrowing Owl Mitigation* (2012 or most recent version). Upon beginning ground-disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the Project.

Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities shall not occur within 1000 feet of an active burrow until CDFW approves the Burrowing Owl Plan,

A-1-9 continued

If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the Project Proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., Incidental Take Permit (ITP) under Fish and Game Code section 2081) prior to commencement of Project activities. The ITP shall describe, at a minimum, project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition.

A-1-10

COMMENT 2: Inadequacy of General Reconnaissance Surveys

Section 4.3.4, Page 4.3-8

Issue: The DSEIR analysis and conclusion relies on general reconnaissance level surveys of the Project site to identify special status species, vegetation communities, and habitats that could support special status species. CDFW is concerned that the two general biological surveys conducted on October 11, 2022 and July 31, 2024 by Rocks Biological Consulting were insufficient in duration and timing to properly survey for special status species, vegetation communities, and habitats that support special status wildlife.

Specific impact: Per the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, March 2018)[3], botanical field survey visits should be spaced throughout the growing season and multiple visits to the project area are usually required to capture the floristic diversity at a level necessary to determine the presence of special-status plant species. Usually this is during flowering or fruiting. The general reconnaissance biological surveys performed on October 11, 2022 and July 31, 2024 are outside the bloom period for 12 of the 33 special-status plant species. Additionally, surveys were conducted either at the beginning or late end of bloom for 5 of the 33 plant species. A focused plant survey should be conducted separately from a general biological survey to evaluate presence of special-status plan species. It is also noted that no general surveys were carried out during the spring season, which is a peak time for blooming native vegetation and increased wildlife activity, such as migratory stopover for avian species, nesting/breeding season activities, and foraging.

Why impact would occur: The lack of spring surveys may not provide the DSEIR an adequate biological baseline due to its possible lack of an accurate plant inventory, observation of migratory birds that utilize the site, if and what species occupy the site for nesting or breeding, and to fully identify and evaluate impacts to special-status species. The DSEIR also states that "twilight or nighttime surveys were not conducted", which limits our understanding if bat species may possibly use the site for foraging, and in determining if or which nocturnal species occupy the site. Reconnaissance surveys can be used to gather general information about habitat, but it should not be used to determine the presence or absence of candidate, sensitive, or special status species

Evidence impact would be significant: Impacts to special status species should be considered significant under CEQA unless they are clearly mitigated below a level of significance. Without an accurate environmental baseline of present candidate, sensitive, or special status species and the delay in development of species avoidance, minimization, and mitigation measures, it is unclear if the mitigation measures proposed to be implemented by the Project Proponent will avoid, minimize, or mitigate the impacts to a level below significant adverse effect.

[3] California Department of Fish and Wildlife. March 20, 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. Special Status Native Plant Populations and Sensitive Natural Communities (ca.gov).

A-1-10 continued

Recommended Potentially Feasible Mitigation Measure(s) To Reduce Impacts to Less Than Significant: CDFW recommends and encourages the adopting of the following new measure, BIO-5 for inclusion in the DSEIR

Mitigation Measure MM BIO-5 (New):

Prior to Project construction activities, a complete and recent inventory, including rare, threatened, endangered, and other sensitive species, located within the Project footprint with the potential to be affected, including Species of Special Concern (SSC) and California Fully Protected Species (Fish and Game Code § 3511), will be completed. Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the Project. The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.

A-1-11

COMMENT 3: Cumulative Impacts.

Section 4.3 and 4.3.7; Page 4.3-23, 32

Issue: The DSEIR concludes, on numerous occasions, that the Project would not contribute to cumulatively considerable impacts on biological resources, yet it is unclear how it came to this conclusion. CDFW is concerned that the DSEIR does not provide a thorough discussion, in accordance to CEQA Guidelines, §15130, of the cumulative impacts expected to adversely affect biological resources as a result of the Project, including surrounding projects that have been completed, in process, or forthcoming.

Specific impact: In Section 4.9 of the BTR it states that "*Cumulative impacts are defined as the direct and indirect effects of a proposed project which, when considered alone would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered potentially significant.*" Since the adoption of the 1,445.3-acre RSPA in 2010, approximately 180 acres of vacant parcels remain. The DSEIR fails to include cumulative impacts created by the construction of the 42-acre Renaissance tract homes, a quarter mile north of the Project site, that began in late spring of 2024, and a quarter mile east of the site, the Olive Avenue Development Project (SCH 2020120036) is being proposed on a 31-acre parcel. Development of these projects further limits and narrows resources and open grassland habitat utilized by biological species, such as burrowing owls and western meadowlarks which were observed on both sites. No information regarding mitigation, for this Project, and those forthcoming or completed, is provided to offset cumulative impacts.

A-1-12

Continuing on Section 4.9 of the BTR, it states that "*The project site is disturbed, surrounded by development, and does not support sensitive vegetation communities. As such, the proposed project will not result in significant cumulative*." A large majority of habitat in the Inland Empire has some degree of disturbance, this does not mean it is not functional or useable, and should not be the criteria in determining that no cumulative impacts will occur. Given that this site is utilizable by burrowing owls and California horned lark, designated as a watchlist species by CDFW, demonstrates that suitable habitat is present. Furthermore, DSEIR Mitigation Measure BIO-1D proclaims that "*A biologist shall flush special-status species (i.e., avian or other mobile species)*

from suitable habitat areas within the Project development footprint to the maximum extent practicable immediately..". With little open space left, as the RSPA is almost built out, refugia habitat necessary for California horned lark, burrowing owls, and others will not be available in the foreseeable future, and these species will not be able to be able to be "flushed out" any further once the Plan is entirely built, as there will be no adjacent suitable habitat left. A-1-12 continued

Why impact would occur: The Project site lacks sufficient information to fully evaluate the scope of cumulative impacts. In 2017, a consultation occurred between CDFW, City of Rialto, and Lewis-Hillwood regarding mitigation associated with Lake and Streambed Alteration Agreement (LSA; 1600-2017-0016-R6) mitigation for the Renaissance Marketplace, and Buildings 5 and 6. This is the only known action undertaken to have occurred within the RSPA to date. The mitigation measures outlined in the LSA involved the permanent conservation of 50.5 acres of Riversidian alluvial fan sage scrub habitat within the Cajon Wash, as well as the acquisition of the 80-acre Lakeview property in Nuevo to facilitate the relocation of burrowing owls found on the site from San Bernardino County to Riverside County, further increasing extirpation of the species from the local area. A-1-13

The absence of mitigation strategies that address collective impacts of the Project and surrounding development increases risk to sensitive species and their habitats, making cumulative effects likely more significant. The Lead Agency should provide a table of constructed projects that occurred after 2017 that have impacted burrowing owls, or overall impacts to sensitive habitat, and disclose what mitigation was prepared or secured to better accurately assess cumulative impacts the Project may create, alongside those previously constructed.

Evidence impact would be significant: Cumulative impacts seem to not have been adequately addressed in the proposed Project. The loss of habitat across these interconnected developments leads to fragmentation and habitat loss that species rely on, and can impact species survivability and ability to migrate, forage, and establish new territories.

COMMENT 4: Crotch's Bumble Bee A-1-14

Section 4.3.6, Page 4.3-25-26

Issue: The Project has the potential to result in permanent and temporary loss, degradation of, and impacts to Crotch's bumble bee and Crotch's bumble bee habitat. The Project may result in the take of Crotch's bumble bee, candidate status species for listing under CESA, during the construction of the Project and the life of the Project

Specific impact: The Project has the potential for take of Crotch's bumble bee from collapsing burrows, entombment, displacement, dust from Project operations, and vegetation removal that reduces foraging and nesting habitat and habitat quality.

Why impact would occur: Crotch's bumble bee occurs primarily in California, including the Mediterranean region, Pacific Coast, Western Desert, Great Valley and adjacent to foothills through most of southwestern California (Williams et. al 2014). Crotch's bumble bee are generalist foragers and have been reported visiting a wide variety of flower plants. The plant families most commonly associated with Crotch's bumble bee observations or collections from California include Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, Boraginaceae and Asclepiadaceae.

Evidence impact would be significant: Crotch's bumble bee is a candidate species for listing under CESA; therefore, it receives the same legal protection afforded to endangered or threatened species under CESA pursuant to Fish & Game Code §§ 2074.2 & 2085. If found on-site, the Project could result in crushing or killing Crotch's bumble bees, reduction in sufficient food resources such as nectar and pollen, and/or removal of nesting and overwintering sites. Many bumble bees are threatened with extinction due primarily to reductions in habitat from urbanization, intensive agriculture,

A-1-14 continued

and invasive species introductions. If Crotch's bumble bee occurs at the Project site and Project impacts to Crotch's bumble bee occur, this could result in a substantial reduction in the species' population, which would be a significant impact.

Recommended Potentially Feasible Mitigation Measure(s) to reduce impacts to less than significant: CDFW appreciates that the DSEIR provides measures to minimize the Project's impacts to Crotch's bumble bee. However, the measures, as written, may not reduce potential impacts to less than significant. Thus, CDFW strongly recommends the following revisions to BIO-2A, 2B, and 2C for inclusion in the final DSEIR.

Mitigation Measures:

Mitigation Measure-2A: If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to ground disturbing activities, ~~a qualified~~ **an approved qualified Designated** biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony active period (April – August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species **within the Project site and areas adjacent to the Project site where suitable habitat exists**. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. **Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.**

Mitigation Measure-2B: If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible, **or if complete avoidance of Crotch's bumble bee cannot be achieved, Project activities shall be postponed until appropriate authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained**. ~~during construction activities, then CDFW shall be consulted.~~

Mitigation Measure-2C: Within one year prior to ground disturbing activities, ~~a qualified~~ **the approved designated** biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February – October), **within the Project site and areas adjacent to the Project site where suitable habitat exists**, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. **Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.**

A-1-15

ADDITIONAL COMMENTS AND RECOMMENDATIONS

Burrowing Owl State Status Correction.

In Section 4.3, page 4.3-7 of the DSEIR, the sentence "*According to the County's Biotic Resources Overlay Map, the project site is located within the County's Burrowing Owl Overlay Zone. The burrowing owl (Athene cunicularia) is listed as an SSC by CDFW*." should be revised to include the current status of the burrowing owls. CDFW recommends the following revision: "The burrowing owl (*Athene cunicularia*) is **a candidate species granted protection under CESA (Fish & G. Code, § 2050 et seq.)**~~listed as an SSC by CDFW~~."

A-1-16

Native Landscaping

To ameliorate the water demands of this Project, CDFW recommends incorporation of water-wise concepts in Project landscape design plans. In particular, CDFW recommends xeriscaping with locally native California species, and installing water efficient and targeted

irrigation systems (such as drip irrigation). Native plants support butterflies, birds, reptiles, amphibians, small mammals, bees, and other pollinators that evolved with those plants, more information on native plants suitable for the Project location and nearby nurseries is available at: Calscape. Water agencies/districts and resource conservation districts in your area may be able to provide information on plant nurseries that carry locally native species. Additionally, some facilities display drought tolerant locally native species demonstration gardens. Information on drought-tolerant landscaping and water-efficient irrigation systems is available on California's Save our Water website.

A-1-16 continued

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

A-1-17

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

A-1-18

CONCLUSION

Due to the issues presented in this letter, CDFW concludes that the DESIR may not adequately identify or mitigate the Project's significant, or potentially significant, impacts to burrowing owls, nor adequality assess cumulative impacts. Deficiencies in the Lead Agency CEQA document can affect later project approvals by CDFW in its role as a Responsible Agency. In addition, because of these issues, CDFW has concerns that Lead Agency may not have the basis to approve the project or make "findings" as required by CEQA unless the environmental document is modified to eliminate and/or mitigate significant impacts, as reasonably feasible (CEQA Guidelines, §§ 15074, 15091 & 15092).

CDFW appreciates the opportunity to comment on the DSEIR for the Miro Way and Ayala Drive Project (SCH No. 202407224) to assist the City of Rialto in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Lisa Cardoso, Environmental Scientist at Lisa.Cardoso@Wildlife.ca.gov.

A-1-19

Sincerely,

DocuSigned by:
Kim Freeburn
84F92FFEEFD24C8...

Kim Freeburn
Environmental Program Manager

ATTACHMENTS

Attachment A: Draft Mitigation Monitoring and Reporting Plan

ec:

Eric Kawamura-Chan, Senior Environmental Scientist (Supervisor), CDFW
Eric.Chan@Wildlife.ca.gov

Office of Planning and Research, State Clearinghouse, Sacramento
State.Clearinghouse@opr.ca.gov

Attachment A

Draft Mitigation Monitoring and Reporting Program and Draft Recommendations

Draft Mitigation Monitoring and Reporting Program (MMRP)

CDFW provides the following language to be incorporated into the MMRP for the Project.

Biological Resources (BIO)		
Mitigation Measure (MM) Description	**Implementation Schedule**	**Responsible Party**
MM-BIO-3B: Burrowing Owls **Suitable burrowing owl habitat and burrowing owls presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the *Staff Report on Burrowing Owl Mitigation* (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of Project construction and surrounding 500 ft radius.** **Take avoidance surveys shall be conducted no less than 14 days prior to initiation of Project-related activities. Burrowing owls may re-colonize a site after only a few days. Time lapses between Project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the *Staff Report on Burrowing Owl Mitigation* (2012 or most recent version). Upon beginning ground-disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the Project.** **Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities shall not occur within 1000 feet of an active burrow until CDFW approves the Burrowing Owl Plan,** **If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the Project Proponent shall begin early coordination with CDFW for appropriate CESA authorization**	**Timing:** **Focused Survey:** Prior to vegetation removal or ground disturbing activities. **Pre-Construction Surveys**: No less than 14 days prior to start of Project-related activities and withing 24 hours prior to ground disturbance.	**Implementation:** Project Proponent and Qualified Biologist

(i.e., Incidental Take Permit (ITP) under Fish and Game Code section 2081) prior to commencement of Project activities. The ITP shall describe, at a minimum, project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition.		
MM-BIO-5: Reconnaissance Surveys **Prior to Project construction activities, a complete and recent inventory, including rare, threatened, endangered, and other sensitive species, located within the Project footprint with the potential to be affected, including Species of Special Concern (SSC) and California Fully Protected Species (Fish and Game Code § 3511), will be completed. Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the Project. The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.**	**Timing:** Prior to commencing ground or vegetation disturbing activities.	**Implementation:** Project Proponent and Qualified Biologist.
MM- 2A, 2B, 2C: Crotch's Bumble Bee **Mitigation Measure-2A: If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to ground disturbing activities, an approved qualified Designated biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony active period (April – August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species within the Project site and areas adjacent to the Project site where suitable**	**Timing:** Prior to commencing ground or vegetation disturbing activities.	**Implementation:** Project Proponent and Qualified Biologist

habitat exists. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities. **Mitigation Measure-2B: If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible, or if complete avoidance of Crotch's bumble bee cannot be achieved, Project activities shall be postponed until appropriate authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained.** **Mitigation Measure-2C: Within one year prior to ground disturbing activities, the approved designated biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February – October), within the Project site and areas adjacent to the Project site where suitable habitat exists, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.**		

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Comment Number	Comment	Response
Comments from Public Agencies		
Letter from California Department of Fish and Wildlife (CDFW), dated May 5, 2025		
A-1-1	The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a DSEIR from the City of Rialto for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1] Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code. **CDFW ROLE** CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Id., § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G.	This comment describes CDFW's role as a Trustee Agency and Responsible Agency under CEQA and is an introduction to the comments included below. The comment does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR.

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Comment Number	Comment	Response
	Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.	
A-1-2	**PROJECT DESCRIPTION SUMMARY** **Proponent:** Lewis-Hillwood Rialto Company, LLC and City of Rialto **Objective:** The 35-acre Project site is located within the 2016 Renaissance Specific Plan Amendment (RSPA) area (SCH# 2006071021), and proposes to rezone Planning Areas 123, 126, and 133. Planning Areas 126 and 133 would be rezoned from Public Park and Employment to a Business Center that would allow for the construction of two industrial warehouse buildings, Building 1 would be 53,640 square feet (sf) and Building 2 approximately 375,075 sf, on a 20.76 acre site. Warehouse development activities include associated landscaping totaling 155,000 sf, outdoor lighting, and on- and off-site improvements that are comprised of the reconfiguration and construction of Miro Way and associated street improvements, and utility and roadway improvements north of Miro Way and within the right-of-way of Linden Avenue and Ayala Drive. The construction footprint for proposed activities and off-site improvements totals 27.19 acres. Planning Area 123 would be rezoned from School to General Commercial with a Residential Overlay. No development of Planning Area 123 is proposed as part of the Project. **Location:** The Project is located within the south-eastern region of the RSPA, west of Ayala Drive, east of Linden Avenue, 215 feet north of Baseline Road, and 0.65 miles south of the State Route 210, in the City of Rialto, San Bernardino County; Assessor's Parcel Numbers [APN] 0264-211-15 and 20, 0264-212-12, -17, -30, -44-46, -54. The latitude and longitude for the Project are 34.124582, -117.398001. **Timeframe:** The DSEIR states the Project is expected to commence in 2025 with a construction duration of approximately 13 months and would be completed in one phase of construction.	This comment is a summary of the project description provided in the Draft SEIR and does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR. To clarify, the comment identifies that the project site is 215 feet north of Baseline Road; however, the project site is 450 feet north of Baseline Road, as identified on page 3-1 of the Draft SEIR.

Comment Number	Comment	Response
A-1-3	**COMMENTS AND RECOMMENDATIONS** CDFW offers the comments and recommendations below to assist the City of Rialto in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.	This comment is an introduction to the comments included below and does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR. Specific comments on the Draft SEIR are provided and responded to below.
A-1-4	**COMMENT 1: Burrowing Owl *(Athene cunicularia)*** **DSEIR Section 4.3, Page 22-23** **Issue:** Western burrowing owl is a candidate species protected under CESA, and as such is granted the full protection of a threatened or endangered species under CESA. The Project has the potential to result in permanent and temporary loss and degradation of burrowing owl habitat and take of the species. CDFW is concerned that impacts to burrowing owls and how they utilize the Project site are not adequately identified nor fully defined in the DSEIR.	As the comment notes, burrowing owl is discussed in Section 4.3, *Biological Resources*, of the Draft SEIR. Consistent with the comment, the Draft SEIR states that burrowing owl is currently a candidate species under the CESA as of October 10, 2024. The Draft SEIR further explains that burrowing owl was detected on-site during focused surveys and has potential to inhabit the site in the future; therefore, as stated in the Draft SEIR, this species may be impacted with Project implementation. The Draft SEIR includes burrowing owl mitigation measures, including coordination with CDFW and obtaining an incidental take permit from CDFW, if required, and determines potential impacts to burrowing owl would be less than significant. The commenter's additional comments regarding burrowing owl are provided and responded to below.
A-1-5	**Specific impact:** The DSEIR indicates that focused burrowing owl surveys were completed during the breeding season, however, the dedicated burrowing owl section does not provide survey dates, if surveys were repeated in separate years, the numbers of owls observed on-site and within adjacent areas, and the protocols used. To address this absence of data, the burrowing owl survey methods and findings from the Biological Technical Report (BTR), Appendix D, prepared by Rocks Biological Consulting (March 2025) should be incorporated into the DSEIR to comply with CEQA requirements of meaningful disclosure regarding environmental impacts. The BTR indicates that focused burrowing owl surveys were conducted during the breeding season, using breeding survey protocols set forth in *Staff Report on Burrowing Owl Mitigation* (Department of Fish and Game, March 2012)[2], on February 16, April 26, June 12, and July 3, 2023, and further discloses that two owls were present	Consistent with the comment's suggestion, the burrowing owl survey dates were included in the Draft SEIR. The Draft SEIR identified specific dates and methodology of the focused burrowing owl surveys on page 4.3-10 within the Special-Status Species Surveys discussion. In addition, as the comment correctly notes, the burrowing owl survey data was included in the Biological Technical Report for the Project prepared by Rocks Biological Consulting and included as part of the Draft SEIR as Appendix D. Pursuant to the CEQA Guidelines, the information contained in an EIR shall include summarized technical data, with supporting information and analyses included as appendices to the main body of the EIR (CEQA Guidelines Section 15147). Nevertheless, in response to the commenter's suggestion, information regarding the burrowing owl surveys has also been cross referenced in the burrowing owl discussion of the Biological Resources section of the SEIR, as identified in Final SEIR Section 3, *Errata*.

[2] California Department of Fish and Game(CDFG). 2012 Staff report on burrowing owl mitigation. State of California, Natural Resource Agency. BUOW Staff Report Fin 030712.pdf.

Comment Number	Comment	Response
	on-site during the initial survey, and absent during the subsequent surveys.	
A-1-6	The DSEIR states (pg 4.3-22) *"Burrowing owl (State candidate for listing under CEQA) was detected on-site during focused surveys and has potential to inhabit the site in the future,(...)The project site has moderate potential to support burrowing owl. No burrowing owl, active burrows, or burrowing owl sign were observed during biological surveys. As such, the absence of burrowing owl during the peak breeding season suggests that the project site is not currently used by burrowing owl for nesting. However, there is evidence that the project site is used by burrowing owl for refuge and foraging outside of nesting season."* Given that burrowing owls are known to be adaptable and can utilize highly degraded and marginal habitats where existing burrows are available, and that the species has been observed both on-site and within the immediate area, in addition to historic colony documentation within the RSPA, the Project site has a high potential to support burrowing owls.	As correctly stated in the text of the Draft SEIR referenced in the comment, burrowing owl was detected on-site during focused surveys and has potential to inhabit the site in the future. Further, as explained in the Biological Resources Technical Report, included as Appendix D to the Draft SEIR, although two individual burrowing owls were observed during the first burrowing owl focused survey, no burrowing owls, active burrows, or burrowing owl sign were observed during subsequent surveys. The portion of the text on page 4.3-22 of the Draft SEIR referenced in the comment that indicates burrowing owl was not observed during biological surveys has been corrected for clarity and consistency with the remainder of the burrowing owl discussion. The correction is included in Section 3, *Errata*, of this Final SEIR. As noted in the comment, the Draft SEIR and the Biological Resources Technical Report included as Appendix D of the Draft SEIR explained that the absence of burrowing owl during the peak breeding season suggests that the project site is not currently used by burrowing owl for nesting. The Draft SEIR further explained, however, that there is evidence that the project site is used by burrowing owl for refuge and foraging outside of the nesting season and burrowing owl may occur on-site in the future. The Draft SEIR indicated that the project site has moderate potential to support burrowing owl, based on its range, ability to establish in disturbed habitats, previous presence on site, and presence of suitable burrows, as explained in the Biological Resources Technical Report. In response to the commenter's request, the SEIR and Biological Resources Technical Report have been updated to revise the burrowing owl's potential to occur within the project site from moderate to high (see Section 3, *Errata*, of this Final SEIR). The revised occurrence potential does not otherwise change the analysis or conclusions in the SEIR. As identified in the Draft SEIR, Project implementation could result in direct impacts to burrowing owl in the event of death, injury, or harassment, and impacts would be significant prior to mitigation. With mitigation, impacts to burrowing owl would be reduced to a less than significant level.

Comment Number	Comment	Response
A-1-7	In addition to the 2023 focused breeding season surveys, two general biological surveys were conducted on October 11, 2022, and July 31, 2024. Although no signs of burrowing owls were detected during these two surveys, the surveys were implemented outside the species' peak breeding season (April 15 — July 15) with an insufficient survey methodology (not protocol focused). As such, the results of these surveys are not reliable indicators of burrowing owl presence or absence and should not be considered conclusive evidence of how the site is currently being used by the species. To properly assess site usage, annual focused surveys during both the breeding and non-breeding seasons would need to be completed to accurately determine site utilization and scope of impacts due to Project implementation. It is important to note that failure to locate burrowing owls during one field season does not constitute evidence that the site is no longer occupied.	As explained in response to Comment A-1-6 above, the Draft SEIR stated that there is evidence that the project site is used by burrowing owl for refuge and foraging outside of the nesting season and burrowing owl may occur on-site in the future. The Draft SEIR indicated that the project site has moderate potential to support burrowing owl, based on its range, ability to establish in disturbed habitats, previous presence on site, and presence of suitable burrows, as explained in the Biological Resources Technical Report. As discussed above, in response to the commenter's request, the SEIR and Biological Resources Technical Report have been updated to revise the burrowing owl's potential to occur within the project site from moderate to high (see Section 3, *Errata*, of this Final SEIR). The revised occurrence potential does not otherwise change the analysis or conclusions in the SEIR.
A-1-8	CDFW appreciates that focused breeding survey methods employed did adhere to the guidelines outlined in the 2012 Staff Report, although additional focused surveys would have been beneficial following the positive sighting of burrowing owls during the initial survey. Additional surveys following the positive observation could have allowed for a more comprehensive understanding of site utilization by determining if the owls were migratory or year-round residents, estimation of the home ranges of each individual or family units, further assessment of which burrows were being occupied, and estimation of foraging areas. Moreover, detailed information on what behavior and activity of the burrowing owls present should have been provided in the BTR.	The comment is noted for the record and has been included in the Final SEIR for review and consideration by the decision-makers prior to any action on the project. It is noted that the additional information requested in the comment would not affect the conclusions in the SEIR. The burrowing owl survey protocol was completed as described on page 4.3-22 of the Draft SEIR and Biological Technical Report attached as Appendix D to the Draft SEIR. As described in these documents, additional focused surveys for burrowing owl were conducted after the burrowing owl sighting during the first survey effort. No owls were observed in the subsequent surveys that were conducted to fulfill the complete protocol thus no additional data as referenced in the comment could be collected.
A-1-9	Lastly, the DSEIR asserts that implementation of proposed Mitigation Measures BIO- 1A, 1B, 3A, 3B, 3C and 3D, to address Project impacts to burrowing owls would result in less than significant impacts with mitigation. CDFW would like to emphasize that these measures are intended to minimize and avoid impacts, but they may not provide adequate mitigation. CDFW recommends the City mitigate as outlined in the 2012 Staff Report, which states that *"current scientific literature supports the conclusion that mitigation for permanent habitat loss*	In response to the comment, the burrowing owl mitigation has been updated as requested by CDFW. Specifically, CDFW's recommended Mitigation Measure 3-B has been incorporated into the SEIR as Mitigation Measure BIO-3B (replacing Mitigation Measures 3B, 3C, and 3D). This change is reflected in Section 3, *Errata*, of the Final SEIR, as well as in the MMRP for the project.

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	necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence or burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow". The 2012 Staff Report considers a site occupied if at least one burrowing owl has been observed on- site within the last three years. The DSEIR does not provide or propose mitigation to ensure the permanent conservation of equivalent or greater habitat for burrowing owls, a CESA candidate species, to compensate for habitat loss, and as such recommends the City requires the Project proponent to purchase and to conserve in-perpetuity similar habitat nearby and revise the DSEIR to include this information. If the DSEIR is recirculated without addressing these mitigation concerns, CDFW recommends the impact analysis to the burrowing owls be elevated to Potentially Significant Impacts. **Why impact would occur:** Burrowing owls are well-adapted to open, relatively flat expanses and vacant lots and prefer habitats with generally short sparse vegetation with few shrubs such as those occurring on the Project site. Burrowing owls are dependent on burrows at all times of the year for survival and/or reproduction, evicting the nesting, roosting, and satellite burrows may lead to indirect impacts or take. Loss of access to burrows will likely result in varying levels of increased stress on burrowing owls and could depress reproduction, increase predation, increase energetic costs, and introduce risks posed by having to find and compete for available burrows. Burrowing owls are also dependent on adjacent habitat, and forage within 600 meters of nest burrow. **Evidence impact would be significant:** On October 10, 2024, the California Fish and Game Commission accepted a petition to list Western Burrowing Owl as endangered under CESA, determining the listing "may be warranted" and advancing the species to the candidacy stage of the CESA listing process. As a candidate species, Western Burrowing Owl is granted full protection of a threatened species under CESA. If Project activities could result in take, appropriate CESA authorization (i.e., Incidental Take Permit under Fish and Game Code section 2081) should be obtained prior to commencement of Project activities. Take of any endangered, threatened, or candidate species that results from the Project is prohibited, except as authorized by State law (Fish & G. Code, §§ 86, 2062,	With regard to the portion of the comment regarding amending the 2016 Renaissance Specific Plan Amendment EIR, to the extent the comment is suggesting that the Draft SEIR for the proposed project should be revised, revisions have been incorporated per the commenter's recommendations and are included in Section 3, *Errata*, of this Final SEIR. The findings and conclusions of the Draft SEIR are not affected by the revisions to the Draft SEIR identified in Section 3, *Errata*. None of the circumstances set forth in CEQA Guidelines Section 15088.5 have been met. Specifically, based on the comments and responses within the Final SEIR, no new significant impacts or substantial increases in already identified significant impacts have been identified, feasible mitigation measures have been adopted, and potential impacts have been properly disclosed. Therefore, recirculation of the Draft SEIR is not required. Mitigation measures for the proposed project, including the updated burrowing owl mitigation measure recommended by the commenter, will be implemented consistent with the requirements of CEQA, and the MMRP for the proposed project provides for monitoring, implementation, and enforcement of all mitigation measures. With regard to the portion of the comment regarding amending the 2016 Renaissance Specific Plan Amendment EIR based on the comment related to other past projects, those actions are not necessary and are beyond the scope of this project. The 2016 Renaissance Specific Plan Amendment EIR performed the cumulative impacts analysis the commenter requests, and no new or more severe impacts have since been identified. Moreover, amending the 2016 Renaissance Specific Plan Amendment EIR is beyond the scope of this specific project—the project is focused on a single development activity within the Renaissance Specific Plan, and Specific Plan amendments require City Council approval in any event. Therefore, the 2016 Renaissance Specific Plan EIR is not being revised at this time but the City has addressed the comment in this SEIR and incorporated the requested revisions to the burrowing owl mitigation measures provided here in the Errata. The City will consider incorporation of CDFW's proposed mitigation measure into future Renaissance Specific Plan projects, as was done for this Project.

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	2067, 2068, 2080, 2085; Cal. Code Regs., tit. 14, § 786.9). Take of individual burrowing owls and their nests is defined by Fish and Game Code section 86, and prohibited by sections 3503, 3503.5 and 3513. It is recommended that the RSPA EIR (2016) be amended, and impacts to burrowing owl be reevaluated and reassessed. It is important to note that CDFW has physical documentation of two separate instances, within the RSPA, where during groundbreaking activities, actively used burrows were collapsed by the construction crew and the designated biologist were not aware until afterwards. Given these two incidences, there is a probability that past projects may have operated similarly, and CEQA mitigation measures set in place to mitigate for burrowing owls may have had laxed enforcement, and therefore not mitigated to the extent feasible. The Renaissance Specific Plan encompasses a total of 1,445.3 acres in highly suitable, and historically occupied, burrowing owl habitat. Currently, approximately 1,250 acres of the RSPA have been developed. The Project site is currently situated within one of the largest remaining intact prime habitats for burrowing owls in the City of Rialto and the last remaining vacant spaces of the RSPA. As such, implementation of the Project has the potential to contribute to a decline in the burrowing owl population and lead to local extirpation of the species. **Recommended Potentially Feasible Mitigation Measure to reduce impacts to less than significant:** CDFW recommends removing Mitigation Measures 3B, 3C, and 3D and strongly encourages the adoption of the following new measure, BIO-3B (edits are in strikethrough and bold), for inclusion in the DSEIR: **Mitigation Measure BIO-3B (New)** **Suitable burrowing owl habitat and burrowing owls presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the *Staff* Report *on Burrowing Owl Mitigation* (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of Project construction and surrounding 500 ft radius.** **Take avoidance surveys shall be conducted no less than 14 days prior to initiation of Project-related activities. Burrowing owls may re-colonize a**	

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	site after only a few days. Time lapses between Project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the *Staff* Report *on Burrowing Owl Mitigation* (2012 or most recent version). Upon beginning ground- disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the Project. **Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities shall not occur within 1000 feet of an active burrow until CDFW approves the Burrowing Owl Plan.** **If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the Project Proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., Incidental Take Permit (ITP) under Fish and Game Code section 2081) prior to commencement of Project activities. The ITP shall describe, at a minimum, project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition.**	
A-1-10	**COMMENT 2: Inadequacy of General Reconnaissance Surveys** **Section 4.3.4, Page 4.3-8**	As explained in Section 4.3, *Biological Resources*, of the Draft SEIR, and in the Biological Technical Report included as Appendix D to the Draft SEIR, in addition to the general biological surveys referenced in the comment,

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	Issue: The DSEIR analysis and conclusion relies on general reconnaissance level surveys of the Project site to identify special status species, vegetation communities, and habitats that could support special status species. CDFW is concerned that the two general biological surveys conducted on October 11, 2022 and July 31, 2024 by Rocks Biological Consulting were insufficient in duration and timing to properly survey for special status species, vegetation communities, and habitats that support special status wildlife. **Specific impact:** Per the *Protocols for Surveying and Evaluating Impacts* to *Special Status Native Plant Populations and Natural Communities* (CDFW, March 2018)[3], botanical field survey visits should be spaced throughout the growing season and multiple visits to the project area are usually required to capture the floristic diversity at a level necessary to determine the presence of special-status plant species. Usually this is during flowering or fruiting. The general reconnaissance biological surveys performed on October 11, 2022 and July 31, 2024 are outside the bloom period for 12 of the 33 special-status plant species. Additionally, surveys were conducted either at the beginning or late end of bloom for 5 of the 33 plant species. A focused plant survey should be conducted separately from a general biological survey to evaluate presence of special-status plan species. It is also noted that no general surveys were carried out during the spring season, which is a peak time for blooming native vegetation and increased wildlife activity, such as migratory stopover for avian species, nesting/breeding season activities, and foraging. **Why impact would occur:** The lack of spring surveys may not provide the DSEIR an adequate biological baseline due to its possible lack of an accurate plant inventory, observation of migratory birds that utilize the site, if and what species occupy the site for nesting or breeding, and to fully identify and evaluate impacts to special-status species. The DSEIR also states that "twilight or nighttime surveys were not conducted", which limits our understanding if bat species may possibly use the site for foraging, and in determining if or which nocturnal species occupy the site. Reconnaissance surveys can be used to gather general information about	biologists were on site in February, April, June, and July of 2023 for burrowing owl surveys and in July and August of 2024 for Crotch's bumble bee surveys. During these focused surveys, comprehensive inventories of flora and fauna were conducted, and habitat conditions were evaluated at multiple times of the year. Data collected during these focused surveys were integrated with the findings from the general biological assessment surveys conducted in October 2022 and July 2024. Together, these data informed evaluations of the site's potential to support special-status species. Rocks Biological Consulting has conducted biological field work in Rialto for over two decades, including work on adjacent and nearby properties within the Renaissance Specific Plan Area. Both field-level and principal biologists possess extensive knowledge of the local biological resources. In addition to field surveys and local knowledge, assessments also incorporated information from agency and citizen science databases to evaluate the potential for special-status species to occur. Field surveys did occur throughout various times of the plant growing season. Although the general biological surveys did not coincide with the peak blooming time for some special-status plant species in the region, focused species surveys for burrowing owl and Crotch's bumble bee did correspond with ideal rare plant survey timeframes and biologists conducting those focused species surveys always diligently searched for plant species not previously recorded on site. Burrowing owl surveys were conducted in mid-February, late April, early to mid-June, and early July; Crotch's bumble bee surveys took place in early and late July and mid-August. These surveys occurred during above average rain years[4] and during times of the year when special-status plants would have been detectable if present. Senior biologist Alec Goodman, who leads rare plant surveys for Rocks Biological Consulting, participated in six of the seven focused species surveys. In addition, principal biologist Jim Rocks, who has over 25 years of botanical survey experience in Southern California and is a department associate with the San Diego Natural History Museum Botany Department,

[3] California Department of Fish and Wildlife. March 20, 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. Status Native Plant Populations and Sensitive Nature Communities (ca.gov).
[4] Natural Resources Conservation Service (NRCS). (2025). *Monthly total precipitation and daily data for the Rialto 2.1 N station, California.* Agricultural Applied Climate Information System (AgACIS). Retrieved June 3, 2025, from https://agacis.rcc-acis.org/?fips=06071.

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	habitat, but it should not be used to determine the presence or absence of candidate, sensitive, or special status species **Evidence impact would be significant:** Impacts to special status species should be considered significant under CEQA unless they are clearly mitigated below a level of significance. Without an accurate environmental baseline of present candidate, sensitive, or special status species and the delay in development of species avoidance, minimization, and mitigation measures, it is unclear if the mitigation measures proposed to be implemented by the Project Proponent will avoid, minimize, or mitigate the impacts to a level below significant adverse effect. **Recommended Potentially Feasible Mitigation Measure(s) To Reduce Impacts to Less Than Significant:** CDFW recommends and encourages the adopting of the following new measure, BIO-5 for inclusion in the DSEIR **Mitigation Measure MM BIO-5 (New):** **Prior to Project construction activities, a complete and recent inventory, including rare, threatened, endangered, and other sensitive species, located within the Project footprint with the potential to be affected, including Species of Special Concern (SSC) and California Fully Protected Species (Fish and Game Code § 3511), will be completed. Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the Project. The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one- year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.**	contributed expert review of all special-status plant potential-to-occur assessments. The Draft SEIR evaluated potential impacts on all special-status species with potential to occur on the project site. This included species unlikely to be observed directly, such as certain bat species. Tables 4 and 5 of the *Miro Way And Ayala Drive Development Project Biological Technical Report,* included as Appendix D of the Draft SEIR, provide details for each of the special-status species with potential to occur within the project site. The analysis did not rely on presence/absence determinations, acknowledging that reconnaissance-level surveys cannot establish species absence. Instead, the Draft SEIR assessed likelihood of occurrence of listed, candidate, sensitive, and special-status species, and all species with low-to-moderate, moderate, or high potential to occur were included in the impacts analysis. Table 5 of the *Miro Way And Ayala Drive Development Project Biological Technical Report* included details on the potential for special-status bats to occur and a detailed explanation of why the potential is very low. Similarly, potential impacts on migratory birds and the potential for avian species to occupy the site for nesting or breeding were assessed. Although the general biological surveys did not coincide with the peak migration or the height of the breeding season, focused surveys for burrowing owl did correspond with these times. Biologists conducting focused species surveys created a list of avian species observed during each field effort in accordance with industry standard. Observations of special-status species were reported to CNDDB. Please see Appendix C of the *Miro Way and Ayala Drive Development Project Protocol Presence/Absence 2023 Survey Report for Burrowing Owl (Athene cunicularia)* which is Appendix C to the Biological Technical Report appended to the Draft SEIR. The Draft SEIR assessed likelihood of listed, candidate, sensitive, and special-status bird species to breed on site, and all species with low-to-moderate, moderate, or high potential to occur or breed on site were included in the impacts analysis. In addition, pre-construction nesting bird surveys would be conducted prior to project implementation per Mitigation Measure BIO-4 and with adherence to this measure, impacts on nesting birds resulting from the project would be less than significant.

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		Based on this robust and seasonally appropriate survey effort (that includes protocol level focused surveys), expert review, and comprehensive data sources, the Draft SEIR adequately evaluates potential impacts on all listed, candidate, sensitive, and special-status plant and wildlife species. Although the Draft SEIR already provides a sufficient assessment under CEQA to support a less-than-significant impact determination, the commenter's suggested mitigation measure has been incorporated in the Final SEIR to further bolster protections for sensitive species. Specifically a modified version of this recommended measure has been incorporated into new measures BIO-1A, BIO-1B, and BIO-1C as follows: **BIO-1A**: Prior to project construction activities, an updated potential to occur assessment shall be completed. Species to be addressed shall include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the project site. If deemed necessary, pre-construction species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of day when the sensitive species are active or otherwise identifiable, shall be conducted. Acceptable species-specific survey procedures shall follow CDFW and USFWS guidance, where applicable. **BIO-1B**: Prior to the start of project construction activities, a qualified biologist shall conduct a comprehensive pre-construction wildlife survey. This survey must be completed within one week before any ground-disturbing activities or vegetation removal begins. The survey shall include 100% coverage of the project site, as well as a 100-foot buffer zone surrounding the site to identify and document any wildlife species present in adjacent areas. All species observed during the survey shall be recorded and mapped accordingly. **BIO-1C**: If necessary, appropriate avoidance and minimization measures shall be developed to protect sensitive wildlife species identified during the pre-construction survey**.** These measures may include establishing species-specific no-disturbance buffer zones. If wildlife is observed within the project footprint and cannot be avoided, individuals may be relocated to suitable habitat outside the impact area by a qualified biologist. All

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		relocations shall be conducted under the appropriate permits and authorizations from relevant wildlife agencies. The inclusion of the recommended additional measures in Mitigation Measures BIO-1A, BIO-1B, and BIO-1c does not otherwise change the analysis or conclusions in the SEIR.
A-1-11	**COMMENT 3: Cumulative Impacts.** **Section 4.3 and 4.3.7; Page 4.3-23, 32** **Issue:** The DSEIR concludes, on numerous occasions, that the Project would not contribute to cumulatively considerable impacts on biological resources, yet it is unclear how it came to this conclusion. CDFW is concerned that the DSEIR does not provide a thorough discussion, in accordance to CEQA Guidelines, §15130, of the cumulative impacts expected to adversely affect biological resources as a result of the Project, including surrounding projects that have been completed, in process, or forthcoming. **Specific impact:** In Section 4.9 of the BTR it states that *"Cumulative impacts are defined as the direct and indirect effects of a proposed project which, when considered alone would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered potentially significant."* Since the adoption of the 1,445.3-acre RSPA in 2010, approximately 180 acres of vacant parcels remain. The DSEIR fails to include cumulative impacts created by the construction of the 42-acre Renaissance tract homes, a quarter mile north of the Project site, that began in late spring of 2024, and a quarter mile east of the site, the Olive Avenue Development Project (SCH 2020120036) is being proposed on a 31-acre parcel. Development of these projects further limits and narrows resources and open grassland habitat utilized by biological species, such as burrowing owls and western meadowlarks which were observed on both sites. No information regarding mitigation, for this Project, and those forthcoming or completed, is provided to offset cumulative impacts.	The cumulative impact methodology is discussed in Section 4.0.4 of the Draft SEIR, including the requirements of the CEQA Guidelines section referenced in the comment. As discussed in the Draft SEIR and set forth in CEQA Guidelines Section 15130, an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. As stated in CEQA Guidelines Section 15130(a): "Where a Lead Agency is analyzing a project with an incremental effect that is not 'cumulatively considerable,' a Lead Agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable." Consistent with the requirements of CEQA, the Draft SEIR included a description in Section 4.3.7 of the basis for the conclusion that the project's incremental effect on biological resources is not cumulatively considerable. With regard to the other projects referenced in the comment, potential environmental impacts, including cumulative impacts, associated with development within the Renaissance Specific Plan Area were analyzed in the 2010 Renaissance Specific Plan EIR (State Clearinghouse No. 2006071021), the 2016 Renaissance Specific Plan Amendment EIR (State Clearinghouse No. 2006071021), and subsequent addenda as applicable. These projects are subject to all applicable mitigation measures associated with those analyses and prior approvals. In addition, subsequent to certification of the 2010 Renaissance Specific Plan EIR, the City of Rialto prepared a General Plan Update, which established a blueprint for future land development within the City that meets community desires and balances environmental protection goals with the need for housing, infrastructure, and economic vitality. The General Plan Update applies to all of the City of Rialto, and the General Plan Update EIR (State Clearinghouse No. 2008071100) comprehensively evaluated environmental impacts, including cumulative impacts, that would result from build-out of the City. Further, with regard to the analysis for this

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		project, the Renaissance project is identified on the cumulative projects list as project number 25, and the Olive Avenue project is included as project number 19. The cumulative analysis for each resource area in Draft SEIR Section 4.0, *Environmental Impact Analysis*, identified the geographic context for the analysis, which included the Project and reasonably foreseeable future projects. The list of cumulative projects is included in Appendix K to the Draft SEIR. As discussed in Section 4.3.7, *Cumulative Impacts*, past, present, and reasonably foreseeable future projects are required to implement measures, as set forth in their respective CEQA documents, consistent with federal, State, and local regulations to avoid adverse effects to existing biological resources or to mitigate for significant impacts to these resources. With mitigation, the proposed Project would not cause a significant impact to biological resources. Both the Renaissance residential project and the Olive Avenue Development Project were evaluated separately under CEQA and are subject to applicable avoidance measures, recommended project design features, regulatory approvals, best management practices, and mitigation measures to minimize impacts to biological resources. Thus, the cumulative analysis did consider the impact of those projects, as well as other reasonably foreseeable projects, and concluded that with the incorporation of mitigation, the Project would not contribute to a cumulatively considerable impact. The proposed project incorporates mitigation measures, which are described in the SEIR and set forth in the MMRP. With regard to biological resources, as discussed in the Draft SEIR and responses to comments above, the proposed project's potential impacts would be reduced to a less than significant level with implementation of mitigation. As discussed above and in the Draft SEIR, the project's incremental effect on biological resources is not cumulatively considerable. As such, additional mitigation measures are not required.
A-1-12	Continuing on Section 4.9 of the BTR, it states that *"The project site is disturbed, surrounded by development, and does not support sensitive vegetation communities. As such, the proposed project will not result in significant cumulative."* A large majority of habitat in the Inland Empire has some degree of disturbance, this does not mean it is not functional or	Please refer to Response to Comment A-1-11 above, regarding prior certified environmental impact reports addressing development within the Renaissance Specific Plan Area as well as the broader City of Rialto. As discussed in Response to Comment A-1-9 above, the burrowing owl mitigation measures have been updated as recommended by CDFW to

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	useable, and should not be the criteria in determining that no cumulative impacts will occur. Given that this site is utilizable by burrowing owls and California horned lark, designated as a watchlist species by CDFW, demonstrates that suitable habitat is present. Furthermore, DSEIR Mitigation Measure BIO-1D proclaims that *"A biologist shall flush special-status species (i.e., avian or other mobile species)from suitable habitat areas within the Project development footprint to the maximum extent practicable immediately.."*. With little open space left, as the RSPA is almost built out, refugia habitat necessary for California horned lark, burrowing owls, and others will not be available in the foreseeable future, and these species will not be able to be able to be "flushed out" any further once the Plan is entirely built, as there will be no adjacent suitable habitat left.	incorporate habitat mitigation as applicable, and project impacts would be reduced to a less than significant level with implementation of mitigation. In addition, in response to the comment, Mitigation Measure BIO-1D has been updated to specifically exclude burrowing owl to align with the burrowing owl-specific mitigation measures.
A-1-13	**Why impact would occur:** The Project site lacks sufficient information to fully evaluate the scope of cumulative impacts. In 2017, a consultation occurred between CDFW, City of Rialto, and Lewis-Hillwood regarding mitigation associated with Lake and Streambed Alteration Agreement (LSA; 1600-2017-0016-R6) mitigation for the Renaissance Marketplace, and Buildings 5 and 6. This is the only known action undertaken to have occurred within the RSPA to date. The mitigation measures outlined in the LSA involved the permanent conservation of 50.5 acres of Riversidian alluvial fan sage scrub habitat within the Cajon Wash, as well as the acquisition of the 80-acre Lakeview property in Nuevo to facilitate the relocation of burrowing owls found on the site from San Bernardino County to Riverside County, further increasing extirpation of the species from the local area. The absence of mitigation strategies that address collective impacts of the Project and surrounding development increases risk to sensitive species and their habitats, making cumulative effects likely more significant. The Lead Agency should provide a table of constructed projects that occurred after 2017 that have impacted burrowing owls, or overall impacts to sensitive habitat, and disclose what mitigation was prepared or secured to better accurately assess cumulative impacts the Project may create, alongside those previously constructed.	The comment refers to prior development within the Renaissance Specific Plan Area that was previously approved and analyzed. Please refer to Response to Comment A-1-11 above regarding prior certified environmental impact reports addressing development within the Renaissance Specific Plan Area as well as the broader City of Rialto. Also, as discussed in Response to Comment A-1-9 above, the burrowing owl mitigation measures for the project have been updated as recommended by CDFW to incorporate habitat mitigation as applicable, and project impacts would be reduced to a less than significant level with implementation of mitigation.

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	Evidence impact would be significant: Cumulative impacts seem to not have been adequately addressed in the proposed Project. The loss of habitat across these interconnected developments leads to fragmentation and habitat loss that species rely on, and can impact species survivability and ability to migrate, forage, and establish new territories.	
A-1-14	**COMMENT 4: Crotch's Bumble Bee** **Section 4.3.6, Page 4.3-25-26** **Issue:** The Project has the potential to result in permanent and temporary loss, degradation of, and impacts to Crotch's bumble bee and Crotch's bumble bee habitat. The Project may result in the take of Crotch's bumble bee, candidate status species for listing under CESA, during the construction of the Project and the life of the Project **Specific impact:** The Project has the potential for take of Crotch's bumble bee from collapsing burrows, entombment, displacement, dust from Project operations, and vegetation removal that reduces foraging and nesting habitat and habitat quality. **Why impact would occur:** Crotch's bumble bee occurs primarily in California, including the Mediterranean region, Pacific Coast, Western Desert, Great Valley and adjacent to foothills through most of southwestern California (Williams et. al 2014). Crotch's bumble bee are generalist foragers and have been reported visiting a wide variety of flower plants. The plant families most commonly associated with Crotch's bumble bee observations or collections from California include Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, Boraginaceae and Asclepiadaceae. **Evidence impact would be significant:** Crotch's bumble bee is a candidate species for listing under CESA; therefore, it receives the same legal protection afforded to endangered or threatened species under CESA pursuant to Fish & Game Code §§ 2074.2 & 2085. If found on-site, the Project could result in crushing or killing Crotch's bumble bees, reduction in sufficient food resources such as nectar and pollen, and/or removal of nesting and overwintering sites. Many bumble bees are threatened with extinction due primarily to reductions in habitat from urbanization, intensive agriculture, and invasive species introductions. If Crotch's bumble bee occurs at the Project site and Project impacts to Crotch's	As referenced in the comment, potential impacts to Crotch's bumble bee are addressed in Section 4.3, *Biological Resources*, of the Draft SEIR, and the accompanying Biological Technical Report, included as Appendix D of the Draft SEIR. As discussed in the Draft SEIR, Crotch's bumble bee has a low-to-moderate potential to occur within the project site. Although Crotch's bumble bee was not observed on-site during biological surveys, the Draft SEIR explains that suitable nectar sources and marginally suitable habitat occur within the project site, and the Project could result in direct impacts to Crotch's bumble bee if it were to occur within the site. Accordingly, and consistent with the comment's suggestion, the analysis in the Draft SEIR conservatively assumes that significant impacts to the species could occur as a result of direct impacts to nesting sites, and includes mitigation measures to reduce potential impacts to Crotch's bumble bee to a less than significant level. In response to the comment, Mitigation Measures BIO-2A, 2B, and 2C have been revised in accordance with CDFW's recommendations. The revisions to these mitigation measures are reflected in Section 3, *Errata*, of this Final SEIR, and in the project's MMRP. These revisions to the mitigation measures do not affect the analysis or conclusions in the Draft SEIR.

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	bumble bee occur, this could result in a substantial reduction in the species' population, which would be a significant impact. **Recommended Potentially Feasible Mitigation Measure(s) to reduce impacts to less than significant:** CDFW appreciates that the DSEIR provides measures to minimize the Project's impacts to Crotch's bumble bee. However, the measures, as written, may not reduce potential impacts to less than significant. Thus, CDFW strongly recommends the following revisions to BIO-2A, 2B, and 2C for inclusion in the final DSEIR. **Mitigation Measures:** Mitigation Measure-2A: If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to ground disturbing activities, a ~~qualified~~ **an approved qualified Designated** biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony active period (April — August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species **within the Project site and areas adjacent to the Project site where suitable habitat exists**. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. **Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.** Mitigation Measure-2B: If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible**, or if complete avoidance of Crotch's bumble bee cannot be achieved, Project activities shall be postponed until appropriate authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained.** ~~during construction activities, then CDFW shall be consulted.~~ Mitigation Measure-2C: Within one year prior to ground disturbing activities, ~~a qualified~~ **the approved designated** biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February — October), **within the Project site and areas**	

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	adjacent to the Project site where suitable habitat exists, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. **Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.**	
A-1-15	**ADDITIONAL COMMENTS AND RECOMMENDATIONS** **Burrowing Owl State Status Correction.** In Section 4.3, page 4.3-7 of the DSEIR, the sentence *"According to the County's Biotic Resources Overlay Map, the project sife is located within the County's Burrowing Owl Overlay Zone. The burrowing owl (Athene cunicularia) is listed as an SSC by CDFW."* should be revised to include the current status of the burrowing owls. CDFW recommends the following revision: "The burrowing owl (Athene cunicularia) **is a candidate species granted protection under CESA (Fish & G. Code, § 2050 et seq.)** ~~listed as an SSC by CDFW."~~	A clarification has been added to the Final SEIR Section 3, *Errata*, to revise the text in Section 4.3 page 4.3-7 of the DSEIR, to identify that burrowing owl is a candidate species granted protection under CESA (Fish & G. Code, § 2050 et seq.), as recommended by the comment.
A-1-16	**Native Landscaping** To ameliorate the water demands of this Project, CDFW recommends incorporation of water-wise concepts in Project landscape design plans. In particular, CDFW recommends xeriscaping with locally native California species, and installing water efficient and targeted irrigation systems (such as drip irrigation). Native plants support butterflies, birds, reptiles, amphibians, small mammals, bees, and other pollinators that evolved with those plants, more information on native plants suitable for the Project location and nearby nurseries is available at: Calscape. Water agencies/districts and resource conservation districts in your area may be able to provide information on plant nurseries that carry locally native species. Additionally, some facilities display drought tolerant locally native species demonstration gardens. Information on drought-tolerant landscaping and water-efficient irrigation systems is available on California's Save our Water website.	As discussed in the Draft SEIR, the City's General Plan includes a policy to require the use of drought-tolerant, native landscaping and smart irrigation systems for new development to lower overall water usage. As indicated in Table 4.9-1, General Plan Consistency Analysis, of the Draft SEIR, the proposed project would be consistent with this policy. In addition, the General Plan includes a policy regarding high-quality and environmentally sustainable landscaping. Consistent with these policies and the suggestion in the comment, as explained in the Draft SEIR, project landscaping would include native plant species and drought-tolerant plant species (see Policies 2-18, 2-18.3, and 2-23.3).

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A-1-17	**ENVIRONMENTAL DATA** CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/PIants- and-Animals.	Consistent with the comment, CNDDB field survey forms were submitted online and included as part of the Draft SEIR. Specifically, Appendix C, California Natural Diversity Database Online Field Survey Form Reports, was included as part of the *Miro Way and Ayala Drive Development Project Protocol Presence/Absence 2023 Survey Report for Burrowing Owl (Athene cunicularia)*, Appendix C to the Biological Technical Report which is appended to the Draft SEIR as Appendix D.
A-1-18	**ENVIRONMENTAL DOCUMENT FILING FEES** The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)	This comment identifies fees that may be required upon filing of the Notice of Determination by the Lead Agency and does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR. All applicable fees will be paid when due, consistent with the requirements of CEQA.
A-1-19	**CONCLUSION** Due to the issues presented in this letter, CDFW concludes that the DESIR may not adequately identify or mitigate the Project's significant, or potentially significant, impacts to burrowing owls, nor adequality assess cumulative impacts. Deficiencies in the Lead Agency CEQA document can affect later project approvals by CDFW in its role as a Responsible Agency. In addition, because of these issues, CDFW has concerns that Lead Agency may not have the basis to approve the project or make "findings" as required by CEQA unless the environmental document is modified to	The Lead Agency appreciates CDFW's review of the Draft SEIR and has incorporated the Department's feedback into the document, as discussed in the responses to comments above, including incorporation of the recommended mitigation measures: MM-BIO-3B: Burrowing Owls and MM-BIO 2A, 2B, 2C: Crotch's Bumble Bee, as provided in CDFW's comment letter and Attachment A *Draft Mitigation Monitoring and Reporting Program and Draft Recommendations.*

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	eliminate and/or mitigate significant impacts, as reasonably feasible (CEQA Guidelines, §§ 15074, 15091 & 15092). CDFW appreciates the opportunity to comment on the DSEIR for the Miro Way and Ayala Drive Project (SCH No. 202407224) to assist the City of Rialto in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Lisa Cardoso, Environmental Scientist at Lisa.Cardoso@Wildlife.ca.gov.	
A-1-20	Attachment A, Draft Mitigation Monitoring and Reporting Program and Draft Recommendations Draft Mitigation Monitoring and Reporting Program (MMRP) CDFW provides the following language to be incorporated into the MMRP for the Project. **MM-BIO-3B: Burrowing Owls** Suitable burrowing owl habitat and burrowing owls presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the Staff Report on Burrowing Owl Mitigation (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of Project construction and surrounding 500 ft radius. Take avoidance surveys shall be conducted no less than 14 days prior to initiation of Project-related activities. Burrowing owls may re-colonize a site after only a few days. Time lapses between Project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the Staff Report on Burrowing Owl Mitigation (2012 or most recent version). Upon beginning ground-disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the Project. Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW	The comment is an attachment to the comment letter that sets forth the commenter's recommendations on mitigation measures for the project and associated information for the MMRP. As discussed in Response to Comments A-1-9, A-1-10, and A-1-14, the project's mitigation measures have been updated in response to the commenter's recommendations, and the updated mitigation measures set forth in the comment are reflected in Section 3, *Errata*, of this Final SEIR, and included in the MMRP for the project.

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	and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities shall not occur within 1000 feet of an active burrow until CDFW approves the Burrowing Owl Plan, If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the Project Proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., Incidental Take Permit (ITP) under Fish and Game Code section 2081) prior to commencement of Project activities. The ITP shall describe, at a minimum, project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition. **Implementation Schedule** **Timing:** **Focused Survey:** Prior to vegetation removal or ground disturbing activities. **Pre-Construction Surveys:** No less than 14 days prior to start of Project-related activities and withing 24 hours prior to ground disturbance. **Responsible Party** **Implementation:** Project Proponent and Qualified Biologist **MM-BIO-5: Reconnaissance Surveys**	

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	Prior to Project construction activities, a complete and recent inventory, including rare, threatened, endangered, and other sensitive species, located within the Project footprint with the potential to be affected, including Species of Special Concern (SSC) and California Fully Protected Species (Fish and Game Code § 3511), will be completed. Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the Project. The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought. **Implementation Schedule** **Timing:** Prior to commencing ground or vegetation disturbing activities. **Responsible Party** **Implementation:** Project Proponent and Qualified Biologist. **MM- 2A, 2B, 2C: Crotch's Bumble Bee** Mitigation Measure-2A: If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to ground disturbing activities, an approved qualified Designated biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony	

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	active period (April – August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species within the Project site and areas adjacent to the Project site where suitable habitat exists. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities. Mitigation Measure-2B: If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible, or if complete avoidance of Crotch's bumble bee cannot be achieved, Project activities shall be postponed until appropriate authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained. Mitigation Measure-2C: Within one year prior to ground disturbing activities, the approved designated biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February – October), within the Project site and areas adjacent to the Project site where suitable habitat exists, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities. **Implementation Schedule:** **Timing:** Prior to commencing ground or vegetation disturbing activities. **Responsible Party** **Implementation:** Project Proponent and Qualified Biologist	

A-2

California Department of Transportation

DISTRICT 8
464 WEST 4TH STREET
SAN BERNARDINO CA, 92401
(909) 963-8604
www.dot.ca.gov

May 05, 2025

Route & Postmile #: SR-210/ 17.140
Cross Street: Miro Way and Ayala Drive
GTS ID: 35947
SCH #: 2024070224

City of Rialto
Planning Division
Attn: Daniel Casey
150 South Palm Avenue
Rialto, CA 92376

Subject: Miro Way and Ayala Drive Project Draft Subsequent EIR- APNs: 0264-211-15 and -20; 0264-212-12, -17; -44; -45; -46; -54; and portions of 0264-212-05 and -06.

The California Department of Transportation (Caltrans) Local Development Review (LDR) branch has completed its review of the Subsequent Environmental Impact Report (EIR) and related documents for the proposed Miro Way and Ayala Drive Project, located at northwest and southwest corners of Miro Way and Ayala Drive in the City of Rialto, California.

A-2-1

The proposed project involves the construction of two industrial warehouse buildings totaling approximately 428,715 square feet on a 20.76-acre site in the northwestern area of the City of Rialto, within the Renaissance Specific Plan. The project will provide truck and passenger vehicle access via Miro Way and Ayala Drive, and it is expected to operate 24/7. It involves rezoning for industrial use and is anticipated to generate approximately 1,228 daily Passenger Car Equivalent (PCE) trips, a figure that includes a significant volume of truck traffic.

A-2-2

Based on the information provided in the environmental document made available for public review, we are submitting the following comments and recommendations for your consideration.

A-2-3

Traffic Operations

Traffic Impact Analysis:

1. Update the traffic counts and recommended improvements to reflect existing roadway conditions.
2. Please utilize the Intersection Safety and Operational Assessment Process (ISOAP)on Caltrans-Right-of-Way where modifications are recommended/proposed.
3. Include a PE stamp on the report.
4. Conduct and include an analysis of the Horizon Year scenario.

A-2-3 continued

5. Provide further discussion regarding the exclusion of the SR-210 and Ayala Drive Interchange from the analysis. Although it is not identified as a designated truck route, please assess whether operational impacts could occur during the weekday AM and PM peak periods. (*See p. 10, Appendix K, Traffic Analysis*).
6. Revise the improvement recommendation for the Alder Avenue and SR-210 Eastbound Ramps Intersection to reflect that improvements at this location have already been implemented. (*See p. 42, Appendix K, Traffic Analysis*).
7. Update the traffic count data. Some intersections in *Appendix B (Traffic Count Data sheet)* have since been reconfigured and may not reflect current conditions.
8. Revise *Appendix D-6, Intersection Analysis Worksheet ("Opening Year 2024 Cumulative Plus Project with Improvements")*, to ensure all lane group calculation fields are fully visible and not cut off in the Vistro output files.
9. Please use 20 years from project's opening year as Horizon Year or Horizon Year Defined by SCAG.
10. Perform a queueing analysis at intersections #1, #2, and #3.

A-2-4

Forecasting

Traffic Impact Analysis:

11. Revise the "Opening Year 2024" sections if those are mislabeled Horizon Year scenarios.
12. Add a new section or subsection under "III. Analysis Methodology" titled *Traffic Forecasting Approach*, including: (1) model used (SCAG, RIVTAM, etc.), (2) growth factor sources, (3) base/horizon years, and (4) SED adjustments, if applicable.
13. The term *Opening Year 2024 – Existing Plus Growth Plus Project* is non-standard. Use Caltrans terminology such as: *Opening Year 2024 – Build (Existing Plus Growth Plus Project)*, *Opening Year 2024 – No Build (Existing Plus Growth)*, or *Cumulative Build/No Build*.
14. Include the following analysis scenarios: Existing Conditions, Opening Year No Build, Opening Year Build, Horizon Year No Build, Horizon Year Build, Cumulative No Build/Build (if applicable), and Design Failure Year (if congestion is expected before the horizon year).
15. Provide a brief description before the "Purpose" of the report.
16. Specify the route number and the nearest post mile(s). Include a map and list of study intersections, freeway segments, ramps, and interchanges. Clearly label merge, diverge, weaving, and basic freeway sections.
17. Missing titles—please ensure that each figure and table include a clear and appropriate title.
18. Add queue analysis near ramps and key intersections (e.g., Intersections #1, #2, #3, #7, and #10).
19. Ensure that the map legend includes only elements actually used in the figures.
20. The appendix is missing page numbers—please add pagination.
21. Include a table summarizing LOS, delay, and any deficiencies by scenario.
22. Provide more detail for each location by addressing the following questions: (1) What is the operational problem? (2) What improvement is recommended? (3) Is the improvement mitigation, fair share, or a condition of approval?
23. Remove references to MUTCD peak hour warrant analysis. Instead, state that signal control is assumed at buildout based on projected PM peak hour volumes. Please update Appendix F accordingly.

A-2-5

24. If VMT was analyzed only for the Opening Year, this must be noted. Long-term VMT impacts should be assessed for warehousing/high VMT land uses.

25. Itemize project segments and clearly show them on the map.
26. Global comment—please round traffic volume numbers to the nearest multiple of 5.
27. One baseline graphic appears to have an extra line going straight or turning right—verify its accuracy.
28. Rotate any incorrectly oriented pages or figures.
29. Check with the project team to determine when the project is now expected to open (likely 2025 or later). Update the Opening Year in the report to match the actual opening year. Recalculate future traffic volumes and update all related tables, figures, and text.
30. Recalculate the forecasts and update the analysis tables, figures, and narrative sections as needed.
31. Specify the exact version of software used (e.g., VISTRO 2023, Build 10.0.2). VISTRO applies HCM-based methodologies; however, Caltrans recommends stating which HCM approach (A, B, or C) was followed. Approach C (multi-period analysis) is preferred for state and major arterial facilities.
32. State that exceeding LOS D triggers a CEQA significance determination.
33. Specify the date and whether data was collected within two years of the analysis, on a non-holiday weekday (Tuesday–Thursday), and during clear, dry weather.
34. Confirm that traffic volumes were reviewed and post-processed to ensure flow conservation across turning movement intersections.
35. The study relies on traffic counts conducted on March 7, 2023. Please either (a) conduct a brief supplemental traffic count to revalidate key volumes, or (b) prepare a memo justifying continued use of 2023 data due to minimal development or network change. Note the data age and revalidation in the report.
36. The report must be revised to include a Horizon Year analysis (e.g., 2045 for a 2024 opening). Include a narrative of Horizon Year Build/No Build scenarios, forecast methodology consistent with NCHRP 765, growth assumptions, and clearly labeled figures.
37. The report should include a Design Failure Year (intersections/segments exceeding LOS D or V/C > 0.95) or Ultimate Build scenario to ensure long-term planning. This is essential for CEQA and HDM Section 400 compliance.
38. Please include more detail on passenger car trip distribution (e.g., truck % on Miro Way, car volumes on Ayala Dr.). Clarify if the same pattern is assumed for AM/PM peaks. What mitigation prevents trucks from exiting via Ayala ramps (faster LOS, shorter route to SR-210)?

A-2-6

39. Please add a CEQA-consistent justification for VMT screening such as: "Because the project is in a low VMT-generating area, and this meets the City of Rialto's adopted screening criteria for less-than-significant VMT impacts, no further quantitative VMT analysis or mitigation is required under CEQA or SB 743.

A-2-7

Equitable Access

If any Caltrans facilities are impacted by the project, they must comply with the American Disabilities Act (ADA) Standards upon project completion. Additionally, the project must ensure the maintenance of bicycle and pedestrian access throughout the construction phase. These access considerations align with Caltrans' equity mission to provide a safe, sustainable, and equitable transportation network for all users.

A-2-8

Caltrans Encroachment Permit

Please be advised that any permanent work or temporary traffic control that encroaches onto Caltrans' Right-of-Way (R/W) requires a Caltrans-issued encroachment permit.

A-2-9

For information regarding the Encroachment Permit application and submittal requirements, contact:

Caltrans Office of Encroachment Permits
464 West 4th Street, Basement, MS 619
San Bernardino, CA 92401-1400
(909) 383-4526
D8.E-permits@dot.ca.gov
https://dot.ca.gov/programs/traffic-operations/ep
Important Note: All permit applications must now be submitted through our CEPS Online Portal at: https://ceps.dot.ca.gov/

A-2-9 continued

Currently, no further review from the Local Development Review (LDR) Branch is required. Please be advised that LDR's point of contact role will conclude upon the completion of the development entitlement process. Once the project is entitled, the Encroachment Permit Office will serve as the primary point of contact moving forward.

A-2-10

Thank you again for including Caltrans in the review process. Should you have any questions regarding this letter, or for future notifications and requests for review of new projects, please email LDR-D8@dot.ca.gov or call 909-963-8604.

A-2-11

Sincerely,

Janki Patel

Janki Patel
Branch Chief - Local Development Review
Division of Transportation Planning
Caltrans District 8

Comment Number	Comment	Response
Comments from Agencies		
Letter from California Department of Transportation (Caltrans), dated May 5, 2025		
A-2-1	The California Department of Transportation (Caltrans) Local Development Review (LDR) branch has completed its review of the Subsequent Environmental Impact Report (EIR) and related documents for the proposed Miro Way and Ayala Drive Project, located at northwest and southwest corners of Miro Way and Ayala Drive in the City of Rialto, California.	This comment is an introduction to the comments included below and does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR.
A-2-2	The proposed project involves the construction of two industrial warehouse buildings totaling approximately 428,715 square feet on a 20.76-acre site in the northwestern area of the City of Rialto, within the Renaissance Specific Plan. The project will provide truck and passenger vehicle access via Miro Way and Ayala Drive, and it is expected to operate 24/7. It involves rezoning for industrial use and is anticipated to generate approximately 1,228 daily Passenger Car Equivalent (PCE) trips, a figure that includes a significant volume of truck traffic.	This comment summarizes information about the Project and does not raise any specific issue or questions on the environmental analysis provided in the Draft SEIR.
A-2-3	Based on the information provided in the environmental document made available for public review, we are submitting the following comments and recommendations for your consideration. **Traffic Operations** Traffic Impact Analysis: 1. Update the traffic counts and recommended improvements to reflect existing roadway conditions. 2. Please utilize the Intersection Safety and Operational Assessment Process (ISOAP)on Caltrans-Right-of-Way where modifications are recommended/proposed. 3. Include a PE stamp on the report. 4. Conduct and include an analysis of the Horizon Year scenario. 5. Provide further discussion regarding the exclusion of the SR-210 and	As discussed in the Draft SEIR Section 4.14, *Transportation*, under CEQA Guidelines section 15064.3, automobile delay is no longer considered a significant environmental impact and is only analyzed for compliance with the City's General Plan. The comment refers to the level of delay analysis included in the Project's Traffic Study for consistency with the City's Traffic Study Guidelines and is not a comment related to the thresholds for transportation analysis under CEQA. As discussed in the Draft SEIR pages 4.14-7 and 4.14-8, and in the Traffic Study for the Project (Appendix K of the Draft SEIR), Policy 4-1.20 of the City of Rialto General Plan requires that signalized intersections operate at LOS D or better during the morning and evening peak hours. Consistent with General Plan Policy 4-1.20, the Project would implement recommended improvements and be subject to Fair Share Contributions for improvements. The Project does not propose modifications to Caltrans Right-of-Way. Consistent with the City's Traffic Study Guidelines, the Project conducted an extensive scoping process to confirm the methodologies for data

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	Ayala Drive Interchange from the analysis. Although it is not identified as a designated truck route, please assess whether operational impacts could occur during the weekday AM and PM peak periods. (*See p. 10, Appendix K, Traffic Analysis*). 6. Revise the improvement recommendation for the Alder Avenue and SR-210 Eastbound Ramps Intersection to reflect that improvements at this location have already been implemented. (*See p. 42, Appendix K, Traffic Analysis*). 7. Update the traffic count data. Some intersections in *Appendix B (Traffic Count Data sheet)* have since been reconfigured and may not reflect current conditions. 8. Revise *Appendix D-6, Intersection Analysis Worksheet ("Opening Year 2024 Cumulative Plus Project with Improvements")*, to ensure all lane group calculation fields are fully visible and not cut off in the Vistro output files. 9. Please use 20 years from project's opening year as Horizon Year or Horizon Year Defined by SCAG. 10. Perform a queueing analysis at intersections #1, #2, and #3.	collection and analysis and determine the parameters of the traffic analysis to ensure the scope of the traffic study is appropriate for the Project. The scoping agreement was approved by the City of Rialto on March 13, 2023 and is included in the Traffic Study for the Project, included as Appendix K of the Draft SEIR. As discussed above, under CEQA Guidelines section 15064.3, automobile delay is no longer considered an environmental impact and is only analyzed for compliance with the City's General Plan. The City of Rialto reviewed the Traffic Study for consistency with the approved scoping agreement and consistency with the City's Traffic Study Guidelines. The Project's Traffic Study was approved by the City of Rialto on March 3, 2025, and the stamped Traffic Study is included with the Final SEIR. As discussed in the Traffic Study, the Project would implement recommended improvements and be subject to Fair Share Contributions for improvements, consistent with the City's Traffic Study Guidelines. The Project is located in a low Vehicle Miles Travelled (VMT) generating area as determined by the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool. As discussed in Draft SEIR Section 4.14, *Transportation,* and consistent with the City of Rialto Study Guidelines, the Project would result in a less than significant VMT impact. As determined in the Draft SEIR, the Project would result in less than significant impacts associated with transportation.
A-2-4	**<u>Forecasting</u>** <u>Traffic Impact Analysis:</u> 11. Revise the "Opening Year 2024" sections if those are mislabeled Horizon Year scenarios. 12. Add a new section or subsection under "III. Analysis Methodology" titled *Traffic Forecasting Approach*, including: (1) model used (SCAG, RIVTAM, etc.), (2) growth factor sources, (3) base/horizon years, and (4) SED adjustments, if applicable. 13. The term *Opening Year 2024 – Existing Plus Growth Plus Project* is non-standard. Use Caltrans terminology such as: *Opening Year 2024 – Build (Existing Plus Growth Plus Project)*, *Opening Year 2024 – No*	As discussed in the response to Comment A-1-3 above and as identified in Draft SEIR Section 4.14, *Transportation*, under CEQA Guidelines section 15064.3, automobile delay is no longer considered a significant environmental impact and is only analyzed for compliance with the City's General Plan. This comment refers to the level of delay analysis included in the Traffic Study approved by the City of Rialto for consistency with the City's Traffic Study Guidelines and is not a comment related to the thresholds for transportation analysis under CEQA.

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	Build (Existing Plus Growth), or *Cumulative Build/No Build*. 14. Include the following analysis scenarios: Existing Conditions, Opening Year No Build, Opening Year Build, Horizon Year No Build, Horizon Year Build, Cumulative No Build/Build (if applicable), and Design Failure Year (if congestion is expected before the horizon year). 15. Provide a brief description before the "Purpose" of the report. 16. Specify the route number and the nearest post mile(s). Include a map and list of study intersections, freeway segments, ramps, and interchanges. Clearly label merge, diverge, weaving, and basic freeway sections. 17. Missing titles—please ensure that each figure and table include a clear and appropriate title. 18. Add queue analysis near ramps and key intersections (e.g., Intersections #1, #2, #3, #7, and #10). 19. Ensure that the map legend includes only elements actually used in the figures. 20. The appendix is missing page numbers—please add pagination. 21. Include a table summarizing LOS, delay, and any deficiencies by scenario. 22. Provide more detail for each location by addressing the following questions: (1) What is the operational problem? (2) What improvement is recommended? (3) Is the improvement mitigation, fair share, or a condition of approval? 23. Remove references to MUTCD peak hour warrant analysis. Instead, state that signal control is assumed at buildout based on projected PM peak hour volumes. Please update Appendix F accordingly.	
A-2-5	24. If VMT was analyzed only for the Opening Year, this must be noted. Long-term VMT impacts should be assessed for warehousing/high VMT land uses.	As discussed in Draft SEIR Section 4.14, *Transportation,* based on the SBCTA VMT Screening Tool, A Transportation Analysis Zone (TAZ) with a VMT below the County baseline of 16.9 is considered to be a low VMT area. The project site is located in a TAZ which has a VMT per worker of 15.7, which is within a low VMT generating area, resulting in a less than

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		significant VMT impact. Based on the SBCTA VMT Screening Tool and using 2040 as the baseline year, the TAZ the project site is located in has a VMT per worker of 14.9 (See Attachment 3 to the FEIR for the 2040 Horizon Year VMT Screening Tool Results). Therefore, the results of the VMT analysis are not changed under the horizon year conditions and the impact remains less than significant. A clarification has been added to the Final SEIR Section 3, *Errata*, to supplement the discussion as recommended in the comment.
A-2-6	25. Itemize project segments and clearly show them on the map. 26. Global comment—please round traffic volume numbers to the nearest multiple of 5. 27. One baseline graphic appears to have an extra line going straight or turning right— verify its accuracy. 28. Rotate any incorrectly oriented pages or figures. 29. Check with the project team to determine when the project is now expected to open (likely 2025 or later). Update the Opening Year in the report to match the actual opening year. Recalculate future traffic volumes and update all related tables, figures, and text. 30. Recalculate the forecasts and update the analysis tables, figures, and narrative sections as needed. 31. Specify the exact version of software used (e.g., VISTRO 2023, Build 10.0.2). VISTRO applies HCM-based methodologies; however, Caltrans recommends stating which HCM approach (A, B, or C) was followed. Approach C (multi-period analysis) is preferred for state and major arterial facilities. 32. State that exceeding LOS D triggers a CEQA significance determination. 33. Specify the date and whether data was collected within two years of the analysis, on a non-holiday weekday (Tuesday–Thursday), and during clear, dry weather. 34. Confirm that traffic volumes were reviewed and post-processed to	As discussed in the response to Comment A-1-3 above and as identified in Draft SEIR Section 4.14, *Transportation*, under CEQA Guidelines section 15064.3, automobile delay is no longer considered a significant environmental impact and is only analyzed for compliance with the City's General Plan. This comment refers to the level of delay analysis included in the Traffic Study approved by the City of Rialto for consistency with the City's Traffic Study Guidelines and is not a comment related to the thresholds for transportation analysis under CEQA.

Comment Number	Comment	Response
	ensure flow conservation across turning movement intersections. 35. The study relies on traffic counts conducted on March 7, 2023. Please either (a) conduct a brief supplemental traffic count to revalidate key volumes, or (b) prepare a memo justifying continued use of 2023 data due to minimal development or network change. Note the data age and revalidation in the report. 36. The report must be revised to include a Horizon Year analysis (e.g., 2045 for a 2024 opening). Include a narrative of Horizon Year Build/No Build scenarios, forecast methodology consistent with NCHRP 765, growth assumptions, and clearly labeled figures. 37. The report should include a Design Failure Year (intersections/segments exceeding LOS D or V/C > 0.95) or Ultimate Build scenario to ensure long-term planning. This is essential for CEQA and HDM Section 400 compliance. 38. Please include more detail on passenger car trip distribution (e.g., truck % on Miro Way, car volumes on Ayala Dr.). Clarify if the same pattern is assumed for AM/PM peaks. What mitigation prevents trucks from exiting via Ayala ramps (faster LOS, shorter route to SR-210)?	
A-2-7	39. Please add a CEQA-consistent justification for VMT screening such as: "Because the project is in a low VMT-generating area, and this meets the City of Rialto's adopted screening criteria for less-than-significant VMT impacts, no further quantitative VMT analysis or mitigation is required under CEQA or SB 743.	As explained in Section 4.14, *Transportation*, of the Draft SEIR, a project located within a low VMT generating area as determined by the SBCTA VMT Screening Tool and the City's Traffic Impact Analysis Guidelines would be considered to have a less than significant impact. The Draft SEIR identifies that, based on the City of Rialto Traffic Impact Analysis Guidelines VMT and LOS and the SBCTA VMT Screening Tool, the proposed Project is located within a low VMT generating area and that the Project would result in a less than significant VMT impact requiring no further VMT analysis. A clarification has been added to the Final SEIR Section 3, *Errata*, to supplement the discussion as recommended in the comment.
A-2-8	<u>Equitable Access</u> If any Caltrans facilities are impacted by the project, they must comply with the American Disabilities Act (ADA) Standards upon project	Caltrans facilities would not be impacted as a part of the Project. As discussed in Draft SEIR Section 4.14, *Transportation, t*he project site consists of vacant, previously disturbed land and does not have any authorized roadway, pedestrian, bicycle, or public transit improvements

Comment Number	Comment	Response
	completion. Additionally, the project must ensure the maintenance of bicycle and pedestrian access throughout the construction phase. These access considerations align with Caltrans' equity mission to provide a safe, sustainable, and equitable transportation network for all users.	or vehicular access. The Project would be required to provide a Traffic Control Plan addressing pedestrian and bicycle access to the City of Rialto for review and approval prior to construction. As discussed in the Draft SEIR, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, and impacts would be less than significant.
A-2-9	Caltrans Encroachment Permit Please be advised that any permanent work or temporary traffic control that encroaches onto Caltrans' Right-of-Way (R/W) requires a Caltrans-issued encroachment permit. For information regarding the Encroachment Permit application and submittal requirements, contact: Caltrans Office of Encroachment Permits 464 West 4th Street, Basement, MS 619 San Bernardino, CA 92401-1400 (909) 383-4526 D8.E-permits@dot.ca.gov https://dot.ca.gov/programs/traffic-operations/ep Important Note: All permit applications must now be submitted through our CEPS Online Portal at: https://ceps.dot.ca.gov/	The comment refers to Caltrans' encroachment permit requirements. no permanent work or temporary traffic control work is anticipated that would require a Caltrans encroachment permit; however, the Project will obtain all applicable permits as required. The comment does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR.
A-2-10	Currently, no further review from the Local Development Review (LDR) Branch is required. Please be advised that LDR's point of contact role will conclude upon the completion of the development entitlement process. Once the project is entitled, the Encroachment Permit Office will serve as the primary point of contact moving forward.	The comment that no further review from Caltrans' Local Development Review Branch is required is noted. The comment does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR.
A-2-11	Thank you again for including Caltrans in the review process. Should you have any questions regarding this letter, or for future notifications and requests for review of new projects, please email LDR-D8@dot.ca.gov or call 909-963-8604.	The comment is a concluding comment that does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR.

O-1

May 2, 2025

City of Rialto
Community Development Department, Planning Division
Attn: Daniel Casey, Senior Planner
Rialto, CA 92376
Submitted via email to dcasey@rialtoca.gov.

Re: Miro Way and Ayala Drive Project Subsequent EIR (SCH #2024070224)

Dear Daniel Casey,

I am writing this letter on behalf of the Center for Community Action and Environmental Justice (CCAEJ) and members of the Rialto community to respond to the draft Subsequent Environmental Impact Report (SEIR) for the proposed Miro Way and Ayala Drive Project (SCH #2024070224). After reviewing the documents and studies which have been prepared for the Project, I am providing the following comments regarding concerns which have been identified with what is proposed.

O-1-1

The first and by far the biggest concern identified is that this Project would be using land which is set aside for use as a park. In Table 1-1: Summary of Impacts and Mitigation Program Section 4.13: Recreation lists the impact that this would have as a "less than significant" impact of the Project, but that does not appear to match the reality of the situation and the forgoing of additional park space in the community, particularly so close to existing homes as well as more to be built. Additionally, there is no alternative site for a park identified to replace the opportunity that would be lost by the Project.

O-1-2

Second concern is the cumulative impacts, this project will directly impact not only existing homes and Jerry Eaves park but also a new housing development to the north where new families will be moving into soon. While the SEIR does consider other projects in the vicinity that are not built, it does not address the existing oversaturation in the area and consider the appropriateness of adding even more pollution burden to it. There are already many warehouses directly adjacent to that location and this Project site, making this addition to the area serving to bring the impacts of them all to the breaking point for the community.

O-1-3

We would encourage the City to work with the developer to reconsider appropriate projects for this site that do not add to the burden that already exists in the community and exacerbate the need for park space in the city. Thank you for your time and consideration of these matters.

O-1-4

Sincerely,



Marven E. Norman
Environmental Policy Analyst

CCAEJ is a long-standing community based organization with over 40 years of experience advocating for stronger regulations through strategic campaigns and building a base of community power. Most notably, CCAEJ's founder Penny Newman won a landmark federal case against Stringfellow Construction which resulted in the 'Stringfellow Acid Pits' being declared one of the first Superfund sites in the nation. ***CCAEJ*** prioritizes community voices as we continue our grassroots efforts to bring lasting environmental justice to the Inland Valley Region.

Mailing Address
PO Box 33124
Jurupa Valley, CA 92519
www.ccaej.org

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Comment Number	Comment	Response
Comments from Organizations		
Letter from Center For Community Action and Environmental Justice (CCAEJ), dated May 2, 2025		
O-1-1	I am writing this letter on behalf of the Center for Community Action and Environmental Justice (CCAEJ) and members of the Rialto community to respond to the draft Subsequent Environmental Impact Report (SEIR) for the proposed Miro Way and Ayala Drive Project (SCH #2024070224). After reviewing the documents and studies which have been prepared for the Project, I am providing the following comments regarding concerns which have been identified with what is proposed.	This comment is an introduction to the comments included below and does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR.
O-1-2	The first and by far the biggest concern identified is that this Project would be using land which is set aside for use as a park. In Table 1-1: Summary of Impacts and Mitigation Program Section 4.13: Recreation lists the impact that this would have as a "less than significant" impact of the Project, but that does not appear to match the reality of the situation and the forgoing of additional park space in the community, particularly so close to existing homes as well as more to be built. Additionally, there is no alternative site for a park identified to replace the opportunity that would be lost by the Project.	As discussed in Section 3, *Project Description*, of the Draft SEIR, the project site is zoned Specific Plan. Planning Areas 126 and 133, within the 2016 Renaissance Specific Plan Amendment area, are currently designated Public Park and Employment with a Designated Park overlay, respectively, and proposed to be redesignated to Business Center. As explained in the Specific Plan, modifications to the land plan are expected, given that the Specific Plan area will build out over several years and under different owners. As identified in the Draft SEIR on page 4.13-4, the project site consists of vacant, undeveloped land and does not feature existing recreational facilities. The planning area that is currently designated as Public Park (Planning Area 126), is privately owned, and no recreational facilities are planned for the parcel. As discussed in Draft SEIR Section 4.11, *Population and Housing*, the Project is not anticipated to result in substantial population growth and therefore, would not require the construction or expansion of recreational facilities or result in an increase in demand for recreational facilities, requiring the expansion or relocation of existing facilities. Accordingly, the existing recreational facilities in the vicinity of the Project (i.e., Jerry Eaves Park, Frisbie Park, etc.) would continue to serve the community and the implementation of the Project would not change existing service ratios or contribute to the deterioration of recreational facilities. Further, Draft SEIR Section 4.12, *Public Services,* identifies that the proposed Project, and future projects, are subject to various development impact fees, including park-in-lieu fees, as outlined in the City's Municipal Code. Future projects

Comment Number	Comment	Response
		in the surrounding area, including residential projects, would be subject to applicable parks fees to offset potential impacts to parks resulting from implementation of those projects. As discussed in Draft SEIR Section 4.13, *Recreation,* the California Environmental Quality Act (CEQA) thresholds to evaluate recreation consider whether the proposed Project would 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; and whether the proposed Project includes recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. As discussed above and explained in Draft SEIR Section 4.13, the Project is not anticipated to result in an increase in demand for recreational facilities that would result in substantial physical deterioration of existing recreational facilities, and the Project does not require the construction or expansion of recreational facilities. Accordingly, recreational impacts would be less than significant, as identified in the Draft SEIR. Further, pursuant to the Development Agreement between the City and the Applicant related to the Specific Plan, the Applicant has made over $18 million in payments to the City for public park purposes, including $10,000 per residential unit within the Specific Plan area, which exceeds the City's current Park Development Impact Fee, and will be paid for each of the first 650 residential units within the Specific Plan area. These payments are for the City's use for public park purposes.
O-1-3	Second concern is the cumulative impacts, this project will directly impact not only existing homes and Jerry Eaves park but also a new housing development to the north where new families will be moving into soon. While the SEIR does consider other projects in the vicinity that are not built, it does not address the existing oversaturation in the area and consider the appropriateness of adding even more pollution burden to it. There are already many warehouses directly adjacent to that location and this Project site, making this addition to the area serving to bring the impacts of them all to the breaking point for the community.	As identified by the commenter, and in accordance with State CEQA Guidelines Section 15130, the cumulative analysis in the Draft SEIR considers other projects in the vicinity that are planned but not yet constructed. The cumulative impact analysis methodology is explained in Section 4.0.4 of the Draft SEIR. Further, construction and operational Air Quality cumulative impacts are evaluated in Draft SEIR Section 4.2.7. As discussed in Section 4.2.7, operational emissions for the proposed warehouses would not exceed South Coast Air Quality Management District (SCAQMD) thresholds with implementation of applicable mitigation measures, and as a result, operational emissions associated with the Project would not result in a cumulatively considerable

Comment Number	Comment	Response
		contribution to significant cumulative air quality impacts. Further, Compliance with SCAQMD Rule 2305 (Warehouse Indirect Source Rule) is required for all existing and proposed warehouses greater than 100,000 square feet (sf). Warehouse operators are required to implement additional emission reduction strategies or pay mitigation fee to reduce emissions. As explained in the Draft SEIR, compliance with Rule 2305 would reduce Project emissions below what is currently analyzed and also reduce cumulative emissions. Cumulative impacts resulting from greenhouse gas emissions are discussed in Draft SEIR Section 4.6.7. As discussed in Draft SEIR Section 4.6, *Greenhouse Gas Emissions*, Project-related GHG emissions would exceed the 3,000 MTCO2e threshold of significance despite implementation of applicable mitigation measures. As such, the Project would result in a potentially significant cumulative GHG impact. However, the Project, as well as other cumulative related projects, would also be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As discussed in the Draft SEIR, most of the Project's mitigated GHG emissions are from mobile sources. Emissions of motor vehicles are regulated by State and Federal standards, which are becoming more stringent over the years to reduce mobile source emissions. As such and as discussed in the Draft SEIR, emissions would decline in the future due to statewide measures (including the reduction in fuels' carbon content, CARB's Advanced Clean Car Program, CARB's Mobile Source Strategy, fuel efficiency standards, etc.), as well as cleaner technology and fleet turnover.
O-1-4	We would encourage the City to work with the developer to reconsider appropriate projects for this site that do not add to the burden that already exists in the community and exacerbate the need for park space in the city. Thank you for your time and consideration of these matters.	As identified in the response to Comment O-1-2 above, the Project would not generate substantial population growth and therefore would not result in the construction or expansion of recreational facilities. The existing project site consists of vacant, undeveloped land and does not feature existing recreational facilities; therefore, implementation of the proposed Project would not result in a change to the current service ratios. As discussed in the Draft SEIR, impacts related to parks and recreation would be less than significant, and mitigation measures are not required. Nevertheless, as discussed above, the Applicant has provided over $18

Comment Number	Comment	Response
		million in payments for public park purposes to the City, contributing to the park and recreation needs of the surrounding community.

O-2

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Mitchell M. Tsai
Law Firm

139 South Hudson Avenue
Suite 200
Pasadena, California 91101

VIA E-MAIL

April 30, 2025

Daniel Casey
Principal Planner
City Hall
150 South Palm Avenue
Rialto, CA 92376
Em: dcasey@rialtoca.gov

RE: City of Rialto Miro Way and Ayala Drive Project DEIR

Dear Mr. Casey:

O-2-1

On behalf of the Western States Regional Council of Carpenters ("**Western Carpenters**" or "**WSRCC**"), my Office is submitting these comments for the City of Rialto Draft Environmental Impact Report (EIR; State Clearinghouse No. 2024070224 for the proposed Miro Way and Ayla Drive Project (Master Case No. 2024-0019) ("**Project**").

WSRCC would like to express its support for this Project. After further reviewing this Project, WSRCC believes that the Project will benefit the environment and the local economy by practicing protocols that will protect worker health and safety and will incorporate adequate environmental mitigation.

Should the City have any questions or concerns, the City should feel free to contact my office.

Sincerely,

Grace Holbrook, Esq.
Attorneys for Western States Regional Council of Carpenters

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Comment Number	Comment	Response
Comments from Organizations		
Letter from Mitchell M. Tsai Law Firm on behalf of the Western States Regional Council of Carpenters (WSRCC), dated April 30, 2025		
O-2-1	On behalf of the Western States Regional Council of Carpenters ("Western Carpenters" or "WSRCC"), my Office is submitting these comments for the City of Rialto Draft Environmental Impact Report (EIR; State Clearinghouse No. 2024070224 for the proposed Miro Way and Ayla Drive Project (Master Case No. 2024-0019) ("Project"). WSRCC would like to express its support for this Project. After further reviewing this Project, WSRCC believes that the Project will benefit the environment and the local economy by practicing protocols that will protect worker health and safety and will incorporate adequate environmental mitigation. Should the City have any questions or concerns, the City should feel free to contact my office.	This comment acknowledges support for the Project by the Western States Regional Council of Carpenters. The letter of support does not raise any specific issues or questions on the environmental analysis provided in the Draft SEIR.

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3.0 ERRATA TO THE DRAFT SEIR

3.1 INTRODUCTION TO THE ERRATA

The Draft Subsequent Environmental Impact Report (SEIR) for the Miro Way and Ayala Drive Project dated March 2025, is hereby incorporated by reference as part of the Final SEIR. Changes to the Draft SEIR are further detailed below.

The changes to the Draft SEIR do not affect the overall conclusions of the environmental document, and instead represent changes to the Draft SEIR that provide clarification, amplification and/or insignificant modifications, as needed as a result of public comments on the Draft SEIR, or due to additional information received during the public review period. These clarifications and corrections do not warrant Draft SEIR recirculation pursuant to CEQA Guidelines Section 15088.5.

None of the changes or information provided in the comments reflect a new significant environmental impact, a substantial increase in the severity of an environmental impact for which mitigation is not proposed, or a new feasible alternative or mitigation measure that would clearly lessen significant environmental impacts but is not adopted. In addition, the changes do not reflect a fundamentally flawed or conclusory Draft SEIR.

Changes to the Draft SEIR are listed by Section, page, paragraph, etc. to best guide the reader to the revision. Changes are identified as follows:

- Deletions are indicated by ~~strikeout text.~~
- Additions are indicated by <u>underlined text</u>.

3.2 CHANGES TO THE DRAFT SEIR

Section 1.0, Executive Summary; Page 1-7 to 1-36; Table 1-1: Summary of Impacts and Mitigation Program

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Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
Section 4.1: Aesthetics			
Impact 4.1-1: Would the project have a substantial adverse effect on a scenic vista?	LS	No mitigation measures are required.	LS
Impact 4.1-2: Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ~~In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from 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?~~	LS	No mitigation measures are required.	LS
Impact 4.1-3: Would the project conflict with applicable zoning and other regulations governing scenic quality?	LS	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** **AES-1** Pursuant to Section 15.32 of the City's Municipal Code Prior to the issuance of grading permits, the Project applicant shall submit to the satisfaction of the Public Works Director, evidence that all electrical distribution lines of 16,000 volts or less, telephone lines, cable antenna television and similar service wires or cable, which provide direct service to the property being developed, shall be installed underground. ***Project Mitigation Measures*** No mitigation is required.	LS
Impact 4.1-~~3~~4: Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	LS	No mitigation measures are required.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
Section 4.2: Air Quality			
Impact 4.2-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** **AQ-4** Off-Road Diesel Equipment. Prior to the issuance of any grading permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that off-road diesel-powered construction equipment greater than 50 horsepower will meet the Tier 4 emission standards, where feasible. In addition, where feasible all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by the Air Resources Board (ARB). Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by ARB regulations. **AQ-5** Construction Equipment Tier Specification. Prior to the mobilization of each applicable off-road diesel-powered construction equipment greater than 50 horsepower, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, a copy of the certified tier specification, Best Available Control Technology (BACT) documentation, and Air Resources Board or South Coast Air Quality Management District's operating permit for each shall be provided at the time of mobilization of each applicable unit of equipment. **AQ-6** Truck Building Access. Prior to the issuance of any grading permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that the following truck access routes have been incorporated into the Project design, to the maximum extent practicable, to reduce air quality and potential future health	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		risk impacts from the operation phases of the proposed Project: ▪ Design warehouse/distribution centers such that entrances and exits discourage that trucks from traversing past neighbors or other sensitive receptors. ▪ Design warehouse/distribution centers such that any check-in point for trucks is well inside the facility property to ensure that there are no trucks queuing outside of the facility. ▪ Establish area(s) within the facility for repair needs. ▪ Provide electrical service capacity for equipment at facilities. **AQ-7** Truck Routes. Prior to the issuance of any grading permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that the following truck access routes have been incorporated into the Project design, to the maximum extent practicable, to reduce air quality and potential future health risk impacts from the operation phase of the proposed Project, if feasible: ▪ Develop, adopt and enforce truck routes both for entering and leaving the city and in and out of facilities; keeping in mind common pedestrian routes, especially for schools. ▪ Have truck routes clearly marked with trailblazer signs, so trucks will not enter residential areas. ▪ Identify or develop secure locations outside of residential neighborhoods where truckers that live in the community can park their truck, such as a Park & Ride. ▪ Where there are traffic impacts, improve traffic flow by signal synchronization. **AQ-8** Super-Compliant VOC Paints. Prior to the issuance of any building permits, the Project applicant shall submit, to the	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		satisfaction of the Public Works Director and Planning Division, evidence that the construction contractor shall be required to utilize Super-Compliant VOC paints, which are defined by SCAQMD as meeting the "super-compliant" VOC standard of 10 grams per liter (g/L). Use of HVLP or electrostatic spray equipment shall be encouraged.	
		AQ-9 Exterior and Interior Finishes. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that exterior and interior finishes that do not require painting shall be used where feasible.	
		AQ-10 Building Orientation. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that buildings have been oriented and incorporate landscaping to maximize passive solar; heating during cool seasons, and minimize solar heat gain during hot seasons where feasible depending upon site condition and topography.	
		AQ-12 Energy Efficiency Education. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that building tenants shall be encouraged to educate employees on energy efficiency measures.	
		AQ-13 Preferential Parking Spaces. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that preferential parking spaces shall be offered to car pools and van pools.	
		AQ-14 Electrical Hookup Capacity. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		Division, evidence that building designs provide electrical capacity for installation of electrical hookups at onsite loading docks and for electric vehicle charging stations. ***Project Mitigation Measures*** **MM AIR-1** Prior to the issuance of grading permits, the City Engineer shall confirm that the Grading Plan specifies all off-road diesel-powered construction equipment greater than 50 horsepower shall meet California Air Resources Control Board Tier 4 Final off-road emissions standards or incorporate CARB Level 3 Verified Diesel Emission Control Strategy (VDECS). Requirements for Tier 4 Final equipment and the option for Level 3 VDECS shall be included in applicable bid documents and successful contractor(s) must demonstrate the ability to supply such equipment. A copy of each unit's Best Available Control Technology (BACT) documentation (certified tier specification or model year specification), and CARB or SCAQMD operating permit (if applicable) shall be maintained on site and available upon request. **MM AIR-2** Prior to issuance of tenant occupancy permits, the tenant/facility operator shall prepare and submit a Transportation Demand Management (TDM) program detailing strategies that would reduce the use of single occupant vehicles by employees by increasing the number of trips by walking, bicycle, carpool, vanpool and transit. The TDM shall include, but is not limited to the following: ▪ Provide a transportation information center and on-site TDM coordinator to educate residents, employers, employees, and visitors of surrounding transportation options.	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		▪ Promote bicycling and walking through design features such as showers for employees, self-service bicycle repair area, etc. around the project site. ▪ Each building shall provide secure bicycle storage space equivalent to two percent of the automobile parking spaces provided. ▪ Each building shall provide a minimum of two shower and changing facilities as part of the tenant improvements. ▪ Provide on-site car share amenities for employees who make only occasional use of a vehicle. ▪ Promote and support carpool/vanpool/rideshare use through parking incentives and administrative support, such as ride-matching service. ▪ Incorporate incentives for using alternative travel modes, such as preferential load/unload areas or convenient designated parking spaces for carpool/vanpool users. ▪ Provide meal options onsite or shuttles between the facility and nearby meal destinations. ▪ Each building shall provide preferred parking for electric, low-emitting and fuel-efficient vehicles equivalent to at least eight percent of the required number of parking spaces. This mitigation measure applies only to tenant occupancy and not the building shell approvals. **MM AIR-3** Prior to the issuance of a building permit, the Planning Department shall confirm that the Project is designed to include the following: ▪ The buildings' electrical room shall be sufficiently sized to hold additional panels that may be needed to supply power for the future installation of electric	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		vehicle (EV) truck charging stations on the site. Conduit should be installed from the electrical room to tractor trailer parking spaces in a logical location(s) on the site determined by the Project applicant during construction document plan check, for the purpose of accommodating the future installation of EV truck charging stations at such time this technology becomes commercially available and the buildings are being served by trucks with electric-powered engines. **MM AIR-4** Prior to the issuance of a tenant occupancy permit, the Planning Department shall confirm that truck exit driveway signs provide directional information to the truck route and that all truck access gates and loading docks within the project site shall have a sign posted that identifies that: ▪ Truck drivers shall turn off engines when not in use. ▪ Truck drivers shall shut down the engine after two minutes of continuous idling operation. Once the vehicle is stopped, the transmission is set to "neutral" or "park", and the parking brake is engaged. ▪ Telephone numbers of the building facilities manager and CARB to report violations. ▪ Signs shall also inform truck drivers about the health effects of diesel particulates, the California Air Resources Board diesel idling regulations, and the importance of being a good neighbor by not parking in residential areas. This mitigation measure applies only to tenant improvements and not the building shell approvals. **MM AIR-5** Prior to the issuance of a tenant occupancy permit, the Planning Department shall confirm that the tenant has been provided with information about Carl Moyer Program and that compliance with the voluntary program including energy	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		efficiency improvement features for vendor trucks for the industrial buildings through the Carl Moyer Program— including truck modernization, retrofits, and/or aerodynamic kits and low rolling resistance tires— to reduce fuel consumption but strongly encouraged. This mitigation measure applies only to tenant improvements and not the building shell approvals. **MM AIR-6** Prior to issuance of a Certificate of Occupancy for Tenant Improvements, not building shell, the Project tenants shall train staff on vehicle records in diesel technologies requirements and compliance with California Air Resources Board (CARB) regulations, by attending CARB-approved courses. Facility operators shall maintain records on-site demonstrating compliance and make records available for inspection by the City of Rialto, South Coast Air Quality Management District, and State upon request. **MM AIR-7** Prior to the issuance of a tenant occupancy permit, and not building shell, the Planning Department shall confirm that the Project plans and specifications show the following: ▪ All outdoor cargo handling equipment (including yard trucks, hostlers, yard goats, pallet jacks, and forklifts) are zero emission/powered by electricity. Each building shall include the necessary charging stations for cargo handling equipment. Note that SCAQMD Rule 2305 (Warehouse Indirect Source Rule) Warehouse Actions and Investments to Reduce Emissions (WAIRE) points may be earned for electric/zero emission yard truck/hostler usage. This mitigation measure applies only to tenant improvements and not the building shell approvals. ▪ All standard emergency generators shall meet California Air Resources Board Tier 4 Final emissions	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		standards. A copy of each unit's Best Available Control Technology (BACT) documentation (certified tier specification) and CARB or SCAQMD operating permit (if applicable) shall be provided to the City.	
Impact 4.2-2: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or federal ambient air quality standard?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** Further details regarding Mitigation Measures **AQ-4** through **AQ-10**, and **AQ-12** through **AQ-14** are discussed under Impact 4.2-1, above. ***Project Mitigation Measures*** Further details regarding **MM AIR-2** through **MM AIR-7** are discussed under Impact 4.2-1, above.	LS
Impact 4.2-3: Would the project expose sensitive receptors to substantial pollutant concentrations?	S	Further details regarding 2016 RSPA EIR Mitigation Measure **AQ-4** and **MM AIR-7** are discussed under Impact 4.2-1, above.	LS
Impact 4.2-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LS	No mitigation measures are required.	LS
Section 4.3: Biological Resources			
Impact 4.3-1: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** **MM BIO-1A** Prior to project construction activities, an updated potential to occur assessment shall be completed. Species to be addressed shall include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the project site. If deemed necessary, pre-construction species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of day	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance With Mitigation
			when the sensitive species are active or otherwise identifiable, shall be conducted. Acceptable species-specific survey procedures shall follow CDFW and USFWS guidance, where applicable.	
		MM BIO-1B	Prior to the start of project construction activities, a qualified biologist shall conduct a comprehensive pre-construction wildlife survey. This survey must be completed within one week before any ground-disturbing activities or vegetation removal begins. The survey shall include 100% coverage of the project site, as well as a 100-foot buffer zone surrounding the site to identify and document any wildlife species present in adjacent areas. All species observed during the survey shall be recorded and mapped accordingly.	
		MM BIO-1C	If necessary, appropriate avoidance and minimization measures shall be developed to protect sensitive wildlife species identified during the pre-construction survey. These measures may include establishing species-specific no-disturbance buffer zones. If wildlife is observed within the project footprint and cannot be avoided, individuals may be relocated to suitable habitat outside the impact area by a qualified biologist. All relocations shall be conducted under the appropriate permits and authorizations from relevant wildlife agencies.	
		MM BIO-1D	A biologist shall flush special-status species (i.e., avian or other mobile species), with the exception of burrowing owl, from suitable habitat areas within the Project development footprint to the maximum extent practicable immediately (e.g., within 24 hours) prior to initial vegetation removal activities. The biologist shall flush wildlife by walking through habitat to be	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance With Mitigation
			immediately removed and towards adjacent remaining suitable habitat.	
		MM BIO-1E~~A~~	Construction vehicles shall not exceed 15 miles per hour on unpaved roads adjacent to the project site or the right-of-way accessing the project site.	
		MM BIO-1F~~B~~	The Project applicant, or its contractors, shall screen, cover, or elevate at least one (1) foot above ground, all construction pipe, culverts, or similar structures with a diameter of three (3) inches or greater that are stored on-site overnight. The pipes, culverts, and similar structures shall be inspected by the Project biologist for wildlife before such material is moved, buried, or capped.	
		MM BIO-1G~~C~~	Construction activities shall occur during daytime hours to the greatest extent feasible. If construction must occur at nighttime, lights shall be oriented in such a way that they direct light downward and toward the active construction, ensuring that no direct light is emitted towards adjacent lands, and shields or deflectors shall be installed on lights to reduce light spill. Nighttime concrete pouring shall be performed in accordance with the City of Rialto Municipal Code.	
		MM BIO-1H~~E~~	At the end of each workday during construction, the applicant, or its contractors, will cover all excavated, steep-sided holes or trenches more than eight inches deep and that have sidewalls steeper than 1:1 (45 degree) slope with plywood or similar materials, or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than 3:1) constructed of earth fill or wooden planks. The Project biologist shall thoroughly inspect holes and trenched for trapped animals during biological monitoring.	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance With Mitigation
		MM BIO-1I~~F~~	Contractors shall not permit pets on the construction site.	
		MM BIO-1J~~G~~	If trash and debris need to be stored overnight during maintenance activities, fully covered trash receptacles that are animal-proof and weather-proof shall be used by the maintenance contractor to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Alternatively, standard trash receptacles may be used during the day, but shall be removed or emptied each night.	
		MM BIO-1K~~H~~	To prevent inadvertent disturbance to areas outside the limits of work, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary visibility construction fence) prior to ground-disturbance activities, and all construction activities, including equipment staging and maintenance, shall be conducted within the marked disturbance limits. The work limit delineation shall be maintained throughout Project construction.	
		MM BIO-2A	If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to ground disturbing activities, an approved qualified designated biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony active period (April – August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species within the project site and areas adjacent to the project site where suitable habitat exists. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance With Mitigation
			findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.	
		MM BIO-2B	If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible, or if complete avoidance of Crotch's bumble bee cannot be achieved, Project activities with the potential to impact Crotch's bumble bee shall be postponed until appropriate authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained ~~during construction activities, then CDFW shall be consulted~~.	
		MM BIO-2C	Within one year prior to ground disturbing activities, the approved designated ~~a qualified~~ biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February – October), within the project site and areas adjacent to the project site where suitable habitat exists, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.	
		MM BIO-2D	If occupied foraging habitat for Crotch's bumble bee is present within Project impact areas, a Revegetation Plan shall be prepared which includes native shrubs and	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance With Mitigation
			native seed mixes that contain known nectar sources for Crotch's bumble bee. The Revegetation Plan shall be developed in consultation with a qualified Crotch's bumble bee biologist and implemented following Project construction.	
		MM BIO-3A	Prior to initial ground disturbing activities, a Worker Environmental Awareness Program (WEAP) shall be prepared, which will include a training presentation and key fact sheet. The training will instruct construction crews to be aware of and recognize burrowing owls and other sensitive biological resources that may be encountered within, or adjacent to, the project. The training will provide workers with instructions to follow in the event a burrowing owl is observed or suspected to be on site. Biologists shall provide WEAP training materials, including but not limited to the key fact sheet, to construction personnel before their commencement of work on the project. Additionally, all construction staff shall attend the WEAP training presentation prior to beginning work on-site. A refresher WEAP training will be completed on an annual basis thereafter. Note that the fact sheet shall be provided in other languages, as necessary, to accommodate non-English speaking workers. Upon completion of the WEAP training, each member of the construction crew shall sign a form stating that they attended the training, understood the information presented, and agreed to comply with the requirements set out in the WEAP training. On an annual basis, the project proponent shall certify that WEAP training has been provided to all construction personnel. Biologists	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance With Mitigation
			shall provide updates relevant to the training to construction personnel during the safety ("tailgate") meetings, as needed.	
		MM BIO-3B	Suitable burrowing owl habitat and burrowing owl presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the CDFW BUOW Guidelines (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of project construction and surrounding 500 foot radius. Take avoidance surveys shall be conducted no less than 14 days prior to initiation of project-related activities. Burrowing owls may re-colonize a site after only a few days. Time lapses between Project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the CDFW BUOW Guidelines (2012 or most recent version). Upon beginning ground-disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the project Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities with the potential to impact burrowing owl shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		Burrowing Owl Plan shall describe proposed avoidance, and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities with the potential to impact burrowing owl shall not occur within 1,000 feet of an active burrow until CDFW approves the Burrowing Owl Plan. If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the project proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., ITP under CFGC section 2081) prior to commencement of Project activities. The ITP shall describe, at a minimum, Project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition. ~~During active construction, biological monitoring will be performed to ensure unauthorized impacts on burrowing owl do not occur as a result of the project. A biologist shall be contracted to perform monitoring during all construction activities approximately every other day. The definitive frequency and duration of monitoring shall be dependent on project and site conditions, such as the type of construction activity occurring, whether it is the breeding versus non-~~	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		~~breeding season, if a burrowing owl has been recently documented on site, and the efficacy of the exclusion buffers, as determined by a qualified biologist.~~	
		~~**MM BIO-3C**~~ ~~No less than 14 days prior to the onset of construction activities, a qualified biologist shall survey the construction limits of the project site and a 500-foot buffer for the presence of burrowing owls and/or occupied nest burrows. A second survey shall be conducted within 24 hours prior to the onset of construction activities. The surveys shall be conducted in accordance with the most current CDFW survey methods.~~	
		~~The Project applicant shall submit at least one burrowing owl preconstruction survey report to the satisfaction of the City and CDFW to document compliance with this mitigation measure. For the purposes of this measure, 'qualified biologist' is a biologist who meets the requirements set forth in the CDFW BUOW Guidelines.~~	
		~~**MM BIO-3D**~~ ~~If burrowing owl is documented on site or within 500-feet of the project site during either preconstruction surveys or biological monitoring, occupied burrowing owl burrows shall not be disturbed. CDFW shall be contacted within 48 hours of the burrowing owl observation and disturbance avoidance buffers shall be set up by a qualified biologist in accordance with the recommendations from CDFW.~~	
		~~No work will occur within avoidance buffers until consultation with CDFW and issuance of permits, if required. If burrowing owl is no longer a candidate or listed species under CESA at the time of project construction, then permits shall not be required. If~~	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure		Significance With Mitigation
			~~avoidance of burrowing owls is not possible, either directly or indirectly, consultation with CDFW will determine the appropriate course of action. CDFW may require an Incidental Take Permit (ITP) or a Burrowing Owl Relocation and Mitigation Plan (Plan). The conditions of the permit or measures outlined in the plan would be adhered to by the Project proponent and any required compensatory mitigation of habitat would be provided.~~	
		MM BIO-4A	To ensure compliance with CFGC sections 3503, 3503.5, and 3513 and to avoid potential impacts to nesting birds, vegetation clearing and ground-disturbing activities shall be conducted outside of the bird nesting season (generally February 15 through August 31). Regardless of the time of year, a qualified biologist will conduct a nesting bird survey within three (3) days prior to any disturbance of the site, including but not limited to vegetation clearing, disking, demolition activities, and grading.	
		MM BIO-4B	If active nests are identified, the biologist shall establish suitable buffers around the nests depending on the level of activity within the buffer and species observed, and the buffer areas shall be avoided until the nests are no longer occupied, and the juvenile birds can survive independently from the nests. During construction activities, the qualified biologist shall continue biological monitoring activities at a frequency recommended by the qualified biologist using their best professional judgment. If nesting birds are documented, avoidance and minimization measures may be adjusted, and construction activities stopped or redirected by the	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		qualified biologist using their best professional judgement to avoid take of nesting birds. If nesting birds are not documented during the preconstruction survey, adherence to additional measures may not be necessary to avoid impacts to nesting birds.	
Impact 4.3-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?	LS	No mitigation measures are required.	LS
Impact 4.3-3: Would the project have a substantial adverse effect on State or federal protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	No Impact	No mitigation measures are required.	No Impact
Impact 4.3-4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** Further details regarding **MM BIO-4A** and ~~through~~ **MM BIO-4BC** are included under Impact 4.3-1, above.	LS
Impact 4.3-5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** Further details regarding **MM BIO-3A** through **MM BIO-3BD** are included under Impact 4.3-1, above.	LS
Impact 4.3-6: Would the Project conflict with the provisions of an adopted Habitat Conservation	No Impact	No mitigation measures are required.	No Impact

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
Plan, Natural Community conservation Plan, or other approved local, regional, or State habitat conservation plan?			
Section 4.4: Cultural Resources			
Impact 4.4-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** **MM CUL-1** In the event that archaeological or cultural resources are discovered during Project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on other portions of the Project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed in **MM TCR-1**, regarding any pre-contact finds and be provided information after the archaeologist makes his/her find, so as to provide Tribal input with regards to significance and treatment. **MM CUL-2** If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan (Plan), the drafts of which shall be provided to YSMN for review and comment, as detailed within **MM TCR-1**. The archaeologist shall monitor the remainder of the Project and Implement the Plan accordingly.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		MM CUL-3 If human remains or funerary objects are encountered during activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code Section 7050.5 and that code enforced for the duration of the Project.	
Impact 4.4-2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	S	**Mitigation Measures** ***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** Further details regarding **MM CUL-1** through **MM CUL-3** are included under Impact 4.4-1, above.	LS
Impact 4.4-3: Would the project disturb any human remains, including those interred outside of formal cemeteries?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** Further details regarding **MM CUL-3** are included under Impact 4.4-1, above.	LS
Section 4.5: Energy			
Impact 4.5-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	S	***2016 Renaissance Specific Plan EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** See Section 4.2, *Air Quality*, for further discussion on **MM AIR-2** and Section 4.6, *Greenhouse Gas Emissions*, for further discussion on **GHG-1** and **GHG-2**.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
I**mpact 4.5-2:** Would the project conflict with or obstruct a State or Local plan for renewable energy or energy efficiency?	LS	No mitigation measures are required.	LS
Section 4.6: Greenhouse Gas Emissions			
Impact 4.6-1: Would the project generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment?	SU	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** **MM AIR-2** through **MM AIR-7** are further discussed in Section 4.2, *Air Quality* of this SEIR. **MM GHG-1** Prior to issuance of a Certificate of Occupancy for Tenant Improvements, not building shell, the project shall install solar photovoltaic (PV) panels or other source of renewable energy generation on-site, or otherwise acquire energy from the local utility that has been generated by renewable sources, that would provide 100 percent of the expected building load (i.e., the Title 24 electricity demand and the plug-load, anticipated to be approximately 4.62 kilowatt hours per year [kWh/year] per square foot), as feasible, based on the maximum net roof area available for solar (i.e., solar-ready zone). The solar-ready zone shall comply with Section 110.10 of the 2022 California Energy Code and shall comply with access, pathway, ventilation, and spacing requirements, and exclude skylight area. With expected energy consumption at 4.62 kWh/sf, a PV panel array covering approximately one quarter of the proposed roof space would provide sufficient on-site renewable energy generation to offset consumption. The final PV generation facility size	SU

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		requires approval by Southern California Edison (SCE). SCE's Rule 21 governs operating and metering requirements for any facility connected to SCE's distribution system. Should SCE limit the off-site export, the proposed Project may utilize a battery energy storage system (BESS) to lower off-site export while maintaining on-site renewable generation to off-set consumption. If the Project cannot generate enough renewable energy to cover 100 percent of the building load, renewable energy may be acquired from the local utility. This mitigation measure applies only to tenant improvements and not the building shell approvals. **MM GHG-2** Prior to the issuance of a building permit, the Project applicant or successor in interest shall provide documentation to the City demonstrating the following to meet or exceed CALGreen Tier 2 standards: ▪ The Project shall be designed to achieve Leadership in Energy and Environmental Design (LEED) certification at the time of building permit application in order to exceed 2022 Title 24 energy efficiency standards. ▪ The Project shall provide conduits to support electric charging stations per the Tier 2 standards in Section A5.106.5.3 (Nonresidential Voluntary Measures) of the 2022 CALGreen Code. **MM GHG-3** The development shall divert a minimum of 75 percent of landfill waste. Prior to issuance of certificate of tenant occupancy permits, a recyclables collection and load area shall be constructed in compliance with City	

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		standards for recyclable collection and loading areas. This mitigation measure applies only to tenant permits and not the building shell approvals. The diversion plan shall also comply with the established solid waste and recycling laws including AB 939 and AB 341. **MM GHG-4** Prior to the issuance of tenant occupancy permits, the Planning Department shall confirm that tenant lease agreements include contractual language that all handheld landscaping equipment used onsite shall be 100 percent electrically powered. This mitigation measure applies only to tenant permits and not the building shell approvals.	
Impact 4.6-2: Would the project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions?	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** The 2016 RSPA EIR Mitigation Measure **AQ-14** is further discussed in Section 4.2, *Air Quality*. ***Project Mitigation Measures*** **MM GHG-1** through **MM GHG-4** are further discussed under Impact 4.6-1.	LS
Section 4.7: Hazards and Hazardous Materials			
Impact 4.7-1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LS	No mitigation measures are required.	LS
Impact 4.7-2: Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	LS	No mitigation measures are required.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
Impact 4.7-3: Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	LS	No mitigation measures are required.	LS
Impact 4.7-4: Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	LS	No mitigation measures are required.	LS
Impact 4.7-5: 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?	No Impact	No mitigation measures are required.	No Impact
Impact 4.7-6: Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LS	No mitigation measures are required.	LS
Impact 4.7-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	LS	No mitigation measures are required.	LS
Section 4.8: Hydrology and Water Quality			
Impact 4.8-1: Would the project violate any water quality standards or waste discharge requirements	LS	No mitigation measures are required.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
or otherwise substantially degrade surface or groundwater quality?			
Impact 4.8-2: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	No Impact	No mitigation measures are required.	No Impact
Impact 4.8-3i: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?	LS	No mitigation measures are required.	LS
Impact 4.8-3ii: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	LS	No mitigation measures are required.	LS
Impact 4.8-3iii: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned	LS	No mitigation measures are required.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
stormwater drainage systems or provide substantial additional sources of polluted runoff?			
Impact 4.8-3iv: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?	LS	No mitigation measures are required.	LS
Impact 4.8-4: Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	No Impact	No mitigation measures are required.	No Impact
Impact 4.8-5: Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	LS	No mitigation measures are required.	LS
Section 4.9: Land Use and Planning			
Impact 4.9-1: Would the project physically divide an established community?	LS	No mitigation measures are required.	LS
Impact 4.9-2: Would the project cause a significant environmental impact due to a conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	LS	No mitigation measures are required.	LS
Section 4.10: Noise			
Impact 4.10-1: Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** **N-1** Construction activities shall be limited to the City's allowable hours of construction activities in accordance with the City's Noise Ordinance.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
plan or noise ordinance, or applicable standards of other agencies?		**N-2** All Construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer. ***Project Mitigation Measures*** No mitigation is required.	
Impact 4.10-2: Would the project expose persons to or generate excessive ground borne vibration or ground borne noise levels?	S	***Renaissance Specific Plan EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** **MM NOI-1** The following measures shall be incorporated on all grading and building plans and specifications subject to approval of the City's building and safety division prior to issuance of a grading permit**:** The developer shall ensure construction equipment will not approach the construction buffer zone adjacent to the commercial building (i.e., Able Storage) along portions of the Project southern and southwestern Project Boundary. The buffer zone shall be tiered based on distances established in **Table 4.10-8**. As shown in **Table 4.10-8**, vibratory rollers shall not operate within 17 feet of the commercial building; large bulldozers and loaded trucks shall not operate within 10 feet of the commercial building; and jack hammers and small bulldozers/ tractors shall not operate within 5 feet of the commercial building. The buffer zone shall be enforced around the existing commercial building between 7:00 a.m. and 5:30 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays from October 1 through April 30 and between hours of 6:00 a.m. and	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
		7:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. from May 1 through September 30 pursuant to Municipal Code Section 9.50.070.	
Impact 4.10-3: 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?	No Impact	No mitigation measures are required.	No Impact
Section 4.11: Population and Housing			
Impact 4.11-1: Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure?	LS	No mitigation measures are required.	LS
Impact 4.11-2: Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No Impact	No mitigation measures are required.	No Impact
Section 4.12: Public Services			
Impact 4.12-1i: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of	LS	No mitigation measures are required.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?			
Impact 4.12-1ii: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection?	LS	No mitigation measures are required.	LS
Impact 4.12-1iii: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools?	LS	No mitigation measures are required.	LS
Impact 4.12-1iv: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service	LS	No mitigation measures are required.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
ratios, response times or other performance objectives for parks?			
Section 4.13: Recreation			
Impact 4.13-1: 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?	LS	No mitigation measures are required.	LS
Impact 4.13-2: 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?	LS	No mitigation measures are required.	LS
Section 4.14: Transportation			
Impact 4.14-1: Would the project, conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	LS	No mitigation measures are required.	LS
Impact 4.14-2: Would the proposed project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	LS	No mitigation measures are required.	LS
Impact 4.14-3: Would the proposed project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	LS	No mitigation measures are required.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
Impact 4.14-4: Would the proposed project result in inadequate emergency access?	No Impact	No mitigation measures are required.	No Impact
Section 4.15: Tribal Cultural Resources			
Impact 4.15-1: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC §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: (a) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC §5020.1(k) or: (b) 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 PRC §5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	S	***2016 Renaissance Specific Plan Amendment EIR Mitigation Measures*** No mitigation measures are applicable. ***Project Mitigation Measures*** **MM TCR-1** The Yuhaaviatam of San Manual Nation (YSMN) Cultural Management Department shall be contacted, as detailed in MM CUL-2, of any pre-contact cultural resources discovered during Project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a Cultural Resources Monitoring and Treatment Plan (Plan) shall be created by the archaeologist, in coordination with YSMN, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents YSMN for the remainder of the Project, should YSMN elect to place a monitor on-site. **MM TCR-2** Any and all archaeological/cultural documents created as a part of the Project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to YSMN. The Lead Agency, and/or applicant shall, in good faith, consult with YSMN throughout the life of the Project.	LS

Table 1-1: Summary of Impacts and Mitigation Program

Environmental Impacts	Significance Before Mitigation	Mitigation Measure	Significance With Mitigation
Section 4.16: Utilities			
Impact 4.16-1: Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	LS	No mitigation measures are required.	LS
Impact 4.16-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	LS	No mitigation measures are required.	LS
Impact 4.16-3: 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?	LS	No mitigation measures are required.	LS
Impact 4.16-4: 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.	LS	No mitigation measures are required.	LS
Impact 4.16-5: Comply with federal, State, and local management and reduction statutes and regulations related to solid waste.	LS	No mitigation measures are required.	LS
LS= Less Than Significant; SU = Significant and Unavoidable; S = Significant			

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Section 3.0, Project Description; Page 3-2; Paragraph 5

The approximately 35-acre project site is comprised of Planning Areas 123, 126, and 133. The Project would include the rezone of Planning Area 123 (north of Miro Way) from School to General Commercial with a Residential overlay. The Project would also include the rezone of Planning Areas 126 and 133 (south of Miro Way) from Park and Employment with a designated Park overlay to Business Center, to allow for the development of two industrial warehouses. A Conditional Development Permit (CDP) would be required for Project development, as a warehouse is a conditionally permitted use within an industrial land use designation. Existing land use categories for each planning area are described in **Table 3-1: Existing and Proposed Land Use Designations**, below. Please note that the rezone and/or zone change described herein would be processed as an amendment to the Renaissance Specific Plan to change the Renaissance Specific Plan land use category for these Planning Areas as shown in Table 3-1, below.

Section 3.0, Project Description; Page 3-4 and 3-5; Table 3-2: Proposed Project Land Use Summary

Table 3-2: Proposed Project Land Use Summary

Land Use	Total Acres[2]	RSPA Land Uses						Existing Uses Expected to Remain		
		Acres[2]	Target Density/FAR[3]	Total Sq. Ft.	Total Units[4]	Jobs[5]	Pop.[6]	Acres[2]	Sq. Ft.[7]	Jobs[5]
Residential Uses										
Low Density Residential (LDR)	50.5	50.5	8 du/ac	-	404	-	1,252	-	-	-
Medium Density Residential (MDR)	29.0	29.0	12.5 du/ac	-	363	-	1.124	-	-	-
Medium High Density Residential (MHDR)	19.7	19.5	16 du/ac	-	312	-	967	-	-	-
High Density Residential (HDR)	8.0	8.0	25 du/ac	-	200	-	620	-	-	-
Proposed Project	0	0	-		-	-	-	-	-	-
Net Change (Residential Uses)	0	0	-		-	-	-	-	-	-
Business Uses										
Town Center	71.9	71.9	0.25 FAR	782,994	-	1,566	-	-	-	-
Corporate Center	19.7	19.7	0.75 FAR	643,599	-	1,287	-	-	-	-
Business Center	194.6	194.7	0.50 FAR	4,240,566	-	1,696	-	132.8	2,646,200	1,058

Table 3-2: Proposed Project Land Use Summary

Land Use	Total Acres[2]	RSPA Land Uses						Existing Uses Expected to Remain		
		Acres[2]	Target Density/FAR[3]	Total Sq. Ft.	Total Units[4]	Jobs[5]	Pop.[6]	Acres[2]	Sq. Ft.[7]	Jobs[5]
Freeway Commercial	38.6	38.6	0.25 FAR	420,356	-	841	-			
Employment	441.4	182.6	0.40 FAR	3,181,635	-	1,463	-	258.8	4,217,825	1,940
Freeway Incubator	85.9	85.9	0.25-0.35 FAR	1,233,842	-	1,071	-			
General Commercial	6.2	2.4	0.25 FAR	26,136	-	52	-	3.8	14,880	30
Proposed Business Center Total	**<u>215.4</u> ~~214.6~~**	**<u>215.5</u> ~~214.7~~**	**0.50 FAR**	**<u>4,692,719</u> ~~4,676,166~~**	**-**	**<u>1,877</u> ~~1,870~~**	**-**	**132.8**	**2,646,200**	**1,058**
Proposed Employment Total	**438**	**179.2**	**0.40 FAR**	**3,122,381**	**-**	**1,436**	**-**	**258.8**	**4,217,825**	**1,940**
Proposed General Commercial Total	**<u>16.5</u> ~~19.2~~**	**<u>12.7</u> ~~15.4~~**	**0.25 FAR**	**<u>138,303</u> ~~17,706~~**	**-**	**<u>276</u> ~~111~~**	**-**	**3.8**	**14,880**	**30**
Net Change (Business Uses)	**31.1**	**31.1**	**-**	**<u>452,153</u> ~~367,916~~**	**-**	**<u>242</u> ~~206~~**	**-**	**-**	**-**	**-**
Other Uses										
School	1.48	1.48	-	-	-	0	-	-	-	-
Public Parks	29.3	3.4	-	-	-	-	-	25.9	NA	NA
Private Recreation Center	2	2	-	-	-	-	-	-	-	-
Buffer/Slope	4.8	4.8	-	-	-	-	-	-	-	-
Utilities	13	0	-	-	-	-	-	12.9	NA	NA
ROW[2]	275.4	275.4	-	-	-	-	-	-	-	-
Proposed School	-13.0	-13.0	-	-	-	-50	-	-	-	-
Proposed Park	-16.6	-16.6	-	-	-	-	-	25.9	NA	NA
Net Change (Other Uses)	-29.6	-29.6	-	-	-	-50	-	-	-	-
Total Net Change	**0**	**0**	**-**	**-**	**-**	**<u>192</u>**	**-**	**-**	**-**	**-**

Table 3-2: Proposed Project Land Use Summary

Land Use	Total Acres[2]	RSPA Land Uses						Existing Uses Expected to Remain		
		Acres[2]	Target Density/FAR[3]	Total Sq. Ft.	Total Units[4]	Jobs[5]	Pop.[6]	Acres[2]	Sq. Ft.[7]	Jobs[5]
(Business Uses + Other Uses)						~~156~~				

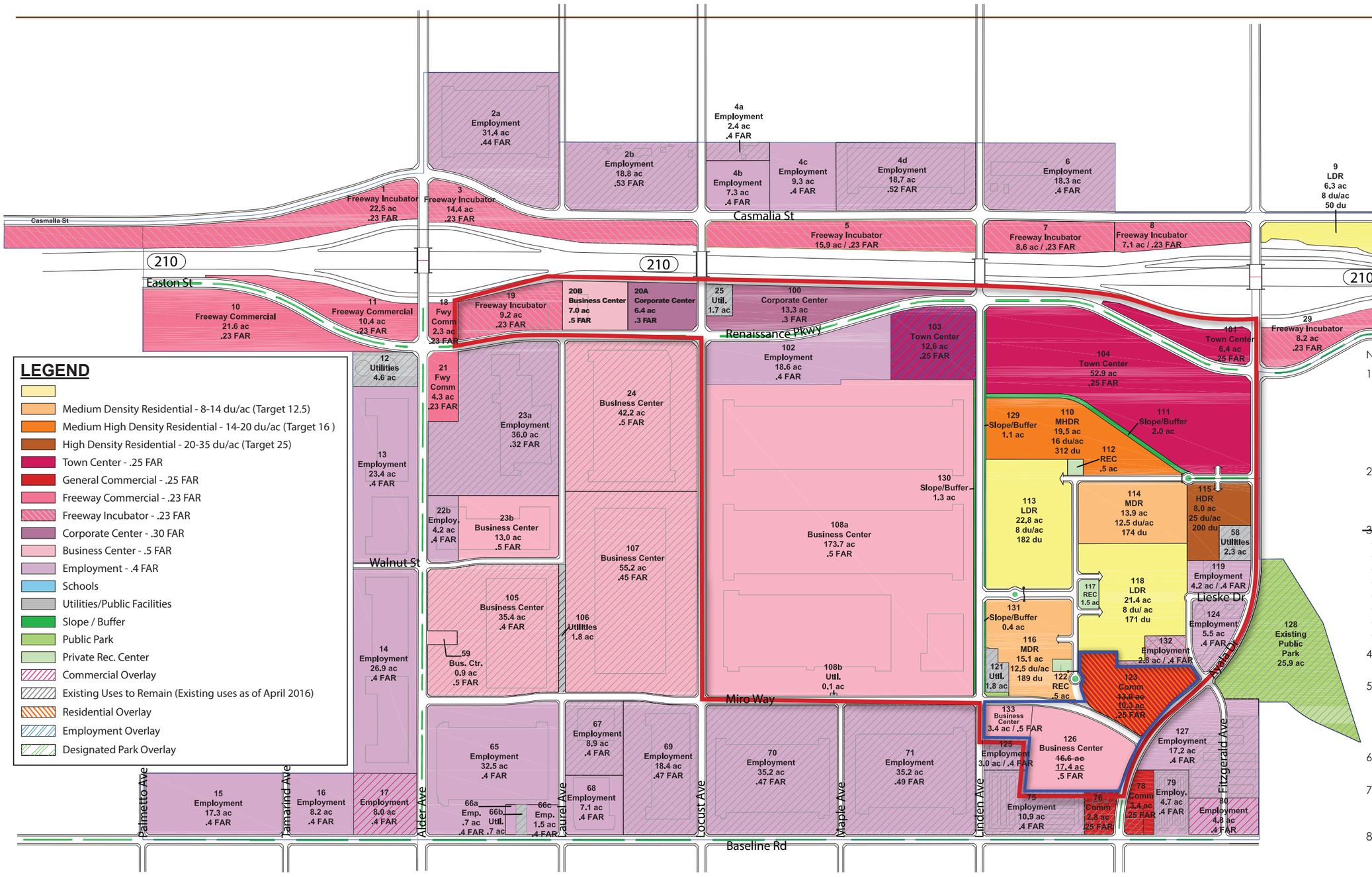
Notes:
1. Does not include existing uses that are anticipated to remain.
2. Acreage is provided as net, which is everything between the major road rights-of-way (excluding local roads).
3. Target density/FAR is used to determine buildout of the Specific Plan.
4. As noted in Section 7, Implementation, residential units may be transferred within Renaissance.
5. Jobs Assumptions: (1) 500 square feet per employee in the Town Center, Freeway Commercial, Corporate Center, and General Commercial land use categories; (2) 1,000 square feet per employee in the Freeway Incubator land use categories (5% of the square footage of these uses is assumed to be in buildings exceeding 100,000 square feet where a 2,500 square feet per employee factor was used); (3) 2,500 square feet per employee in the Business Center land use category; (4) 2,174 square feet per employee in the Employment land use category (4) the school is assumed to accommodate 50 employees.
6. Based upon City direction, for purposes of this specific plan a factor of 3.1 persons per household is utilized for all units.
7. Existing square footage has been estimated from the footprint of existing buildings and from approved plans of recently constructed buildings.
8. See Figure 2-2, Land Use Diagram, for the location of the various FARs within the land use category.
9. Planning Area 103 may develop under the Employment or Town Center land use categories. For purposes of estimating the buildout, it has been assumed that this area will develop as a Town Center use.
10. Planning Area 123 retains the option to become Medium High Density Residential (MHDR) and can accept the transfer of residential units from other areas of the Specific Plan, as described in Section 6 of the RSPA.
11. Planning Area 132 contains an existing Employment use. Upon redevelopment, it may be converted to the Low Density Residential (LDR) land use category. For purposes of estimating the buildout, it has been assumed that this area will retain its existing Employment use. Should the land use designation be converted to Low Density Residential, the total number of Future Units shall increase by 8 du/ac for a total of 23 additional units, while 17,202 Sq. Ft. of existing Employment shall be removed.
12. Planning Areas 17 and 80 may develop under the Employment or General Commercial land use categories. For purposes of estimating the buildout, it has been assumed that these areas will develop as Employment uses.

Source: 2016 Renaissance Specific Plan Amendment

Section 3.0, Project Description; Page 3-17, Figure 3-4: Proposed Renaissance Specific Plan Amendment Area

See following page

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LEGEND

- Medium Density Residential - 8-14 du/ac (Target 12.5)
- Medium High Density Residential - 14-20 du/ac (Target 16)
- High Density Residential - 20-35 du/ac (Target 25)
- Town Center - .25 FAR
- General Commercial - .25 FAR
- Freeway Commercial - .23 FAR
- Freeway Incubator - .23 FAR
- Corporate Center - .30 FAR
- Business Center - .5 FAR
- Employment - .4 FAR
- Schools
- Utilities/Public Facilities
- Slope / Buffer
- Public Park
- Private Rec. Center
- Commercial Overlay
- Existing Uses to Remain (Existing uses as of April 2016)
- Residential Overlay
- Employment Overlay
- Designated Park Overlay

Renaissance Specific Plan area **Project Site**

0 100 300 600

NOTES:

1. The boundaries of the land use designations are approximate and generally follow streets and property lines. Minor changes in boundary alignment and location are permissible as described in Section 6, Implementation.
2. The transfer of residential units and square footage in the Business Center land use categories is allowed as described in Section 6, Implementation.
3. ~~If the school is relocated or if the school district chooses not to develop a school within Renaissance, then the underlying land use shall revert to the Medium High Density Residential (MHDR) land use designation and can accept the transfer of residential units from other areas of the Specific Plan, as described in Section 6, Implementation.~~
4. See city zoning code for non-conforming uses.
5. PA 132 will remain as an Employment Area with the option to become Low Density Residential. As Low Density Residential it will be calculated at 8 du/ac for a total of 23 dwelling units.
6. Existing uses noted based on approved square footage and FAR.
7. Shared drive approach at PA 19 and 20 is recommended at laurel Avenue intersection.
8. PA 103 has the land use designation of Town Center, and it was analyzed under the ITE land use classification, "General Commercial" for traffic analysis purposes. Subsequent analysis is required if Employment Overlay is implemented.

Figure 2-2 Land Use Diagram
(Renaissance Specific Plan Amendment)

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Section 4.2, Air Quality; Page 4.2-18; Paragraph 2

The City's population estimate, as of January 2024, is 103,097 persons.[3] While the Project does not involve residential development, as discussed in Section 4.11, *Population and Housing*, the warehouse development is anticipated to generate approximately 154~~147~~ employees and could indirectly induce population growth if future employees move into the City to work at the proposed warehouse. However, the Project would consist of a source of employment within a City with substantial housing stock. Therefore, the Project would improve the City's jobs-housing balance making it more likely that the Project would employ current residents of the City. In the event that the operator of the proposed facility draws employees that are not from the local community, the Project would not directly result in the development of new housing stock.

Section 4.2, Air Quality; Page 4.2-18; Paragraph 3

SCAG growth forecasts in the RTP/SCS estimate the City's employment to reach 39,900 jobs by 2050, representing a total increase of 7,900 jobs between 2019 and 2050. The approximate 154~~147~~ Project-generated jobs represent 1.9 percent of the City's anticipated jobs increase by 2050, and only 0.4 percent of the City's total projected 2050 employment.[4]

Section 4.3, Biological Resources; Page 4.3-4; Paragraph 1

The California Endangered Species Act (CESA) (CFGC section 2050 et seq.), in combination with the California Native Plant Protection Act of 1977 (NPPA; CFGC Section 1900 et seq.), regulates the listing and take of plant and animal species designated as endangered, threatened, or rare within the State. California also lists species of special concern (SSC) based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. CESA defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." CESA defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the California Fish and Game Commission (CFGC) as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the CFGC has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the CFGC. Unlike FESA, CESA does not list invertebrate species.

[3] California Department of Finance Demographic Research Unit (2022). Report E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2021-2022, with 2020 Benchmark. Accessed October 2024.

[4] Southern California Association of Governments, Connect SoCal 2024: Demographics & Growth Forecast, adopted April 4,2024.

Section 4.3, Biological Resources; Page 4.3-6; 7th Paragraph

According to the County's Biotic Resources Overlay Map, the project site is located within the Burrowing Owl Overlay Zone. The burrowing owl (Athene cunicularia) is a candidate species granted protection ~~for listing~~ under CESA. Therefore, land development permit applications must include an analysis of potential impacts on burrowing owl and provide proposed mitigation measures, if necessary, to reduce or eliminate such impacts. Though the project site does not occur in unincorporated County land, the mapping provides a useful guide for identifying potential habitat for this species. The County's owl requirements fall within State requirements and are followed herein.

Section 4.3, Biological Resources; Page 4.3-11; Table 4.3-2

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
Plant Species			
Aparejo grass (*Mulhenbergia utilis*)	CRPR 1A	Perennial rhizomatous herb. Blooms October-May. Chaparral, cismontane woodland, coastal scrub, marshes and swamps, and meadows and seeps. Elevation 80-7,630 feet.	**None.** Species occurs in wet habitats which are not naturally occurring on-site. A detention basin with intermittent surface water occurs adjacent to the project site and within the survey buffer but is unnatural and surrounded by development.
Black bog-rush (*Schoenus nigricans*)	CRPR 2B.3	Perennial glasslike herb. Blooms August-September. Marshes and swamps. Elevation 490-6,650 feet.	**None.** Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Bristly sedge (*Carex cornosa*)	CRPR 1B.1	Perennial rhizomatous herb. Blooms May-September. Coastal prairie, marshes and swamps (lake margins), valley and foothill grasslands. Elevation 0-2,050 feet.	**None.** Suitable aquatic habitat not present in the vicinity. Grassland habitat on-site is dominated by invasive species.
California satintail (*Imperata brevifolia*)	CRPR 2B.2	Perennial rhizomatous herb. Blooms September-May. Chaparral, coastal scrub, meadows and seeps, Mojavean desert scrub, and riparian scrub. Elevation 0-3,985.	**None.** Suitable aquatic habitat not present in the vicinity. Species occurs in wet springs, meadows, streambanks, and floodplains which are not present in the disturbed scrub habitat on-site.
California saw-grass (*Cladium californicum*)	CRPR 2B.2	Perennial rhizomatous herb. Blooms June-September. Marshes and swamps, and meadows and seeps. Elevation 195-5,250 feet.	**None.** Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Chaparral ragwort (*Senecio aphanactis*)	CRPR 2B.1	Annual herb. Blooms January-April. Chaparral, cismontane woodland,	**Low.** Native scrub habitat on-site is isolated and disturbed and woodland habitat is not present in

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
		and coastal scrub. Elevation 50-2,625 feet.	the project site or surrounding landscape. Not recently documented within the Project vicinity.
Greata's aster (*Symphyotrichum gratae)*	CRPR 1B.3	Perennial rhizomatous herb. Blooms June-October. Chaparral, cismontane woodland, and coastal scrub. Elevation 985-6,895 feet.	**None.** Species occurs damp canyons which are not present in the native scrub habitat on-site.
Horn's milk-vetch (*Astragalus hornii var. hornii*)	CRPR 1B.1	Annual herb. Blooms May-October. Lake margins, alkaline, meadows and seeps, playas. Elevation 195-2,790 feet.	**None.** Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Hot springs fimbristylis (*Fimbristylis themalis*)	CRPR 2B.2	Perennial rhizomatous herb. Blooms July-September. Meadows and seeps. Elevation 360-4,395 feet.	**None.** Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Intermediate mariposa-lily (*Calocortus weedii var. intermedius*)	CRPR 1B.2	Perennial bulbiferous herb. Blooms May-July. Chaparral, coastal scrub, valley and foothill grassland. Elevation 345-2,805 feet.	**Low.** On-site native scrub and grassland habitat is disturbed. Chaparral, coastal scrub, and native grasslands are not found in the surrounding adjacent areas. Not known from Project vicinity.
La Panza mariposa-lily (*Calchortus simulans*)	CRPR 1B.3	Perennial bulbiferous herb. Blooms April-June. Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation 1,065-3,775 feet.	**None.** Grassland habitat on-site is dominated by invasive species and other preferred habitats are not present on-site. There are no records of this species in San Bernardino County.
Latimer's woodland gilia (*Saltuglia laimeri*)	CRPR 1B.3	Annual herb. Blooms March-June. Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Elevation 1,310-6,235 feet.	**None.** Preferred native scrub and woodland habitats not present on-site. Not known from Project vicinity.
Los Angeles sunflower (*Helianthus nuttallii ssp. parishii*)	CRPR 1A	Perennial rhizomatous herb. Blooms August-October. Marshes and swamps (coastal salt and freshwater). Elevation 30-5,005 feet.	**None.** No suitable aquatic habitats present in the vicinity. Species is presumed extinct. Not documented within the Project vicinity in 100 years.
Mesa horkelia (*Horkelia cuneata var. puberula*)	CRPR 1B.1	Perennial herb. Blooms February-September. Maritime chaparral, cismontane woodland, and coastal scrub. Elevation 230 - 2,657 feet.	**Low.** Native scrub habitat present in the project site is disturbed. Species prefers foothills which are not present on-site.
Nevin's barberry (*Berberis nevinii*)	CRPR 1B.1	Perennial evergreen shrub. Blooms (February) March-June. Chaparral, cismontane woodland, coastal scrub,	**None.** Native scrub habitat present in the project site is disturbed. Occurs in riparian habitat and/or

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
		and Riparian scrub. Elevation 230-2,705 feet.	washes that are not present on-site. This species would have been observed if present.
Parish's bush-mallow (*Malacothamnus parishii*)	CRPR 1A	Perennial deciduous shrub. Blooms June-July. Chaparral and coastal scrub. Elevation 1,000-1,495 feet.	**None.** Native scrub habitat present in the project site is disturbed. This conspicuous perennial shrub would have been observed if present. Species is presumed extinct.
Parish's desert-thorn (*Lycium parishii*)	CRPR 2B.3	Perennial shrub. Blooms March-April. Coastal scrub and Sonoran Desert scrub. Elevation 445-3,280 feet.	**None.** Native scrub habitat present in the project site is disturbed. Prefers rocky slopes and canyons which are not present on-site. This species would have been observed if present.
Parry's spineflower (*Chorizanthe parryi var. parryi*)	CRPR 1B.1	Annual herb. Blooms April-June. Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Elevation 900-4,000 feet.	**Low.** Disturbed native scrub habitat with sandy soil present on-site that could support this species; however, repeated disturbance to the site reduces the likelihood of species presence. This species has not been recorded in the vicinity of the project site since 1938. Nearest modern records are from the Lytle Creek Wash approximately two miles northeast of the Project site.
Prairie wedge grass (*Sphenopholis obtusata*)	CRPR 2B.2	Perennial herb. Blooms April - July. Cismontane woodland, meadows and seeps. Elevation 984-6,561 feet.	**None.** Woodland habitat not present. Species prefers wet meadows, streambanks, and ponds which are not present on the project site.
Prostrate vernal pool navarretia (*Navarretia prostrata*)	CRPR 1B.2	Annual herb. Blooms April - July. Coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation 10-3,970 feet.	**None.** Species occurs in alkaline floodplains, vernal pools, and wetland habitats which are not present on-site.
Salt spring checkerbloom (*Sidalcea neomexicana*)	CRPR 2B.2	Perennial herb. Blooms March-June. Chaparral, coastal scrub, lower montane coniferous forests, Mojavean desert scrub, and playas. Elevation 50-5,020 feet.	**None.** Species occurs in alkaline springs, marshes, and playas which are not present in the vicinity.
San Bernardino aster (*Symphyotrichum defoliatum*)	CRPR 1B.2	Perennial rhizomatous herb. Blooms July-November. Cismontane woodlands, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernally mesic	**Low.** Disturbed native scrub habitat with sandy soil present on-site that could support this species; however, repeated disturbance to the site reduces the likelihood of species presence. This species has been recorded within two miles of

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
		valley/foothill grasslands. Elevation 7 - 6,690 feet.	the project site, but the project site is located just outside the estimated species range.
San Diego Ambrosia (*Ambrosia pumila*)	FE; CRPR1B.1	Perennial rhizomatous herb. Blooms April-October. Sandy loam or clay soils in chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Elevation 65 - 1,350 feet.	**Very Low.** Although disturbed scrub habitats occur on-site, there are no records of this species in San Bernardino County.
Sanford's arrowhead (*Sagittaria sanfordii*)	CRPR 1B.2	Perennial rhizomatous herb. Blooms May-October (November). Marshes and swamps. Elevation 0-2,135.	**None.** No suitable aquatic habitats present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*)	FE; SE; CRPR 1B.1	Perennial herb. Blooms April-September. Chaparral and coastal alluvial fan scrub. Elevation 298-2,000 feet.	**None.** Species occurs in washes, floodplains, and dry riverbeds which are not present in the scrub habitats on-site.
Short-joint beavertail (*Opuntia basilaris var. brachyclada*)	CRPR 1B.2	Perennial stem. Blooms April-June (August). Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Elevation 1,395-5,905.	**None.** No suitable native habitats present in the vicinity.
Singlewhorl burrowbush (*Ambrosia monogyra*)	CRPR 2B.2	Perennial shrub. Blooms August-November. Chaparral, Sonoran desert scrub. Elevation 35-1,640 feet.	**None.** Occurs in washes and riverbeds which are not present on-site.
Slender-horned spineflower (*Dodecahema leptoceras*)	FE; SE; CRPR 1B.1	Annual herb. Blooms April-June. Chaparral, cismontane woodland, alluvial fan coastal scrub. Elevation 655-2,490 feet.	**Very Low.** No suitable native habitats present in the vicinity. This species has not been documented within the Project vicinity in 100 years.
Smooth tarplant (*Centromadia pungens ssp. laevis*)	CRPR 1B.1	Annual herb. Blooms April-September. Chenopod scrub, meadows and seeps, playa, riparian woodland, valley and foothill grassland. Elevation 0 -2,100 feet.	**Low.** Project site contains disturbed habitat. This species is tolerant of some disturbance; however, the on-site grassland and disturbed land have undergone extensive anthropogenic alterations (e.g., weed abatement, inactive agriculture, infill and leveling) that reduce the likelihood of this species' occurrence.
Southern mountains skullcap (*Scutellaria bolanderi ssp. austromontana*)	CRPR 1B.2	Perennial rhizomatous herb. Blooms June-August. Chaparral, cismontane woodland, lower montane coniferous forest. Elevation 1,395-6,560 feet.	**None.** No suitable native habitats present in the vicinity.

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
Thread-leaved brodiaea (*Brodiaea filifolia*)	CRPR 1B.1	Perennial bulbiferous herb. Blooms March-June. Chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools. Elevation 80-3,675 feet.	**Low.** Native scrub and grassland habitats occur on-site; however, they are highly disturbed. Weed abatement practices, such as discing, occur regularly which results in upturned and tilled soils that have a detrimental impact on bulbiferous species, which rely on underground bulbs to store energy. Not known form Project vicinity.
White rabbit-tobacco (*Pseudognaphalium leucocephalum*)	CRPR 2B.2	Perennial herb. Blooms (July) August-November (December). Chaparral, cismontane woodland, coastal scrub, riparian woodland. Elevation 0-6,890 feet.	**Low.** Species occurs on sandy or gravelly benches and is known to occur in disturbed sand; however, this species is most commonly associated with washes, streams, and canyon bottoms, which are not found on-site. Not known from Project vicinity.
White-bracted spineflower (*Chorizanthe xanti var. leucotheca*)	CRPR 1B.2	Annual herb. Blooms April-June. Coastal scrub, Mojavean desert scrub, pinyon and juniper woodland. Elevation 985-3,935 feet.	**Low.** Species occurs in sand and gravel in native scrub habitats which are present, though disturbed, on-site. This species is primarily known from the San Jacinto and San Bernardino Mountains and has not been recorded within the vicinity of the project site.
Reptiles			
California glossy snake (*Arizona elegans occidentalis*)	SSC	Found in arid scrub, rocky washes, grasslands, and chaparral habitats. Prefers habitats containing open areas and loose soils for burrowing.	**Low.** Disturbed scrub habitat on-site is marginally suitable for this species. Loose soils suitable for burrowing occur on-site.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	SSC	A variety of rocky, sandy, dry habitats including sage scrub, chaparral, woodlands on friable loose soil.	**Moderate.** Disturbed scrub habitat on-site is marginally suitable for this species.
Coast horned lizard (*Phrynosoma blainvillii*)	SSC	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub. Requires open areas, bushes, and fine loose soil.	**Moderate.** Sandy and friable soils are present in the disturbed scrub habitat on-site which is marginally suitable for this species. Harvester ants, the primary diet of the species, are also present on-site.
Orange-throated whiptail (*Aspidoscelis hyperythra*)	WL	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub.	**Very low.** Disturbed scrub habitat on-site is marginally suitable for this species. Species prefers washes, stream sides, rocky hillsides which are not present on-site.

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
Southern California legless lizard (*Anniella stebbinsi*)	SSC	Found in a variety of habitats including coastal dunes, sandy washes, and alluvial fans, containing moist, loose soils.	**Low.** Disturbed scrub habitat on-site is marginally suitable for this species. Leaf litter under shrubs and loose sandy soils present on-site; however, washes or other moist habitats are not present.
Southern rubber boa (*Charina umbratical*)	SE	Found in oak-conifer and mixed-conifer forests at elevations between roughly 5,000 to 8,200 feet. where rocks and logs or other debris provide shelter.	**Very Low.** Suitable habitat not present; project site is outside elevation range.
Invertebrates			
Crotch's bumble bee (*Bombus crotchii*)	SE (Candidate)	Arid shrublands and grasslands in coastal and foothill areas of southern California. Nectar plants include milkweeds, buckwheat, and lupines.	Absent/Low-to-Moderate. Focused surveys conducted in 2024 were negative for Crotch's bumble bee; however, this species changes nesting locations each year and potential for future project site inhabitance is low-to-moderate. This species can persist in semi-natural habitats surrounded by intensely modified landscapes, such as the sparse disturbed buckwheat scrub habitat within the project site, and inhabits abandoned rodent burrows.
Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)	FE	Found in sandy areas composed of Delhi fine sands, stabilized by sparse native vegetation.	**Very Low.** Delhi fine sands are not present on or in the immediate vicinity of the project site; on-site soils are Tujunga loamy sands, which are not suitable habitat for this species.
Monarch butterfly, California overwintering population (*Danaus plexippus plexippus pop. 1*)	FE (Candidate)	Found in a variety of habitats across the United States and Mexico (e.g., grasslands, urban land, mountains, and coastal habitats). Exclusively oviposit on milkweed. Nectivorous adults require flowering plants. Roost in eucalyptus, Monterey pines, and Monterey cypresses in California.	**Present; potential for overwintering is low.** Observed on-site during general biological survey on October 11, 2022. No milkweed observed; thus, the site does not have potential to support reproduction. Eucalyptus grove exists in survey area on the eastern boundary but is unlikely to provide the necessary conditions for a suitable overwintering site, which require protection from high wind and storms, absence of freezing temperatures, varying levels of

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
			sunlight, high humidity, and the presence of water.
Fish			
Santa Ana sucker (*Catostomus santaanae*)	FT	Found in small permanent streams.	**None.** Suitable aquatic habitats do not occur within the project site.
Birds			
American Peregrine falcon (*Falco peregrinus anatum*)	Delisted	Found in open country, cliffs (mountains to coast), sometimes cities. Over its wide range, found in wide variety of open habitats, from tundra to desert mountains. Often near water, especially along coast, and migrants may fly far out to sea.	**Present**; **no potential for nesting.** Species observed foraging north of the project site during general biological project survey on October 11, 2022. Suitable nesting habitat is not present on-site.
Burrowing owl (*Athene cunicularia*)	SE (Candidate); SSC	Found in grasslands and open scrub from coast to foothills. Strongly associated with California ground squirrel and other fossorial mammal burrows.	**Present/High~~Moderate~~.** Small mammal burrows occur within the project site including California ground squirrel burrow complexes. This species is known to occur within the general area and has been historically recorded at the Rialto Airport within 500 feet of the project site. Observed on-site during focused burrowing owl surveys.
California condor (*Gymnogyps Californianus*)	FE; SE; FP	Found in rocky scrubland, coniferous forest, and oak savannah. Nest near cliffs or large trees in forested mountain regions up to about 6,000 feet elevation. Foraging areas are in open grasslands and can be far from primary nesting sites.	**Very Low.** Suitable nesting sites are not present. Although scrubland such as that found on-site can be utilized for foraging, the on-site habitat is isolated from other native habitats by surrounding development and unlikely to support condor foraging.
California gull (*Larus californicus*)	WL	Found foraging in pastures or parking lots and breeding along inland lakes and rivers.	**Present; no potential for nesting.** Species observed during focused burrowing owl surveys. Foraging habitat is present; however, roosting and nesting habitat is absent.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT; SSC	Found in sage scrub habitats, often on slopes. Nests in shrubs including sagebrush, buckwheat, and sage. Diegan coastal sage scrub and other similar open scrub habitats in coastal areas, with most populations	**Low.** Isolated patches of buckwheat scrub are present surrounded by large areas of disturbed habitat. Amount of suitable shrub habitat on and near the project site are not large enough

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
		occurring below 1,500 feet in elevation.	to support individuals of this species.
California horned lark (*Eremophila alpestris actia*)	WL	Found from coastal deserts and grasslands to alpine dwarf-shrub habitat above treeline. Also seen in coniferous or chaparral habitats.	**Present.** Species observed on-site during general biological survey on October 11, 2022, and during focused burrowing owl surveys on June 12, 2023 and July 3, 2023.
Golden eagle (*Aquila chrysaetos*)	FP; WL	Found in open and semi open country featuring native vegetation across most of the northern hemisphere. Nest on cliffs and steep escarpments in grassland, chapparal, shrubland, forest, and other vegetated areas.	**Present; no potential for overwintering or nesting.** Species observed circling high above the site during general biological survey on October 11, 2022. Suitable nesting and overwintering habitat <u>are</u> ~~is~~ not present on-site.
Least Bell's vireo (*Vireo bellii pusillus*)	FE; SE	Riparian woodland with understory of dense young willows or mulefat and willow canopy. Nests often placed along internal or external edges of riparian thickets.	**Very Low.** Suitable habitat does not occur within the project site. <u>No riparian woodlands are present within immediate vicinity.</u>
Loggerhead shrike (*Lanius ludovicianus*)	SSC	Found within grassland, chaparral, desert, and desert edge scrub, particularly near dense vegetation used for nesting.	**Present.** Species observed foraging on-site during general biological survey on October 11, 2022. The site has limited suitable nesting habitat.
Merlin (*Falco columbarius*)	WL	Found in edges of grasslands and deserts. In open country, clumps of trees or windbreaks are required for roosting.	**Present; no potential for nesting.** Species observed during focused burrowing owl surveys. Foraging habitat is present; however, roosting habitat is absent, and this species is not known to nest in California.
Prairie falcon (*Falco mexicanus*)	WL	Found in desert shrubland and grasslands. Primarily forage in grassland habitats.	**Present; no potential for nesting.** Species observed during focused burrowing owl surveys. Foraging habitat is present; however, roosting and nesting habitat is absent.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT; SE	Western yellow-billed cuckoo inhabits riparian areas exclusively, typically nesting in low to moderate elevation riparian woodlands with native broadleaf trees. The species is generally observed in cottonwood-willow-dominated habitats, although riparian cover can vary. In California, habitat often consists of willow	**Very Low.** Suitable habitat does not occur within the project site; tree species typically associated with this species are not present.

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
		species and Fremont cottonwoods (Populus fremontii).	
Southwestern willow flycatcher (*Empidonax traillii*)	FE; SE	Found in in thick riparian areas with willows near standing or running water.	**Very Low.** No suitable habitats present; riparian vegetation is not found within the project site.
Mammals			
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	SSC	Found in low elevation grassland, alluvial sage scrub, and coastal sage scrub.	**Very low.** Non-native grassland and disturbed scrub on-site are marginally suitable for this species. Frequent disturbance and surrounding development make it unlikely for this species to occur. This species occurs sparingly in, or is absent from, many historic localities in the San Bernardino valley.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	SSC	Inhabits coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.	**Very low.** Non-native grassland and disturbed scrub on-site are marginally suitable for this species. Frequent disturbance and surrounding development make it unlikely for this species to occur.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	SSC	Rugged cliffs, rocky outcrops, and slopes in desert shrub and pine oak forests.	**Very Low.** Suitable habitat does not occur within the project site; cliffs and outcrops are not present.
San Bernardino kangaroo rat (*Callospermophilus lateralis bernardinus*)	FE; SE; SSC	Found along floodplains, washes and alluvial fans in scrub and chaparral habitats. Soft soil required to burrow.	**Very low.** Scrub habitat occurs on-site, however it is disturbed, surrounded by development, and impacted by regular weed abatement that alters the soil structure and vegetation. Critical habitat for the species occurs less than two miles from the site in Lytle Creek Floodway, which is also the location of the nearest suitable floodplains and washes. Development occurs between designated critical habitat and project site.
Western yellow bat (*Lasiurus xanthinus*)	SSC	Occupies a range of habitats in arid and dry areas. Inhabits secluded woodlands, agricultural lands, and sometimes even residential areas.	**Very Low.** Suitable habitat does not occur within the project site. Species prefers trees over three meters (10 feet) in height, which occur outside of the project area, but within the survey area. All trees

Table 4.3-1: Special-Status Plant and Wildlife Species – Potential for Occurrence

Species	Status	Habitat Description	Potential for Occurrence on Project Site
			over three meters in height are eucalyptus, which is not a primary roosting tree for this species.

Notes:
FE: Federally Endangered
FT: Federally Threatened
FP: Fully Protected
SE: State Endangered
ST: State Threatened
SSC: CDFW Species of Special Concern
WL: CDFW Watch List Species

Source: **Appendix D**

Section 4.3, Biological Resources; Page 4.3-22; Paragraph 3

Burrowing owl. Burrowing owl is currently a candidate species under the CESA as of October 10, 2024. As previously discussed, RBC biologists conducted focused BUOW surveys during the breeding season (February 1 to August 31), in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW BUOW Guidelines). RBC qualified biologists conducted four burrowing owl surveys during the breeding season; one survey was conducted between February 1 to April 15 and three surveys, at least three weeks apart, were conducted between April 15 and July 15, in accordance with CDFW BUOW Guidelines**.** Burrowing owl (State candidate for listing under the CESA) was detected on-site during focused surveys and has potential to inhabit the site in the future; therefore, this species may be impacted with Project implementation. The project site has high ~~moderate~~ potential to support burrowing owl. Focused burrowing owl surveys were conducted for the project site plus a 500-foot buffer in 2023 and though two individual burrowing owls were observed during the first survey; ~~N~~no burrowing owl, active burrows, or burrowing owl sign were documented within the project site during subsequent surveys ~~observed during the biological surveys~~. As such, the absence of burrowing owl during the peak breeding season suggests that the project site is not currently used by burrowing owl for nesting. However, there is evidence that the project site is currently used by burrowing owl for refuge and foraging outside of nesting season and burrowing owl may occur on-site in the future. Accordingly, burrowing owl may use the site for breeding in the future due to the presence of suitable habitat. Project implementation would result in direct impacts to burrowing owl in the event of death, injury, or harassment. Such impacts would be considered significant. To reduce potentially significant impacts to burrowing owl, prior to Project construction, construction workers shall complete training with instructions on how to be aware of and identify burrowing owls (**MM BIO-3A**) and the Project would require pre-construction surveys to determine the presence of burrowing owls within and adjacent to the project site (**MM BIO-3B**). A qualified biologist shall perform monitoring during all construction activities to ensure avoidance of impacts to burrowing owl (**MM BIO-3B**) and should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities with the potential to impact burrowing owl shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. ~~in the~~

~~event avoidance of burrowing owl is not possible, consultation with CDFW will determine the appropriate course of action~~. ~~Consultation with CDFW may require~~. If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the project proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., ~~I~~Incidental Take Permit (ITP) under CFGC section 2081 ~~or a Burrowing Owl Relocation and Mitigation Plan~~ (**MM BIO-3B**). Additionally, the Project would implement **MM BIO-1E~~A~~** and **MM BIO-1F~~B~~**, which would require enforcement of a speed limit (15 miles per hour) for unpaved roads adjacent to the project site and any construction pipes, culverts, or similar structures of a minimum of 3 inches in diameter to be screened, covered, or elevated overnight. With the above-mentioned mitigation measures, direct impacts to burrowing owl would be less than significant.

Section 4.3, Biological Resources; Page 4.3-23; Paragraphs 1 and 2

Indirect impacts on burrowing owl could occur if burrowing owl is present within suitable habitat north of the project site, and construction occurs at night and uses lighting. Such impacts are potentially significant because lights could reduce burrowing owls' hunting success and make burrowing owls easier targets for predators. Prior to initial ground disturbing activities, construction personnel would be provided with instructions to follow in the event burrowing owl is observed, or suspected to be, on-site (**MM BIO-3A**). Additionally, pre-construction burrowing owl surveys would be conducted to ensure no occupied burrowing owl burrows are present within or adjacent to construction areas during ground disturbing activities (**MM BIO-3B**). To avoid impacts on burrowing owl from nighttime construction and lighting, Project construction would occur during the day. However, in the event Project construction should occur during nighttime, lights shall be oriented in such a way that they direct light downward and toward the active construction, ensuring that no direct light is emitted towards adjacent lands (**MM BIO-1G~~C~~**). Indirect impacts on burrowing owl, if present in suitable habitat north of the project site, could occur during construction due to elevated noise, vibration, and dust levels generated by equipment. These disturbances are temporary and relatively short in duration, thus unlikely to affect burrowing owl behavior. In addition, burrowing owl pre-construction surveys would include a 500-foot buffer around the project site; therefore, burrowing owls occurring near to the project site would be detected, if present (**MM BIO-3B~~C~~**). If burrowing owls are detected within 500-feet of the project site, all Project activities with the potential to impact burrowing owl would be halted and CDFW would be contacted. Work would not resume until CDFW's review and approval of a Burrowing Owl Plan and/or CESA Incidental Take Permit (ITP) under CFGC section 2081 ~~within 48 hours and disturbance avoidance buffers would be implemented by a qualified biologist in accordance with recommendations from CDFW, and no work would occur within avoidance buffers until consultation with CDFW~~ (**MM BIO-3B~~D~~**). As such, indirect impacts would be less than significant with mitigation.

California horned lark and Loggerhead shrike. Both the California horned lark and Loggerhead shrike were observed within and adjacent to the project site. Direct impacts to these species would occur through loss of suitable foraging habitat. However, suitable foraging habitat for these species is present within proximity to the project site and is abundant throughout the region and removal of suitable foraging habitat during Project implementation would result in a less than significant impact. Project construction activities could result in direct impacts on nesting California horned lark and loggerhead shrike, if nests are present. Vegetation trimming or removal of suitable habitat within an active breeding territory could result in harassment, injury, damage or destruction of an active nest, and/or death of adults, eggs, and/or young during construction activities. Impacts that result in injury or death of California horned lark or loggerhead shrike, or loss of genetic diversity of these special-status species is potentially

significant. To reduce potential direct impacts to these species, an updated potential to occur assessment would be conducted to assess the potential for special-status avian species to occur on the project site prior to construction activities (**MM BIO-1A**) and a 100%-coverage pre-construction wildlife survey would be conducted at least one week prior to ground-disturbing activities or vegetation removal (**MM BIO-1B**). If deemed necessary based on the results of the pre-construction survey, additional avoidance and minimization measures would be developed to protect sensitive wildlife species, including California horned lark and loggerhead shrike (**MM BIO-1C**). Further, vegetation trimming and removal, grading, and other construction activities within suitable nesting habitat would occur outside of breeding season (February 15 through August 31) and pre-construction surveys would be conducted three days prior to any disturbance of the Project site (**MM BIO-4A**). In the event either species are documented on-site, no-work exclusion buffers would be established and maintained around each active nest (**MM BIO-4B**). With implementation of **MM BIO-4A** and **MM BIO 4B**, direct impacts to California horned lark and Loggerhead shrike would be less than significant.

Section 4.3, Biological Resources; Page 4.3-24; Paragraph 1

Coastal whiptail and coast horned lizard. The coastal whiptail and coast horned lizard have a moderate potential to occur within the project site. Potential direct impacts to these species could occur during vegetation clearing, grading, and other construction activities, which could result in harassment, injury, or death. Impacts that result in harassment, injury, or death would be considered potentially significant. Therefore, the Project would implement mitigation measures to reduce potentially significant impacts to these species. An updated potential to occur assessment would be conducted to assess the potential for coastal whiptail and coast horned lizard to occur on the project site prior to construction activities (**MM BIO-1A**) and a 100%-coverage pre-construction wildlife survey would be conducted at least one week prior to ground-disturbing activities or vegetation removal (**MM BIO-1B**). If deemed necessary based on the results of the pre-construction survey, additional avoidance and minimization measures would be developed to protect coastal whiptail and coast horned lizard, including relocation to nearby suitable habitat by a qualified biologist under the appropriate permits and authorizations from relevant wildlife agencies (**MM BIO-1C**). Further, Prior to ground disturbing activities, a biologist would walk through habitat to be imminently removed to flush any coastal whiptail or coast horned lizard that may be present, from the project site (**MM BIO-1D**) and all limits of works would be clearly demarcated (**MM BIO-1K~~H~~**). Speed limits would be set and enforced to minimize risk of vehicle collisions with the species (**MM BIO-1E~~A~~**). Any holes and trenches excavated during Project construction would be covered or equipped with escape ramps to prevent entrapment of the species (**MM BIO-1H~~E~~**). Pets, which could harass, injure, or kill the species, would be prohibited from the project site (**MM BIO-1I~~F~~**). And lastly, all trash would be properly stored and disposed of to avoid attracting predators of the species to the project site (**MM BIO-1J~~G~~**). Implementation of the previously mentioned mitigation measures would reduce potentially significant direct impacts to coastal whiptail and coast horned lizard to less than significant.

Section 4.3, Biological Resources; Page 4.3-24; Paragraph 3

Development of Planning Area 123 is not proposed as part of the Project. Future development projects related to Planning 123 would be evaluated on a project-specific level in compliance with CEQA, as applicable. Biological impacts as a result of Project implementation are shown in **Figure 4.3-3: Proposed Project Impacts**. With the implementation of mitigation measures **MM BIO-1A** to **MM BIO-1K~~H~~**, **MM**

BIO-2A to **MM BIO-2D**, **MM BIO-3A** to **MM BIO-3B~~D~~**, and **MM BIO-4A** to **MM BIO-4B**, impacts to candidate, sensitive, or special status species would be less than significant.

Section 4.3, Biological Resources; Page 4.3-24-28; Project Mitigation Measures

MM BIO-1A Prior to project construction activities, an updated potential to occur assessment shall be completed. Species to be addressed shall include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the project site. If deemed necessary, pre-construction species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of day when the sensitive species are active or otherwise identifiable, shall be conducted. Acceptable species-specific survey procedures shall follow CDFW and USFWS guidance, where applicable.

MM BIO-1B Prior to the start of project construction activities, a qualified biologist shall conduct a comprehensive pre-construction wildlife survey. This survey must be completed within one week before any ground-disturbing activities or vegetation removal begins. The survey shall include 100% coverage of the project site, as well as a 100-foot buffer zone surrounding the site to identify and document any wildlife species present in adjacent areas. All species observed during the survey shall be recorded and mapped accordingly.

MM BIO-1C If necessary, appropriate avoidance and minimization measures shall be developed to protect sensitive wildlife species identified during the pre-construction survey. These measures may include establishing species-specific no-disturbance buffer zones. If wildlife is observed within the project footprint and cannot be avoided, individuals may be relocated to suitable habitat outside the impact area by a qualified biologist. All relocations shall be conducted under the appropriate permits and authorizations from relevant wildlife agencies.

MM BIO-1D A biologist shall flush special-status species (i.e., avian or other mobile species), with the exception of burrowing owl, from suitable habitat areas within the Project development footprint to the maximum extent practicable immediately (e.g., within 24 hours) prior to initial vegetation removal activities. The biologist shall flush wildlife by walking through habitat to be immediately removed and towards adjacent remaining suitable habitat.

MM BIO-1E~~A~~ Construction vehicles shall not exceed 15 miles per hour on unpaved roads adjacent to the project site or the right-of-way accessing the project site.

MM BIO-1F~~B~~ The Project applicant, or its contractors, shall screen, cover, or elevate at least one (1) foot above ground, all construction pipe, culverts, or similar structures with a diameter of three (3) inches or greater that are stored on-site overnight. The pipes, culverts, and similar structures shall be inspected by the Project biologist for wildlife before such material is moved, buried, or capped.

MM BIO-1G~~C~~ Construction activities shall occur during daytime hours to the greatest extent feasible. If construction must occur at nighttime, lights shall be oriented in such a way that they

direct light downward and toward the active construction, ensuring that no direct light is emitted towards adjacent lands, and shields or deflectors shall be installed on lights to reduce light spill. Nighttime concrete pouring shall be performed in accordance with the City of Rialto Municipal Code.

MM BIO-1H~~E~~ At the end of each workday during construction, the Project applicant, or its contractors, will cover all excavated, steep-sided holes or trenches more than eight inches deep and that have sidewalls steeper than 1:1 (45 degree) slope with plywood or similar materials, or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than 3:1) constructed of earth fill or wooden planks. The Project biologist shall thoroughly inspect holes and trenched for trapped animals during biological monitoring.

MM BIO-1I~~F~~ Contractors shall not permit pets on the construction site.

MM BIO-1J~~G~~ If trash and debris need to be stored overnight during maintenance activities, fully covered trash receptacles that are animal-proof and weather-proof shall be used by the maintenance contractor to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Alternatively, standard trash receptacles may be used during the day, but shall be removed or emptied each night.

MM BIO-1K~~H~~ To prevent inadvertent disturbance to areas outside the limits of work, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary visibility construction fence) prior to ground-disturbance activities, and all construction activities, including equipment staging and maintenance, shall be conducted within the marked disturbance limits. The work limit delineation shall be maintained throughout Project construction.

MM BIO-2A If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to ground disturbing activities, an approved qualified designated biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony active period (April – August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species within the project site and areas adjacent to the project site where suitable habitat exists. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.

MM BIO-2B If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible, or if complete avoidance of Crotch's bumble bee cannot be achieved, Project activities with the potential to impact Crotch's bumble bee shall be postponed until appropriate

authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained ~~during construction activities, then CDFW shall be consulted~~.

MM BIO-2C Within one year prior to ground disturbing activities, the approved designated ~~a qualified~~ biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February – October), within the project site and areas adjacent to the project site where suitable habitat exists, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.

MM BIO-2D If occupied foraging habitat for Crotch's bumble bee is present within project impact areas, a Revegetation Plan shall be prepared which includes native shrubs and native seed mixes that contain known nectar sources for Crotch's bumble bee. The Revegetation Plan shall be developed in consultation with a qualified Crotch's bumble bee biologist an implemented following Project construction.

MM BIO-3A Prior to initial ground disturbing activities, a Worker Environmental Awareness Program (WEAP) shall be prepared, which will include a training presentation and key fact sheet. The training will instruct construction crews to be aware of and recognize burrowing owls and other sensitive biological resources that may be encountered within, or adjacent to, the project. The training will provide workers with instructions to follow in the event a burrowing owl is observed or suspected to be on site.

Biologists shall provide WEAP training materials, including but not limited to the key fact sheet, to construction personnel before their commencement of work on the project. Additionally, all construction staff shall attend the WEAP training presentation prior to beginning work on site. A refresher WEAP training will be completed on an annual basis thereafter. Note that the fact sheet shall be provided in other languages, as necessary, to accommodate non-English speaking workers.

Upon completion of the WEAP training, each member of the construction crew shall sign a form stating that they attended the training, understood the information presented, and agreed to comply with the requirements set out in the WEAP training. On an annual basis, the project proponent shall certify that WEAP training has been provided to all construction personnel. Biologists shall provide updates relevant to the training to construction personnel during the safety ("tailgate") meetings, as needed.

MM BIO-3B Suitable burrowing owl habitat and burrowing owl presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the CDFW BUOW Guidelines (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of project construction and surrounding 500 foot radius.

Take avoidance surveys shall be conducted no less than 14 days prior to initiation of project-related activities. Burrowing owls may re-colonize a site after only a few days. Time lapses between Project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the CDFW BUOW Guidelines (2012 or most recent version). Upon beginning ground-disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the project

Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities with the potential to impact burrowing owl shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities with the potential to impact burrowing owl shall not occur within 1,000 feet of an active burrow until CDFW approves the Burrowing Owl Plan.

If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the project proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., ITP under CFGC section 2081) prior to commencement of Project activities. The ITP shall describe, at a minimum, Project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition.

~~**MM BIO-3C** No less than 14 days prior to the onset of construction activities, a qualified biologist shall survey the construction limits of the project site and a 500-foot buffer for the presence of burrowing owls and occupied nest burrows. A second survey shall be conducted within 24 hours prior to the onset of construction activities. The surveys shall be conducted in accordance with the most current CDFW survey methods. If burrowing owls are not observed during the clearance survey, no additional conditions are required to avoid impacts to burrowing owl.~~

~~The Project applicant shall submit at least one burrowing owl preconstruction survey report to the satisfaction of the City to document compliance with this mitigation measure. For the purposes of this measure, "qualified biologist" is a biologist who meets the requirements set forth in the CDFW BUOW Guidelines.~~

~~**MM BIO-3D** If burrowing owl is documented on site or within 500-feet of the project site during either preconstruction surveys or biological monitoring, occupied burrowing owl burrows shall~~

~~not be disturbed. CDFW shall be contacted within 48 hours of the burrowing owl observation and disturbance avoidance buffers shall be set up by a qualified biologist in accordance with the recommendations from CDFW.~~

~~No work will occur within avoidance buffers until consultation with CDFW and issuance of permits, if required. If burrowing owl is no longer a candidate or listed species under CESA at the time of project construction, then permits shall not be required. If avoidance of burrowing owls is not possible, either directly or indirectly, consultation with CDFW will determine the appropriate course of action. CDFW may require an Incidental Take Permit (ITP) or a Burrowing Owl Relocation and Mitigation Plan (Plan). The conditions of the permit or measures outlined in the plan would be adhered to by the Project proponent and any required compensatory mitigation of habitat would be provided.~~

MM BIO-4A To ensure compliance with CFGC sections 3503, 3503.5, and 3513 and to avoid potential impacts to nesting birds, vegetation clearing and ground-disturbing activities shall be conducted outside of the bird nesting season (generally February 15 through August 31). Regardless of the time of year, a qualified biologist will conduct a nesting bird survey within three (3) days prior to any disturbance of the site, including but not limited to vegetation clearing, disking, demolition activities, and grading.

MM BIO-4B If active nests are identified, the biologist shall establish suitable buffers around the nests depending on the level of activity within the buffer and species observed, and the buffer areas shall be avoided until the nests are no longer occupied, and the juvenile birds can survive independently from the nests. During construction activities, the qualified biologist shall continue biological monitoring activities at a frequency recommended by the qualified biologist using their best professional judgment. If nesting birds are documented, avoidance and minimization measures may be adjusted, and construction activities stopped or redirected by the qualified biologist using their best professional judgement to avoid take of nesting birds. If nesting birds are not documented during the preconstruction survey, adherence to additional measures may not be necessary to avoid impacts to nesting birds.

Section 4.3, Biological Resources; Page 4.3-31; Paragraph 3

As previously discussed, the project site is located within the Burrowing Owl Overlay Zone. As such, focused surveys and preconstruction surveys for burrowing owl would be conducted to determine the presence or absence of burrowing owl within the project site prior to construction. As previously discussed, the Project would result in less than significant impacts to burrowing owl with the implementation of **MM BIO-3A** and ~~to~~ **MM BIO-3BD.** With compliance with applicable mitigation measures, the proposed Project would not conflict with local policies or ordinances protecting biological resources. Development of Planning Area 123 is not proposed as part of the Project. Future development projects related to Planning Area 123 would be evaluated on a project-specific level in compliance with CEQA, as applicable. Impacts would be less than significant with mitigation incorporated.

Section 4.3, Biological Resources; Page 4.3-31; Project Mitigation Measures for Impact 4.3-5

Further details regarding **MM BIO-3A** and ~~to~~ **MM BIO-3BD** are included under Impact 4.3-1, above.

Section 4.9, Land Use and Planning; Page 4.9-17; Table 4.9-1: General Plan Consistency

Chapter 3: Investing in Our Future: Economic Development, Redevelopment, and Infrastructure	
Goal 3-1: Strengthen and diversify the economic base and employment opportunities and maintain a positive business climate.	**Consistent.** The Project would include the development of two warehouse buildings, which would employ 154~~147~~ employees during operation. The proposed warehouses and trailer parking would address industrial needs within the City.

Section 4.11, Population and Housing; Page 4.11-6; Paragraph 9

The project site is zoned School, Public Park, and Employment and consists of vacant, undeveloped land. Upon approval of the proposed zone change, Planning Area 123 would be zoned General Commercial with a Residential overlay and Planning Areas 126 and 133 would be zoned Business Center. The proposed warehouse development on Planning Areas 126 and 133 would be consistent with the Business Center zoning designation of the Specific Plan. The proposed Project would include the construction of two warehouse buildings and associated on- and off-site improvements. Based on the employment information presented in **Table 3-2**, operation of the proposed warehouse development is anticipated to generate the demand for up to approximately 154~~147~~ employees. It is anticipated that a majority of future employees would reside within the City or local region and commute to work. As discussed in the City's Housing Element, the City's population is anticipated to increase by 45 percent, or 9,400 job opportunities by the year 2040. The City is anticipated to increase in population by 36,115 persons by 2045 (**Table 4.11-1**).[4] As such, the City is anticipated to grow in population and labor force, and Project implementation would not result in an unplanned population growth.

Section 4.14, Transportation; Page 4.14-9; Paragraph 2

Growth assumed in the General Plan and its corresponding traffic modeling would be the information supplied to SCAG. The proposed Project is consistent with the General Plan. The project site consists of Planning Areas 123, 126, and 133. To accommodate for the proposed warehouse development, the Project would rezone Planning Areas 126 and 133 from Public Park and Employment with a designated Park overlay to Business Center. Additionally, the Project would rezone Planning Area 123 from School to General Commercial with a Residential overlay for future development. The 2016 RSPA accounted for future development within the 2016 RSPA area, including the project site. The project site currently consists of vacant and underutilized land. As further discussed in Section 4.11, *Population and Housing*, the Project is anticipated to employ approximately 154~~147~~ employees. Future employees are anticipated to commute to the project site from within the City and surrounding areas. Therefore, because the proposed Project is consistent with the General Plan and was therefore accounted for in the City's growth

[4] City of Rialto. (2021). 6th Cycle Housing Element. https://www.yourrialto.com/DocumentCenter/View/1805/Section-2-City-of-Rialto-Community-Profile. Accessed October 2024.

forecast, the Project would be consistent with the RTP/SCS. In addition, the Project is consistent with the applicable goals and policies of the 2020-2045 RTP/SCS and the General Plan.

Section 4.14, Transportation; Page 4.14-9; Paragraph 3

As discussed above, under CEQA Guidelines section 15064.3, automobile delay is no longer considered an environmental impact and is only analyzed for compliance with the City's General Plan. The City's Traffic Study Guidelines require new development to mitigate project-related effects that cause the LOS to fall below LOS D. As discussed in the Traffic Study (**Appendix K**) prepared for the Project, the Project would implement recommended improvements and be subject to Fair Share Contributions for improvements ~~under Project implementation, Project roadways and intersections would operate at LOS D or better~~. As such, the Project would be consistent with the City's Traffic Study Guidelines.

Section 4.14, Transportation; Page 4.14-11; Paragraph 1

Low VMT Generating Area Screening

A project located within a low VMT generating area as determined by the SBCTA VMT Screening Tool and the City's TIA Guidelines would be considered to have a less than significant transportation impact. A Transportation Analysis Zone (TAZ) with a VMT below the County baseline of 16.9 is considered to be a low VMT area. Based on the SBCTA VMT Screening Tool, the project site is located within TAZ 53745301, which has a VMT per worker of 15.7. Using 2040 as the baseline year, the TAZ the project site is located in has a VMT per worker of 14.9. Therefore, the proposed Project is located within a low VMT generating area. Results of the SBCTA VMT Screening Tool are provided in the Approved Scoping Agreement in **Appendix K.** The Low VMT Generating Area Threshold is met.

Section 4.3, Recreation; Page 4.13-3; Paragraph 14

Impact 4.13~~16~~-1

Section 4.3, Recreation; Page 4.13-3; Paragraph 8

Impact 4.13~~16~~-2

Section 4.16, Utilities and Service Systems; Page 4.16-16; Paragraph 9

As discussed in Section 3.0, *Project Description*, and shown in **Table 3-2** the proposed rezone for Planning Areas 123, 126, and 133 would result in approximately 192~~156~~ new employees and the warehouse development would result in approximately 154~~147~~ new employees. It is estimated that the warehouse development would generate approximately 362~~346~~ tons of solid waste (2.35 tons per employee a year x 154~~147~~ employees) using the generation rate identified in the 2010 RSP EIR. Pursuant to AB 939, a minimum of 50 percent of solid waste would be required to be recycled. Accordingly, the Project would generate approximately 1~~0.9~~ ton~~s~~ per day of solid waste that would be directed to a landfill, which represents 0.01 percent of the Mid-Valley Landfill maximum permitted daily capacity of 7,500 tons per day. Although the Project would increase solid waste generation and decrease available capacity of the Mid-Valley Sanitary Landfill, Project operations are anticipated to result in a minimal increase in remaining

capacity of the landfill. The Project would be served by a landfill with sufficient remaining permitted capacity to accommodate the Project's solid waste disposal needs. Therefore, the Project's solid waste disposal needs could be accommodated at one or a combination of the disposal facilities discussed above. Operational activities would be subject to compliance with all applicable federal, State, and local statutes and regulations for solid waste, including those identified under CALGreen and AB 939. Further, the Project would not exceed the permitted capacity of the landfill and solid waste infrastructure and would generate a minimal amount of solid waste compared to the permitted daily capacity at the Mid-Valley Landfill. The Project would result in less than significant impacts concerning solid waste, and no mitigation is required.

Section 5.0, Other CEQA Considerations; Page 5-2; Paragraph 10

According to the California Department of Finance (DOF) the most recent estimated population of the City of Rialto (City) is 103,097 persons as of January 2024.[1] The California Employment Development Department (EDD) calculated the City's workforce to be 47,100, with 44,100 of those persons employed and 2,900 unemployed.[2] As discussed in Section 4.11, *Population and Housing*, and shown in **Table 3-2**, the proposed warehouse development would generate 154~~147~~ jobs. Because this is less than the 2,900 unemployed persons within the City as estimated by the EDD, the proposed Project would not necessarily spur a boost in population since the employees could be found within the City's existing residents. The proposed Project, at the time of its implementation, would likely only have an indirect effect on the City's population through the expansion of economic activity within the City.

Section 6.0, Alternatives; Page 6-11; Paragraph 3

Population and Housing. Both the Project and Alternative 2 would generate new permanent employment opportunities. The Project proposes the development of two warehouse buildings which would employ approximately 154~~147~~ employees. Alternative 2 would involve the development of one warehouse building, which would have employment opportunities but employ fewer employees in comparison to the Project due to the reduced size of the development. Similar to the Project, future employees are anticipated to travel to and from the project site from within the City and surrounding area. Neither Alternative 2 nor the Project would require the construction of additional residential units that could induce substantial unplanned population growth not analyzed in the City's General Plan. Therefore, both Alternative 2 and the Project would have a less than significant impact associated with population and housing.

Section 6.0, Alternatives; Page 4.16-15; Paragraph 3

Population and Housing. Both the Project and Alternative 3 would generate new permanent employment opportunities. The Project would include the development of two warehouse buildings which would employ approximately 154~~147~~ employees. Alternative 3 would involve the development of three

[1] California Department of Finance. (2024). Table 2:E-5 City/County Population and Housing Estimates, 1/1/2024. Sacramento, CA: Department of Finance. https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2024/. Accessed October 2024.

[2] California Employment Development Department. (2024). *Local Area Unemployment Statistics (LAUS).* https://data.edd.ca.gov/Labor-Force-and-Unemployment-Rates/Local-Area-Unemployment-Statistics-LAUS-/e6gw-gvii/data. Accessed October 2024.

warehouse buildings, which would have similar employment opportunities. Future employees are anticipated to travel to and from the project site from within the City and surrounding area. Neither Alternative 3 nor the Project would require the construction of additional residential units that could induce substantial unplanned population growth not analyzed in the General Plan. Therefore, both Alternative 3 and the Project would have a less than significant impact associated with population and housing.

4.0 MITIGATION MONITORING AND REPORTING PROGRAM

4.1 PURPOSE OF MITIGATION MONITORING AND REPORTING PROGRAM

The California Environmental Quality Act (CEQA) requires that all public agencies establish monitoring and/or reporting procedures for mitigation adopted as conditions of approval to mitigate or avoid significant environmental impacts. This Mitigation Monitoring and Reporting Program (MMRP) has been developed to provide a vehicle by which to monitor the Mitigation Program outlined in the Miro Way and Ayala Drive Project Subsequent Environmental Impact Report (SEIR). The Miro Way and Ayala Drive Project MMRP has been prepared in conformance with Public Resources Code Section 21081.6 and City of Rialto monitoring requirements. Specifically, Public Resources Code Section 21081.6 states:

(a) When making findings required by paragraph (1) of subdivision (a) of Section 21081 or when adopting a mitigated negative declaration pursuant to paragraph (2) of subdivision (c) of Section 21080, the following requirements shall apply:

(1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead or responsible agency, prepare and submit a proposed reporting or monitoring program.

(2) The lead agency shall specify the location and custodian of the documents or other material which constitute the record of proceedings upon which its decision is based.

(b) A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or in case of the adoption of a plan, policy, regulation, or other public project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.

(c) Prior to the close of the public review period for a draft environmental impact report or mitigated negative declaration, a responsible agency, or a public agency having jurisdiction over natural resources affected by the project, shall either submit to the lead agency complete and detailed performance objectives for mitigation measures which would address the significant effects on the environment identified by the responsible agency or agency having jurisdiction over natural resources affected by the project, or refer the lead agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a lead agency by a responsible agency or an agency having jurisdiction over natural resources affected

> by the project shall be limited to measures which mitigate impacts to resources which are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance by a responsible agency or agency having jurisdiction over natural resources affected by a project with that requirement shall not limit the authority of the responsible agency or an agency having jurisdiction over natural resources affected by a project, or the authority of the lead agency, to approve, condition, or deny projects as provided by this division or any other provision of law.

State CEQA Guidelines Section 15097 provides clarification of mitigation monitoring and reporting requirements and guidance to local lead agencies on implementing strategies. The reporting or monitoring program must be designed to ensure compliance during project implementation. The City of Rialto is the Lead Agency for the Miro Way and Ayala Drive Project and is therefore responsible for ensuring implementation of the MMRP. The MMRP has been drafted as a fully enforceable monitoring program to meet Public Resources Code Section 21081.6 requirements.

4.2 ORGANIZATION

The MMRP is comprised of the Mitigation Program and includes measures to implement and monitor the Mitigation Program. The MMRP defines the following for each Mitigation Measure (MM):

- **Definition of Mitigation.** The Mitigation Measure contains the criteria for mitigation, either in the form of adherence to certain adopted regulations or identification of the steps to be taken in mitigation.

- **Implementation Timing.** In each case, a time frame is provided for performance of the mitigation or the review of evidence that mitigation has taken place. The performance point selected are designed to ensure that impact-related components of Project implementation do not proceed without establishing that the mitigation is implemented or ensured. All activities are subject to the approval of all required permits from agencies with permitting authority over the specific activity.

- **Monitoring and Reporting Methods.** The monitoring phase of a project refers to the period when the mitigation measures are actively tracked. The monitoring frequency specifies how often these measures will be evaluated, and the compliance actions are those taken by the Enforcement or Monitoring agency to confirm that the required mitigation measure has been properly implemented. The MMRP outlines the schedule and procedures for monitoring the mitigation actions, including who is responsible for implementing them, the frequency of checks, and how compliance will be confirmed and reported.

- **Responsible Party or Designated Representative.** Unless otherwise indicated, an applicant would be the responsible party for implementing the mitigation, and the City of Rialto or designated representative is responsible for monitoring the performance and implementation of the mitigation measures.

- **Responsible for Approval/Monitoring.** The City of Rialto or designated representative is responsible for monitoring the performance and implementation of the mitigation measures. To guarantee that the mitigation will not be inadvertently overlooked, a supervising public official

acting as the Designated Representative is the official who grants the permit or authorization from all officials shall be required.

The MM numbering system in the table corresponds with the MM numbering system in the EIR. The MMRP table's last column will be used by the parties responsible for documenting when MM implementation has been completed. The ongoing documentation and monitoring of mitigation compliance will be completed by the City of Rialto. The completed MMRP and supplemental documents will be kept on file at the City of Rialto Planning Division.

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Miro Way And Ayala Drive Project
Mitigation Monitoring And Reporting Program

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Aesthetics					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AES-1** Pursuant to Section 15.32 of the City's Municipal Code, prior to the issuance of grading permits, the Project applicant shall submit to the satisfaction of the Public Works Director, evidence that all electrical distribution lines of 16,000 volts or less, telephone lines, cable antenna television and similar service wires or cable, which provide direct service to the property being developed, shall be installed underground.	Prior to Issuance of Grading Permits	Approval of Plans and Specifications	City of Rialto Planning Division City of Rialto Building & Safety Division		
Air Quality					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-4** Off-Road Diesel Equipment. Prior to the issuance of any grading permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that off-road diesel-powered construction equipment greater than 50 horsepower will meet the Tier 4 emission standards, where feasible. In addition, where feasible all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by the Air Resources Board (ARB). Any emissions control	Prior to Issuance of Grading Permits	Verify Construction Requirements	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by ARB regulations.					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure	Prior to Construction	Verify Construction Requirements	City of Rialto Public Works Division City of Rialto Planning Division City of Rialto Building & Safety Division		
AQ-5 Construction Equipment Tier Specification. Prior to the mobilization of each applicable off-road diesel-powered construction equipment greater than 50 horsepower, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, a copy of the certified tier specification, Best Available Control Technology (BACT) documentation, and Air Resources Board or South Coast Air Quality Management District's operating permit for each shall be provided at the time of mobilization of each applicable unit of equipment.					
s2016 Renaissance Specific Plan Amendment EIR Mitigation Measure	Prior to Issuance of Grading Permits	Approval of Truck Routes	City of Rialto Planning Division City of Rialto Building & Safety Division		
AQ-6 Truck Building Access. Prior to the issuance of any grading permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that the following truck access routes have been incorporated into the Project design, to the maximum extent practicable, to reduce air quality and potential future health risk impacts					

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
from the operation phases of the proposed Project: ▪ Design warehouse/distribution centers such that entrances and exits discourage that trucks from traversing past neighbors or other sensitive receptors. ▪ Design warehouse/distribution centers such that any check-in point for trucks is well inside the facility property to ensure that there are no trucks queuing outside of the facility. ▪ Establish area(s) within the facility for repair needs. ▪ Provide electrical service capacity for equipment at facilities.					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-7** Truck Routes. Prior to the issuance of any grading permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that the following truck access routes have been incorporated into the Project design, to the maximum extent practicable, to reduce air quality and potential future health risk impacts from the operation phase of the proposed Project, if feasible: ▪ Develop, adopt and enforce truck routes both for entering and leaving the city and in and out of facilities; keeping in mind	Prior to Issuance of Grading Permits	Approval of Truck Routes	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
common pedestrian routes, especially for schools. ▪ Have truck routes clearly marked with trailblazer signs, so trucks will not enter residential areas. ▪ Identify or develop secure locations outside of residential neighborhoods where truckers that live in the community can park their truck, such as a Park & Ride. ▪ Where there are traffic impacts, improve traffic flow by signal synchronization.					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-8** Super-Compliant VOC Paints. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that the construction contractor shall be required to utilize Super-Compliant VOC paints, which are defined by SCAQMD as meeting the "super-compliant" VOC standard of 10 grams per liter (g/L). Use of HVLP or electrostatic spray equipment shall be encouraged.	Prior to Issuance of Building Permits	Verify Construction Requirements	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-9** Exterior and Interior Finishes. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that exterior and interior finishes that	Prior to Issuance of Building Permits	Verify Construction Requirements	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
do not require painting shall be used where feasible.					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-10** Building Orientation. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that buildings have been oriented and incorporate landscaping to maximize passive solar; heating during cool seasons, and minimize solar heat gain during hot seasons where feasible depending upon site condition and topography.	Prior to Issuance of Building Permits	Approval of Plans	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-12** Energy Efficiency Education. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that building tenants shall be encouraged to educate employees on energy efficiency measures.	Prior to Issuance of Building Permits	Energy Efficiency Education of Future Employees	City of Rialto Planning Division City of Rialto Building & Safety Division Project Tenants		
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-13** Preferential Parking Spaces. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence	Prior to Issuance of Building Permits	Verify Construction Requirements	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
that preferential parking spaces shall be offered to car pools and van pools.					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure **AQ-14** Electrical Hookup Capacity. Prior to the issuance of any building permits, the Project applicant shall submit, to the satisfaction of the Public Works Director and Planning Division, evidence that building designs provide electrical capacity for installation of electrical hookups at onsite loading docks and for electric vehicle charging stations.	Prior to Issuance of Building Permits	Approval of Plans	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
Project Mitigation Measure **MM AIR-1** Prior to the issuance of grading permits, the City Engineer shall confirm that the Grading Plan specifies all off-road diesel-powered construction equipment greater than 50 horsepower shall meet California Air Resources Board Tier 4 Final off-road emissions standards or incorporate CARB Level 3 Verified Diesel Emission Control Strategy (VDECS). Requirements for Tier 4 Final equipment and the option for Level 3 VDECS shall be included in applicable bid documents and successful contractor(s) must demonstrate the ability to supply such equipment. A copy of each unit's Best Available Control Technology (BACT) documentation (certified tier specification or model year specification), and CARB or SCAQMD operating permit (if applicable) shall be maintained on site and available upon request.	Prior to Issuance of Grading Permits	Verify Appropriate Construction Equipment	City of Rialto Planning Division City of Rialto Building & Safety Division City of Rialto Engineer		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Project Mitigation Measure **MM AIR-2** Prior to issuance of tenant occupancy permits, the tenant/facility operator shall prepare and submit a Transportation Demand Management (TDM) program detailing strategies that would reduce the use of single occupant vehicles by employees by increasing the number of trips by walking, bicycle, carpool, vanpool and transit. The TDM shall include, but is not limited to the following: ▪ Provide a transportation information center and on-site TDM coordinator to educate residents, employers, employees, and visitors of surrounding transportation options. ▪ Promote bicycling and walking through design features such as showers for employees, self-service bicycle repair area, etc. around the project site. ▪ Each building shall provide secure bicycle storage space equivalent to two percent of the automobile parking spaces provided. ▪ Each building shall provide a minimum of two shower and changing facilities as part of the tenant improvements. ▪ Provide on-site car share amenities for employees who make only occasional use of a vehicle. ▪ Promote and support carpool/vanpool/rideshare use through	Prior to Issuance of Tenant Occupancy Permits	Submittal of TDM	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
parking incentives and administrative support, such as ride-matching service. ▪ Incorporate incentives for using alternative travel modes, such as preferential load/unload areas or convenient designated parking spaces for carpool/vanpool users. ▪ Provide meal options onsite or shuttles between the facility and nearby meal destinations. ▪ Each building shall provide preferred parking for electric, low-emitting and fuel-efficient vehicles equivalent to at least eight percent of the required number of parking spaces. This mitigation measure applies only to tenant occupancy and not the building shell approvals.					
Project Mitigation Measure **MM AIR-3** Prior to the issuance of a building permit, the Planning Department shall confirm that the Project is designed to include the following: ▪ The buildings' electrical room shall be sufficiently sized to hold additional panels that may be needed to supply power for the future installation of electric vehicle (EV) truck charging stations on the site. Conduit should be installed from the electrical room to tractor trailer parking spaces in a logical location(s) on the site determined by the Project Applicant during construction document plan check, for the purpose of accommodating the future installation of EV	Prior to Issuance of Building Permits	Approval of Plans	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
truck charging stations at such time this technology becomes commercially available and the buildings are being served by trucks with electric-powered engines.					
Project Mitigation Measure **MM AIR-4** Prior to the issuance of a tenant occupancy permit, the Planning Department shall confirm that truck exit driveway signs provide directional information to the truck route and that all truck access gates and loading docks within the project site shall have a sign posted that identifies that: ▪ Truck drivers shall turn off engines when not in use. ▪ Truck drivers shall shut down the engine after two minutes of continuous idling operation. Once the vehicle is stopped, the transmission is set to "neutral" or "park", and the parking brake is engaged. ▪ Telephone numbers of the building facilities manager and CARB to report violations. ▪ Signs shall also inform truck drivers about the health effects of diesel particulates, the California Air Resources Board diesel idling regulations, and the importance of being a good neighbor by not parking in residential areas. This mitigation measure applies only to tenant improvements and not the building shell approvals.	Prior to Issuance of Tenant Occupancy Permit	Verify Truck Access Gates and Loading Docks Requirements	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Project Mitigation Measure **MM AIR-5** Prior to the issuance of a tenant occupancy permit, the Planning Department shall confirm that the tenant has been provided with information about Carl Moyer Program and that compliance with the voluntary program including energy efficiency improvement features for vendor trucks for the industrial buildings through the Carl Moyer Program—including truck modernization, retrofits, and/or aerodynamic kits and low rolling resistance tires— to reduce fuel consumption but strongly encouraged. This mitigation measure applies only to tenant improvements and not the building shell approvals.	Prior to Issuance of Tenant Occupancy Permit	Approval of Plans	City of Rialto Planning Division City of Rialto Building & Safety Division		
Project Mitigation Measure **MM AIR-6** Prior to issuance of a Certificate of Occupancy for Tenant Improvements, not building shell, the Project tenants shall train staff on vehicle records in diesel technologies requirements and compliance with California Air Resources Board (CARB) regulations, by attending CARB-approved courses. Facility operators shall maintain records on-site demonstrating compliance and make records available for inspection by the City of Rialto, South Coast Air Quality Management District, and State upon request.	Prior to Issuance of Occupancy for Tenant Improvements Permit	Approval of Plans	City of Rialto Planning Division City of Rialto Building & Safety Division South Coast Air Quality Management District CARB Project Tenants		
Project Mitigation Measure **MM AIR-7** Prior to the issuance of a tenant occupancy permit, and not building shell, the Planning	Prior to Issuance of Tenant Occupancy Permit	Approval of Plans	City of Rialto Planning Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Department shall confirm that the Project plans and specifications show the following: ▪ All outdoor cargo handling equipment (including yard trucks, hostlers, yard goats, pallet jacks, and forklifts) are zero emission/powered by electricity. Each building shall include the necessary charging stations for cargo handling equipment. Note that SCAQMD Rule 2305 (Warehouse Indirect Source Rule) Warehouse Actions and Investments to Reduce Emissions (WAIRE) points may be earned for electric/zero emission yard truck/hostler usage. This mitigation measure applies only to tenant improvements and not the building shell approvals. ▪ All standard emergency generators shall meet California Air Resources Board Tier 4 Final emissions standards. A copy of each unit's Best Available Control Technology (BACT) documentation (certified tier specification) and CARB or SCAQMD operating permit (if applicable) shall be provided to the City.			City of Rialto Building & Safety Division South Coast Air Quality Management District		
Biological Resources					
Project Mitigation Measure **MM BIO-1A** Prior to project construction activities, an updated potential to occur assessment shall be completed. Species to be addressed shall include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is	Prior to Issuance of Grading Permits	Verification of updated Potential to Occur Assessment	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
present within or adjacent to the project site. If deemed necessary, pre-construction species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of day when the sensitive species are active or otherwise identifiable, shall be conducted. Acceptable species-specific survey procedures shall follow CDFW and USFWS guidance, where applicable.			Qualified Biologist		
Project Mitigation Measure **MM BIO-1B** Prior to the start of project construction activities, a qualified biologist shall conduct a comprehensive pre-construction wildlife survey. This survey must be completed within one week before any ground-disturbing activities or vegetation removal begins. The survey shall include 100% coverage of the project site, as well as a 100-foot buffer zone surrounding the site to identify and document any wildlife species present in adjacent areas. All species observed during the survey shall be recorded and mapped accordingly.	Prior to Issuance of Grading Permits	Verification of Pre-Construction Wildlife Survey	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		
Project Mitigation Measure **MM BIO-1C** If necessary, appropriate avoidance and minimization measures shall be developed to protect sensitive wildlife species identified during the pre-construction survey. These measures may include establishing species-specific no-disturbance buffer zones. If wildlife is observed within the project footprint and cannot be avoided, individuals may be relocated to suitable	Prior to Issuance of Grading Permits	Verification of implementation of appliable measures identified in MM BIO-1B.	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
habitat outside the impact area by a qualified biologist. All relocations shall be conducted under the appropriate permits and authorizations from relevant wildlife agencies.					
Project Mitigation Measure **MM BIO-1D** A biologist shall flush special-status species (i.e., avian or other mobile species), with the exception of burrowing owl, from suitable habitat areas within the Project development footprint to the maximum extent practicable immediately (e.g., within 24 hours) prior to initial vegetation removal activities. The biologist shall flush wildlife by walking through habitat to be immediately removed and towards adjacent remaining suitable habitat.	Within 24 hours of Vegetation Removal	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		
Project Mitigation Measure **MM BIO-1E** Construction vehicles shall not exceed 15 miles per hour on unpaved roads adjacent to the project site or the right-of-way accessing the project site.	During Construction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
Project Mitigation Measure **MM BIO-1F** The Project applicant, or its contractors, shall screen, cover, or elevate at least one (1) foot above ground, all construction pipe, culverts, or similar structures with a diameter of three (3) inches or greater that are stored on-site overnight. The pipes, culverts, and similar structures shall be inspected by the Project	During Construction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
biologist for wildlife before such material is moved, buried, or capped.					
Project Mitigation Measure **MM BIO-1G** Construction activities shall occur during daytime hours to the greatest extent feasible. If construction must occur at nighttime, lights shall be oriented in such a way that they direct light downward and toward the active construction, ensuring that no direct light is emitted towards adjacent lands, and shields or deflectors shall be installed on lights to reduce light spill. Nighttime concrete pouring shall be performed in accordance with the City of Rialto Municipal Code.	During Construction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
Project Mitigation Measure **MM BIO-1H** At the end of each workday during construction, the applicant, or its contractors, will cover all excavated, steep-sided holes or trenches more than eight inches deep and that have sidewalls steeper than 1:1 (45 degree) slope with plywood or similar materials, or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than 3:1) constructed of earth fill or wooden planks. The Project biologist shall thoroughly inspect holes and trenched for trapped animals during biological monitoring.	During Construction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
Project Mitigation Measure **MM BIO-1-I** Contractors shall not permit pets on the construction site.	During Construction	Verification of Enforcement	City of Rialto Planning Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
			City of Rialto Building & Safety Division Project Contractor		
Project Mitigation Measure **MM BIO-1-J** If trash and debris need to be stored overnight during maintenance activities, fully covered trash receptacles that are animal-proof and weather-proof shall be used by the maintenance contractor to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Alternatively, standard trash receptacles may be used during the day, but shall be removed or emptied each night.	During Construction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
Project Mitigation Measure **MM BIO-1K** To prevent inadvertent disturbance to areas outside the limits of work, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary visibility construction fence) prior to ground-disturbance activities, and all construction activities, including equipment staging and maintenance, shall be conducted within the marked disturbance limits. The work limit delineation shall be maintained throughout Project construction.	During Construction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Project Contractor		
Project Mitigation Measure **MM BIO-2A** If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to	One Year Prior to Ground Disturbance	Verify Completion of Surveys Verify Completion of Field Inspections	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
ground disturbing activities, an approved qualified designated biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony active period (April – August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species within the project site and areas adjacent to the project site where suitable habitat exists. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.			Qualified Biologist		
Project Mitigation Measure **MM BIO-2B** If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible, or if complete avoidance of Crotch's bumble bee cannot be achieved, Project activities with the potential to impact Crotch's bumble bee shall be postponed until appropriate authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained.	Prior to Construction Activities if required per MM BIO-2A	Verify Completion of Field Inspections Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Project Mitigation Measure **MM BIO-2C** Within one year prior to ground disturbing activities, the approved designated biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February – October), within the project site and areas adjacent to the project site where suitable habitat exists, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.	One Year Prior to Ground Disturbing activities	Verify Completion of Pre-construction Survey	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		
Project Mitigation Measure **MM BIO-2D** If occupied foraging habitat for Crotch's bumble bee is present within Project impact areas, a Revegetation Plan shall be prepared which includes native shrubs and native seed mixes that contain known nectar sources for Crotch's bumble bee. The Revegetation Plan shall be developed in consultation with a qualified Crotch's bumble bee biologist and implemented following Project construction.	During Construction	Verify Preparation of Revegetation Plan	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		
Project Mitigation Measure **MM BIO-3A** Prior to initial ground disturbing activities, a Worker Environmental Awareness Program (WEAP) shall be prepared, which will include a	Prior to Initial Ground Disturbing Activities	Verify Preparation of WEAP	City of Rialto Planning Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
training presentation and key fact sheet. The training will instruct construction crews to be aware of and recognize burrowing owls and other sensitive biological resources that may be encountered within, or adjacent to, the project. The training will provide workers with instructions to follow in the event a burrowing owl is observed or suspected to be on site. Biologists shall provide WEAP training materials, including but not limited to the key fact sheet, to construction personnel before their commencement of work on the project. Additionally, all construction staff shall attend the WEAP training presentation prior to beginning work on-site. A refresher WEAP training will be completed on an annual basis thereafter. Note that the fact sheet shall be provided in other languages, as necessary, to accommodate non-English speaking workers. Upon completion of the WEAP training, each member of the construction crew shall sign a form stating that they attended the training, understood the information presented, and agreed to comply with the requirements set out in the WEAP training. On an annual basis, the project proponent shall certify that WEAP training has been provided to all construction personnel. Biologists shall provide updates relevant to the training to construction personnel during the safety ("tailgate") meetings, as needed.			City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Project Mitigation Measure **MM BIO-3B** Suitable burrowing owl habitat and burrowing owl presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the CDFW BUOW Guidelines (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of project construction and surrounding 500 foot radius. Take avoidance surveys shall be conducted no less than 14 days prior to initiation of project-related activities. Burrowing owls may re-colonize a site after only a few days. Time lapses between Project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the CDFW BUOW Guidelines (2012 or most recent version). Upon beginning ground-disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the project Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities with the potential to impact burrowing owl shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing	Prior To Vegetation Removal or Ground-Disturbing Activities for All Phases of Project Construction and Surrounding 500 Foot Radius	Verification of Biological Monitoring	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Owl Plan that shall be submitted to CDFW for review and approval prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities with the potential to impact burrowing owl shall not occur within 1,000 feet of an active burrow until CDFW approves the Burrowing Owl Plan. If Project activities, including burrow exclusion and closure, could result in take of burrowing owl, the project proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., ITP under CFGC section 2081) prior to commencement of Project activities. The ITP shall describe, at a minimum, Project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition.					

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Project Mitigation Measure **MM BIO-4A** To ensure compliance with CFGC sections 3503, 3503.5, and 3513 and to avoid potential impacts to nesting birds, vegetation clearing and ground-disturbing activities shall be conducted outside of the bird nesting season (generally February 15 through August 31). Regardless of the time of year, a qualified biologist will conduct a nesting bird survey within three (3) days prior to any disturbance of the site, including but not limited to vegetation clearing, disking, demolition activities, and grading.	Prior To Vegetation Clearing and Ground-Disturbing Activities	Verify Completion of Field Surveys	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		
Project Mitigation Measure **MM BIO-4B** If active nests are identified, the biologist shall establish suitable buffers around the nests depending on the level of activity within the buffer and species observed, and the buffer areas shall be avoided until the nests are no longer occupied, and the juvenile birds can survive independently from the nests. During construction activities, the qualified biologist shall continue biological monitoring activities at a frequency recommended by the qualified biologist using their best professional judgment. If nesting birds are documented, avoidance and minimization measures may be adjusted, and construction activities stopped or redirected by the qualified biologist using their best professional judgement to avoid take of nesting birds. If nesting birds are not documented during the preconstruction survey, adherence to	Prior to and During Construction	Verify Completion of Biological Resources Monitoring Verify Completion of Field Surveys	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Biologist		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
additional measures may not be necessary to avoid impacts to nesting birds.					
Cultural Resources					
Project Mitigation Measure **MM CUL-1** In the event that archaeological or cultural resources are discovered during Project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on other portions of the Project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed in **MM TCR-1**, regarding any pre-contact finds and be provided information after the archaeologist makes his/her find, so as to provide Tribal input with regards to significance and treatment.	During Construction	Verify Retainment of Qualified Archaeologist Halt all Work in Immediate Vicinity of a Find Periodic Field inspections During Construction in the Event Unknown Resources are encountered	City of Rialto Planning Division City of Rialto Building & Safety Division Qualified Archeologist		
Project Mitigation Measure **MM CUL-2** If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan (Plan), the drafts of which shall be provided to YSMN for review and comment, as detailed within **MM TCR-1**. The archaeologist shall monitor the remainder of the Project and Implement the Plan accordingly.	During Construction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division Native American Heritage Commission		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Project Mitigation Measure **MM CUL-3** If human remains or funerary objects are encountered during activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code Section 7050.5 and that code enforced for the duration of the Project.	During Construction	Verification of Enforcement Verification of Compliance with State Health and Safety Code Section 7050.5	City of Rialto Planning Commission City of Rialto Building & Safety Division San Bernardino County Coroner		
Greenhouse Gas Emissions					
Project Mitigation Measure **MM GHG-1** Prior to issuance of a Certificate of Occupancy for Tenant Improvements, not building shell, the Project shall install photovoltaic (PV) panels or other source of renewable energy generation on-site, or otherwise acquire energy from the local utility that has been generated by renewable sources, that would provide 100 percent of the expected building load (i.e., the Title 24 electricity demand and the plug-load, anticipated to be approximately 4.62 kilowatt hours per year [kWh/year] per square foot[1]), as feasible, based on the maximum net roof area available for solar (i.e., solar-ready zone). The solar-ready zone shall comply with Section 110.10 of the 2022 California Energy Code and shall comply with access, pathway, ventilation, and spacing requirements, and exclude skylight area.	Prior to issuance of a Certificate of Occupancy for Tenant Improvements	Confirm Installation of Renewable Energy Generation	City of Rialto Planning Division City of Rialto Building & Safety Division		

[1] The expected electricity demand is based on CalEEMod; refer to **Appendix G**.

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
With expected energy consumption at 4.62 kWh/sf, a PV panel array covering approximately one quarter of the proposed roof space would provide sufficient on-site renewable energy generation to offset consumption. The final PV generation facility size requires approval by Southern California Edison (SCE). SCE's Rule 21 governs operating and metering requirements for any facility connected to SCE's distribution system. Should SCE limit the off-site export, the proposed Project may utilize a battery energy storage system (BESS) to lower off-site export while maintaining on-site renewable generation to off-set consumption. If the Project cannot generate enough renewable energy to cover 100 percent of the building load, renewable energy may be acquired from the local utility. This mitigation measure applies only to tenant improvements and not the building shell approvals.					
Project Mitigation Measure **MM GHG-2** Prior to the issuance of a building permit, the Project applicant or successor in interest shall provide documentation to the City demonstrating the following: ▪ The Project shall be designed to meet or exceed CALGREEN Tier 2 standards in effect at the time of building permit application in order to exceed 2022 Title 24 energy efficiency standards by at least 15 percent.	Prior to Issuance of Building Permit	Verification of CALGREEN Tier 2 standards Verification of Electric Charging Stations Implementation	City of Rialto Planning Division City of Rialto Building & Safety Division		

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
▪ The Project shall provide conduits to support electric charging stations per the Tier 2 standards in Section A5.106.5.3 (Nonresidential Voluntary Measures) of the 2022 CALGreen Code.					
Project Mitigation Measure **MM GHG-3** The development shall divert a minimum of 75 percent of landfill waste. Prior to issuance of certificate of tenant occupancy permits, a recyclables collection and load area shall be constructed in compliance with City standards for recyclable collection and loading areas. This mitigation measure applies only to tenant permits and not the building shell approvals. The diversion plan shall also comply with the established solid waste and recycling laws including AB 939 and AB 341.	Prior To Issuance of Certificate of Tenant Occupancy Permits	Verify recyclables collection and load area on Tenant Improvements Plans in compliance with City standards for recyclable collection and loading areas.	City of Rialto Planning Division City of Rialto Building & Safety Division		
Project Mitigation Measure **MM GHG-4** Prior to the issuance of tenant occupancy permits, the Planning Department shall confirm that tenant lease agreements include contractual language that all handheld landscaping equipment used on-site shall be 100 percent electrically powered. This mitigation measure applies only to tenant permits and not the building shell approvals.	Prior to Issuance of Tenant Occupancy	Confirmation of Lease Agreements	City of Rialto Planning Division City of Rialto Building & Safety Division		
Noise					
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure	During Construction	Verification of Enforcement	City of Rialto Planning Division		

Mitigation Measures (MMs)		Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
					Date	Initials
N-1	Construction activities shall be limited to the City's allowable hours of construction activities in accordance with the City's Noise Ordinance.			City of Rialto Building & Safety Division		
2016 Renaissance Specific Plan Amendment EIR Mitigation Measure		During Constriction	Verification of Enforcement	City of Rialto Planning Division City of Rialto Building & Safety Division		
N-2	All Construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.					
Project Mitigation Measure						
MM NOI-1	The following measures shall be incorporated on all grading and building plans and specifications subject to approval of the City's building and Building & Safety Division prior to issuance of a grading permit: The developer shall ensure construction equipment will not approach the construction buffer zone adjacent to the commercial building (i.e., 1348 West Baseline Road) along portions of the Project southern and southwestern Project Boundary. The buffer zone shall be tiered based on distances established in Table 4.10-8 (attached to this MMRP). As shown in Table 4.10-8, vibratory rollers shall not operate within 17 feet of the commercial building; large bulldozers and loaded trucks shall not operate within 10 feet of the commercial building; and jack hammers and small bulldozers/ tractors shall not operate within 5 feet of the commercial building.					

Mitigation Measures (MMs)	Implementation Timing	Monitoring/Reporting Methods	Responsible for Approval/ Monitoring	Verification	
				Date	Initials
Tribal Cultural Resources					
Project Mitigation Measure **MM TCR-1** The Yuhaaviatam of San Manual Nation (YSMN) Cultural Management Department shall be contacted, as detailed in **MM CUL-2**, of any pre-contact cultural resources discovered during Project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a Cultural Resources Monitoring and Treatment Plan (Plan) shall be created by the archaeologist, in coordination with YSMN, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents YSMN for the remainder of the Project, should YSMN elect to place a monitor on-site.	During Project Implementation	Consultation with YSMN	City of Rialto Planning Division City of Rialto Building & Safety Division YSMN		
Project Mitigation Measure **MM TCR-2** Any and all archaeological/cultural documents created as a part of the Project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to YSMN. The Lead Agency, and/or applicant shall, in good faith, consult with YSMN throughout the life of the Project.	During Project Implementation	Verification of Dissemination to YSMN	City of Rialto Planning Division City of Rialto Building & Safety Division		

Note: Please see Draft SEIR Table 4.10-1, below, as referenced in Project **MM NOI-1**.

Draft SEIR Table 4.10-8: Typical Construction Equipment Vibration Levels

Equipment	Peak Particle Velocity at 5 Feet (in/sec)	Peak Particle Velocity at 10 Feet (in/sec)	Peak Particle Velocity at 15 Feet (in/sec)	Peak Particle Velocity at 30 Feet (in/sec)[1]
Vibratory Roller	2.348	0.830	0.452	0.375
Large Bulldozer	0.995	0.352	0.191	0.159
Loaded Trucks	0.850	0.300	0.164	0.136
Jackhammer	0.391	0.138	0.075	0.062
Small Bulldozer/Tractors	0.034	0.012	0.006	0.005

Notes:

1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance

PPV_{ref} = the reference vibration level in in/sec from Table 7-4 of the Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.

D = the distance from the equipment to the receiver

Source: **Appendix J**

Attachment 1

Revised Biological Technical Report

ROCKS
BIOLOGICAL CONSULTING





MIRO WAY AND AYALA DRIVE DEVELOPMENT PROJECT
BIOLOGICAL TECHNICAL REPORT

City of Rialto, California

July 9, 2025

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1 INTRODUCTION

1.1 PROJECT LOCATION

The Miro Way and Ayala Drive Development Project (project or proposed project) consists of approximately 35 acres in the City of Rialto (City), San Bernardino County, California (Figure 1) within the Renaissance Specific Plan Amendment (RSPA) area. The City encompasses approximately 22 square miles in San Bernardino County. The project site is in the western/central part of the City, approximately 0.65 mile south of State Route (SR) 210. Specifically, the project site is located approximately 450 linear feet north of W Baseline Road, west of N Ayala Drive, east of N Linden Avenue, and south of Miro Way. The site is located within U.S. Geological Survey (USGS) 7.5' quadrangles Fontana and Devore (USGS 2024b).

1.2 PROJECT DESCRIPTION

The approximately 35-acre project site is comprised of Planning Areas 123, 126, and 133. The Project would include the rezone of Planning Area 123 (north of Miro Way) from School to General Commercial with a Residential Overlay. The Project would also include the rezone of Planning Areas 126 and 133 (south of Miro Way) from Park and Employment (with a designated Park Overlay) to Business Center, to allow for an industrial warehouse development. Offsite utility and roadway improvements would extend slightly north of Miro Way and along the right-of-way of Linden Avenue and Ayala Drive at the project frontage. With off-site improvements, the total construction footprint is approximately 27.19 acres.

1.3 EXISTING CONDITIONS

The project site is primarily composed of vacant, undeveloped disturbed habitat, which was historically used as agricultural land. A small area of disturbed Riversidean sage scrub is also present in the central portion of the project site. The topography of the project site is generally flat with minimal change in elevation. Portions of the project site are partially fenced, and gravel piles are located on the southern portion of the project site. Sidewalks and streetlights exist at the project boundary along Ayala Drive and Linden Avenue. Overhead electric utilities are located along the project boundary at Linden Avenue, south of Miro Way. The project site is primarily surrounded by developed land, composed of commercial and industrial properties, paved roads and lots, compacted dirt roads, and disturbed habitat.

1.4 REGULATORY FRAMEWORK

Federal, state, and local agencies have established several regulations to protect and conserve biological and aquatic resources. The descriptions below provide a brief overview of agency regulations that may be applicable to the project. The regulating agencies make the final determination as to what types of permits are required.

FEDERAL REGULATIONS

Federal Endangered Species Act

The federal ESA of 1973 (16 U.S.C. § 1531 et seq.), as amended, provides for listing of endangered and threatened species of plants and animals and designation of critical habitat for listed species. The ESA regulates the "take" of any endangered fish or wildlife species, per Section 9. As development is proposed, the responsible agency or individual landowner is required to consult with the U.S. Fish and Wildlife Service (USFWS) to assess potential impacts on listed species (including plants) or their critical habitat, pursuant to Sections 7 and 10 of the ESA. USFWS is required to make a determination as to the extent of impact a project would have on a particular species. If it is determined that potential impacts on a species would likely occur, measures to avoid or reduce such impacts must be identified. USFWS may issue an incidental take statement, following consultation and the issuance of a Biological Opinion. This allows for take of the species that is incidental to another authorized activity, provided that the action will not adversely affect the existence of the species. Section 10 of the ESA provides for issuance of incidental take permits to non-federal parties with the development of a habitat conservation plan (HCP); Section 7 provides for permitting of federal projects.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S.C. § 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and listed at 50 Code of Federal Regulations (CFR) 10.13. The USFWS enforces the MBTA, which prohibits "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation.

Rivers and Harbors Act of 1899

The Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.) prohibits discharge of any material into navigable waters, or tributaries thereof, of the United States without a permit. The act also makes it a misdemeanor to excavate, fill, or alter the course, condition, or capacity of any port, harbor, or channel; or to dam navigable streams without a permit.

Many activities originally covered by the Rivers and Harbors Act are now regulated under the CWA of 1972 (33 U.S.C. § 1251 et seq.), discussed below. However, the 1899 act retains relevance and created the structure under which the U.S. Army Corps of Engineers (Corps) oversees CWA Section 404 permitting.

Clean Water Act

Pursuant to Section 404 of the CWA (33 U.S.C. § 1344), the Corps is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands), which include those waters listed in 33 CFR 328.3 (88 Federal Register [FR] 61964, September 8, 2023; Revised Definition of "Waters of the United States"; Conforming). The Corps, with oversight from the U.S. Environmental Protection Agency (EPA), has the principal authority to issue CWA Section 404 permits. Substantial impacts on waters of the U.S. may require an

Individual Permit. Projects that only minimally affect waters of the U.S. may meet the conditions of one of the existing Nationwide Permits.

A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for all Section 404 permitted actions. The Regional Water Quality Control Board (RWQCB), a division of the State Water Resources Control Board, provides oversight of the Section 401 certification process in California. The RWQCBs are required to provide Water Quality Certification for licenses or permits that authorize an activity that may result in a discharge from a point source into a water of the U.S. Water Quality Certification authorization "is limited to assuring that a discharge from a Federally licensed or permitted activity will comply with water quality requirements" (40 CFR 121.3).

The National Pollutant Discharge Elimination System (NPDES) is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA (33 U.S.C. § 1342).

STATE REGULATIONS

California Environmental Quality Act

The CEQA (California Public Resources Code § 21000 et seq.) was established in 1970 as California's counterpart to the National Environmental Policy Act (NEPA). CEQA requires state and local agencies to identify significant environmental impacts of their actions and to avoid or mitigate those impacts, where feasible.

CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project." A project is an activity undertaken by a public agency or a private activity, which must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency that may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

California Endangered Species Act and Natural Community Conservation Planning Act

The California Endangered Species Act of 1984 (CESA; CFGC § 2050 et seq.), in combination with the California Native Plant Protection Act of 1977 (CFGC § 1900 et seq.), regulates the listing and take of plant and animal species designated as endangered, threatened, or rare within the state. California also lists species of special concern (SSC) based on limited distribution; declining populations; diminishing habitat; or unusual scientific, recreational, or educational value. The California Department of Fish and Wildlife (CDFW) is responsible for assessing development projects for their potential to impact listed species and their habitats. State-listed special-status species are addressed through the issuance of a 2081 permit (Memorandum of Understanding).

In 1991, the California Natural Community Conservation Planning (NCCP) Act (CFGC § 2800 et seq.) was approved and the NCCP Coastal Sage Scrub program was initiated in Southern California. The NCCP program was established "to provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth." The NCCP Act encourages preparation of plans that address habitat conservation and management on an ecosystem basis rather than one species or habitat at a time.

California Fish and Game Code Sections 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the CFGC, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake that supports fish or wildlife. A Lake or Streambed Alteration Agreement Application must be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake" (CFGC § 1602). CDFW has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources. CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

California Fish and Game Code Sections 3503, 3511, 3513, 3801, 4700, 5050, and 5515

CDFW protects and manages fish, wildlife, and native plant resources within California. The California Fish and Game Commission and/or CDFW are responsible for issuing permits for the take or possession of protected species. The following sections of the CFGC address protected species: Section 3511 (birds), Section 4700 (mammals), Section 5050 (reptiles and amphibians), and Section 5515 (fish). In addition, the protection of birds of prey is provided for in Sections 3503, 3513, and 3800 of the CFGC.

California Native Plant Protection Act (California Fish and Game Code §§ 1900–1913)

The California Native Plant Protection Act requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. The California Native Plant Protection Act prohibits the take of such plants, with certain exceptions.

California Desert Native Plants Act (California Food and Agriculture Code §§ 80001–80201)

The California Desert Native Plants Act prohibits the removal of certain species of California desert native plants on public and privately owned lands without a valid permit from the sheriff or commissioner of the county where collecting would occur. This act applies within the boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.) provides for statewide coordination of water quality regulations. The State Water Resources Control Board was established as the statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis.

The RWQCBs have primary responsibility for protecting water quality in California. As discussed above, the RWQCBs regulate discharges to surface waters under the CWA. In addition, the RWQCBs are responsible for administering the Porter-Cologne Water Quality Control Act.

Pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the state, which are defined as any surface water or groundwater, including saline

waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a Report of Waste Discharge if a Section 404 permit is not required for the activity. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

REGIONAL AND LOCAL PLANS

San Bernardino County, Countywide Policy Plan

The 2020 Countywide Policy Plan outlines countywide goals and policies as they relate to biological resources. Natural Resource (NR) goals and policies applicable to the project include:

> *Goal NR-5. Biological Resources: An interconnected landscape of open spaces and habitat areas that promotes biodiversity and healthy ecosystems, both for their intrinsic value and for the value placed on them by residents and visitors.*
>
> *Policy NR-5.1: Coordinated habitat planning. We participate in landscape-scale habitat conservation planning and coordinate with existing or proposed habitat conservation and natural resource management plans for private and public lands to increase certainty for both the conservation of species, habitats, wildlife corridors, and other important biological resources and functions; and for land development and infrastructure permitting.*
>
> *Policy NR-5.7: Development review, entitlement, and mitigation. We comply with state and federal regulations regarding protected species of animals and vegetation through the development review, entitlement, and environmental clearance processes.*

Per the policies outlined in the Countywide Policy Plan, the County reviews land development permits for adequacy in assessing potential impacts on NRs. The Planning Division of the County's Land Use Services has developed Biotic Resources Overlay Maps to identify sensitive biotic resources that may occur within specific areas of the County. All discretionary permit applications must disclose potential impacts on these identified resources and propose mitigation measures to eliminate or reduce significant impacts.

According to the County's Biotic Resources Overlay Map, the project site is located within the Burrowing Owl Overlay Zone (County of San Bernardino 2012); the burrowing owl (*Athene cunicularia*) is a candidate species granted protection under CESA (CFGC section 2050 et seq.). Therefore, land development permit applications must include an analysis of potential impacts on burrowing owl and provide proposed mitigation measures, if necessary, to reduce or eliminate such impacts. Though the site does not occur in unincorporated county land, the mapping provides a useful guide for identifying potential habitat for this species. The County's owl requirements fall within the state requirements and are followed herein.

City of Rialto, General Plan

The biological resource policies outlined in the City's General Plan that relate to the project can be found in Chapter 2, Managing Our Land Supply: Land Use, Community Design, Open Space and Conservation (City of Rialto 2010).

Policies that may be applicable to the project include:

> *Policy 2-39.3: Continue to work with the United States Fish and Wildlife Service to adopt a habitat conservation plan to protect viability of the Delhi Sands Flower-loving Fly. Until a habitat conservation plan is established, continue to support the implementation of the existing Delhi Sands Flower-loving Fly Recovery Plan.*

Due to the project site's location within the species' range, the potential for Delhi Sands flower-loving fly to occur on site was evaluated, as discussed below.

2 METHODS

Rocks Biological Consulting (RBC) biologists conducted vegetation mapping, habitat assessments for special-status species, and an initial general biological survey on October 11, 2022, as well as a follow-up survey on July 31, 2024. Table 2 lists survey dates and conditions. Additionally, RBC examined the site for the presence of potentially jurisdictional aquatic resources; however, a formal aquatic resources delineation to identify areas that may be considered jurisdictional under the Corps pursuant to Section 404 of the CWA, under the RWQCB pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, and under the CDFW pursuant to Section 1602 of the CFGC, was not conducted.

Table 1. Summary of Surveys Conducted for the Miro Way and Ayala Drive Project

Date	Activity	Surveyor(s)	Time (Start- End)	Temp. (F) (Start-End)	Cloud Cover (%) (Start-End)	Wind Range (mph) (Start; End)
10/11/2022	General biological survey, vegetation mapping, constraints-level aquatic resources assessment	AG, KW	0800-1400	63-73	100-45	0-1; 3-5
2/16/2023	Burrowing owl survey	AG, HS	0700-1030	45-54	5-25	8-12; 12-18
4/26/2023	Burrowing owl survey	AG	0700-0945	53-65	0-0	1-3; 1-3
6/12/2023	Burrowing owl survey	HS, SM	0745-1115	55-62	100-98	3-5; 4-6
7/3/2023	Burrowing owl survey	AG, HS	0915-1200	80-91	0-1	1-3; 1-3
7/11/2024	Crotch's bumble bee survey	AG	0700-1100	71-89	10-15	1-2; 1-3
7/31/2024	General biological survey, vegetation mapping, constraints-level aquatic resources assessment	AG, KW	0830-1100	72-84	0-0	1-3; 1-3
7/31/2024	Crotch's bumble bee survey	AG, KW	0830-1100	72-84	0-0	0-3; 1-3
8/15/2024	Crotch's bumble bee survey	AG, HS	0830-1130	75-88	0-0	1-3; 1-3
AG=Alec Goodman, HS=Hannah Swarthout, KW=Kelsey Woldt, SM=Shannon Mindeman						

The general biological surveys, vegetation mapping, and habitat assessments were conducted within the approximately 35.3-acre project site and a surrounding 100-foot buffer (survey area) for a total of 50.8 acres. The constraints-level aquatic resources assessment was conducted within the project site plus a surrounding 50-foot buffer (review area). Note that buffer areas are included in this analysis to assess the potential for special-status species or resources in areas immediately adjacent to the project site that could be impacted by the project analyzed herein. Such information should not be considered comprehensive for all biological resources or aquatic resources that may occur in buffer areas, and buffer mapping is intended only for the project analysis outlined herein; such information is not intended for impact analysis of any potential future projects within or adjacent to project buffer areas.

2.1 DATABASE SEARCH

Prior to conducting field surveys, existing information regarding biological resources present or potentially present within the project site was obtained through a review of pertinent literature and databases, including, but not limited to:

- CDFW California Natural Diversity Database (CNDDB; CDFW 2024a)
- California Native Plant Society (CNPS) Electronic Inventory (CNPS 2024a)
- USFWS Special-Status Species Database (USFWS 2024a)
- USFWS Information for Planning and Consulting (IPaC) Database (USFWS 2024b)
- USFWS National Wetlands Inventory (NWI) Database (USFWS 2024c)
- USGS National Hydrography Dataset (NHD) Database (USGS 2024a)
- Natural Resources Conservation Service (NRCS) Soils Survey Database (NRCS 2024)

Database results, along with local biological knowledge, were used for assessment of special-status species' potential for occurrence on or adjacent to the project site. The potential for occurrence tables created for the project include federally and state-listed species, candidate species, and other state-designated special-status species that have been reported within three miles of the project site (CDFW 2024a; USFWS 2024a) and determined to be potentially present in the IPaC Database (USFWS 2024b), as well as California Rare Plant Rank (CRPR) 1 and 2 species that occur within the 'Nine Quads' search for the elevational range of the project site: 1,385 to 1,420 feet above mean sea level (amsl; CNPS 2024a). The CNPS 'Nine Quads' search queries the USGS quadrangle in which the project site is located and the surrounding eight quadrangles. The potential for special-status species to occur within the project site was refined by considering the habitat affinities of each species, field habitat assessments, vegetation mapping, and knowledge of local biological resources.

2.2 VEGETATION MAPPING AND GENERAL BIOLOGICAL SURVEYS

On October 11, 2022 and July 31, 2024, RBC biologists conducted vegetation mapping in the field to provide a baseline of the biological resources that occur or have the potential to occur within the project site. RBC conducted vegetation mapping by walking throughout the survey area and mapping vegetation communities on aerial photographs at a 1:2400 scale (1 inch = 200 feet).

The extent of each habitat type (delineated as a habitat polygon on the vegetation maps) was calculated using the Geographic Information System (GIS) application ArcGIS Collector. Habitats were classified based on the dominant and characteristic plant species in accordance with vegetation community classifications outlined in Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). The vegetation communities were also crosswalked with *The Manual of California Vegetation, 2nd Edition* (MCV2; Sawyer et al. 2009), and the equivalent classification is provided.

RBC biologists conducted general biological surveys for plants and wildlife concurrently with vegetation mapping. Photos taken during the general biological surveys are provided in Appendix

A. Plant species encountered during the field survey were identified and recorded in field notebooks. Plant species that could not be identified were brought to the laboratory for identification using the dichotomous keys in the *Jepson Manual* (Baldwin et al. 2012). A list of the vascular plant species observed in the survey area is presented in Appendix B.

RBC conducted habitat assessments for special-status plants during the general biological field surveys. Special-status plant species include those that are: 1) listed or proposed for listing by federal or state agencies as threatened or endangered; 2) CRPR 1 or 2 species (CNPS 2024a); or 3) considered rare, endangered, or threatened by the CDFW (CDFW 2024a) or other local conservation organizations or specialists.

In the state of California, CNPS is a statewide resource conservation organization that has developed an inventory of California's sensitive plant species. The CRPR system is recognized by the CDFW and essentially serves as an early warning list of potential candidate species for threatened or endangered status. The CRPR system is categorized as outlined in Table 3.

Table 2. CRPR Definitions

CRPR	1A	Presumed extirpated in California and rare or extinct elsewhere
	1B	Rare, threatened, or endangered in California and elsewhere
	2A	Presumed extirpated in California but more common elsewhere
	2B	Rare, threatened, or endangered in California but more common elsewhere
	3	Plants for which more information needed
	4	Plants of limited distribution
CRPR Threat Ranks	0.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
	0.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
	0.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Wildlife species were documented during the field survey by sight, calls, tracks, scat, or other signs, and were recorded in field notebooks. Binoculars (10X42 magnification) were used to aid in the identification of wildlife. In addition to species observed during the surveys, expected wildlife use of the project site was assessed based on known habitat preferences of local species and knowledge of their biogeographic distribution in the region. RBC conducted habitat assessments for special-status wildlife during the general biological field surveys. Special-status wildlife species include those that are: 1) listed or proposed for listing by federal or state agencies as threatened or endangered; or 2) considered endangered, threatened, or rare by the CDFW (CDFW 2024b).

A list of wildlife species observed in the project site is presented in Appendix B; scientific and common names of wildlife follow CDFW's Complete List of Amphibian, Reptile, Bird and Mammal

Species in California (CDFW 2016). Twilight/nighttime surveys were not conducted, therefore crepuscular and nocturnal animals are likely under-represented in the project species list; however, habitat assessments were performed for all special-status species to ensure that any potentially present rare species are adequately addressed herein.

If observed, the location of biological resources designated as special-status by the USFWS, CDFW, and/or CNPS, were recorded in field notebooks, on aerial maps, and/or through the use of Global Positioning System (GPS) units.

2.3 SPECIAL-STATUS SPECIES SURVEYS

2.3.1 FOCUSED BURROWING OWL SURVEYS

RBC biologists conducted focused burrowing owl surveys during the breeding season (February 1 – August 31), in accordance with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW BUOW Guidelines; CDFW 2012). RBC qualified biologists conducted four burrowing owl surveys during the breeding season; one survey was conducted between February 1 – April 15 and three surveys, at least three weeks apart, were conducted between April 15 and July 15, in accordance with CDFW BUOW Guidelines. Surveys were conducted during favorable weather conditions.

Due to project boundary changes, the burrowing owl survey area consisted of a larger area than the current project site, which included approximately six additional acres to the northwest plus a 500-foot (150-meter) buffer. Surveys were conducted by walking transects spaced approximately 20 meters apart throughout all suitable habitat within the survey area. At the beginning of each transect, and approximately every 100 meters, RBC biologists used binoculars (10x42) to scan the survey area for burrowing owl, active and potential burrows, and/or sign of burrowing owl. Any inaccessible areas of the 500-foot buffer were surveyed with binoculars to greatest extent possible. All observed burrows suitable for burrowing owl occupation were examined for sign, including feathers, pellets, prey remains, whitewash, and/or decoration at or near burrow entrances. Additional details of survey methodology can be found in Appendix C.

2.3.2 CROTCH'S BUMBLE BEE SURVEYS

Focused Crotch's bumble bee surveys were conducted by RBC biologists two to four weeks apart in July and August within the time period when detection of Crotch's bumble bee is greatest. Three surveys were performed in accordance with the CDFW *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). Surveys were conducted by walking transects through the survey area focusing on areas where ample nectar sources were present, with a minimum of one person-hour of searching per three acres of suitable habitat. Surveyors were prepared to record the location of any observed Crotch's bumble bee, along with population size and nesting status, and to collect non-lethal photo vouchers captured at various angles to confirm accurate identification. All arthropods and potential nectar sources were identified and recorded. Full survey methods, details, and species lists can be found in Appendix D.

2.4 CONSTRAINTS-LEVEL AQUATIC RESOURCES ASSESSMENT

RBC conducted a constraints-level assessment of the review area to identify areas that may be considered potentially jurisdictional under the Corps pursuant to Section 404 of the CWA, the RWQCB pursuant to Section 401 of the CWA and the Porter-Cologne Act, or CDFW pursuant to CFGC §1602. Areas with depressions, drainage patterns, wetland vegetation, and/or riparian vegetation within the review area were assessed for potential jurisdictional status, with focus on the presence of defined channels, soils, and hydrology. No formal jurisdictional delineation was conducted as part of this effort.

3 RESULTS

This section includes results of the literature review, vegetation mapping, general biological surveys, constraints-level aquatic resources assessment, and focused burrowing owl surveys. Special-status biological resources are also addressed in this section and are defined as follows: 1) species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened/endangered population sizes; 2) species and their associated habitat types recognized by local and regional resource agencies as sensitive; 3) habitat areas or vegetation communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; 4) wildlife corridors and habitat linkages; and/or 5) biological resources that may or may not be considered sensitive, but are regulated under local, state, and/or federal laws.

3.1 PHYSICAL SETTING

The project site is a relatively flat parcel that supports primarily disturbed and developed habitats. A small area of native disturbed Riversidean sage scrub also occur on site. To the north, the project site borders former Rialto Airport land that supports sparse, disturbed native habitat and contains associated disturbances, such as old roads and graded land, and the site currently undergoes regular discing where vegetation remains. To the south, east, and west, the site is surrounded by commercial and industrial development with little to no native habitat.

On-site elevations range from approximately 1,385 to 1,420 feet amsl. Soils mapped on site include Tujunga loamy sand, 0 to 5 percent slopes and Tujunga gravelly loamy sand, 0 to 9 percent slopes (NRCS 2024).

3.2 VEGETATION COMMUNITIES AND LAND USES

The project site supports little diversity in vegetation communities and other land covers. Table 4 provides a summary of vegetation/land cover on the site, which are depicted on Figure 2.

Table 3. Summary of Vegetation/Land Cover Within the Survey Area and Project Site

Vegetation (Holland)[1]	Vegetation[2]	Global/ State Rank	Survey Area (acres)	Project Site (acres)
Developed	Developed/Disturbed	No Rank	16.2	5.2
Disturbed habitat	Developed/Disturbed	No Rank	33.9	29.4
Disturbed Riversidean Sage Scrub	*Eriogonum fasciculatum* Shrubland Alliance	G5/S5	0.7	0.7
		Total	**50.8**	**35.3**

[1] *Vegetation communities recognized by Holland (1986)*
[2] *Vegetation communities from Holland (1986) crosswalked to Sawyer et al. (2009)*

Natural communities with ranks of S1 through S3 are considered sensitive natural communities by CDFW to be addressed in the environmental review processes of CEQA. The project site does not contain habitat that is considered a sensitive vegetation community by CDFW (CDFW 2024c).

Developed

Developed land is typically classified as lands regularly utilized by humans that are devoid of natural habitat. Developed land within the survey area consists primarily of industrial buildings, parking and loading areas, and roads. Developed land on the project site (5.2 acres) is primarily comprised of compacted dirt roads. Ornamental landscaping, such as bottlebrush tree (*Callistemon* sp.), Chinese juniper (*Juniperus chinensis*), holly (*Ilex* sp.), and London plane tree (*Platanus x hispanica*), is present within the developed land on site.

Developed habitat is not recognized by CDFW (CDFW 2024c); therefore, it is not considered a sensitive natural community under CEQA.

Disturbed

Disturbed land is typically classified as land on which the native vegetation has been significantly altered by agriculture, construction, or other land-clearing activities, and the species composition and site conditions are not characteristic of the disturbed phase of a plant association (e.g., disturbed Riversidean sage scrub). Disturbed habitat is typically found in vacant lots, along roadsides, within construction staging areas, and in abandoned fields. The habitat is typically dominated by non-native annual species and perennial broadleaf species.

Disturbed habitat occurs within most of the project site (29.4 acres). The site is currently disced for weed abatement multiple times per year. It is primarily vegetated by non-native species such as short-pod mustard (*Hirschfeldia incana*), red brome (*Bromus rubens*), Russian thistle (*Salsola* sp.), and slender wild oat (*Avena barbata*). There are a few scattered native species throughout the disturbed habitat, such as short winged deerweed (*Acmispon glaber* var. *brevialatus*), common sunflower (*Helianthus annuus*), California croton (*Croton californicus*), mule fat (*Baccharis salicifolia*), and Menzies' fiddleneck (*Amsinckia menziesii*); however, they are isolated occurrences and do not function as separate vegetation communities or land cover types.

Disturbed habitat is not recognized by CDFW (CDFW 2024c); therefore, it is not considered a sensitive natural community under CEQA.

Disturbed Riversidean Sage Scrub

Disturbed Riversidean sage scrub is Riversidean sage scrub, a type of coastal scrub community, that has a marked disturbance resulting in an atypical vegetation community. The disturbed Riversidean sage scrub within the project site (0.7 acre) supports small to medium sized woody shrubs dominated by California buckwheat (*Eriogonum fasciculatum*) amongst lower numbers of other sage scrub species, including Spanish lotus (*Acmispon americanus*) and brittlebush (*Encelia farinosa*), and contains an overgrown understory of non-native grasses. Within the project site, disturbed Riversidean sage scrub is found in the northern portion, bordering the road that bisects the project site, as well as a small patch in the southwestern corner (Figure 2).

Riversidean sage scrub is ranked as G5/S5, meaning it is "demonstrably secure because of its worldwide/statewide abundance" (CDFW 2024c); therefore, it is not considered a sensitive natural community under CEQA.

3.3 PLANTS AND WILDLIFE

The project site supports a low diversity of wildlife and plant species. A total of 40 plant species (40 percent native, 60 percent non-native) were observed during the general biological surveys (Appendix B). A total of 35 bird species, one reptile species, three mammal species, and 35 invertebrate species were observed (Appendix B).

3.3.1 SPECIAL-STATUS PLANT SPECIES

No special-status plant species were observed on site and none are expected based on the relatively disturbed nature of the site. Special-status plants assessed for their potential to occur on site are presented in Table 5, below. Please note that CRPR 3 and 4 species were omitted from the potential to occur analysis below due to their relatively low threat status, consistent with standard practice.

No federally or state threatened or endangered plant species or other special-status plant species were observed during the field survey and none have a moderate or high potential to occur within the project site based on the highly disturbed nature of the site and lack of suitable habitat (Table 5). Although there are documented occurrences of special-status plant species within three miles from the project site (Figures 3a and 3b), the significant disturbances on the undeveloped portions of the site make it highly unlikely to support populations of these or other special-status plants, as detailed further in Table 5, below. Please note that special-status plant species with low potential to occur or not expected to occur are not addressed further in this report; because these species have low or no potential for occurrence, no impacts are anticipated on these species.

Table 4. Assessment of Special-Status Plant Species Potential to Occur Within the Project Site

Species	Status	Habitat Description	Potential to Occur
Aparejo grass (*Muhlenbergia utilis*)	CRPR 2B.2	Perennial rhizomatous herb. Blooms October-May. Chaparral, cismontane woodland, coastal scrub, marshes and swamps, and meadows and seeps. Elevation 80-7,630 feet.	**None.** Species occurs in wet habitats which are not naturally occurring on site. A detention basin with intermittent surface water occurs adjacent to the project site and within the survey buffer but is unnatural and surrounded by development.
Black bog-rush (*Schoenus nigricans*)	CRPR 2B.2	Perennial glasslike herb. Blooms August-September. Marshes and swamps. Elevation 490-6,650 feet.	**None.** Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Bristly sedge (*Carex comosa*)	CRPR 2B.1	Perennial rhizomatous herb. Blooms May-September. Coastal prairie, marshes and swamps (lake margins), valley and foothill grasslands. Elevation 0-2,050 feet.	**None.** Suitable aquatic habitat not present in the vicinity. Grassland habitat on site is dominated by invasive species.

Species	Status	Habitat Description	Potential to Occur
California satintail (*Imperata brevifolia*)	CRPR 2B.1	Perennial rhizomatous herb. Blooms September-May. Chaparral, coastal scrub, meadows and seeps, Mojavean desert scrub, and riparian scrub. Elevation 0-3,985.	None. Suitable aquatic habitat not present in the vicinity. Species occurs in wet springs, meadows, streambanks, and floodplains which are not present in the disturbed scrub habitat on site.
California saw-grass (*Cladium californicum*)	CRPR 2B.2	Perennial rhizomatous herb. Blooms June-September. Marshes and swamps, and meadows and seeps. Elevation 195-5,250 feet.	None. Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Chaparral ragwort (*Senecio aphanactis*)	CRPR 2B.2	Annual herb. Blooms January-April. Chaparral, cismontane woodland, and coastal scrub. Elevation 50-2,625 feet.	Low. Native scrub habitat on site is isolated and disturbed, and woodland habitat is not present in the project site or surrounding landscape. Not recently documented within project vicinity (Calflora 2024).
Greata's aster (*Symphyotrichum greatae*)	CNPR 1B.3	Perennial rhizomatous herb. Blooms June-October. Chaparral, cismontane woodland, and coastal scrub. Elevation 985-6,895 feet.	None. Species occurs in damp canyons which are not present in the native scrub habitat on site.
Horn's milk-vetch (*Astragalus hornii* var. *hornii*)	CRPR 1B.1	Annual herb. Blooms May-October. Lake margins, alkaline, meadows and seeps, playas. Elevation 195-2,790 feet.	None. Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Hot springs fimbristylis (*Fimbristylis thermalis*)	CRPR 2B.2	Perennial rhizomatous herb. Blooms July-September. Meadows and seeps. Elevation 360-4,395 feet.	None. Suitable aquatic habitat not present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*)	CRPR 1B.2	Perennial bulbiferous herb. Blooms May-July. Chaparral, coastal scrub, valley and foothill grassland. Elevation 345-2,805 feet.	Low. On-site native scrub and grassland habitat is disturbed. Chaparral, coastal scrub, and native grasslands are not found in the surrounding adjacent areas. Not known from project vicinity (Calflora 2024).
La Panza mariposa-lily (*Calochortus simulans*)	CRPR 1B.3	Perennial bulbiferous herb. Blooms April-June. Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation 1,065-3,775 feet.	None. Grassland habitat on site is dominated by invasive species and other preferred habitats are not present on site. There are no records of this species in San Bernardino County.

Species	Status	Habitat Description	Potential to Occur
Latimer's woodland gilia (*Saltugilia latimeri*)	CNPR 1B.2	Annual herb. Blooms March-June. Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Elevation 1,310-6,235 feet.	None. Preferred native scrub and woodland habitats not present on site. Not known from project vicinity (Calflora 2024).
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	CRPR 1A	Perennial rhizomatous herb. Blooms August-October. Marshes and swamps (coastal salt and freshwater). Elevation 30-5,005 feet.	None. No suitable aquatic habitats present in the vicinity. Species is presumed extinct. Not documented within the project vicinity in 100 years (Calflora 2024).
Mesa horkelia (*Horkelia cuneata* var. *puberula*)	CRPR 1B.1	Perennial herb. Blooms February-September. Maritime chaparral, cismontane woodland, and coastal scrub. Elevation 230-2,657 feet.	Low. Native scrub habitat present in the project site is disturbed. Species prefers foothills which are not present on site.
Nevin's barberry (*Berberis nevinii*)	CNPR 1B.1	Perennial evergreen shrub. Blooms (February) March-June. Chaparral, cismontane woodland, coastal scrub, and Riparian scrub. Elevation 230-2,705 feet.	None. Native scrub habitat present in the project site is disturbed. Occurs in riparian habitat and/or washes that are not present on site. This species would have been observed if present.
Parish's bush-mallow (*Malacothamnus parishii*)	CRPR 1A	Perennial deciduous shrub. Blooms June-July. Chaparral and coastal scrub. Elevation 1,000-1,495 feet.	None. Native scrub habitat present in the project site is disturbed. This conspicuous perennial shrub would have been observed if present. Species is presumed extinct.
Parish's desert-thorn *(Lycium parishii)*	CRPR 2B.3	Perennial shrub. Blooms March-April. Coastal scrub and Sonoran desert scrub. Elevation 445-3,280 feet.	None. Native scrub habitat present in the project site is disturbed. Prefers rocky slopes and canyons which are not present on site. This species would have been observed if present.
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	CRPR 1B.1	Annual herb. Blooms April-June. Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Elevation 900-4,000 feet.	Low. Disturbed native scrub habitat with sandy soil present on site that could support this species; however, repeated disturbance to the site reduces the likelihood of species presence. This species has not been recorded in the vicinity of the project site since 1938 (Calflora 2024). Nearest modern records are from the Lytle Creek Wash approximately two miles northeast of the site (Calflora 2024).

Species	Status	Habitat Description	Potential to Occur
Prairie wedge grass (*Sphenopholis obtusata*)	CRPR 2B.2	Perennial herb. Blooms April-July. Cismontane woodland, meadows and seeps. Elevation 984-6,561 feet.	None. Woodland habitat not present. Species prefers wet meadows, streambanks, and ponds which are not present on the site.
Prostrate vernal pool navarretia (*Navarretia prostrata*)	CRPR 1B.2	Annual herb. Blooms April-July. Coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation 10-3,970 feet.	None. Species occurs in alkaline floodplains, vernal pools, and wetland habitats which are not present on site.
Salt spring checkerbloom (*Sidalcea neomexicana*)	CRPR 2B.2	Perennial herb. Blooms March-June. Chaparral, coastal scrub, lower montane coniferous forests, Mojavean desert scrub, and playas. Elevation 50-5,020 feet.	None. Species occurs in alkaline springs, marshes, and playas which are not present in the vicinity.
San Bernardino aster (*Symphyotrichum defoliatum*)	CRPR 1B.2	Perennial rhizomatous herb. Blooms July-November. Cismontane woodlands, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, and vernally mesic valley/foothill grasslands. Elevation 7-6,690 feet.	Low. Disturbed native scrub habitat with sandy soil present on site that could support this species; however, repeated disturbance to the site reduces the likelihood of species presence. This species has been recorded within two miles of the site, but the project site is located just outside the estimated species range (CNPS 2024b).
San Diego Ambrosia (*Ambrosia pumila*)	FE; CRPR 1B.1	Perennial rhizomatous herb. Blooms April-October. Sandy loam or clay soils in chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Elevation 65-1,350 feet.	Very Low. Although disturbed scrub habitats occur on site, there are no records of this species in San Bernardino County.
Sanford's arrowhead (*Sagittaria sanfordii*)	CRPR 1B.2	Perennial rhizomatous herb. Blooms May-October (November). Marshes and swamps. Elevation 0-2,135.	None. No suitable aquatic habitats present in the vicinity. The detention basin in the project buffer is not suitable for this species.
Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*)	FE; SE; CRPR 1B.1	Perennial herb. Blooms April-September. Chaparral and coastal alluvial fan scrub. Elevation 298-2,000 feet.	None. Species occurs in washes, floodplains, and dry riverbeds which are not present in the scrub habitats on site.

Species	Status	Habitat Description	Potential to Occur
Short-joint beavertail (*Opuntia basilaris* var. *brachyclada*)	CRPR 1B.2	Perennial stem. Blooms April-June (August). Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Elevation 1,395-5,905.	None. No suitable native habitats present in the vicinity.
Singlewhorl burrowbush (*Ambrosia monogyra*)	CRPR 2B.2	Perennial shrub. Blooms August-November. Chaparral, Sonoran desert scrub. Elevation 35-1,640 feet.	None. Occurs in washes and riverbeds which are not present on site.
Slender-horned spineflower (*Dodecahema leptoceras*)	FE; SE; CRPR 1B.1	Annual herb. Blooms April-June. Chaparral, cismontane woodland, alluvial fan coastal scrub. Elevation 655-2,490 feet.	Very Low. No suitable native habitats present in the vicinity. This species has not been documented within the project vicinity in 100 years (Calflora 2024).
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	CRPR 1B.1	Annual herb. Blooms April-September. Chenopod scrub, meadows and seeps, playa, riparian woodland, valley and foothill grassland. Elevation 0-2,100 feet.	Low. Project site contains disturbed habitat. This species is tolerant of some disturbance; however, the on-site grassland and disturbed land have undergone extensive anthropogenic alterations (e.g., weed abatement, inactive agriculture, infill and leveling) that reduce the likelihood of this species' occurrence.
Southern mountains skullcap (*Scutellaria bolanderi* ssp. *austromontana*)	CRPR 1B.2	Perennial rhizomatous herb. Blooms June-August. Chaparral, cismontane woodland, lower montane coniferous forest. Elevation 1,395-6,560 feet.	None. No suitable native habitats present in the vicinity.
Thread-leaved brodiaea (*Brodiaea filifolia*)	CRPR 1B.1	Perennial bulbiferous herb. Blooms March-June. Chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools. Elevation 80-3,675 feet.	Low. Native scrub and grassland habitats occur on site; however, they are highly disturbed. Weed abatement practices, such as discing, occur regularly which results in upturned and tilled soils that have a detrimental impact on bulbiferous species, which rely on underground bulbs to store energy. Not known from project vicinity (Calflora 2024).

Species	Status	Habitat Description	Potential to Occur
White rabbit-tobacco (*Pseudognaphalium leucocephalum)*	CRPR 2B.2	Perennial herb. Blooms (July) August-November (December). Chaparral, cismontane woodland, coastal scrub, riparian woodland. Elevation 0-6,890 feet.	**Low.** Species occurs on sandy or gravelly benches and is known to occur in disturbed sand; however, this species is most commonly associated with washes, streams, and canyon bottoms, which are not found on site. Not known from project vicinity (Calflora 2024).
White-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*)	CRPR 1B.2	Annual herb. Blooms April-June. Coastal scrub, Mojavean desert scrub, pinyon and juniper woodland. Elevation 985-3,935 feet.	**Low.** Species occurs in sand and gravel in native scrub habitats which are present, though disturbed, on site. This species is primarily known from the San Jacinto and San Bernardino Mountains and has not been recorded within the vicinity of the project site (Calflora 2024).

FE: Federally Endangered

SE: State Endangered

CRPR: California Rare Plant Rank

3.3.2 SPECIAL-STATUS WILDLIFE SPECIES AND CRITICAL HABITATS

Nine special status species were observed during the general biological surveys and focused burrowing owl surveys, as detailed below, and three additional species have a low-to-moderate or moderate potential to occur on site. A full list of special-status wildlife assessed and their potential to occur on site is presented in Table 6, below.

Table 5. Assessment of Special-Status Wildlife Species Potential to Occur Within the Project Site

Species	Status	Habitat Description	Potential to Occur
INVERTEBRATES			
Crotch's bumble bee (*Bombus crotchii*)	SE (Candidate)	Arid shrublands and grasslands in coastal and foothill areas of southern California. Nectar plants include milkweeds, buckwheat, and lupines.	Absent/Low-to-Moderate. Focused surveys conducted in 2024 were negative for Crotch's bumble bee; however, this species changes nesting locations each year and potential for future site inhabitance is low-to-moderate. This species can persist in semi-natural habitats surrounded by intensely modified landscapes, such as the sparse disturbed buckwheat scrub habitat within the project site, and inhabits abandoned rodent burrows (NatureServe 2024).
Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*)	FE	Found in sandy areas composed of Delhi fine sands, stabilized by sparse native vegetation.	Very Low. Delhi fine sands are not present on or in the immediate vicinity of the project site; on-site soils are Tujunga loamy sands, which are not suitable habitat for this species.

Species	Status	Habitat Description	Potential to Occur
Monarch butterfly, California overwintering population (*Danaus plexippus plexippus* pop. 1)	FE (Candidate)	Found in a variety of habitats across the United States and Mexico (e.g., grasslands, urban land, mountains, and coastal habitats). Exclusively oviposit on milkweed. Nectivorous adults require flowering plants. Roost in eucalyptus, Monterey pines, and Monterey cypresses in California.	**Present; potential for overwintering is low.** Observed on site during general biological survey on October 11, 2022. No milkweed observed; thus, the site does not have potential to support reproduction. Eucalyptus grove exists in survey area on the eastern boundary but is unlikely to provide the necessary conditions for a suitable overwintering site, which require protection from high wind and storms, absence of freezing temperatures, varying levels of sunlight, high humidity, and the presence of water.
FISH			
Santa Ana sucker (*Catostomus santaanae*)	FT	Found in small permanent streams.	**None.** Suitable aquatic habitats do not occur within the project site.
REPTILES			
California glossy snake (*Arizona elegans occidentalis*)	SSC	Found in arid scrub, rocky washes, grasslands, and chaparral habitats. Prefers habitats containing open areas and loose soils for burrowing.	**Low.** Disturbed scrub habitat on site is marginally suitable for this species. Loose soils suitable for burrowing occur on site.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	SSC	A variety of rocky, sandy, dry habitats including sage scrub, chaparral, woodlands on friable loose soil.	**Moderate.** Disturbed scrub habitat on-site is marginally suitable for this species.
Coast horned lizard (*Phrynosoma blainvillii*)	SSC	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub. Requires open areas, bushes, and fine loose soil.	**Moderate.** Sandy and friable soils are present in the disturbed scrub habitat on site which is marginally suitable for this species. Harvester ants, the primary diet of the species, are also present on site.

Species	Status	Habitat Description	Potential to Occur
Orange-throated whiptail (*Aspidoscelis hyperythra*)	WL	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub.	**Very low.** Disturbed scrub habitat on-site is marginally suitable for this species. Species prefers washes, stream sides, rocky hillsides which are not present on site.
Southern California legless lizard (*Anniella stebbinsi*)	SSC	Found in a variety of habitats including coastal dunes, sandy washes, and alluvial fans, containing moist, loose soils.	**Low.** Disturbed scrub habitat on-site is marginally suitable for this species. Leaf litter under shrubs and loose sandy soils present on site; however, washes or other moist habitats are not present.
Southern rubber boa (*Charina umbratical*)	SE	Found in oak-conifer and mixed-conifer forests at elevations between roughly 5,000 to 8,200 feet. where rocks and logs or other debris provide shelter.	**Very Low.** Suitable habitat not present; project site is outside elevation range.
BIRDS			
American Peregrine falcon (*Falco peregrinus anatum*)	Delisted	Found in open country, cliffs (mountains to coast), sometimes cities. Over its wide range, found in wide variety of open habitats, from tundra to desert mountains. Often near water, especially along coast, and migrants may fly far out to sea.	**Present; no potential for nesting.** Species observed foraging north of the project site during general biological project survey on October 11, 2022. Suitable nesting habitat is not present on site.

Species	Status	Habitat Description	Potential to Occur
Burrowing owl (*Athene cunicularia*)	SE (Candidate); SSC	Found in grasslands and open scrub from coast to foothills. Strongly associated with California ground squirrel and other fossorial mammal burrows.	Present/High. Small mammal burrows occur within the project site including California ground squirrel burrow complexes. This species is known to occur within the general area and has been historically recorded at the Rialto Airport within 500 feet of the project site. Observed on site during focused burrowing owl surveys.
California condor (*Gymnogyps Californianus*)	FE; SE; FP	Found in rocky scrubland, coniferous forest, and oak savannah. Nest near cliffs or large trees in forested mountain regions up to about 6,000 feet elevation. Foraging areas are in open grasslands and can be far from primary nesting sites.	Very Low. Suitable nesting sites are not present. Although scrubland such as that found on site can be utilized for foraging, the on-site habitat is isolated from other native habitats by surrounding development and unlikely to support condor foraging.
California gull (*Larus californicus*)	WL	Found foraging in pastures or parking lots and breeding along inland lakes and rivers.	Present; no potential for nesting. Species observed during focused burrowing owl surveys. Foraging habitat is present; however, roosting and nesting habitat is absent.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT; SSC	Found in sage scrub habitats, often on slopes. Nests in shrubs including sagebrush, buckwheat, and sage. Diegan coastal sage scrub and other similar open scrub habitats in coastal areas, with most populations occurring below 1,500 feet in elevation.	Low. Isolated patches of buckwheat scrub are present surrounded by large areas of disturbed habitat. Amount of suitable shrub habitat on and near the site are not large enough to support individuals of this species.
California horned lark (*Eremophila alpestris actia*)	WL	Found from coastal deserts and grasslands to alpine dwarf-shrub habitat above treeline. Also seen in coniferous or chaparral habitats.	Present. Species observed on site during general biological survey on October 11, 2022, and during focused burrowing owl surveys on June 12 and July 3, 2023.

Species	Status	Habitat Description	Potential to Occur
Golden eagle (*Aquila chrysaetos*)	FP, WL	Found in open and semi open country featuring native vegetation across most of the northern hemisphere. Nest on cliffs and steep escarpments in grassland, chapparal, shrubland, forest, and other vegetated areas.	**Present; no potential for overwintering or nesting.** Species observed circling high above the site during general biological survey on October 11, 2022. Suitable nesting and overwintering habitat are not present on site.
Least Bell's vireo (*Vireo bellii pusillus*)	FE; SE	Riparian woodland with understory of dense young willows or mulefat and willow canopy. Nests often placed along internal or external edges of riparian thickets.	**Very Low.** Suitable habitat does not occur within the project site. No riparian woodlands are present within immediate vicinity.
Loggerhead shrike (*Lanius ludovicianus*)	SSC	Found within grassland, chaparral, desert, and desert edge scrub, particularly near dense vegetation used for nesting.	**Present.** Species observed foraging on site during general biological survey on October 11, 2022. The site has limited suitable nesting habitat.
Merlin (*Falco columbarius*)	WL	Found in edges of grasslands and deserts. In open country, clumps of trees or windbreaks are required for roosting.	**Present; no potential for nesting.** Species observed during focused burrowing owl surveys. Foraging habitat is present; however, roosting habitat is absent, and this species is not known to nest in California.
Prairie falcon (*Falco mexicanus*)	WL	Found in desert shrubland and grasslands. Primarily forage in grassland habitats.	**Present; no potential for nesting.** Species observed during focused burrowing owl surveys. Foraging habitat is present; however, roosting and nesting habitat is absent.

Species	Status	Habitat Description	Potential to Occur
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT; SE	Western yellow-billed cuckoo inhabits riparian areas exclusively, typically nesting in low to moderate elevation riparian woodlands with native broadleaf trees. The species is generally observed in cottonwood-willow-dominated habitats, although riparian cover can vary. In California, habitat often consists of willow species and Fremont cottonwoods (*Populus fremontii*).	**Very Low.** Suitable habitat does not occur within the project site; tree species typically associated with this species are not present.
Southwestern willow flycatcher (*Empidonax traillii*)	FE; SE	Found in in thick riparian areas with willows near standing or running water.	**Very Low.** No suitable habitats present; riparian vegetation is not found within the project site.
MAMMALS			
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	SSC	Found in low elevation grassland, alluvial sage scrub, and coastal sage scrub.	**Very low.** Non-native grassland and disturbed scrub on site are marginally suitable for this species. Frequent disturbance and surrounding development make it unlikely for this species to occur. This species occurs sparingly in, or is absent from, many historic localities in the San Bernardino valley (Brylski 1998).
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	SSC	Inhabits coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.	**Very low.** Non-native grassland and disturbed scrub on site are marginally suitable for this species. Frequent disturbance and surrounding development make it unlikely for this species to occur.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	SSC	Rugged cliffs, rocky outcrops, and slopes in desert shrub and pine oak forests.	**Very Low**. Suitable habitat does not occur within the project site; cliffs and outcrops are not present.

Species	Status	Habitat Description	Potential to Occur
San Bernardino kangaroo rat (*Callospermophilus lateralis bernardinus*)	FE, SE, SSC	Found along floodplains, washes and alluvial fans in scrub and chaparral habitats. Soft soil required to burrow.	Very low. Scrub habitat occurs on site, however it is disturbed, surrounded by development, and impacted by regular weed abatement that alters the soil structure and vegetation. Critical habitat for the species occurs less than two miles from the site in Lytle Creek Floodway, which is also the location of the nearest suitable floodplains and washes. Development occurs between designated critical habitat and project site.
Western yellow bat (*Lasiurus xanthinus*)	SSC	Occupies a range of habitats in arid and dry areas. Inhabits secluded woodlands, agricultural lands, and sometimes even residential areas.	Very Low. Suitable habitat does not occur within the project site. Species prefers trees over three meters (10 feet) in height, which occur outside of the project area, but within the survey area. All trees over three meters in height are eucalyptus, which is not a primary roosting tree for this species.

FE: Federally Endangered
FT: Federally Threatened
FP: CDFW Fully Protected
SE: State Endangered
ST: State Threatened
SSC: CDFW Species of Special Concern
WL: CDFW Watch List Species

3.3.2.1 Threatened and Endangered Wildlife Species

Burrowing Owl (Athene cunicularia)

Burrowing owl is currently a candidate for listing under the CESA as of October 10, 2024. Suitable burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974). Suitable burrowing owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of burrowing owl habitat; both natural and artificial burrows provide protection, shelter, and nests for burrowing owl (Henny and Blus 1981). Burrowing owl typically use burrows made by rodents, such as ground squirrels or badgers, but may also use human-made structures, such as concrete culverts; concrete, asphalt, or wood debris piles; or openings beneath concrete or asphalt pavement.

Burrowing owls have declined throughout much of their range because of habitat loss due to urbanization, agricultural conversion, and destruction of ground squirrel colonies (Remsen 1978). The incidental poisoning of burrowing owls and the destruction of their burrows during eradication programs aimed at rodent colonies have also caused their decline (Collins 1979; Remsen 1978). Although burrowing owl are relatively tolerant of lower levels of human activity, human-related impacts, such as shooting and introduction of non-native predators, have negative population impacts. Burrowing owl often nest and perch near roads where they are vulnerable to roadside shooting, fatal car strikes, and general harassment (Remsen 1978).

The project is within the Burrowing Owl Overlay Zone (County of San Bernardino 2012). Burrowing owl has historically bred in the local area (RBC 2016, eBird 2021) and suitable burrows are present throughout the project site; however, the project site is surrounded by development which limits foraging opportunities in the immediate vicinity. Focused burrowing owl surveys were conducted for the project site plus a 500-foot buffer in 2023 and though two individual burrowing owls were observed during the first survey (Figure 2), no burrowing owls, active burrows or burrowing owl sign were documented within the project site during subsequent surveys. The absence of burrowing owl during the peak breeding season suggests that the project site is not currently used by burrowing owl for nesting; however, burrowing owl may use the site for breeding in the future due to the presence of suitable habitat. The site appears be currently used by burrowing owl for refuge and/or foraging outside of the nesting season. Full survey results can be found in Appendix C. Note that surveys were conducted before candidacy status, and the report classifies the burrowing owl as a species of special concern, reflecting its status at the time.

Burrowing owl has high potential to occur within the project site in the future based on its range, ability to establish in disturbed habitats, previous presence on site, and presence of suitable burrows.

Crotch's Bumble Bee (Bombus crotchii)

Crotch's bumble bee is currently a candidate for listing under the CESA based on a 2018 petition submitted by the Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Center for Food Safety (CDFW 2022). This species historically ranged from central California to Baja California Del Norte, though recent records indicate a reduction at longitudinal extremes, with most observations occurring in southern California (Thorp et al. 1983; NatureServe 2024; Williams et al. 2014). Largely absent from mountainous regions, Crotch's bumble bee is distributed from the coast, east to the desert edge (Thorp et al. 1983; Williams et al. 2014). Suitable habitat for this species includes a variety of open shrub and grassland vegetation communities containing ample flowers for nectaring. Due to their short tongue, Crotch's bumble bees tend to nectar on *Acmispon* spp., *Antirrhinum* spp., *Asclepias* spp., *Chaenactis* spp., *Cirsium* spp., *Clarkia* spp., *Cordylanthus* spp., *Dendromecon* spp., *Ehrendorferia* spp., *Eriogonum* spp., *Eschscholzia* spp., *Euthamia* spp., *Hypericum* spp., *Keckiella* spp., *Lantana* spp., *Lupinus* spp., *Medicago* spp., *Monardella* spp., *Phacelia* spp., *Salvia* spp., *Trichostema* spp., and/or *Vicia* spp., amongst a variety of other genera (Williams et al. 2014). Though Crotch's bumble bee is tolerant of fragmented and/or semi-urban environments, habitat loss, climate change, and pesticide use are considered imminent threats to populations (Williams et al. 2014; CDFW 2022).

Although Crotch's bumble bee has not been recorded within three miles of the project site, the species has been documented in the regional vicinity in recent years (Bumble Bee Watch 2024). Potentially suitable, though disturbed, Riversidean sage scrub habitat is present along the boundaries of the project site. Although restricted on three sides by developed land, habitat appropriate for Crotch's bumble bee was dominated by California buckwheat, short-pod mustard, deerweed, and doveweed (*Croton setiger*). Focused surveys conducted in 2024 were negative for Crotch's bumble bee. This species changes nest sites each year; therefore, the potential for this species to occur within the project site in the future is low-to-moderate due to the presence of suitable habitat and nectar sources.

Monarch, California Overwintering Population (Danaus plexippus plexippus pop. 1)

The California overwintering population of monarch is currently a candidate for listing under the FESA. The California overwintering population range extends from northern Baja California, Mexico, to Mendocino County, California. Overwintering sites require specific conditions including protection from high wind and storms, absence of freezing temperatures, varying levels of sunlight, high humidity, and the presence of water. Most of the California overwintering population cluster on non-native blue gum eucalyptus trees (*Eucalyptus globulus*), but they will also utilize native trees. Threats to this population include loss of suitable overwintering habitat from development, tree trimming, fire and fire management, tree disease, as well as herbicide, pesticide, and climate change.

One monarch butterfly was observed foraging on the project site during biological surveys (Figure 2). Host plants were not observed and no colonial roosting monarchs were observed. A eucalyptus grove exists north of the survey area on the eastern boundary but is unlikely to provide the necessary conditions for a suitable overwintering site. Most of the overwintering sites are located within 1.5 miles of the Pacific Ocean which provides the mild climactic conditions needed for monarchs to survive the winter. The project site is roughly 50 miles from the coast, therefore does not provide the suitable microclimatic conditions that are often found at sites consisting of roost trees (The Xerces Society for Invertebrate Conservation 2016). Based on these site conditions, the potential for this species to overwinter on site is low.

3.3.2.2 Wildlife Species of Special Concern and Watch List Species

American Peregrine Falcon (Falco peregrinus anatum)

American peregrine falcon is delisted from the ESA and CESA and is no longer considered a CDFW Fully Protected (FP) species (CDFW 2024b). Its range extends across much of North America inhabiting tundra, savannas, coasts, mountains, wetlands, and cities. This species primarily preys upon birds. Typical prey includes shorebirds, waterfowl, pigeons, and songbirds; however, at least 450 North American bird species have been documented as peregrine falcon prey. They also hunt bats and will pirate fish and rodents from other raptor species (White et al. 2002). Peregrine falcons nest on cliffs and manmade structures such as tall buildings, bridges, and transmission towers. They do not build nests and instead "scrape" the nest ledge to create a shallow depression; however, they will occasionally use abandoned raven, osprey, bald eagle, red-tailed hawk, or cormorant nests when cliffs are unavailable (White et al. 2002).

American peregrine falcon was once a species of great conservation concern. The number of known breeding pairs had dropped by 95% from the early 1900s to 1970 due to habitat loss and the widespread use of the pesticide DDT, which caused eggshell thinning and thus failed nesting attempts. The species was listed as endangered under the FESA in 1970 and the CESA in 1971 (CDFW 2024e). Due to the banning of DDT in 1972 and widespread recovery efforts, American peregrine falcon has recovered across its range and was delisted by USFWS in 1999 and CDFW in 2009.

One American peregrine falcon was observed hunting north of the project site during the general biological survey on October 11, 2022; however, no suitable nesting habitat is present on site.

California Horned Lark (Eremophila alpestris actia)

California horned lark is a CDFW Watch List (WL) species found from coastal deserts and grasslands to alpine dwarf-shrub habitat above tree line, and in coniferous or chaparral habitats. It is a common to abundant resident in a variety of open habitats, usually found in habitats where trees and large shrubs are absent. Within southern California, California horned larks nest on the ground in open fields, grasslands, and rangelands. Horned larks forage in areas with low-growing vegetation and feed primarily on grains and other seeds, shifting to mostly insects in the summer months. California horned lark breeds from March through July, with a peak in activity in May. Pairs do not maintain territories outside of the breeding season and instead form large gregarious, somewhat nomadic flocks.

Threats to California horned lark include habitat destruction and fragmentation. Habitats preferred by California horned lark are easily converted to other landscapes and human uses such as farmland and development. Pesticides have also been shown to poison and kill horned larks (Beason 1995). As a ground nester, California horned lark is vulnerable to mowing in a variety of habitats and pesticide use in agricultural fields.

California horned lark were observed foraging on the project site during biological surveys.

California Gull (Larus californicus)

The California gull is a CDFW WL species and USFWS Bird of Conservation Concern when in a nesting colony. California gulls can be found foraging in pastures, scrublands, and garbage dumps miles from their nesting colonies which occur primarily on islands and levees in lakes and rivers (Cornell Lab of Ornithology 2019).

California gull was observed flying over the site during focused burrowing owl surveys. Suitable foraging habitat is present; however, suitable habitat for nesting colonies does not occur within the project site.

Coastal Whiptail (Aspidoscelis tigris stejnegeri)

The coastal whiptail is a CDFW SSC. This subspecies is found west of the Peninsular Ranges, south of the Transverse Ranges, and north into Ventura County and ranges south into Baja California, Mexico. Suitable coastal whiptail habitat can be found in rocky, sandy, dry habitats including sage scrub, chaparral, woodlands, and riparian areas on friable loose soil.

Threats to this species are habitat degradation and destruction. Isolated populations are separated by development and are unlikely to cross highways or densely urbanized areas. However, species of this family typically have home ranges less than 2.5 acres (Anderson 1993); therefore, the small patch of suitable scrub habitat, though disturbed, could support this species. Coastal whiptail was not observed during project general biological surveys; however, it has a moderate potential to occur on site based on suitable habitat.

Coast Horned Lizard (Phrynosoma blainvillii)

Coast horned lizard is a CDFW SSC and ranges from Shasta County, south to northern Baja California, Mexico in scattered populations. The coast horned lizard inhabits grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. In southern California, the species is most often found where its prey, native ants, are present, and little to no invasive Argentine ants (*Linepithema humile*) are found, as these are not a suitable replacement food source (Suarez et al. 2000).

Threats to this species include habitat loss and fragmentation, and the spread of invasive ants displacing its native ant prey. Suitable disturbed native scrub habitat and native harvester ants, a suitable prey item, were observed on site. This species was not observed within the survey area during biological surveys; however, given this species' small home ranges and sedentary habits, the site has a moderate potential to support this species.

Golden Eagle (Aquila chrysaetos)

Golden eagle is a CDFW FP species and a CDFW WL species when overwintering. Golden eagle ranges from northern Mexico into Canada and Alaska in North America. The species generally inhabits open and semi-open habitats including prairie, sagebrush, alpine tundra, sparce woodland, and barren areas. They primarily nest on rock ledges and cliffs, but will also use trees, steep hillsides, or the ground.

Threats to this species include electrocution from powerlines, ingestion of poison from its prey, toxic water ingestion, habitat degradation and loss of prey from development, and collisions with structures and vehicles. This species is known to avoid large urban areas (USFWS 2011) like those surrounding the project.

One golden eagle was observed flying high near the project site during the general biological survey on October 11, 2022; however, potential overwintering or nesting habitat does not occur on the project site and the species is also not likely utilizing the site as a hunting ground. In addition, suitable nesting sites do not occur within the vicinity of the project site.

Loggerhead Shrike (Lanius ludovicianus)

Loggerhead shrike is a CDFW SSC when nesting. This species is a non-migratory year-round resident in southern California. Loggerhead shrikes prefer open habitat, typically with short vegetation and scattered shrubs. This species consumes a diet mainly consisting of insects but also feeds on reptiles, birds, and small mammals. Loggerhead shrikes use a feeding technique where the bird impales prey on spines or thorns of shrubs. Thus, loggerhead shrike suitable habitat requires vegetation with spines or thorns (Yosef 1996), or artificial objects such as barbed wire.

Leading causes of decline for this species include urban development and ingestion of pesticide-laden prey. Loggerhead shrike numbers are still fairly large across North America; however, the species has dramatically declined over the past century (Yosef 1996).

One loggerhead shrike was observed foraging along a chain link fence in the northern portion of the project site during biological surveys (Figure 2).

Merlin (Falco columbarius)

Merlin is a CDFW WL species and uncommon winter migrant in the low elevations of California (i.e., less than 3,900 feet). Merlin prefers coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, deserts, and herbaceous stage habitats. This species relies on a diet primarily comprised of small birds and occasionally preys on insects and small mammals. Shorelines act as particularly important hunting grounds during winter months.

Merlin experienced stark population declines from pesticide use prior to environmental legislation in 1972. Since the ban of harsh pesticides, populations have increased slowly, though sightings in southern California are still considered rare (Zeiner et al. 1990).

Merlin was observed flying over the project site during focused burrowing owl surveys. The project site supports non-native grasslands suitable for merlin foraging and is within the elevational range preferred by this species. However, suitable roosting habitat is not present, and this species is not known to nest in California.

Prairie Falcon (Falco mexicanus)

Prairie falcon is a CDFW WL species. It ranges from southeastern desert northwest through the Central Valley. Typical habitats include annual grasslands, savannahs, agricultural fields, and desert scrub. They primarily nest in natural crevices or ledges on steep bluffs and cliffs up to 11,000 feet (Cornell Lab of Ornithology 2019).

Prairie falcon was observed flying over the project site during focused burrowing owl surveys. Suitable foraging habitat is present throughout the site. However, suitable nesting habitat for prairie falcon does not occur within the project site and this species is not anticipated to nest on site.

3.3.2.3 Critical Habitat

The ESA defines critical habitat as a specific geographic area, or areas, that contains features essential for the survival and recovery of endangered and threatened species. USFWS designates critical habitat for endangered and threatened species and may include sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Critical habitat may also include areas that are not currently occupied by the species, but that will be needed for its recovery.

No USFWS designated critical habitat occurs within or immediately adjacent the project site, or within one mile of the project site (Figure 3a).

3.4 WILDLIFE CORRIDORS

A wildlife corridor can be defined as a physical feature that links wildlife habitat, often consisting of native vegetation that joins two or more larger areas of similar wildlife habitat (Ogden Environmental and Energy Services 1996). Corridors enable migration, colonization, and genetic diversity through interbreeding and are therefore critical for the movement of animals and the continuation of viable populations. Corridors can consist of large, linear stretches of connected habitat (such as riparian vegetation) or as a sequence of stepping-stones across the landscape (discontinuous areas of habitat such as wetlands and ornamental vegetation), or corridors can be larger habitat areas with known or likely importance to local fauna.

Regional corridors are defined as those linking two or more large patches of habitat, and local corridors are defined as those allowing resident animals to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development (Ogden Environmental and Energy Services 1996). A viable wildlife migration corridor consists of more than an unobstructed path between habitat areas. Appropriate vegetation communities must be present to provide food and cover for both transient species and resident populations of less mobile animals. There must also be a sufficient lack of stressors and threats within and adjacent to the corridor for species to use it successfully.

The project site does not function as part of a wildlife corridor. Based on a review of the CDFW Biogeographic Information and Observation System data, no wildlife movement corridors are mapped within the project site (CDFW 2024d). The land within and around the project site is designated as Rank 1, “Limited Connectivity Opportunity”, which is the lowest rank within the Terrestrial Connectivity, Areas of Conservation Emphasis (ACE) dataset (CDFW 2024d). The project site is composed primarily of undeveloped areas that are highly disturbed and surrounded by development. No large areas of native vegetation are contiguous with the disturbed habitat on site, nor do such areas of native habitat occur in proximity to the project site. Cumulatively, the project site and other undeveloped isolated lots in the project vicinity are unlikely to be used by wildlife species as refuge between larger areas of naturally occurring habitat.

3.5 POTENTIAL FEDERAL AND STATE JURISDICTIONAL AQUATIC RESOURCES

No aquatic resources were identified within the project site and 50-foot buffer during desktop review of the NWI and NHD databases. During the constraints-level aquatic resources assessment, no aquatic resources potentially jurisdictional per the Corps, RWQCB, and/or CDFW were observed within the project site.

A concrete v-ditch adjacent to the Valley Power Systems commercial development occurs immediately off site to the north and runs directly parallel to the northern boundary of the project site (Figure 2, D-1; Appendix A, Photo 11). The v-ditch appears to collect and convey stormwater east from the associated commercial development to the street gutter on North Fitzgerald Avenue. RBC observed sediment within the unvegetated concrete v-ditch.

Based on the lack of hydrophytic vegetation within the off-site concrete v-ditch, this feature is not anticipated to meet the appropriate wetland parameters to qualify as wetland waters of the

U.S./state per the Corps and the RWQCB or associated wetlands potentially jurisdictional by the CDFW. The concrete v-ditch would also not qualify as non-wetland waters of the U.S. per the Corps as the concrete v-ditch appeared excavated in uplands (i.e., did not relocate natural drainages or excavated tributaries) based on the field assessment and an initial review of Google Earth aerial imagery (Figure 4). Thus, based on the current definition of "waters of the U.S.," the concrete v-ditch should be considered a ditch "excavated wholly in and draining only dry land" that does "not carry a relatively permanent flow of water" (33 CFR 328.3 (b)(3)).

However, the off-site concrete v-ditch may qualify as a non-wetland water of the state jurisdictional per the RWQCB. Although it is a maintained artificial structure functioning as localized stormwater runoff conveyance this feature continues into a culvert that may have downstream connectivity; as such, discharge of fill into the concrete v-ditch could have "detrimental impacts downstream within the watershed" (J. Bill [RWQCB], personal communication, August 2, 2019). As such, the concrete v-ditch may qualify as a non-wetland water of the state jurisdictional per the RWQCB.

The concrete v-ditch would likely not qualify as a jurisdictional streambed per the CDFW, as the concrete ditch did not replace a natural feature/streambed, lacked association with a natural feature/streambed, and did not support wildlife habitat (CFGC § 1602 – 1603).

The survey area also supports one swale (Figure 2, S-1; Appendix A, Photo 12) that is not expected to be jurisdictional by the Corps, RWQCB, or CDFW since it did not display an observable OHWM, bed and bank, or other evidence of conveying regular flows on site.

The survey area also supports one vegetated, earthen-bottom detention basin west of the project site. Standing water was observed within the detention basin during the constraints-level aquatic resources assessment and vegetation mapping on October 11, 2022 but was not observed with standing water during subsequent site visits. The detention basin would likely not qualify as jurisdictional by the Corps, RWQCB, or CDFW as the basin is a maintained artificial structure.

Please note that in order to receive an official determination from the Corps and concurrence from the RWQCB and the CDFW related to potential aquatic resources, (i.e., that the project site does not support jurisdictional aquatic resources occur), a project-specific aquatic resources delineation and reporting per Corps, RWQCB, and CDFW standards and guidelines and further coordination with the resource agencies would be required. RBC does not believe such reporting and coordination is warranted for this site unless requested by the local permitting jurisdiction or by the regulatory agencies.

4 IMPACT ANALYSIS

Direct impacts are caused by the project and occur at the same time and place as the project. Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Direct impacts would include direct losses to native habitats, potential jurisdictional waters, wetlands, and special-status species; and diverting natural surface water flows. Direct impacts could include injury, death, and/or harassment of listed and/or special-status species. Direct impacts could also include the destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts on plants can include crushing of adult plants, bulbs, or seeds.

Indirect impacts can result from project-related activities where biological resources are affected in a manner that is not direct. Indirect impacts may occur later in time or at a place that is farther removed in distance from the project than direct impacts, but indirect impacts are still reasonably foreseeable and attributable to project-related activities. Examples include habitat fragmentation; elevated noise, dust, and lighting levels; changes in hydrology, runoff, and sedimentation; decreased water quality; soil compaction; increased human activity; and the introduction of invasive wildlife (domestic cats and dogs) and plants (weeds). As noted in Section 2, the survey area included a 100-foot buffer to identify nearby biological resources and to aid in assessment of potential indirect impacts on protected resources, if present.

Cumulative impacts refer to incremental individual environmental effects of two or more projects when considered together. Such impacts taken individually may be minor but are collectively significant in light of regional impacts.

The significance thresholds as outlined in Appendix G of the state CEQA Guidelines (CCR Title 14, Division 6, Chapter 3, Sections 15000–15387) have been used to determine whether project implementation would result in a significant direct, indirect, and/or cumulative impact. A significant biological resources impact would occur if the project would:

1) 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 CDFW or USFWS;
2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
3) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
4) 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;
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy, or ordinance;

6) Conflict with the provisions of an adopted HCP; NCCP or other approved local, regional, or state HCP.

CEQA Threshold 1: 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 CDFW or USFWS?

4.1 SPECIAL-STATUS PLANTS AND WILDLIFE IMPACTS

4.1.1 SPECIAL-STATUS PLANT SPECIES

The proposed project will not impact federally and/or state listed or other special-status plants as none are present and none have a moderate to high potential to occur within the project site due to lack of suitable habitat and the overall disturbed nature of the site.

4.1.2 SPECIAL-STATUS WILDLIFE SPECIES AND CRITICAL HABITATS

Threatened and Endangered Wildlife Species

Although monarch butterfly, a candidate for listing under FESA when overwintering in California, was observed during the general biological survey on October 11, 2022, the site has low potential to support overwintering individuals due to the lack of suitable climactic conditions, such as protection from high wind and storms, absence of freezing temperatures, varying levels of sunlight, high humidity, and the presence of water (see Section 3). Thus, impacts on monarch resulting from the project would be less than significant.

Crotch's bumble bee (state candidate for listing under the CESA) has low-to-moderate potential to occur on the project site and may be impacted with project implementation, as discussed further below. Burrowing owl (state candidate for listing under the CESA) was detected on site during focused surveys and has potential to inhabit the site in the future; therefore, this species may be impacted with project implementation, as discussed further below.

The proposed project will not impact any additional federally and/or state listed wildlife species as no additional listed species were observed during general biological surveys and none have moderate to high potential to occur on site based on lack of suitable habitat and the disturbed nature of the site.

Burrowing Owl

The project has high potential to support burrowing owl. During the 2023 focused burrowing owl surveys, numerous suitable burrows were present on the project site and two burrowing owl individuals were observed during the first breeding season survey. No burrowing owl individuals, active burrows, or burrowing owl sign were observed during the subsequent three surveys. The absence of burrowing owl during the peak breeding season suggests that the project site is not currently used by burrowing owl for nesting; however, burrowing owl may use the site for breeding in the future due to the presence of suitable habitat. The site appears to have been used by

burrowing owl for refuge and/or foraging outside of the nesting season and burrowing owl may occur on site in the future.

With project implementation, direct impacts on burrowing owl could occur in the form of death, injury, or harassment of nesting birds, their eggs, and their young, if owls are present. Such impacts, if they were to occur, are potentially significant due to the direct reduction in local populations and loss of genetic diversity.

Injury or mortality occurs most frequently during the vegetation clearing stage of construction and affects eggs, nestlings, and recently fledged young that cannot safely avoid equipment. To avoid such impacts on burrowing owls, the following measures would be implemented:

- Prior to initial ground disturbing activities, construction personnel would be provided training with instructions to follow in the event a burrowing owl is observed or suspected to be on site (BIO-3A).
- Biological monitors would be retained to monitor construction activities, search for burrowing owls that may enter the site after the start of construction, and ensure that project activities do not result in adverse effects on burrowing owls (BIO-3B).
- Pre-construction burrowing owl clearance surveys would be conducted in accordance with CDFW BUOW Guidelines to ensure no occupied burrowing owl burrows are present within or adjacent to construction areas during ground disturbance (BIO-3B).
- If burrowing owls are detected on site or within a 500-foot buffer of the site, all project activities would be halted and CDFW would be contacted. Work would not resume until CDFW's review and approval of a Burrowing Owl Plan and/or CESA Incidental Take Permit (ITP) under CFGC section 2081 (BIO-3B).

Direct impacts on burrowing owl could still occur if owls enter the project site during active construction. Burrowing owls are particularly susceptible to vehicle strikes because they utilize roadways and adjacent areas for hunting. To avoid such impacts on burrowing owl, speed limits would be set and enforced (BIO-1E). In addition, burrowing owls are known to use manmade materials, such as pipes and culverts, for shelter and nesting. Best management practices (BMPs) would be implemented to minimize the potential for burrowing owls to use staged project materials (BIO-1F); thereby reducing the likelihood of burrowing owl being impacted by construction activities.

With the successful implementation of the BMPs listed in BIO-1, some direct impacts on burrowing owl within the project site would be avoided and/or minimized. However, project implementation would also result in potential impacts on burrowing owl through destruction or degradation of suitable habitat, including potential burrows. This impact is not anticipated to be significant since burrowing owls were not documented nesting on site. Although development of the project site would eliminate some suitable roosting burrows and potential food sources, this habitat is disturbed and low-quality, as evidenced by burrowing owls' short duration on site and lack of breeding activity. Should owls be documented on site in the future, consultation with CDFW, and potentially compensatory mitigation, would be required (BIO-3B).

Indirect impacts on burrowing owl could occur if burrowing owl is present within suitable habitat north of the project site and construction occurs at night uses lighting. Such impacts are potentially significant because lights could reduce burrowing owls' hunting success and make burrowing owls easier targets for predators. To avoid impacts on burrowing owl from nighttime construction and lighting, construction would occur during the day (BIO-1G). In addition, indirect impacts on burrowing owl, if present in suitable habitat north of the project site, could during construction due to elevated noise, vibration, and dust levels generated by equipment. These disturbances are temporary and relatively short in duration, thus unlikely to affect burrowing owl behavior. In addition, burrowing owl pre-construction surveys would include a 500-foot buffer around the project site; therefore, burrowing owls occurring near to the site would be detected, if present (BIO-3B). If burrowing owls are detected within 500-feet of the project site, CDFW would be consulted for additional guidance (BIO-3B). As such, indirect impacts during project construction are anticipated to be less than significant.

With the adherence of mitigation measures as discussed in Section 5, impacts on burrowing owls resulting from the project would be less than significant.

Crotch's Bumble Bee

Crotch's bumble bee was not documented during focused surveys or general biological surveys; however, suitable nectar sources and marginally suitable habitat is present on the project site and the potential for this species to occur is low-to-moderate. Although Crotch's bumble bee was not observed on site, the project could result in direct impacts on Crotch's bumble bee in the form of death, injury, or harassment if Crotch's bumble bee were to occur within the project site. Such impacts on foraging bees are not anticipated to be significant since adult Crotch's bumble bee would likely flush during active construction activities. However, direct impacts on nesting sites could result in significant direct take of Crotch's bumble bee. The analysis conservatively assumed that significant impacts to the species could occur as a result of direct impacts to nesting sites.

Potential impacts on Crotch's bumble bee would be avoided or minimized through implementation of project mitigation measures outlined in Section 5.2. Within one year prior to initial ground disturbing activities, a nesting survey would be conducted to identify active colonies within the project site (BIO-2A). If active nests are documented within the project site, an appropriate non-disturbance buffer area would be established immediately prior to the start of construction activities to avoid direct take (BIO-2B). Potential direct impacts on Crotch's bumble bee would be less than significant with implementation of pre-construction nesting surveys and avoidance buffers.

Potential indirect impacts on this species could occur through destruction of viable nectar sources or occupied habitat. To determine if Crotch's bumble bee is present and therefore impacts could occur on occupied habitat, a focused survey would be conducted within one year prior to ground disturbing activities (BIO-2C). If present, destruction of nectar sources or removal of occupied habitat could be potentially significant because a reduction in essential resources could put strain on populations already experiencing declines (CDFW 2023). To mitigate for such potential impacts, if any, on-site revegetation with suitable nectar sources would be implemented following completion of construction activities (BIO-2D). With adherence to the mitigation measures described in Section 5.2, potential impacts on Crotch's bumble bee would be reduced to less than

significant. If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then mitigation measures shall not be required.

Other Special-Status Wildlife Species

Four other special-status wildlife species, California horned lark, golden eagle, loggerhead shrike and American peregrine falcon, were detected during general biological surveys and an additional two non-listed special-status wildlife species, coastal whiptail and coast horned lizard, have moderate potential to occur on the project site. The proposed project has the potential to impact these special-status species, as discussed below.

California Horned Lark and Loggerhead Shrike

California horned lark and loggerhead shrike were observed within and adjacent to the project site, therefore direct impacts through loss of suitable foraging habitat would occur with project implementation. However, California horned lark and loggerhead shrike inhabit a wide variety of habitats and are relatively tolerant of disturbance. Suitable foraging habitat for these species is present within proximity to the project site and is abundant throughout the region. As such, removal of suitable foraging habitat would be less than significant.

Project construction activities could result in direct impacts on nesting California horned lark and loggerhead shrike, if nests are present. Vegetation trimming or removal of suitable habitat within an active breeding territory could result in harassment, injury, damage or destruction of an active nest, and/or death of adults, eggs, and/or young during construction activities. Impacts that result in injury or death of California horned lark or loggerhead shrike, and/or loss of genetic diversity of these special-status species is potentially significant.

To avoid or minimize such impacts on California horned lark and loggerhead shrike, the following measures would be implemented:

- Prior to project construction activities, an updated potential to occur assessment would be conducted to assess the potential for special-status avian species to occur on the project site (BIO-1A).
- At least one week prior to ground-disturbing activities or vegetation removal, a 100%-coverage pre-construction wildlife survey would be conducted (BIO-1B).
- If deemed necessary based on the results of the pre-construction survey, additional avoidance and minimization measures would be developed to protect sensitive wildlife species, including California horned lark and loggerhead shrike (BIO-1C).
- Vegetation trimming and removal, grading, and other construction activities within suitable nesting habitat would occur outside of typical avian breeding season (typically February 15 through August 31) (BIO-4A)
- If avoidance of nesting season is not feasible, then pre-construction surveys for nesting birds would be conducted prior to construction within suitable nesting habitat (BIO-4A).

- If nesting California horned lark or loggerhead shrike are documented, no-work exclusion buffers would be established and maintained around each nest until fledglings, if present, are no longer dependent on the nest and disperse from the area (BIO-4B).

With successful implementation of BIO-4, direct impacts on nesting California horned lark and loggerhead shrike during project construction would be less than significant. Additionally, a biologist would flush adult avian species from the project site prior to initial ground disturbing activities (BIO-1D). Thus, direct impacts on California horned lark and loggerhead shrike would be avoided.

Indirect impacts on California horned lark and loggerhead shrike, if present adjacent to the project site, could during construction due to elevated noise, vibration, and dust levels generated by equipment. These disturbances are temporary and relatively short in duration, thus unlikely to affect California horned lark or loggerhead shrike behavior. As such, indirect impacts during project construction are anticipated to be less than significant.

Coastal Whiptail and Coast Horned Lizard

Coastal whiptail and coast horned lizard have a moderate potential to occur on site. Project construction activities could result in potential direct impacts on these special-status species, if present on site. Vegetation clearing and grading and other construction activities could result in harassment, injury, and/or death of coastal whiptail and coast horned lizard. Impacts that result in injury or death of coastal whiptail and coast horned lizard and/or loss of genetic diversity of these special-status species are potentially significant.

To avoid or minimize such impacts, the following BMPs would be implemented:

- Prior to project construction activities, an updated potential to occur assessment would be conducted to assess the potential for coastal whiptail and coast horned lizard to occur on the project site (BIO-1A).
- At least one week prior to ground-disturbing activities or vegetation removal, a 100%-coverage pre-construction wildlife survey would be conducted (BIO-1B).
- If deemed necessary based on the results of the pre-construction survey, additional avoidance and minimization measures would be developed to protect coastal whiptail and coast horned lizard, including relocation to nearby suitable habitat by a qualified biologist under the appropriate permits and authorizations from relevant wildlife agencies (BIO-1C).
- A biologist would walk through habitat to be imminently removed to flush any coastal whiptail and coast horned lizard that may be present from the project site to the greatest extent practicable (BIO-1D).
- Speed limits would be set and enforced to minimize risk of vehicle collisions with coastal whiptail and coast horned lizard (BIO-1E).
- Holes and trenches excavated during construction would be covered or equipped with escape ramps to prevent entrapment of special-status lizards (BIO-1H).

- Pets, which could harass, injure, or kill lizards, would be prohibited on the project site (BIO-1I).
- Trash would be properly stored and disposed of to avoid attracting predators of coastal whiptail and coast horned lizard, such as common raven (*Corvus corax*), to the project site (BIO-1J).

Successful implementation of such measures would help minimize or avoid potential direct impacts on coastal whiptail and coast horned lizard, if present.

Project construction could also result in direct impacts on coastal whiptail and coast horned lizard through destruction of suitable habitat. However, suitable habitat is largely restricted to the 0.7 acre of disturbed Riversidean sage scrub on site. This habitat is altered by previous disturbances, surrounded by non-native vegetation communities or land uses, and is isolated from other suitable coastal whiptail and coast horned lizard habitat. As such, this land provides little biological value and does not play a substantial role in species viability. Direct impacts due to habitat destruction are anticipated to be less than significant.

Direct impacts on coastal whiptail and coast horned lizard could occur during project construction if these species are present in the adjacent suitable habitat north of the project site. If construction equipment enters these areas, harassment, injury, and/or death of coastal whiptail and coast horned lizard could occur. To avoid impacts on off-site special-status lizards, the limits of work would be clearly demarcated (BIO-1K) and construction equipment would not enter these areas. As such, direct impacts on special-status lizards potentially present adjacent to the project site would be less than significant.

Indirect impacts on coastal whiptail and coast horned lizard, if present adjacent to the project site, could during construction due to elevated noise, vibration, and dust levels generated by equipment. These disturbances are temporary and relatively short in duration, thus unlikely to affect coastal whiptail and coast horned lizard behavior. As such, indirect impacts during project construction are anticipated to be less than significant.

Golden Eagle, American Peregrine Falcon, Prairie Falcon, Merlin, and California Gull

Golden eagle, American peregrine falcon, prairie falcon, merlin, and California gull were observed during the 2022 general biological survey (Appendix B). Although golden eagle, American peregrine falcon, prairie falcon, and merlin were viewed flying over the project site during the biological surveys, these species were not observed directly using it and are not expected to rely on the project site since it is dominated by developed or disturbed habitats. Suitable nesting habitat is not present for any of these raptor species. Golden eagle, American peregrine falcon, and prairie falcon primarily nest on ledges and cliffs which are absent from the project site and merlin is not known to nest in Southern California. In addition, California gull was observed during biological surveys; however, there is no potential for the site to support nesting colonies as colonies are always located near large bodies of water. Thus, impacts on golden eagle, American peregrine falcon, prairie falcon, merlin, and California gull resulting from the project would be less than significant.

CEQA Threshold 2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS?

4.2 NATIVE VEGETATION IMPACTS

The proposed project would result in impacts on three land uses/vegetation communities, developed land, disturbed habitat, and disturbed Riversidean sage scrub (Figure 5; Table 7). Developed land and disturbed habitat are not considered native vegetation communities; however, impacts on isolated native upland habitat (e.g., disturbed Riversidean sage scrub), will occur with project implementation. Disturbed Riversidean sage scrub is not considered a sensitive natural community under CEQA and impacts on this community is not anticipated to be significant due to its abundance in the region. Therefore, impacts to native vegetation communities resulting from the project would be less than significant.

Table 6. Vegetation Communities/Lane Cover Project Impacts

Vegetation (Holland)[1]	Vegetation[2]	Impacts (acres)
Developed	Developed/Disturbed	4.0
Disturbed Habitat	Developed/Disturbed	22.5
Disturbed Riversidean Sage Scrub	*Eriogonum fasciculatum* Shrubland Alliance	0.7
	Total	27.2

[1] *Vegetation communities recognized by Holland (1986)*
[2] *Vegetation communities from Holland (1986) crosswalked to Sawyer et al. (2009)*

CEQA Threshold 3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

4.3 POTENTIALLY JURISDICTIONAL AQUATIC RESOURCES IMPACTS

The proposed project will not impact state or federally protected wetlands as no potentially jurisdictional aquatic resources were observed on the project site (see Section 3.5). Note that the off-site concrete v-ditch that occurs immediately north of the site has some potential to qualify as a non-wetland water of the state jurisdictional per the RWQCB; however, impacts are not proposed in or near that area. Therefore, the project would not result in impacts on jurisdictional aquatic resources and permitting through the Corps, RWQCB, and CDFW would not be required.

CEQA Threshold 4: 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?

4.4 NESTING BIRD IMPACTS

The proposed project has the potential to impact active bird nests if vegetation is removed or ground disturbing activities are initiated during the nesting season. The disturbed habitat and disturbed Riversidean sage scrub within the project site have the potential to support avian nests and impacts on nesting birds are prohibited by the MBTA and/or CFGC §3503. To avoid potential direct impacts on nesting birds, removal of suitable nesting habitat would occur outside of the breeding season (BIO-4A), when feasible. In addition, within three days prior to site disturbance or construction activities, a biologist would conduct a nesting bird survey (BIO-4A). If active nests are found, construction activity would be avoided in a buffer area around the nest until nestlings have fledged and the nest is determined to be inactive, and a biologist would be retained to monitor nesting activity (BIO-4B). With the adherence of such mitigation measures, described further in Section 5, impacts on nesting birds resulting from the project would be less than significant.

4.5 WILDLIFE CORRIDOR IMPACTS

The project site does not serve as part of a regional wildlife corridor. The project site is composed of highly disturbed undeveloped areas that are surrounded by development. No large areas of native vegetation are contiguous with the disturbed habitat on site, nor do such areas of native habitat occur in proximity to the project site. Cumulatively, the project site and other undeveloped isolated lots in the project vicinity are unlikely to be used by wildlife species as refuge between larger areas of naturally occurring habitat. As such, the project would not result in impacts on wildlife movement and regional corridors.

CEQA Threshold 5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy, or ordinance?

4.6 LOCAL POLICIES AND ORDINANCES IMPACTS

4.6.1 COUNTY OF SAN BERNARDINO BURROWING OWL OVERLAY ZONE

As previously discussed, the project site is within the Burrowing Owl Overlay Zone. As such, focused surveys and pre-construction surveys for burrowing owl should be conducted to determine presence/absence within the project site. Focused surveys have been conducted and the results are presented in Section 3. Pre-construction surveys would be conducted for the project, as detailed in Section 5. As such, the project would not conflict with the County of San Bernardino Biotic Resources Overlay Zones.

4.6.2 CITY OF RIALTO GENERAL PLAN

The project does not contain suitable soils for Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*). As such, protocol surveys are not required, and the City of Rialto General Plan policy related to this species is not applicable.

CEQA Threshold 6: Conflict with the provisions of an adopted HCP; NCCP; or other approved local, regional, or state HCP?

4.7 HABITAT CONSERVATION PLAN; NATURAL COMMUNITY CONSERVATION PLAN; OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN IMPACTS

The project site is not located with an active HCP or NCCP area; therefore, the project would not result in impacts on HCPs or NCCPs.

4.8 INDIRECT IMPACTS ON BIOLOGICAL RESOURCES

In the context of biological resources, indirect impacts are those effects associated with developing areas adjacent to native open space. Potential indirect effects associated with development include water quality impacts from site drainage into adjacent open space/downstream aquatic resources; lighting effects; noise effects; invasive plant species from landscaping; and effects from human access into adjacent open space, such as recreational activities (including off-road vehicles and hiking), pets, dumping, etc. Temporary, indirect effects may also occur as a result of construction-related activities.

The project site and abutting lands support a low diversity in vegetation communities and other land covers. The project site itself is made up of disturbed habitat, developed land, and disturbed Riversidean sage scrub. To the north, the project site borders former Rialto Airport land that supports sparse, disturbed native habitat. To the south, east, and west, the site is surrounded by commercial and industrial development with little to no native habitat. Project activities would not significantly change the conditions on adjacent lands or result in indirect effects on biological resources. Therefore, indirect impacts would be less than significant.

4.9 CUMULATIVE IMPACTS ON BIOLOGICAL RESOURCES

Cumulative impacts are defined as the direct and indirect effects of a proposed project which, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered potentially significant. 'Related projects' refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the proposed project. The project site is disturbed, surrounded by development, and does not support sensitive natural vegetation communities. As such, the proposed project will not result in significant cumulative effects.

However, through the environmental review process, all projects in the region would be individually required to reduce their own impacts through compensatory mitigation, as well as other project-specific mitigation measures and avoidance and minimization measures. Compensatory mitigation

would be subject to agency approval and would be planning with consideration to other open space preserved in perpetuity to create large, undisturbed habitat blocks. Because the impacts associated with the project would be fully mitigated, the cumulative contribution to region-wide impacts would be less than significant.

5 MITIGATION MEASURES

The following discussion provides project-specific mitigation measures; adherence with these measures is necessary to avoid and minimize impacts on biological resources resulting from the project.

5.1 BEST MANAGEMENT PRACTICES

BIO-1A: Prior to project construction activities, an updated potential to occur assessment shall be completed. Species to be addressed shall include all those which meet the CEQA definition (CEQA Guidelines § 15380) for which suitable habitat is present within or adjacent to the project site. If deemed necessary, pre-construction species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of day when the sensitive species are active or otherwise identifiable, shall be conducted. Acceptable species-specific survey procedures shall follow CDFW and USFWS guidance, where applicable.

BIO-1B: Prior to the start of project construction activities, a qualified biologist shall conduct a comprehensive pre-construction wildlife survey. This survey must be completed within one week before any ground-disturbing activities or vegetation removal begins. The survey shall include 100% coverage of the project site, as well as a 100-foot buffer zone surrounding the site to identify and document any wildlife species present in adjacent areas. All species observed during the survey shall be recorded and mapped accordingly.

BIO-1C: If necessary, appropriate avoidance and minimization measures shall be developed to protect sensitive wildlife species identified during the pre-construction survey. These measures may include establishing species-specific no-disturbance buffer zones. If wildlife is observed within the project footprint and cannot be avoided, individuals may be relocated to suitable habitat outside the impact area by a qualified biologist. All relocations shall be conducted under the appropriate permits and authorizations from relevant wildlife agencies.

BIO-1D: A biologist shall flush special-status species (i.e., avian or other mobile species), with the exception of burrowing owl, from suitable habitat areas within the project development footprint to the maximum extent practicable immediately (e.g., within 24 hours) prior to initial vegetation removal activities. The biologist shall flush wildlife by walking through habitat to be imminently removed and towards adjacent remaining suitable habitat.

BIO-1E: Construction vehicles shall not exceed 15 miles per hour on unpaved roads adjacent to the project site or the right-of-way accessing the site.

BIO-1F: The Applicant, or its contractors, will screen, cover, or elevate at least one (1) foot above ground, all construction pipe, culverts, or similar structures with a diameter of three (3) inches or greater that are stored on site overnight. These pipes, culverts,

and similar structures will be inspected by the project biologist for wildlife before such material is moved, buried, or capped.

BIO-1G: Construction activities shall occur during daytime hours to the greatest extent feasible. If construction must occur at nighttime, lights shall be oriented in such a way that they direct light downward and toward the active construction, ensuring that no direct light is emitted towards adjacent lands, and shields or deflectors shall be installed on lights to reduce light spill. Nighttime concrete pouring shall be performed in accordance with the City of Rialto Municipal Code.

BIO-1H: At the end of each workday during construction, the Applicant, or its contractors, will cover all excavated, steep-sided holes or trenches more than eight inches deep and that have sidewalls steeper than 1:1 (45 degree) slope with plywood or similar materials, or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than 3:1) constructed of earth fill or wooden planks. The project biologist will thoroughly inspect holes and trenches for trapped animals during biological monitoring.

BIO-1I: Contractors shall not permit pets on the construction site.

BIO-1J: If trash and debris need to be stored overnight during maintenance activities, fully covered trash receptacles that are animal-proof and weather-proof shall be used by the maintenance contractor to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Alternatively, standard trash receptacles may be used during the day, but must be removed or emptied each night.

BIO-1K: To prevent inadvertent disturbance to areas outside the limits of work, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary visibility construction fence) prior to ground-disturbance activities, and all construction activities, including equipment staging and maintenance, shall be conducted within the marked disturbance limits. The work limit delineation shall be maintained throughout project construction.

5.2 CROTCH'S BUMBLE BEE AVOIDANCE AND MITIGATION MEASURES

BIO-2A: If Crotch's bumble bee is no longer a candidate or listed species under CESA at the time of project construction, then these mitigation measures shall not be required. Within one year prior to ground disturbing activities, an approved qualified designated biologist shall conduct active Crotch's bumble bee nest surveys during the typical colony active period (April – August) following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species (CDFW 2023e) within the project site and areas adjacent to the project site where suitable habitat exists. The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.

BIO-2B: If suspected or active Crotch's bumble bee nests are present, a qualified biologist shall establish an appropriate non-disturbance buffer around each nest immediately prior to initiation of construction activities using stakes and/or brightly colored flagging to avoid disturbance or incidental take of the species. If avoidance buffers are not feasible, or if complete avoidance of Crotch's bumble bee cannot be achieved, project activities with the potential to impact Crotch's bumble bee shall be postponed until appropriate authorization (i.e., a finalized CESA ITP under Fish and Game Code section 2081) is obtained.

BIO-2C: Within one year prior to ground disturbing activities, the approved designated biologist shall survey suitable nectar plants for foraging Crotch's bumble bee during the typical flight season (February – October), within the project site and areas adjacent to the project site where suitable habitat exists, following survey guidelines provided in the CDFW's Survey Considerations for CESA Candidate Bumble Bee Species (CDFW 2023). The qualified biologist shall be familiar with Crotch's bumble bee identification and life history. Survey results including negative findings shall be submitted to CDFW at least 30 days prior to vegetation removal and/or ground disturbing activities.

BIO-2D: If occupied foraging habitat for Crotch's bumble bee is present within project impact areas, a Revegetation Plan shall be prepared which includes native shrubs and native seed mixes that contain known nectar sources for Crotch's bumble bee. The Revegetation Plan shall be developed in consultation with a qualified Crotch's bumble bee biologist and implemented following project construction.

5.3 BURROWING OWL AVOIDANCE AND MITIGATION MEASURES

BIO-3A: Prior to initial ground disturbing activities, a Worker Environmental Awareness Program (WEAP) shall be prepared, which will include a training presentation and key fact sheet. The training will instruct construction crews to be aware of and recognize burrowing owls and other sensitive biological resources that may be encountered within, or adjacent to, the project. The training will provide workers with instructions to follow in the event a burrowing owl is observed or suspected to be on site.

Biologists shall provide WEAP training materials, including but not limited to the key fact sheet, to construction personnel before their commencement of work on the project. Additionally, all construction staff shall attend the WEAP training presentation prior to beginning work on site. A refresher WEAP training will be completed on an annual basis thereafter. Note that the fact sheet shall be provided in other languages, as necessary, to accommodate non-English speaking workers.

Upon completion of the WEAP training, each member of the construction crew shall sign a form stating that they attended the training, understood the information presented, and agreed to comply with the requirements set out in the WEAP training. On an annual basis, the project proponent shall certify that WEAP training has been provided to all construction personnel. Biologists shall provide updates relevant to the training to construction personnel during the safety ("tailgate") meetings, as needed.

BIO-3B: Suitable burrowing owl habitat and burrowing owl presence has been confirmed on the site; therefore, focused burrowing owl surveys shall be conducted by a qualified biologist, familiar and experienced in burrowing owls, in accordance with the CDFW BUOW Guidelines (2012 or most recent version) prior to vegetation removal or ground-disturbing activities for all phases of project construction and surrounding 500 foot radius.

Take avoidance surveys shall be conducted no less than 14 days prior to initiation of project-related activities. Burrowing owls may re-colonize a site after only a few days. Time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance, in accordance with the CDFW BUOW Guidelines (2012 or most recent version). Upon beginning ground-disturbing activities or vegetation removal, a biologist shall be on hand to perform monitoring during all construction activities every day to ensure no impacts occur to burrowing owls as a result of the project

Should burrowing owls, active burrows, or signs thereof be confirmed during any survey or biological monitoring, Project activities with the potential to impact burrowing owl shall be immediately halted. The qualified biologist shall coordinate with CDFW and prepare a Burrowing Owl Plan that shall be submitted to CDFW for review and approval prior to commencing project activities. The Burrowing Owl Plan shall describe proposed avoidance, and monitoring actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites, acres of burrowing owl habitat that will be impacted, details of site monitoring, and details on proposed buffers and other avoidance measure if avoidance is proposed. Project activities with the potential to impact burrowing owl shall not occur within 1,000 feet of an active burrow until CDFW approves the Burrowing Owl Plan.

If project activities, including burrow exclusion and closure, could result in take of burrowing owl, the project proponent shall begin early coordination with CDFW for appropriate CESA authorization (i.e., ITP under CFGC section 2081) prior to commencement of project activities. The ITP shall describe, at a minimum, project activities and equipment, proposed avoidance/buffers, temporary and permanent impacts, monitoring, relocation and/or translocation, and minimization and compensatory mitigation actions. ITP compensatory mitigation will be fulfilled by one or more of following options: 1) Conservation or Mitigation Bank credits (if available) 2) Mitigation Credit Agreements 3) Permittee-responsible mitigation land acquisition.

5.4 NESTING BIRD AVOIDANCE

BIO-4A: To ensure compliance with CFGC sections 3503, 3503.5, and 3513 and to avoid potential impacts to nesting birds, vegetation clearing and ground-disturbing activities shall be conducted outside of the bird nesting season (generally February 15 through August 31). Regardless of the time of year, a qualified biologist will conduct a

nesting bird survey within three (3) days prior to any disturbance of the site, including but not limited to vegetation clearing, disking, demolition activities, and grading.

BIO-4B: If active nests are identified, the biologist shall establish suitable buffers around the nests depending on the level of activity within the buffer and species observed, and the buffer areas shall be avoided until the nests are no longer occupied, and the juvenile birds can survive independently from the nests. During construction activities, the qualified biologist shall continue biological monitoring activities at a frequency recommended by the qualified biologist using their best professional judgment. If nesting birds are documented, avoidance and minimization measures may be adjusted, and construction activities stopped or redirected by the qualified biologist using their best professional judgement to avoid take of nesting birds. If nesting birds are not documented during the preconstruction survey, adherence to additional measures may not be necessary to avoid impacts to nesting birds.

6 REFERENCES

Anderson, R. A. (1993). An analysis of foraging in the lizard, Cnemidophorus tigris. Pages 83-116 in J. W. Wright and L. J. Vitt, editors. Biology of whiptail lizards (genus Cnemidophorus). Oklahoma Museum of Natural History, Norman, Oklahoma.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, and T. J. Rosatti. (2012). The Jepson Manual: Vascular Plants of California (2nd ed.). Thoroughly Revised and Expanded. University of California Press, Berkeley, California.

Beason, R. C. (1995). Horned lark (*Eremophila alpestris*), Version 2.0. In P. G. Rodewald (Ed.), The Birds of North America. Cornell Lab of Ornithology.

Bumble Bee Watch. (2024). *Bumble Bee Maps*. Retrieved from https://www.bumblebeewatch.org/maps.

Brylski, P.V. (1998). Los Angeles Pocket Mouse, *Perognathus longimembris brevinasus*. In B. C. Bolster (Ed.), Terrestrial Mammal Species of Special Concern in California. California Department of Fish and Game.

Calflora. (2024) Information on California Plants for Education, Research and Conservation, With Data Contributed by Public and Private Institutions and Individuals. *The Calflora Database*. Retrieved August 2024, from https://www.calflora.org.

California Department of Fish and Wildlife (CDFW). (2012). Staff Report on Burrowing Owl Mitigation. California Department of Fish and Wildlife.

__. (2016). Complete List of Amphibian, Reptile, Bird, and Mammal Species In California. California Department of Fish and Wildlife.

__. (2022). CDFW Seeks Public Comment Related to Crotch's Bumble Bee, Franklin's Bumble Bee, Suckley's Cuckoo Bumble Bee and Western Bumble Bee. California Department of Fish and Wildlife. Retrieved June 2023, from https://wildlife.ca.gov/News/cdfw-seeks-public-comment-related-to-crotchs-bumble-bee-franklins-bumble-bee-suckleys-cuckoo-bumble-bee-and-western-bumble-bee#gsc.tab=0.

__. (2023). Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. June 6, 2023.

__. (2024a). *California Natural Diversity Database*. Retrieved July 1, 2024 from https://wildlife.ca.gov/Data/CNDDB.

__. (2024b). Special Animals List. California Department of Fish and Wildlife. Retrieved July 1, 2024, from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline.

__. (2024c). *California Natural Community List*. Retrieved July 1, 2024 from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline.

__. (2024d). *Biogeographic Information and Observation System*. Retrieved July 1, 2024, from https://wildlife.ca.gov/Data/BIOS.

__. (2024e). American Peregrine Falcons in California. Retrieved August 1, 2024 from https://wildlife.ca.gov/Conservation/Birds/Peregrine-Falcon.

California Native Plant Society (CNPS). (2024a). California Native Plant Society Rare Plant Inventory. Retrieved August 12, 2024, from http://www.rareplants.cnps.org.

__. (2024b). San Bernardino Aster (*Symphyotrichum defoliatum*). Retrieved August 1, 2024, from https://calscape.org/Symphyotrichum-defoliatum-(San-Bernardino-Aster)

City of Rialto. (2010). Rialto General Plan. Adopted December 2010.

__. (2016). Renaissance Specific Plan Amendment. Approved December 13, 2016.

Collins, C. T. (1979). The Ecology and Conservation of Burrowing Owls. In Proceedings of the National Audubon Society, Symposium of Owls of the West, Their Ecology and Conservation. National Audubon Society Western Education Center.

Cornell Lab of Ornithology. (2019). *All About Birds.* Retrieved August 2024, from https://www.allaboutbirds.org

County of San Bernardino. (2012). Biotic Resources Overlay Map. Retrieved September 9, 2022, from http://www.sbcounty.gov/Uploads/lus/BioMaps/cnty_all_biotic_resources_map_final.pdf

eBird. (2021). *eBird: An Online Database of Bird Distribution and Abundance*. Retrieved August 2024, from http://www.ebird.org

Henny, C.J. and L. J. Blus. (1981). Artificial Burrows Provide New Insight into Burrowing Owl Nesting Biology. *Raptor Research,* 15, 82-85.

Holland, R. F. (1986). Preliminary descriptions of the terrestrial natural communities of California. State of California, the Resources Agency, Dept. of Fish and Game.

Natural Resources Conservation Service (NRCS). (2024). Web Soil Survey. U.S. Department of Agriculture Natural Resources Conservation Service. Retrieved July 1, 2024, from https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

NatureServe. (2024). NatureServe Explorer. Bombus crotchii: Crotch's Bumble Bee. Retrieved August 2024, from https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.834085/Bombus_crotchii

Ogden Environmental and Energy Services Co., Inc. (1996). Biological Monitoring Plan for the Multiple Species Conservation Program. Retrieved from https://www.sandiego.gov/sites/default/files/legacy/planning/programs/mscp/pdf/monitor/bio1996corridor.pdf.

Remsen, J. V. (1978). Bird Species of Special Concern in California: An Annotated List of Declining or Vulnerable Bird Species. California Department of Fish and Game, Nongame Wildlife Branch.

Rocks Biological Consulting. (2016). Results of Burrowing Owl Monitoring at the Former Rialto Municipal Airport, Rialto, San Bernardino County, California.

Sawyer, J. O., T. Keller-Wolf, and J. M. Evens. (2009). The Manual of California Vegetation (2nd ed.). California Native Plant Society.

Suarez, A.V., J. Q. Richmond, and T. J. Case. (2000). Prey Selection in Horned Lizards Following the Invasion of Argentine Ants in Southern California. *Ecological Applications, 10(*3), pp. 711-725.

The Xerces Society for Invertebrate Conservation. (2016). State of the Monarch Butterfly Overwintering Sites in California.

Thorp, R. W., D. S. Horning, and L. L. Dunning. (1983). Bumble Bees and Cuckoo Bumble Bees of California (*Hymenoptera, Apidae*). University of California Press.

U.S. Environmental Protection Agency (EPA). (2008). Clean Water Act Jurisdiction Following the Supreme Court's Decision in Rapanos v. United States and Carabell v. United States.

U.S. Fish and Wildlife Service (USFWS). (2011). Golden Eagles, Status Fact Sheet. U.S. Fish and Wildlife Service. Retrieved January 5, 2023, from https://www.fws.gov/sites/default/files/documents/golden-eagle-fact-sheet.pdf.

__. (2024a). Critical Habitat for Threatened and Endangered Species. U.S. Fish and Wildlife Service. Retrieved July 1, 2024, from https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77.

__. (2024b). Information for Planning and Consulting (IPaC). Retrieved July 1, 2024, from https://ipac.ecosphere.fws.gov.

__. (2024c). National Wetlands Inventory Surface Waters and Wetlands. U.S. Fish and Wildlife Service. Retrieved July 1, 2024, from https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper.

U.S. Geological Survey (USGS). (2024a). *The National Map, Advanced Viewer.* U.S. Department of Interior. Retrieved July 1, 2022, from https://viewer.nationalmap.gov/advanced-viewer/

__. (2024b). USGS U.S. Topo 7.5 – minute maps for DEVORE, CA and FONTANA, CA. Retrieved December 7, 2022.

White, C. M., N. J. Clum, T. J. Cade, and W. G. Hunt. (2002). Peregrine Falcon (*Falco peregrinus*), Version 2.0. In P. G. Rodewald (Ed.), The Birds of North America. Cornell Lab of Ornithology.

Williams, P. H., R. W. Thorp, L. L. Richardson, and S. R. Colla. (2014). The Bumble Bees of North America: An Identification guide. Princeton University Press, Princeton, New Jersey, USA. 208 pp.

Yosef, R. (1996). Loggerhead Shrike (*Lanius ludovicianus*). In A. Poole and F. Gill (Eds.), The Birds of North America, No. 231. The Academy of Natural Sciences and The American Ornithologists' Union.

Zarn, M. (1974). Technical Note T-N-250 Habitat Management Series for Unique of Endangered Species Report No. 11: Burrowing Owl *Speotyto cunicularia hypugaea*. U.S. Department of Interior, Bureau of Land Management.

Zeiner, D.C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (Eds.). (1990). California's Wildlife, Vol. 1-3. California Department of Fish and Game.

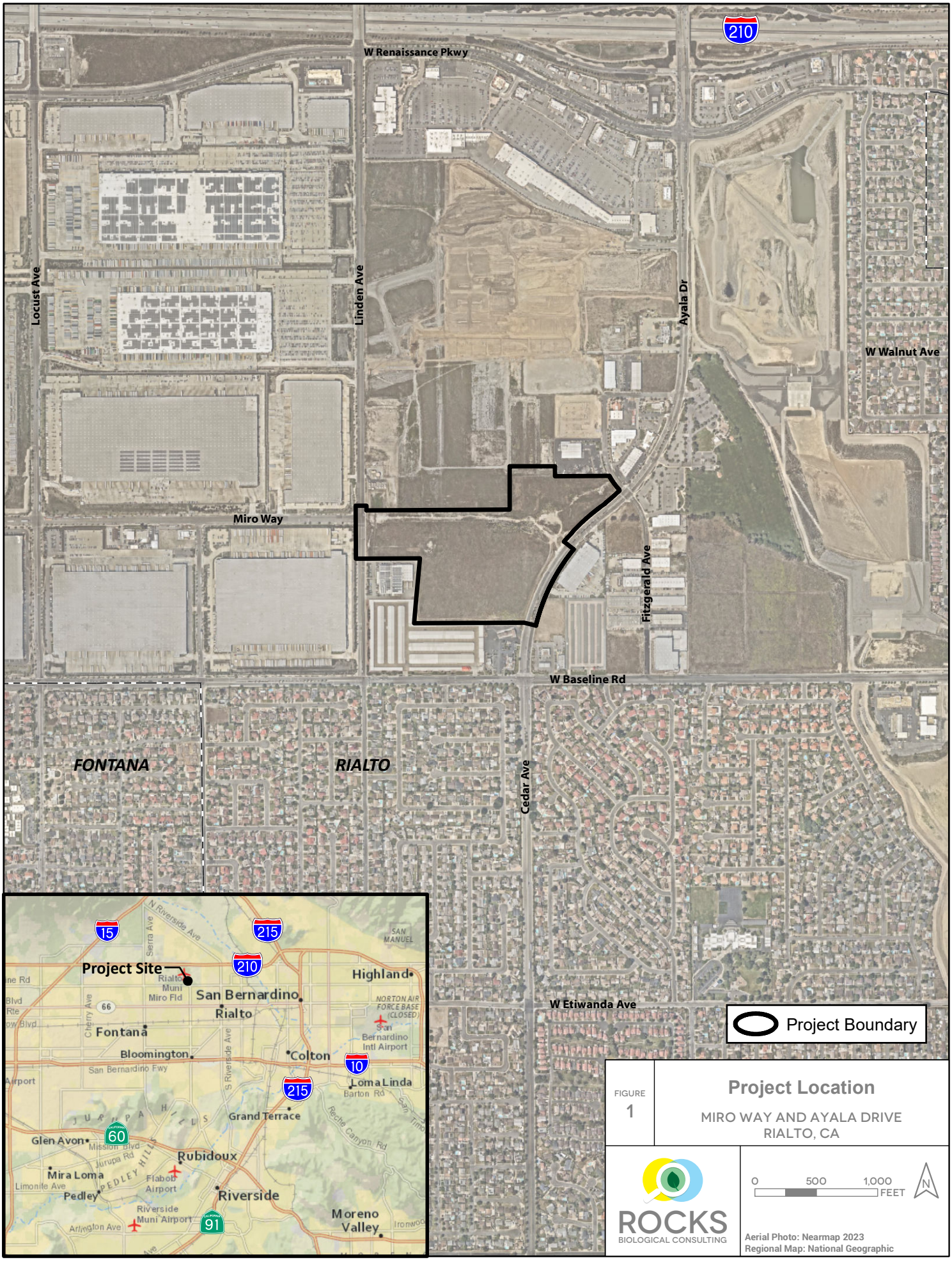


FIGURE 1

Project Location

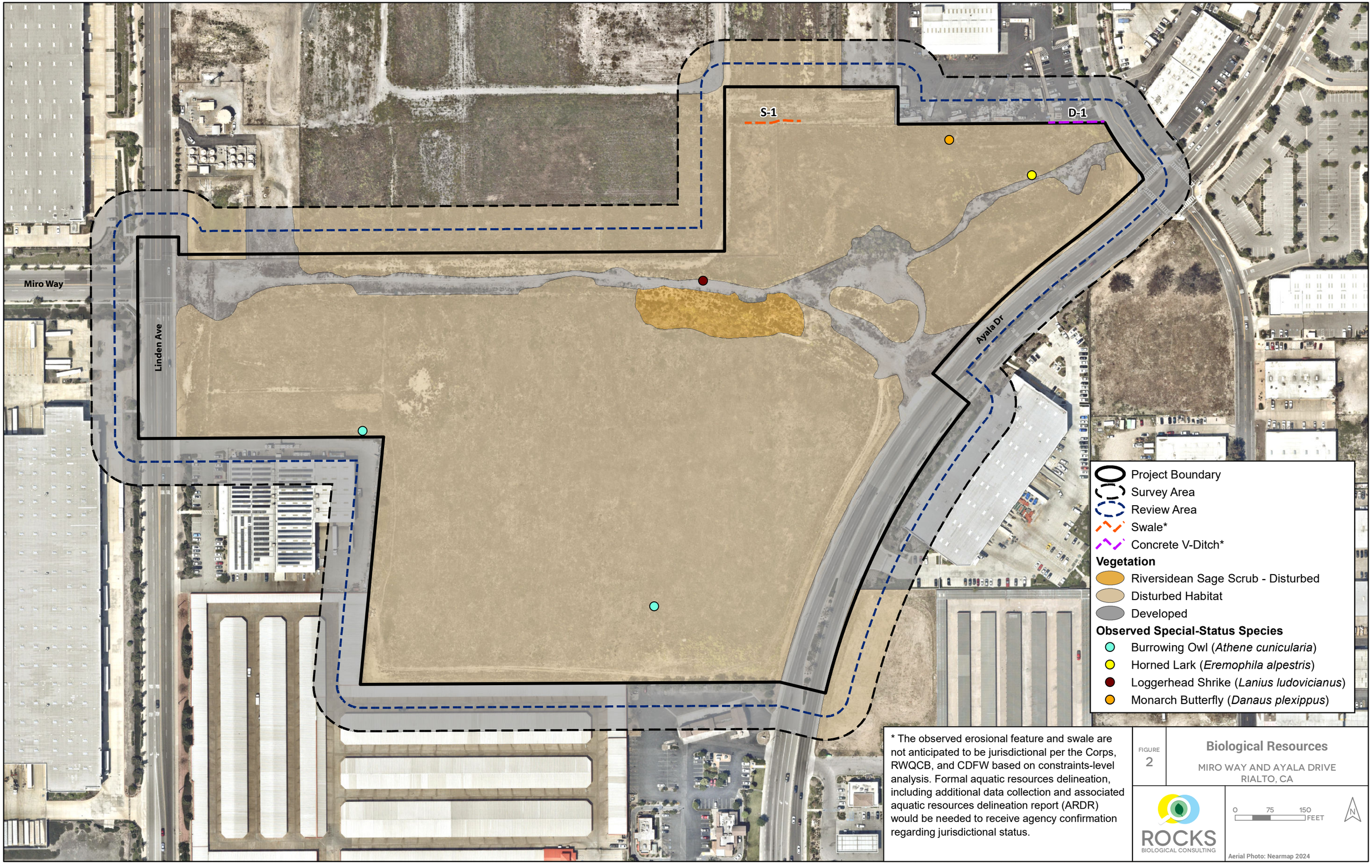
MIRO WAY AND AYALA DRIVE
RIALTO, CA

ROCKS BIOLOGICAL CONSULTING

0 500 1,000 FEET

N

Aerial Photo: Nearmap 2023
Regional Map: National Geographic



* The observed erosional feature and swale are not anticipated to be jurisdictional per the Corps, RWQCB, and CDFW based on constraints-level analysis. Formal aquatic resources delineation, including additional data collection and associated aquatic resources delineation report (ARDR) would be needed to receive agency confirmation regarding jurisdictional status.

FIGURE 2

Biological Resources

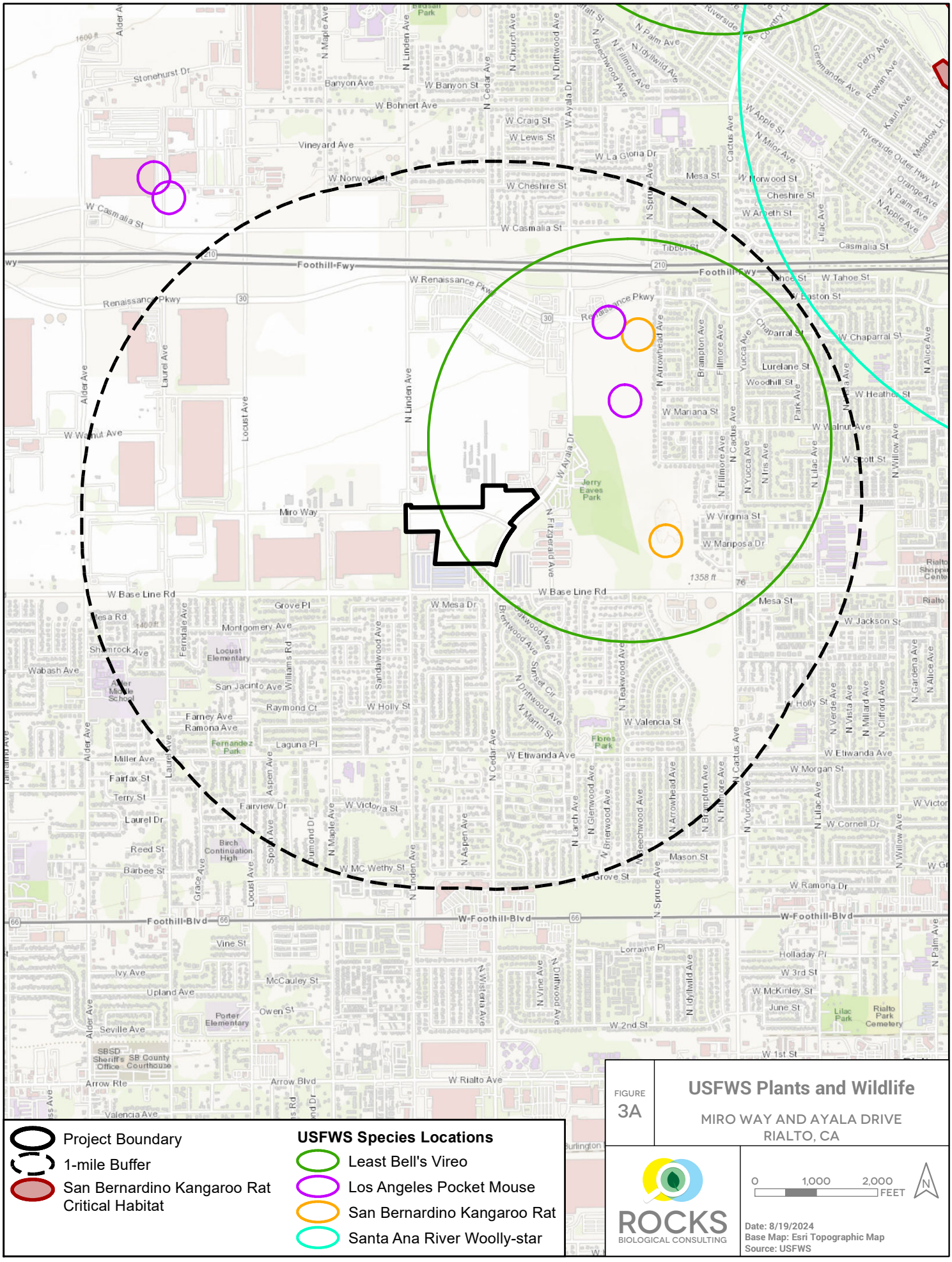
MIRO WAY AND AYALA DRIVE
RIALTO, CA

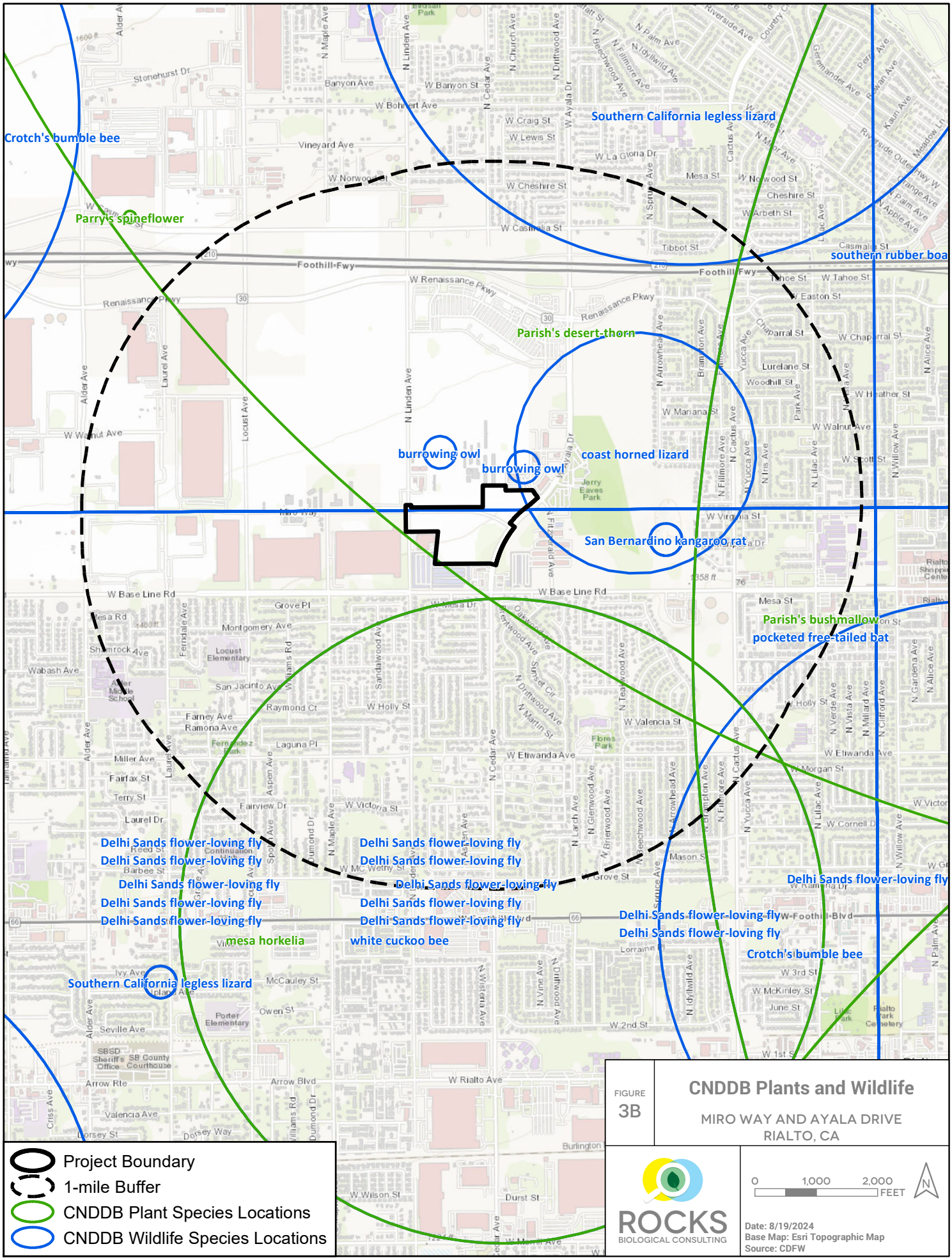
ROCKS BIOLOGICAL CONSULTING

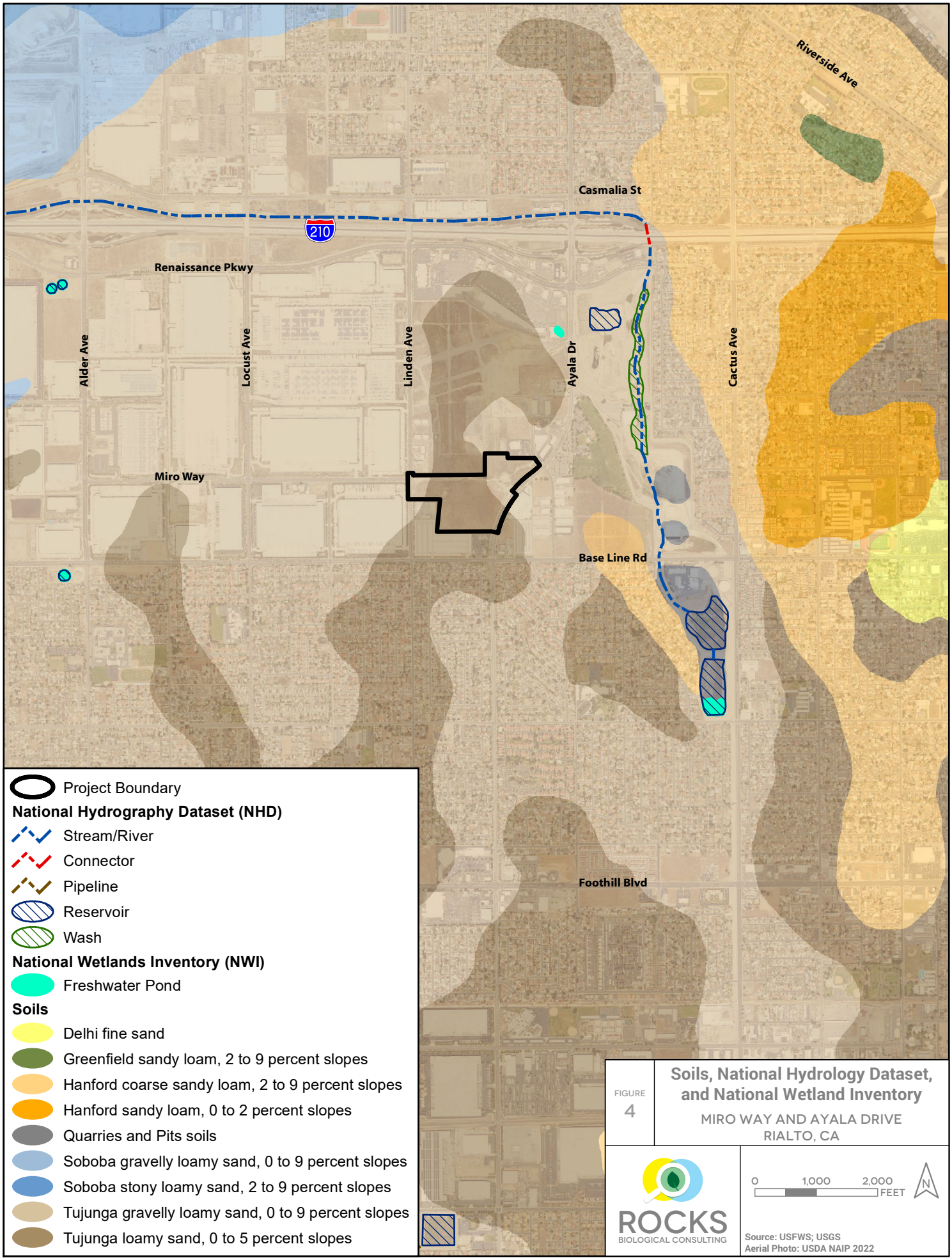
0 75 150 FEET

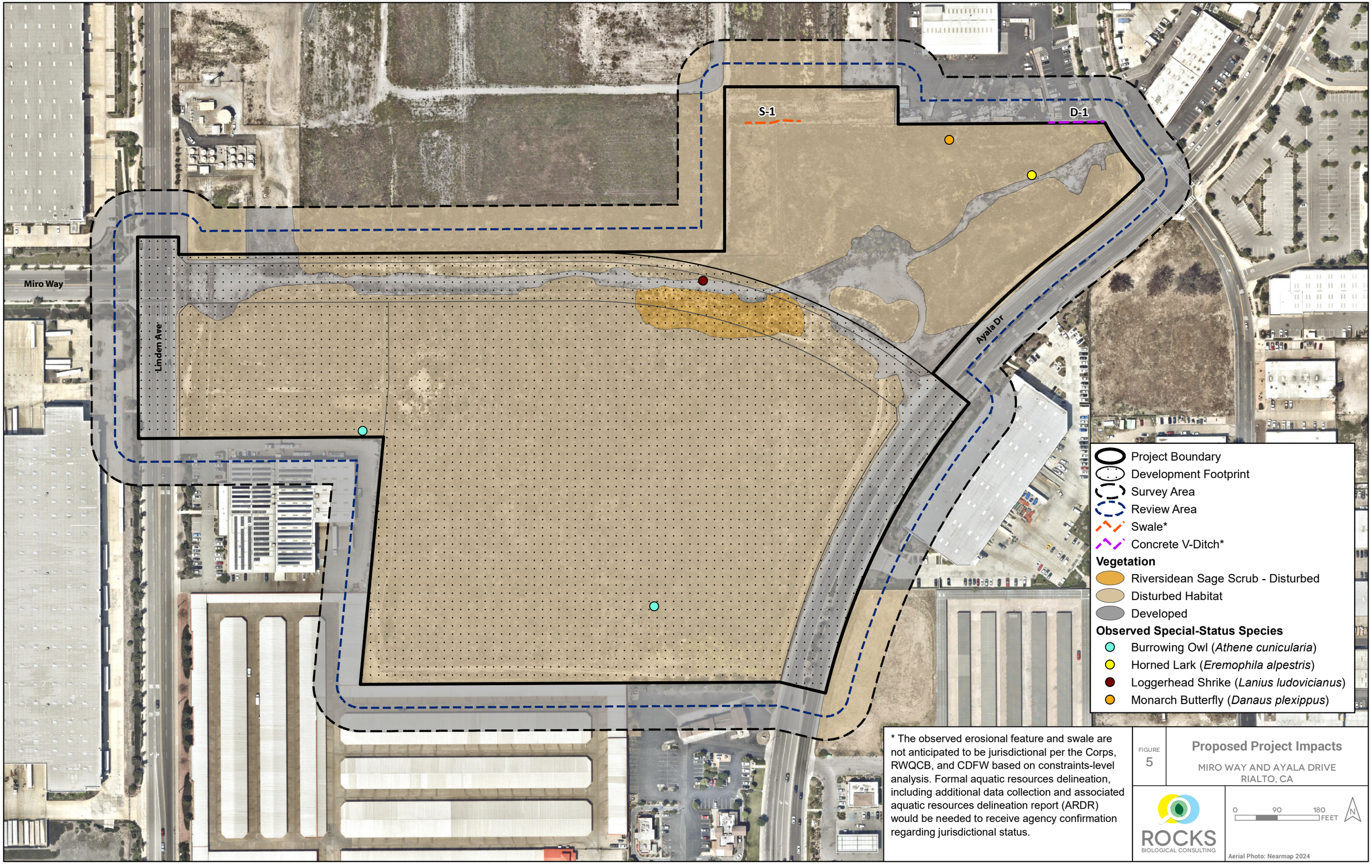
N

Aerial Photo: Nearmap 2024


Project Boundary
1-mile Buffer
San Bernardino Kangaroo Rat Critical Habitat
USFWS Species Locations
Least Bell's Vireo
Los Angeles Pocket Mouse
San Bernardino Kangaroo Rat
Santa Ana River Woolly-star
FIGURE 3A
USFWS Plants and Wildlife
MIRO WAY AND AYALA DRIVE
RIALTO, CA
ROCKS BIOLOGICAL CONSULTING
0 1,000 2,000 FEET
Date: 8/19/2024
Base Map: Esri Topographic Map
Source: USFWS


Crotch's bumble bee
Parry's spineflower
Southern California legless lizard
southern rubber boa
Parish's desert-thorn
burrowing owl
burrowing owl
coast horned lizard
San Bernardino kangaroo rat
Parish's bushmallow
pocketed free-tailed bat
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
Delhi Sands flower-loving fly
mesa horkelia
white cuckoo bee
Southern California legless lizard
Crotch's bumble bee
Project Boundary
1-mile Buffer
CNDDB Plant Species Locations
CNDDB Wildlife Species Locations
FIGURE 3B
CNDDB Plants and Wildlife
MIRO WAY AND AYALA DRIVE
RIALTO, CA
ROCKS BIOLOGICAL CONSULTING
0 1,000 2,000 FEET
N
Date: 8/19/2024
Base Map: Esri Topographic Map
Source: CDFW


Riverside Ave
Casmalia St
210
Renaissance Pkwy
Alder Ave
Locust Ave
Linden Ave
Ayala Dr
Cactus Ave
Miro Way
Base Line Rd
Foothill Blvd
Project Boundary
National Hydrography Dataset (NHD)
Stream/River
Connector
Pipeline
Reservoir
Wash
National Wetlands Inventory (NWI)
Freshwater Pond
Soils
Delhi fine sand
Greenfield sandy loam, 2 to 9 percent slopes
Hanford coarse sandy loam, 2 to 9 percent slopes
Hanford sandy loam, 0 to 2 percent slopes
Quarries and Pits soils
Soboba gravelly loamy sand, 0 to 9 percent slopes
Soboba stony loamy sand, 2 to 9 percent slopes
Tujunga gravelly loamy sand, 0 to 9 percent slopes
Tujunga loamy sand, 0 to 5 percent slopes
FIGURE 4
Soils, National Hydrology Dataset, and National Wetland Inventory
MIRO WAY AND AYALA DRIVE
RIALTO, CA
ROCKS BIOLOGICAL CONSULTING
0 1,000 2,000 FEET
N
Source: USFWS; USGS
Aerial Photo: USDA NAIP 2022



* The observed erosional feature and swale are not anticipated to be jurisdictional per the Corps, RWQCB, and CDFW based on constraints-level analysis. Formal aquatic resources delineation, including additional data collection and associated aquatic resources delineation report (ARDR) would be needed to receive agency confirmation regarding jurisdictional status.

FIGURE 5

Proposed Project Impacts

MIRO WAY AND AYALA DRIVE
RIALTO, CA

ROCKS BIOLOGICAL CONSULTING

0 90 180 FEET

N

Aerial Photo: Nearmap 2024

APPENDIX A

SITE PHOTOGRAPHS

Appendix A
Site Photographs



Photo 1. Overview of project site from the northern portion of the site, showing disturbed habitat (left) and disturbed Riversidean sage scrub (right), facing east. October 11, 2022.



Photo 2. View of disturbed habitat in the southern portion of the project site, with disturbed soils supporting sparse vegetation, facing west. October 11, 2022.



Photo 3. View of disturbed habitat in the western portion of the project site, showing remnants of a vineyard and small mammal burrows, facing west. October 11, 2022.



Photo 4. View of disturbed habitat and small area of Riversidean sage scrub along the southwestern portion of the project site, facing south. October 11, 2022.



Photo 5. View of open water associated with off-site water treatment facilities northwest of the project site, facing north. October 11, 2022.



Photo 6. View of disturbed habitat in the southeastern portion of the buffer, facing southeast. February 16, 2023.



Photo 7. View of disturbed habitat (foreground) and the developed habitat (background) in the western portion of the project site and buffer, facing southwest. February 16, 2023.



Photo 8. View of disturbed habitat (left) and developed land (right) along the eastern portion of the project site and buffer of the project site, facing northeast. February 16, 2023.



Photo 9. View of disturbed habitat from the center of the project site facing south. July 11, 2024.



Photo 10. View of disturbed habitat (left) and developed land (right) along the eastern portion of the project site and buffer of the project site, facing north. July 11, 2024.



Photo 11. View of concrete v-ditch (D-1) adjacent to development along the boundary of the project site, facing west. This feature has been constructed in an otherwise upland area to manage stormwater and irrigation runoff associated with development. October 11, 2022.



Photo 12. View of swale (S-1) located within the northeastern portion of the project site, facing north. Note that this feature is not expected to be jurisdictional by the Corps, RWQCB, or CDFW. October 11, 2022.

APPENDIX B

PLANT AND WILDLIFE SPECIES OBSERVED

Appendix B
Plant and Wildlife Species Observed

Family	Common Name	Scientific Name
Plants		
Asteraceae	annual bursage	*Ambrosia acanthicarpa*
Asteraceae	brittlebush	*Encelia farinosa*
Asteraceae	common sunflower	*Helianthus annuus*
Asteraceae	golden crownbeard*	*Verbesina encelioides*
Asteraceae	mule fat	*Baccharis salicifolia*
Asteraceae	scalebroom	*Lepidospartum squamatum*
Asteraceae	stinknet*	*Oncosiphon pilulifer*
Asteraceae	stinkwort*	*Dittrichia graveolens*
Asteraceae	telegraphweed	*Heterotheca grandiflora*
Asteraceae	valley lessingia	*Lessingia glandulifera*
Asteraceae	willow lettuce*	*Lactuca saligna*
Aquifoliaceae	holly*	*Ilex* sp.
Boraginaceae	Menzies' fiddleneck	*Amsinckia menziesii*
Brassicaceae	Saharan mustard*	*Brassica tournefortii*
Brassicaceae	short pod mustard*	*Hirschfeldia incana*
Chenopodiaceae	Russian thistle*	*Salsola* sp.
Chenopodiaceae	white goosefoot*	*Chenopodium album*
Cucurbitaceae	coyote melon	*Cucurbita palmata*
Cupressaceae	Chinese juniper*	*Juniperus chinensis*
Euphorbiaceae	California croton	*Croton californicus*
Euphorbiaceae	castor bean*	*Ricinus communis*
Euphorbiaceae	turkey-mullein	*Croton setiger*
Fabaceae	Mexican palo verde*	*Parkinsonia aculeata*
Fabaceae	short winged deerweed	*Acmispon glaber* var. *brevialatus*
Fabaceae	Spanish lotus	*Acmispon americanus*
Geraniaceae	red stemmed filaree*	*Erodium cicutarium*
Lamiaceae	white horehound*	*Marrubium vulgare*

Family	Common Name	Scientific Name
Myrtaceae	bottlebrush tree*	*Callistemon* sp.
Myrtaceae	gum tree*	*Eucalyptus* sp.
Plantanaceae	London plane tree*	*Platanus x hispanica*
Poaceae	bermudagrass*	*Cynodon dactylon*
Poaceae	red brome*	*Bromus rubens*
Poaceae	rip gut brome*	*Bromus diandrus*
Poaceae	slender oat*	*Avena barbata*
Polygonaceae	California buckwheat	*Eriogonum fasciculatum*
Polygonaceae	slender buckwheat	*Eriogonum gracile*
Solanaceae	jimsonweed	*Datura wrightii*
Solanaceae	tree tobacco*	*Nicotiana glauca*
Vitaceae	cultivated grape*	*Vitis vinifera*
Zygophyllaceae	puncture vine*	*Tribulus terrestris*
Invertebrates		
Formicidae	harvester ant	*Veromessor* sp.
Lycaenidae	western pygmy blue	*Brephidium exilis*
Nymphalidae	monarch butterfly (CFE)	*Danaus plexippus plexippus*
Tenebrionidae	darkling beetle	*Eleodes* sp.
Reptiles		
Phrynosomatidae	western side-blotched lizard	*Uta stansburiana elegans*
Birds		
Accipitridae	golden eagle (FP; WL)	*Aquila chrysaetos*
Accipitridae	red-tailed hawk	*Buteo jamaicensis*
Alaudidae	horned lark (WL)	*Eremophila alpestris actia*
Anatidae	Canada goose	*Branta canadensis*
Charadriidae	killdeer	*Charadrius vociferus*
Columbidae	mourning dove	*Zenaida macroura*
Columbidae	rock pigeon*	*Columba livia*
Corvidae	American crow	*Corvus brachyrhynchos*
Corvidae	common raven	*Corvus corax*

Family	Common Name	Scientific Name
Falconidae	American kestrel	*Falco sparverius*
Falconidae	merlin (WL)	*Falco columbarius*
Falconidae	American peregrine falcon	*Falco peregrinus anatum*
Falconidae	prairie falcon (WL)	*Falco mexicanus*
Fringillidae	house finch	*Haemorhous mexicanus*
Fringillidae	lesser goldfinch	*Spinus psaltria*
Hirundinidae	cliff swallow	*Petrochelidon pyrrhonota*
Hirundinidae	northern rough-winged swallow	*Stelgidopteryx serripennis*
Icteridae	Bullock's oriole	*Icterus bullockii*
Icteridae	hooded oriole	*Icterus cucullatus*
Icteridae	western meadowlark	*Sturnella neglecta*
Laniidae	loggerhead shrike (SSC)	*Lanius ludovicianus*
Laridae	California gull (WL)	*Larus californicus*
Mimidae	northern mockingbird	*Mimus polyglottos*
Parulidae	yellow-rumped warbler	*Setophaga coronata*
Passerellidae	California towhee	*Melozone crissalis*
Passerellidae	savannah sparrow	*Passerculus sandwichensis*
Passerellidae	white-crowned sparrow	*Zonotrichia leucophrys*
Passeridae	house sparrow*	*Passer domesticus*
Strigidae	burrowing owl (CSE)	*Athene cunicularia*
Sturnidae	European starling*	*Sturnus vulgaris*
Trochilidae	Anna's hummingbird	*Calypte anna*
Tyrannidae	black phoebe	*Sayornis nigricans*
Tyrannidae	Cassin's kingbird	*Tyrannus vociferans*
Tyrannidae	Say's phoebe	*Sayornis saya*
Tyrannidae	western kingbird	*Tyrannus verticalis*
Mammals		
Canidae	coyote	*Canis latrans*
Leporidae	desert cottontail	*Sylvilagus audubonii*
Sciuridae	California ground squirrel	*Otospermophilus beecheyi*

Family	Common Name	Scientific Name
Invertebrates		
Anisoptera (Suborder)	dragonfly	N/A
Apidae	European honeybee*	*Apis mellifera*
Araneidae	orb weaver	*Neoscona* sp.
Asilidae	bee killer	*Mallophora fautrix*
Asilidae	robber fly	*Efferia* sp.
Asilidae	robber fly	*Saropogon* sp.
Bombyliidae	beefly	N/A
Caelifera (Suborder)	grasshopper	N/A
Coenagrionidae	familiar bluet	*Enallagma civile*
Crabronidae	sand wasp	*Bembix* sp.
Formicidae	harvester ant	*Pogonomyrmex* sp.
Halictidae	sweat bee	*Lasioglossum* sp.
Libellulidae	flame skimmer	*Libellula saturata*
Lycaenidae	Clemence's blue	*Icaricia monticola*
Lycaenidae	gray hairstreak	*Strymon melinus*
Megachilidae	resin bee	*Anthidiellum* sp.
Megachilidae	woodborer bee	*Lithurgopsis* sp.
Mutillidae	velvet ant	*Dasymutilla* sp.
Nymphalidae	common buckeye	*Junonia coenia*
Nymphalidae	painted Lady	*Vanessa cardui*
Papilionidae	swallowtail	*Papilio* sp,
Pentatomidae	Say's stink bug	*Chlorochroa sayi*
Pieridae	cabbage white	*Pieris rapae*
Pieridae	checkered white	*Pontia protodice*
Pieridae	sulfur	*Colias* sp.
Pompilidae	spider wasp	N/A
Pompilidae	tarantula hawk	*Pepsis* sp.
Reduviidae	assassin bug	*Zelus* sp.

Family	Common Name	Scientific Name
Reduviidae	California bee assassin	*Apiomerus californicus*
Scarabaeidae	figeater beetle	*Cotinis mutabilis*
Sphecidae	grasshopper wasp	*Prionyx* sp.
Sphecidae	thread-waisted wasp	*Ammophila* sp.
Syrphidae	hoverfly	N/A
Tenebrionidae	darkling beetle	*Eleodes* sp.
Vespidae	golden paper wasp	*Polistes aurifer*

* Non-Native Species
CFE: Candidate for listing under U.S. Fish and Wildlife Service (USFWS) Endangered Species Act
CSE: Candidate for listing under California Fish and Game Commission (CFGC) California Endangered Species Act
FP: California Department of Fish and Wildlife (CDFW) Fully Protected Species
SSC: CDFW Species of Special Concern
WL: CDFW Watch List Species

APPENDIX C

MIRO WAY AND AYALA DRIVE DEVELOPMENT PROJECT PROTOCOL PRESENCE/ABSENCE 2023 SURVEY REPORT FOR BURROWING OWL (*ATHENE CUNICULARIA*)

ROCKS
BIOLOGICAL CONSULTING





MIRO WAY AND AYALA DRIVE DEVELOPMENT PROJECT

PROTOCOL PRESENCE/ABSENCE 2023 SURVEY REPORT FOR BURROWING OWL (*Athene cunicularia*)

San Bernardino County, California

August 15, 2023

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San Diego, CA 92107
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Appendix B – Bird Species Observed
Appendix C – California Natural Diversity Database Online Field Survey Form Reports
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1 SUMMARY

This report is a summary of the focused burrowing owl (*Athene cunicularia*; BUOW) surveys conducted by Rocks Biological Consulting (RBC) for the Miro Way and Ayala Drive Development Project (project) in Rialto, California. The project is located within the San Bernardino County Burrowing Owl Overlay Zone and based on the presence of suitable habitat, RBC conducted focused breeding season BUOW surveys between February 16, 2023, and July 3, 2023, in accordance with the California Department of Fish and Wildlife (CDFW) *Staff Report on Burrowing Owl Mitigation* (Guidelines; CDFW 2012).

Two individual BUOW and several burrows with BUOW sign were observed on the site during the first survey on February 16, 2023. No BUOW, active burrows, or BUOW sign were documented within the project site during the subsequent three BUOW surveys conducted between April 26, 2023, and July 3, 2023.

2 INTRODUCTION

2.1 PROJECT LOCATION

The project site is located north of W Baseline Road, west of N Ayala Drive, east of N Linden Avenue, and south of the former Rialto Airport located south of W Renaissance Parkway (Figure 1). The project site is surrounded by commercial developments and small vacant lots to the west, south, and east, with non-native grassland and disturbed Riversidean sage scrub to the north among the remnants of the Rialto Municipal Airport.

The project proposes the development of six industrial buildings and associated surface parking and landscaping. The project includes a Specific Plan Amendment (SPA) that would allow for a land use category (i.e., zone) change from Medium Density Residential, Private Recreation Center, School, Public Park, and Employment to Business Center on the project site. The project would allow for the development of six industrial buildings ranging from approximately 57,770 sf to 184,470 sf including 688,423 sf of warehouse space and 39,000 sf of ancillary office space. Each building would be one level and would not exceed the maximum allowed building height of 75 feet. Development start time will be dependent on processing time.

2.2 BURROWING OWL NATURAL HISTORY

The CDFW lists the BUOW as a Species of Special Concern. In California, suitable habitat for BUOW is generally characterized by short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils, such as naturally occurring grassland, shrub steppe, and desert habitats (Haug et al. 1993). In addition, BUOW may also occur in agricultural areas, ruderal grassy fields, vacant lots, and pastures containing suitable vegetation structure and useable burrows with foraging habitat in proximity (Gervais et al. 2008). Typically, BUOW use burrows dug by California ground squirrel (*Otospermophilus beecheyi*) and round-tailed ground squirrel (*Citellus tereticaudus*) and dens or holes dug by other fossorial species including badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (e.g., San Joaquin kit fox [*Vulpes macrotis mutica*]) (Ronan 2002).

Additionally, BUOW frequently use natural rock cavities, debris piles, culverts, and pipes for nesting and roosting (Rosenberg et al. 1998) and have been documented using artificial burrows for nesting and cover (Smith and Belthoff 2001). Occupancy of BUOW habitat is confirmed at a site when at least one BUOW, or its sign at or near a burrow entrance, is observed within the last three years (Rich 1984).

3 METHODS

RBC biologists Alec Goodman, Hannah Swarthout, and Shannon Mindeman conducted the breeding season BUOW surveys for the project. Alec Goodman is an associate biologist and has nearly seven years of experience in environmental consulting with a focus in Mojave Desert biology. Hannah Swarthout is a staff biologist with over three years of experience in environmental consulting, with a focus on BUOW for the recent field season. Shannon Mindeman is a senior biologist with over nine years of professional experience. Collectively, RBC surveyors have extensive experience surveying for BUOW and associated sign. Each biologist has experience performing BUOW surveys and is familiar with BUOW natural history and identification.

Four BUOW surveys were conducted during the breeding season (February 1 – August 31). In accordance with CDFW recommendations (CDFW 2012), three of the surveys occurred during the peak of breeding season (April 15 – July 15) at least three weeks apart. The survey area included the project site, as well as all suitable habitat within a 500-foot buffer per CDFW guidance (Figure 1).

During each survey, RBC biologists walked through suitable BUOW habitat within the survey area via straight-line transects spaced 10 meters (m) to 30 m apart, adjusting for vegetation height and density, and used binoculars to scan the survey area at least every 100 m for BUOW, active burrows, and/or sign of BUOW. No calls were used. All observed burrows were examined for sign, including feathers, pellets, whitewash, and prey remains. Burrows were considered active if a BUOW was observed at or near the entrance or if recent sign was present. Any BUOW, active burrows, and BUOW sign were mapped in the geographic information system (GIS) program ArcGIS Collector.

4 RESULTS

4.1 EXISTING CONDITIONS & HABITAT ASSESSMENT

The project site is primarily composed of undeveloped, disturbed habitat, a portion of which was included in the former Rialto Airport and a portion of which was historically used as agricultural land. Several small areas of disturbed Riversidean sage scrub are also present in the center and southeastern portions of the project site. The 500-foot buffer surrounding the project site to the west, south, and east is mainly composed of developed commercial lots, with some small vacant areas that support non-native grassland. The 500-foot buffer to the north of the project site supports non-native grassland and disturbed Riversidean sage scrub.

The vegetation in the survey area was variable, resulting in disparate degrees of habitat suitability throughout the duration of surveys. On the first visit, when two BUOW were observed, most plants

were in their early growth form and suitable habitat was present throughout the site. Habitat was dominated by non-native grasses (e.g., slender wild oat [*Avena barbata*] and ripgut grass [*Bromus diandrus*]), small flowered fiddleneck (*Amsinckia menziesii*), and short-pod mustard (*Hirschfeldia incana*), all still below 1 m in height, with shrubs making up a low percentage of total cover, predominately California buckwheat (*Eriogonum fasciculatum*) and deerweed (*Acmisbon glaber*). On the second survey, the vegetation composition remained unchanged; however, the grasses and short-pod mustard had grown densely to nearly 2 m in height causing the previously occupied burrows to be overgrown with vegetation. On the third and fourth surveys, the vegetation had been mowed and the survey area returned to a more suitable state for BUOW. Photographs of the survey area are presented in Appendix A.

4.2 BURROWING OWL SURVEY RESULTS

RBC conducted four focused BUOW surveys during the breeding season between February 16, 2023, and July 3, 2023. Survey dates, times, and weather conditions are presented in Table 1, below.

Table 1. Burrowing Owl Survey Dates and Conditions

Survey Number	Date	Surveyor(s)	Time (Start- End)	Temp. (F) (Start- End)	Cloud Cover (%) (Start- End)	Wind Range (mph) (Start; End)	Precip. (Lo, Med, High) (Start- End)	Visibility (Lo, Med, High) (Start; End)
1	2/16/2023	AG, HS	0700-1030	45-54	5-25	8-12; 12-18	None; None	High; High
2	4/26/23	AG	0700-0945	53-65	0-0	1-3; 1-3	None; None	High; High
3	6/12/23	HS, SM	0745-1115	55-62	100-98	3-5; 4-6	None; None	High; High
4	7/3/2023	AG, HS	0915-1200	80-91	0-1	1-3; 1-3	None; None	High; High
AG=Alec Goodman, HS=Hannah Swarthout, SM=Shannon Mindeman								

Two individual BUOW were observed during the first survey, with one near the southern and the second near the southeastern project boundary. Additionally, there were several active burrows observed in the southern portion of the project site, as determined by the presence of BUOW and/or whitewash and pellets. No BUOW, sign, or active burrows were observed during the subsequent three focused surveys.

No evidence of owl predation was observed; however, coyote and an active coyote den were recorded within the survey area. A total of 25 bird species were observed during surveys as listed in Appendix B. Observations of special-status species, including BUOW, were submitted to the California Natural Diversity Database (Appendix C). Surveyor field notes are included as Appendix D.

5 BURROWING OWL MITIGATION

Due the presence of BUOW during the survey, the project's location within the San Bernardino County Burrowing Owl Overlay Zone, and the presence of suitable habitat, pre-construction take avoidance surveys should be conducted in accordance with the CDFW guidelines at least 14 days and 24 hours prior to ground disturbing activities.

6 CONCLUSIONS

During the BUOW breeding season surveys, two individual BUOW and several burrows with sign were observed within the project site on February 16, 2023. No BUOW, active burrows, or BUOW sign were documented within the project site during the subsequent BUOW surveys conducted between April 26, 2023, and July 3, 2023. The absence of BUOW during the peak breeding season suggests that the project site is not currently used by BUOW for nesting. The site appears be used by BUOW for refuge and/or foraging outside of the nesting season. Pre-construction surveys will be required to avoid potential direct impacts on BUOW resulting from the project.

7 REFERENCES

California Department of Fish and Wildlife (CDFW). (2012). *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA.

Gervais, J. A., D. K. Rosenberg, & L. A. Comrack. (2008). *Burrowing owl* (Athene cunicularia). In California Bird Species of Special Concern: A ranked assessment of species, subspecies and distinct populations of birds of immediate conservation concern in California. Shuford, W. D. & T. Gardali, editors. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento, CA.

Haug, E. A., B. A. Millsap, & M. S. Martell. (1993). *Burrowing owl* (Speotyto cunicularia). In The Birds of North America. Poole, A. & F. Gill, editors. The Academy of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, D.C.

Rich, T. (1984). *Monitoring Burrowing Owl Populations: Implications of Burrow Re-use*. Wildlife Society Bulletin, 12:178-189.

Ronan, N. A. (2002). *Habitat selection, reproductive success, and site fidelity of burrowing owls in a grassland ecosystem*. Thesis, Oregon State University, Corvallis, OR.

Rosenberg, D. K., J. A. Gervais, H. Ober, & D. F. DeSante. (1998). *An adaptive management plan for the burrowing owl population at Naval Air Station Lemoore, California, USA*. Publication 95. Institute for Bird Populations, Pt. Reyes Station, CA.

Smith, B. W. & J. R. Belthoff. (2001). *Effects of nest dimensions on use of artificial burrow systems by burrowing owls*. The Journal of Wildlife Management, 65(2):318-326.

Leiske Dr
Fitzgerald Ave
Linden Ave
Miro Way
Ayala Dr
Fitzgerald Ave
Detail Area 1
Detail Area 2
Base Line Rd
Project Site
San Bernardino
Rialto
Highland
Fontana
Bloomington
Colton
Loma Linda
Grand Terrace
Glen Avon
Rubidoux
Mira Loma
Pedley
Riverside
Moreno Valley
15
215
210
10
60
91
Project Boundary
BUOW Survey Area
Survey Results
BUOW Individual
Occupied BUOW Burrow
Suitable Unoccupied BUOW Burrow
FIGURE 1
Survey Results
MIRO WAY AND AYALA DRIVE
RIALTO, CA
ROCKS BIOLOGICAL CONSULTING
0 125 250 FEET
N
Aerial Photo: Nearmap 2023

APPENDIX A

SITE PHOTOGRAPHS

Appendix A

Site Photographs



Photo 1. Representative view of non-native grassland dominated by ripgut brome (*Bromus diandrus*) and common fiddleneck (*Amsinckia menziesii*) within the project site, facing east. February 16, 2023.



Photo 2. Representative view of disturbed habitat within the project site, facing east. February 16, 2023.



Photo 3. View of occupied burrowing owl (*Athene cunicularia*, BUOW) burrow, where live BUOW was observed on the project site immediately northeast of the warehouse building on N Linden Avenue. February 16, 2023.



Photo 4. Representative view of a previously occupied BUOW burrow with overgrown vegetation and no new BUOW sign. Located on the project site northeast of the warehouse building on N Linden Avenue, adjacent to the burrow shown in Photo 3. April 26, 2023.



Photo 5. Representative view of vegetation growth. View of the short-pod mustard (*Hirschfeldia incana*) along the eastern edge of the project site, facing north. April 26, 2023.



Photo 6. View of mowed vegetation in the southern portion of the project area, facing northwest. June 12, 2023.



Photo 7. View of non-native grassland in the northern portion of the project site. July 3, 2023.



Photo 8. View of previously occupied BUOW burrow on the project site, immediately northeast of the warehouse building on N Linden Avenue, showing cleared vegetation and no new BUOW sign. July 3, 2023.

APPENDIX B

BIRD SPECIES OBSERVED

Appendix B

Bird Species Observed

Family	Scientific Name	Common Name
Accipitridae	*Buteo jamaicensis*	red-tailed hawk
Alaudidae	*Eremophila alpestris*	California horned lark (WL)†
Charadriiformes	*Larus californicus*	California gull (WL)†
Columbidae	*Columba livia*	rock pigeon*
Columbidae	*Zenaida macroura*	mourning dove
Corvidae	*Corvus brachyrhynchos*	American crow
Corvidae	*Corvus corax*	common raven
Falconidae	*Falco columbarius*	merlin (WL)†
Falconidae	*Falco* mexicanus	prairie falcon (WL)†
Falconidae	*Falco sparverius*	American kestrel
Fringillidae	*Haemorhous mexicanus*	house finch
Fringillidae	*Spinus psaltria*	lesser goldfinch
Hirundinidae	*Petrochelidon pyrrhonota*	cliff swallow
Hirundinidae	*Stelgidopteryx serripennis*	northern rough-winged swallow
Icteridae	*Icterus bullockii*	Bullock's oriole
Icteridae	*Icterus cucullatus*	hooded oriole
Icteridae	*Sturnella neglecta*	western meadowlark
Passerellidae	*Melozone crissalis*	California towhee
Passerellidae	*Tyrannus vociferans*	Cassin's kingbird
Passeridae	*Passer domesticus*	house sparrow*
Strigidae	*Athene cunicularia*	burrowing owl (SSC)†
Sturnidae	*Sturnus vulgaris*	Eurasian starling*
Trochilidae	*Calypte anna*	Anna's hummingbird
Tyrannidae	*Sayornis saya*	Say's phoebe
Tyrannidae	*Tyrannus verticalis*	western kingbird

*Introduced species
†No nesting or wintering behavior observed
SSC: CDFW Species of Special Concern
WL: CDFW Watch List Species

APPENDIX C

CALIFORNIA NATURAL DIVERSITY DATABASE ONLINE FIELD SURVEY FORM REPORTS

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code GOO23F0008
Quad code 3411714
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Eremophila alpestris actia*

Common name: California horned lark

Date of field work (mm-dd-yyyy): 07-03-2023

Comment about field work date(s): Also observed during survey on 12 June 2023

OBSERVER INFORMATION

Observer: Alec G. Goodman
Affiliation: Rocks Biological Consulting
Address: 5606 Meade Ave
Email: Alec@rocksbio.com
Phone: (619) 701-6798

Other observers: Hannah Swarthout

DETERMINATION

Keyed in:
Compared w/ specimen at:
Compared w/ image in:
By another person:
Other: Heard, then seen
Identification explanation:
Identification confidence: Very confident

Species found: Yes **If not found, why not?**

Level of survey effort: Incidentally observed during breeding season BUOW surveys.

Total number of individuals: 5

Collection? No **Collection number:**

Museum/Herbarium:

ANIMAL INFORMATION

How was the detection made? Heard singing then seen

Number detected in each age class:

adults	juveniles	larvae	egg mass	unknown
5				

Age class comment:

Bird site use:

☐ Nesting ☐ Rookery ☐ Nesting colony ☐ Burrow site ☐ Lek

☐ Non-breeding (over-wintering) ☐ Communal roost ☑ Other

Site use description: No signs of nesting observed, likely foraging ground.

What was the observed behavior? Flushed from ground, then landed to forage.

Describe any evidence of reproduction: None.

SITE INFORMATION

Habitat description:

Slope: Land owner/manager:

Aspect:

Site condition + population viability:

Immediate & surrounding land use:

Visible disturbances:

Threats:

General comments:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
	San Bernardino	Fontana	1397	34.12408	-117.39673	463415	3775985	11
1	**Public Land Survey**	**Feature Comment**						
	S T01N R05W 34							

The mapped feature is accurate within: 20 m

Source of mapped feature: ArcGIS Field Maps

Mapping notes:

Location/directions comments:

Attachment(s):

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code GOO23F0009
Quad code 3411714
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Larus californicus*

Common name: California gull

Date of field work (mm-dd-yyyy): 02-16-2023

Comment about field work date(s):

OBSERVER INFORMATION

Observer: Alec Goodman

Affiliation: Rocks Biological Consulting

Address: 5606 Meade Ave, San Diego, CA 92115

Email: Alec@rocksbio.com

Phone: (619) 701-6798

Other observers: Hannah Swarthout

DETERMINATION

Keyed in:

Compared w/ specimen at:

Compared w/ image in:

By another person:

Other: Seen

Identification explanation:

Identification confidence: Confident

Species found: Yes **If not found, why not?**

Level of survey effort: Incidental observation during breeding BUOW survey

Total number of individuals: 1

Collection? No **Collection number:**

Museum/Herbarium:

ANIMAL INFORMATION

How was the detection made? Seen

Number detected in each age class:

adults	juveniles	larvae	egg mass	unknown
1				

Age class comment:

Bird site use:

☐ Nesting ☐ Rookery ☐ Nesting colony ☐ Burrow site ☐ Lek

☐ Non-breeding (over-wintering) ☐ Communal roost ☑ Other

Site use description: Fly over. No Evidence of site use.

What was the observed behavior? In flight

Describe any evidence of reproduction: None

SITE INFORMATION

Habitat description:

Slope: Land owner/manager:

Aspect:

Site condition + population viability:

Immediate & surrounding land use:

Visible disturbances:

Threats:

General comments:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
	San Bernardino	Fontana	1405	34.12496	-117.39768	463329	3776083	11
1	**Public Land Survey**	**Feature Comment**						
	S T01N R05W 34							

The mapped feature is accurate within: 500 m

Source of mapped feature: ArcGIS Field Maps

Mapping notes:

Location/directions comments:

Attachment(s):

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code GOO23F0010
Quad code 3411714
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Falco columbarius*

Common name: merlin

Date of field work (mm-dd-yyyy): 02-16-2023

Comment about field work date(s):

OBSERVER INFORMATION

Observer: Alec Goodman

Affiliation: Rocks Biological Consulting

Address: 5606 Meade Ave, San Diego, CA 92115

Email: Alec@rocksbio.com

Phone: (619) 701-6798

Other observers: Hannah Swarthout

DETERMINATION

Keyed in:

Compared w/ specimen at:

Compared w/ image in:

By another person:

Other: Seen

Identification explanation: Larger than kestrel, streaky markings on underside and striped tail

Identification confidence: Very confident

Species found: Yes **If not found, why not?**

Level of survey effort: Incidental observation during nesting season BUOW survey.

Total number of individuals: 1

Collection? No **Collection number:**

Museum/Herbarium:

ANIMAL INFORMATION

How was the detection made? Seen

Number detected in each age class:

adults	juveniles	larvae	egg mass	unknown
1				

Age class comment:

Bird site use:

☐ Nesting ☐ Rookery ☐ Nesting colony ☐ Burrow site ☐ Lek

☐ Non-breeding (over-wintering) ☐ Communal roost ☑ Other

Site use description: Observed flying low to the ground through the site. Site possibly used as hunting ground.

What was the observed behavior? In flight

Describe any evidence of reproduction: None

SITE INFORMATION

Habitat description:

Slope: Land owner/manager:

Aspect:

Site condition + population viability:

Immediate & surrounding land use:

Visible disturbances:

Threats:

General comments:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
1	San Bernardino	Fontana	-9999	34.12491	-117.39856	463247	3776078	11
	Public Land Survey	**Feature Comment**						
	S T01N R05W 34							

The mapped feature is accurate within: 20 m

Source of mapped feature: ArcGIS Field Maps

Mapping notes:

Location/directions comments:

Attachment(s):

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code GOO23F0011
Quad code 3411724
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Falco mexicanus*

Common name: prairie falcon

Date of field work (mm-dd-yyyy): 07-03-2023

Comment about field work date(s):

OBSERVER INFORMATION

Observer: Alec Goodman

Affiliation: Rocks Biological Consulting

Address: 5606 Meade Ave, San Diego, CA 92115

Email: alec@rocksbio.com

Phone: (619) 701-6798

Other observers: Hannah Swarthout

DETERMINATION

Keyed in:

Compared w/ specimen at:

Compared w/ image in:

By another person:

Other: Observed

Identification explanation:

Identification confidence: Very confident

Species found: Yes **If not found, why not?**

Level of survey effort: Incidental observation during breeding season BUOW survey

Total number of individuals: 1

Collection? No **Collection number:**

Museum/Herbarium:

ANIMAL INFORMATION

How was the detection made? Seen

Number detected in each age class:

adults	juveniles	larvae	egg mass	unknown
1				

Age class comment:

Bird site use:

☐ Nesting ☐ Rookery ☐ Nesting colony ☐ Burrow site ☐ Lek

☐ Non-breeding (over-wintering) ☐ Communal roost ☑ Other

Site use description: Observed flying overhead

What was the observed behavior? In flight

Describe any evidence of reproduction: None

SITE INFORMATION

Habitat description:

Slope:

Aspect:

Site condition + population viability:

Immediate & surrounding land use:

Visible disturbances:

Threats:

General comments:

Land owner/manager:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
1	San Bernardino	Devore	1399	34.12516	-117.39530	463548	3776105	11
	Public Land Survey	**Feature Comment**						
	S T01N R05W 34							

The mapped feature is accurate within: 20 m

Source of mapped feature: ArcGIS Field Maps

Mapping notes:

Location/directions comments:

Attachment(s):

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code GOO23F0012
Quad code 3411714
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Athene cunicularia*

Common name: burrowing owl

Date of field work (mm-dd-yyyy): 02-16-2023

Comment about field work date(s):

OBSERVER INFORMATION

Observer: Alec Goodman

Affiliation: Rocks Biological Consulting

Address: 5606 Meade Ave, San Diego, CA 92115

Email: alec@rocksbio.com

Phone: (619) 701-6798

Other observers: Hannah Swarthout

DETERMINATION

Keyed in:

Compared w/ specimen at:

Compared w/ image in:

By another person:

Other: Seen

Identification explanation:

Identification confidence: Very confident

Species found: Yes **If not found, why not?**

Level of survey effort: Observed during breeding season BUOW surveys

Total number of individuals: 1

Collection? No **Collection number:**

Museum/Herbarium:

ANIMAL INFORMATION

How was the detection made? Seen

Number detected in each age class:

adults	juveniles	larvae	egg mass	unknown
1				

Age class comment:

Bird site use:

☐ Nesting ☐ Rookery ☐ Nesting colony ☑ Burrow site ☐ Lek

☑ Non-breeding (over-wintering) ☐ Communal roost ☐ Other

Site use description: The site appears be used by BUOW for refuge and/or foraging outside of the nesting season.

What was the observed behavior? In burrow apron, flushed to nearby auxiliary burrow.

Describe any evidence of reproduction: None.

SITE INFORMATION

Habitat description:

Slope: Land owner/manager:

Aspect:

Site condition + population viability:

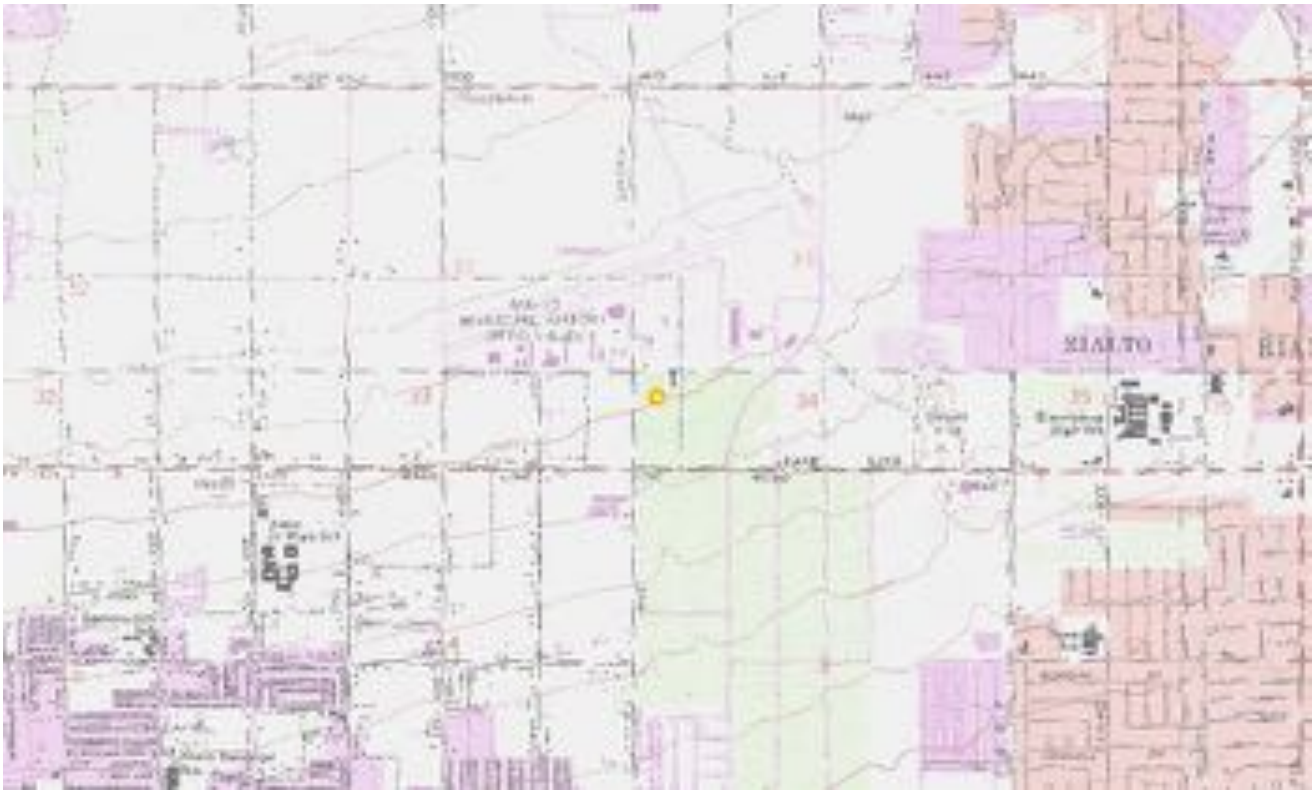
Immediate & surrounding land use:

Visible disturbances:

Threats:

General comments:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
	San Bernardino	Fontana	-9999	34.12407	-117.39994	463120	3775986	11
1	**Public Land Survey**	**Feature Comment**						
	S T01N R05W 34							

The mapped feature is accurate within: 5 m

Source of mapped feature: ArcGIS Field Maps

Mapping notes:

Location/directions comments:

Attachment(s):

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code GOO23F0013
Quad code 3411714
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Athene cunicularia*

Common name: burrowing owl

Date of field work (mm-dd-yyyy): 02-16-2023

Comment about field work date(s):

OBSERVER INFORMATION

Observer: Alec Goodman

Affiliation: Rocks Biological Consulting

Address: 5606 Meade Ave, San Diego, CA 92115

Email: info@rocksbio.com

Phone: (619) 701-6798

Other observers: Hannah Swarthout

DETERMINATION

Keyed in:

Compared w/ specimen at:

Compared w/ image in:

By another person:

Other: Seen

Identification explanation:

Identification confidence: Very confident

Species found: Yes **If not found, why not?**

Level of survey effort: Observed during breeding season BUOW survey

Total number of individuals: 1

Collection? No **Collection number:**

Museum/Herbarium:

ANIMAL INFORMATION

How was the detection made? Seen

Number detected in each age class:

adults	juveniles	larvae	egg mass	unknown
1				

Age class comment:

Bird site use:

☐ Nesting ☐ Rookery ☐ Nesting colony ☑ Burrow site ☐ Lek

☑ Non-breeding (over-wintering) ☐ Communal roost ☐ Other

Site use description: The site appears be used by BUOW for refuge and/or foraging outside of the nesting season.

What was the observed behavior? Flushed from burrow to nearby auxiliary burrow. Confirmed 2nd individual observed on this day/survey.

Describe any evidence of reproduction: None.

SITE INFORMATION

Habitat description:

Slope: Land owner/manager:

Aspect:

Site condition + population viability:

Immediate & surrounding land use:

Visible disturbances:

Threats:

General comments:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
	San Bernardino	Fontana	1393	34.12289	-117.39798	463300	3775854	11
1	**Public Land Survey**	**Feature Comment**						
	S T01N R05W 34							

The mapped feature is accurate within: 5 m

Source of mapped feature: ArcGIS Field Maps

Mapping notes:

Location/directions comments:

Attachment(s):

APPENDIX D

SURVEYOR FIELD NOTES

Miro Way & Ayala Dr BUOW 1 2/16

~~AG~~ HS	s.	0700	45	8-12	5%
	e	1030	54	12-18	25%

CORA CAGU ROPI HOFI AMCR ANHU
MERL* BUOW* CAKI WEME LEGO AMKE

↓
2 individuals

CAGS Burrow; Coyote
- Vegetation overgrown where previous suitable burrows were
0900 - BUOW flushed from burrow near east side. flew to ave burrow
~~X~~ MANY CAGS Burrows in SE taller field
0905 - 2nd owl flushed from burrow @ SE side. 2 burrows w sign
- Homeless activity.

Scale: 1 square = _____

Rite in the Rain.

2/16 MIRO WAY & AYALA BUOW

0445 - 1530 #1

2.6 MILES TIME TEMP WIND CC

START 0700 45 5-10 5%

END 1030 54 8-16 25%

12-18

WILDLIFE:

CORA, ROPI, CAGU, HOFI, AMCR, ANHU, MERL*, BUOW* CAKI, WEME, LEGO, COYOTE, CACH, TMKE,

TRANSIENT ACTIVITY

* BUOW FLUSHED AT 0800 TO AUX BURROW. NOT A LOT OF SIGN AT EITHER BURROW.
* SECOND BUOW FLUSHED FROM "4TH" BURROW AT 0902.

* 75%. CERTAIN ON ID. LARGER THAN KESTREL, SMALLER THAN PEREGRINE. BROWNISH OVERALL. POWERFUL FLAPPING. NOT TOO FAST

Rite in the Rain

Min Wy Burrow #2 4/26/23

	0700	53	1-3	0% (Hazy)
	0945	65	1-3	0%

MODO EUST LEGO CALT CORA HOFI
BUOR ROPI HOSP ANHU RTHA SAPH
IRUS

- Veg is overgrown, AVEBAR ; HIRUC >3ft.
Coyote, WFL, CATS. SBLI

Burrow complex A: overgrown, poor condition
NO sign.

Burrow complex B. mediate area surrounding
burrow still low height veg. Everything
else over 4ft.

* Some areas were excluded
do to tall, dense vegetation
- all CATS burrows were visited.

Mito Way & Ayala Dr. BUOW #3

	time	temp	wind	cloud
start	0745	55°	3-5	100%
end	1115	62°	4-6	98%

HOFI WEKI EUST RTHA CAGI S
MODO CLSW HOLA LEGO coyote scat,
~~COSD~~ ROPI HOOR ANHU den,
CORA AMKE CAKI individual
AMCR AVCO SAPH
CATO KILL BLPH

checkered white
Clemence's Blue
marine blue

NO BUOW or sign

mapped coyote den

6/12 MIRO @ AYALA BUOW #3
0515-1430 + 27 MILES

	TIME	TEMP	WIND	CC
START	0745	55°	3-5	100% W/ DRIZZLE
END	1115	62°	4-6	90%

WILDLIFE:
HOFI, MOBO, WEKI, CLSW, CAGS, ~~BOBO~~, EUST, HOLA, HOOR, ~~CORA~~, AMCR, CAKI, ~~AMCR~~, COYOTE SCAT, AUDUBON CT, JAPH, CLEMENCES BLUE? CHECKERED WHITE, CALT, KILL, BUPA, MARINE BLUE, ~~BUTTER~~ RTHA, LEGO, ANHU,

NO BUOW/SIGN

Scale: 1 square = _____

Rite in the Rain

102 M.ro Way BUAN #4 7/3

AC	0915	80	1-3	0%
HS	1200	91	1-3	1%

0700 →

RTHA AMKE CORA LEGO HOFI
WEKE HOLA* PRFA* SAPH MOOD

Gopher snake, CAGS →

- Fields recently mowed, suitable habitat throughout

Coleogyne ramosissima* Echinocereus engelmanni
Muhlenbergia lavesiana Gutierrezia microcephala
Eschscholzia sp. Rhamnus ilicifolia*
Pinus monophylla Hesperoyucca whipplei*
Quercus cornelius-mulleri*
Ericameria nauseosa*

Scale: 1 square = _____

7/3 MIRODAYALA BUOW #4
0715-1430

	TIME	TEMP	WIND	CL
START	0915	80	1-3	0%
END	1200	91	3-6	1%

WILDLIFE:
AMKE, RTHA, LEGO, HOFI,
WEKA, GOPHER SNAKE, HOLA,
PRFA, MOBO, ROPI, SAPH,

Scale: 1 square = _____

Rite in the Rain.

APPENDIX D

MIRO WAY AND AYALA DRIVE DEVELOPMENT PROJECT FOCUSED CROTCH'S BUMBLE BEE SURVEY REPORT

ROCKS
BIOLOGICAL CONSULTING





MIRO WAY AND AYALA DRIVE DEVELOPMENT PROJECT – FOCUSED CROTCH'S BUMBLEBEE SURVEY REPORT

Hesperia, California

September 16, 2024

Prepared for:
Kimley-Horn and Associates, Inc.
1100 W. Town and Country Road, Suite 700
Orange, CA 92868
(714) 786-6128

Prepared by:
Rocks Biological Consulting
4312 Rialto Street
San Diego, CA 92107
(619) 701-6798

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2.1 Project Location & Proposed Activity 1
2.2 Crotch's Bumble Bee Status & Natural History 1
3 Methods 2
3.1 Survey Methods 2
3.2 Surveyor Qualifications 2
4 Results 2
4.1 Existing Conditions & Habitat Assessment 2
4.2 Focused Crotch's Bumble Bee Survey Results 3
5 Crotch's Bumble Bee Avoidance & Minimization 3
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7 References 5

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Figure 1 – Project Location
Figure 2 – Survey Area

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Appendix A – Site Photographs
Appendix B – Potential Nectar Sources Observed
Appendix C – Invertebrates Observed
Appendix D – Surveyor Field Notes

1 SUMMARY

This report is a summary of the results of focused surveys for Crotch's bumble bee (*Bombus crotchii*, CBB) that Rocks Biological Consulting (RBC) conducted for the Miro Way and Ayala Drive Development Project (project) in Rialto, San Bernardino County, California. No CBB or any other *Bombus* species were documented within the survey area during focused surveys.

2 INTRODUCTION

2.1 PROJECT LOCATION & PROPOSED ACTIVITY

The approximately 35-acre project site is in the City of Rialto, San Bernardino County, California (Figure 1). The project is located north of W Baseline Road, west of N Ayala Drive, east of N Linden Avenue, and south of Miro Way. The project proposes the development of two industrial warehouses. The project would also include the rezone of Planning Area 123 from School to General Commercial with a Residential Overlay, which is not included in the current project's approximately 20.8-acre impact footprint. The project occurs within Township 01N, Range 05W, Sections 33 and 34 on the U.S. Geological Survey (USGS) 7.5-minute Fontana, Devore quadrangle map (Figure 1).

2.2 CROTCH'S BUMBLE BEE STATUS & NATURAL HISTORY

CBB has experienced sharp population declines over the past decade and is currently a candidate for listing under the California Endangered Species Act (CESA) based on a 2018 petition submitted by the Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Center for Food Safety (California Department of Fish and Wildlife [CDFW] 2022). Historically, CBB occurred from northern California south to Baja Mexico and from the coast to the central valley and southwestern desert, with some records as far east as Nevada. However, since the early 2000s a change in extent has been observed, with current range size estimated to be approximately of 75% of historic range and the northern populations now extinct. In addition, the species persistence within its extant range is estimated be approximately 20% of historic occupancy (Hatfield 2015). Though CBB is relatively tolerant of fragmented and/or semi-urban environments, habitat loss, climate change, and pesticide use are considered imminent threats to populations (Williams et al. 2014; CDFW 2022).

Suitable habitat for this species includes a variety of open shrub and grassland vegetation communities that support significant stands of nectar sources, mostly in the form of flowering annuals. CBB's primary nectar sources include *Medicago*, *Lupinus*, *Chaenactis*, *Asclepias*, *Phacelia*, and *Salvia*, which have an easily accessible nectar that accommodates CBB's relatively short tongue (Williams et al. 2014). The project site and surrounding area support scrub habitat and nectar sources appropriate for CBB; therefore, the potential for this species to occur is moderate.

3 METHODS

3.1 SURVEY METHODS

Based on the presence of suitable habitat within the survey area (e.g., the project site), RBC biologists Alec Goodman, Hannah Swarthout, and Kelsey Woldt conducted focused surveys in accordance with the CDFW's *Survey Considerations for CESA Candidate Bumble Bee Species* (CDFW 2023). Surveys were performed two to four weeks apart in July and August within the time period when detection of CBB is greatest (i.e., April through August). Surveys were conducted by walking transects through the survey area focusing on areas where ample nectar sources were present, with a minimum of one person-hour of searching per three acres of suitable habitat. All observed insects and potential nectar sources were identified and recorded during the survey. Surveyors were prepared to record the location of any observed CBB, along with population size and nesting status, and to collect non-lethal photo vouchers captured at various angles to confirm accurate identification.

3.2 SURVEYOR QUALIFICATIONS

Mr. Goodman is a wildlife biologist with over seven years of professional experience and a Bachelor of Science degree in environmental science. Ms. Swarthout is a wildlife biologist with over four years of professional experience and a Bachelor of Arts degree in environmental studies. Ms. Woldt is a wildlife biologist with five years of professional experience and holds a Master of Science degree in biology and a Bachelor of Science degree in ecology, animal behavior, and evolutionary biology. All surveyors are experienced at conducting CBB surveys and are familiar with the identifying characteristics, behavior, and nectar sources for CBB. Additionally, the biologists have taken courses that include bumblebee identification.

4 RESULTS

4.1 EXISTING CONDITIONS & HABITAT ASSESSMENT

The survey area is composed primarily of disturbed habitat, with disturbed Riversidean sage scrub and developed land also present. During the surveys, the disturbed habitat was mostly denuded of vegetation from recent mowing, but remnant foxtail brome (*Bromus madritensis*), slender oat (*Avena barbata*), golden crownbeard (*Verbesina encelioides*), and doveweed (*Croton setiger*) were sparsely present. The disturbed Riversidean sage scrub (<1 acre) was dominated by California buckwheat (*Eriogonum fasciculatum*), short-pod mustard (*Hirschfeldia incanna*), deerweed (*Acmispon glaber*), and doveweed.

At the time of the survey, the disturbed habitat and developed land provided only marginally suitable habitat for CBB in the form of sparce, patchy, nectar sources and potential nesting and/or overwintering resources. Areas of disturbed habitat and developed land without resources for CBB were not surveyed. The on-site disturbed Riversidean sage scrub is suitable for CBB and contained an abundance of nectar sources as well as potential nesting and overwintering resources. The site is surrounded on three sides by developed land (to the west, south, and east),

which may provide nectar sources through ornamental vegetation. To the north, the site borders disturbed habitat with similar vegetation composition as the site. Representative site photographs are presented in Appendix A.

Potential nectar sources for CBB were present on site, including California buckwheat, telegraphweed (*Heterotheca grandiflora*), short-pod mustard, and Spanish lotus (*Acmispon americanus*). A complete list of observed potential nectar sources is presented in Appendix B.

4.2 FOCUSED CROTCH'S BUMBLE BEE SURVEY RESULTS

RBC conducted three focused CBB surveys during the nesting season between July 11 and August 15, 2024. Survey dates, conditions, and personnel are presented in Table 1, below.

No CBB or other *Bombus* species were observed within the survey area. However, many other invertebrates were observed during the surveys. A complete list of invertebrates observed is presented as Appendix C, and field notes are provided in Appendix D.

Table 1. Crotch's Bumble Bee Survey Dates/Conditions

Survey Round	Date	Surveyor(s)	Time (Start-End)	Temperature (F) (Start-End)	Cloud Cover (%) (Start-End)	Wind Speed (mph) (Start; End)
1	7/11/24	AG	0700–1115	71-89	10-15	1–2; 1–3
2	7/31/24	AG, KW	0830–1100	72-84	0-0	0–3; 1–3
3	8/15/24	AG, HS	0830-1130	75-88	0-0	1–3; 1–3
Surveyors: AG=Alec Goodman; HS=Hannah Swarthout; KW=Kelsey Woldt						

5 CROTCH'S BUMBLE BEE AVOIDANCE & MINIMIZATION

Pursuant to the CDFW *Survey Considerations for CESA Candidate Bumble Bee Species*, all project sites that support suitable habitat within the range of CBB should conduct pre-construction surveys, regardless of CBB presence/absence during previous focused surveys. The pre-construction surveys will be conducted in accordance with CDFW recommendations. As such, the following avoidance and minimization measure is required to avoid potential direct impacts on CBB:

> Within one year of any ground disturbance or vegetation clearing, a focused species survey for CBB shall be conducted by a qualified biologist. Survey methodology shall follow CDFW's 2023 *Survey Considerations for CESA Candidate Bumble Bee Species*. Surveys shall take place when detection of the focal species is greatest (April through August), when feasible. CBB surveys shall be conducted for a minimum of one person-hour of searching (excluding time spent capturing, photographing, identifying, and releasing specimen) per three acres of suitable habitat. Surveillance shall be focused where ample nectar sources are present, and non-lethal photo vouchers of

focal species shall be captured at various angles to confirm accurate identification (CDFW 2023).

If CBB is documented on the project site, the project proponent shall notify CDFW within five working days of the observation. If necessary, site-specific avoidance and minimization measures shall be implemented to avoid take of CBB. If take avoidance is not feasible, an ITP shall be obtained from CDFW.

6 CONCLUSIONS

No CBB were documented within the survey area for the Miro Way and Ayala Drive Development Project during focused surveys conducted between July 11 and August 15, 2024. The focused survey results reported herein are valid for one year. Due to habitat suitability and site location, CBB pre-construction surveys are required within one year of construction activity initiation in order to confirm species absence and ensure impact avoidance.

7 REFERENCES

California Department of Fish and Wildlife (CDFW). (2022). *California Department of Fish and Wildlife News room*. Retrieved from https://wildlife.ca.gov/News/cdfw-seeks-public-comment-related-to-crotchs-bumble-bee-franklins-bumble-bee-suckleys-cuckoo-bumble-bee-and-western-bumble-bee#gsc.tab=0.

__. (2023). *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. Retrieved July 2023, from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=213150&inline.

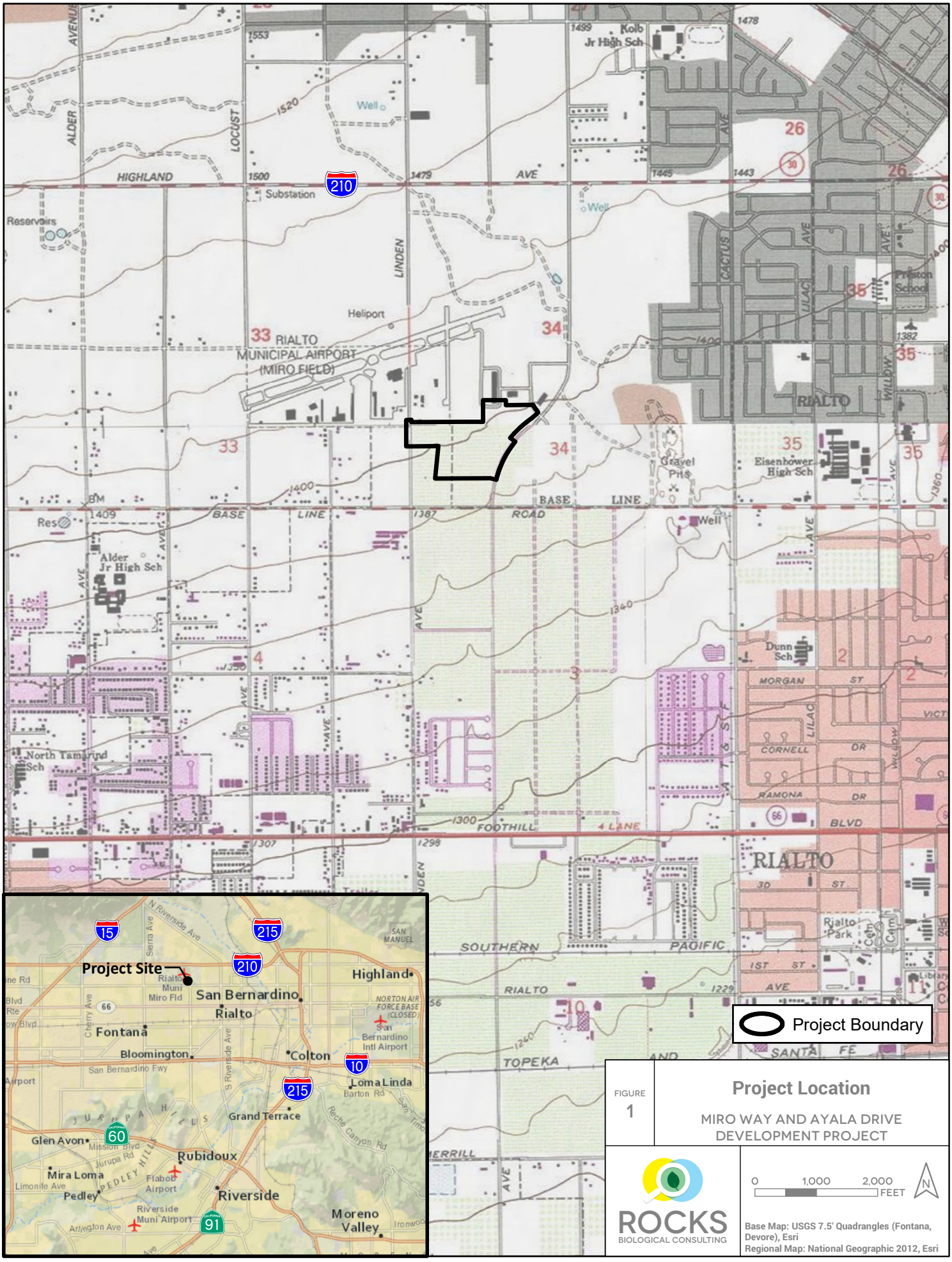
__. (2024). California Department of Fish and Game Natural Diversity Database – Electronic Format. Retrieved on 30 June 2024.

Hatfield, R., S. Jepsen, R. W. Thorp, L. Richardson, and S. Colla. (2015). *Crotch bumble bee, Bombus crotchii. The IUCN Red List of Threatened Species 2015*. Retrieved on 25 July 2024, from https://www.iucnredlist.org/ja/species/44937582/46440211.

NatureServe. (2023). NatureServe Explorer. *Bombus crotchii: Crotch's Bumble Bee*. Retrieved June 2023, from https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.834085/Bombus_crotchii.

Thorp, R. W., D. S. Horning, and L. L. Dunning. (1983). *Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae)*. Bulletin of the California Insect Survey 23: viii+79 pp.

Williams, P., R. W. Thorp, L. Richardson, and S. Colla. (2014). *Bumble Bees of North America: An identification guide*. Princeton University Press.


Project Site
Project Boundary
Highland
San Bernardino
Rialto
Fontana
Bloomington
Colton
Loma Linda
Grand Terrace
Glen Avon
Rubidoux
Mira Loma
Pedley
Riverside
Moreno Valley
Project Location
MIRO WAY AND AYALA DRIVE DEVELOPMENT PROJECT
FIGURE 1
ROCKS BIOLOGICAL CONSULTING
0 1,000 2,000 FEET
Base Map: USGS 7.5' Quadrangles (Fontana, Devore), Esri
Regional Map: National Geographic 2012, Esri


Miro Way
Linden Ave
Ayala Dr
Project Boundary
Development Footprint
Crotch's Bumble Bee Survey Area
Vegetation
Riversidean Sage Scrub - Disturbed
Disturbed Habitat
Developed
FIGURE 2
Survey Area
MIRO WAY AND AYALA DRIVE DEVELOPMENT PROJECT
ROCKS BIOLOGICAL CONSULTING
0 75 150 FEET
N
Aerial Photo: Nearmap 2024

APPENDIX A

SITE PHOTOGRAPHS

Appendix A

Site Photographs



Photo 1. View of survey area from the northern boundary, facing south, showing various nectar sources including California buckwheat (*Eriogonum fasciculatum*) and deerweed (*Acmispon glaber*). July 11, 2024.



Photo 2. View of the survey area from the center of the project, facing west, showing various nectar sources including golden crownbeard (*Verbesina encelioides*) and doveweed (*Croton setiger*). July 15, 2024.

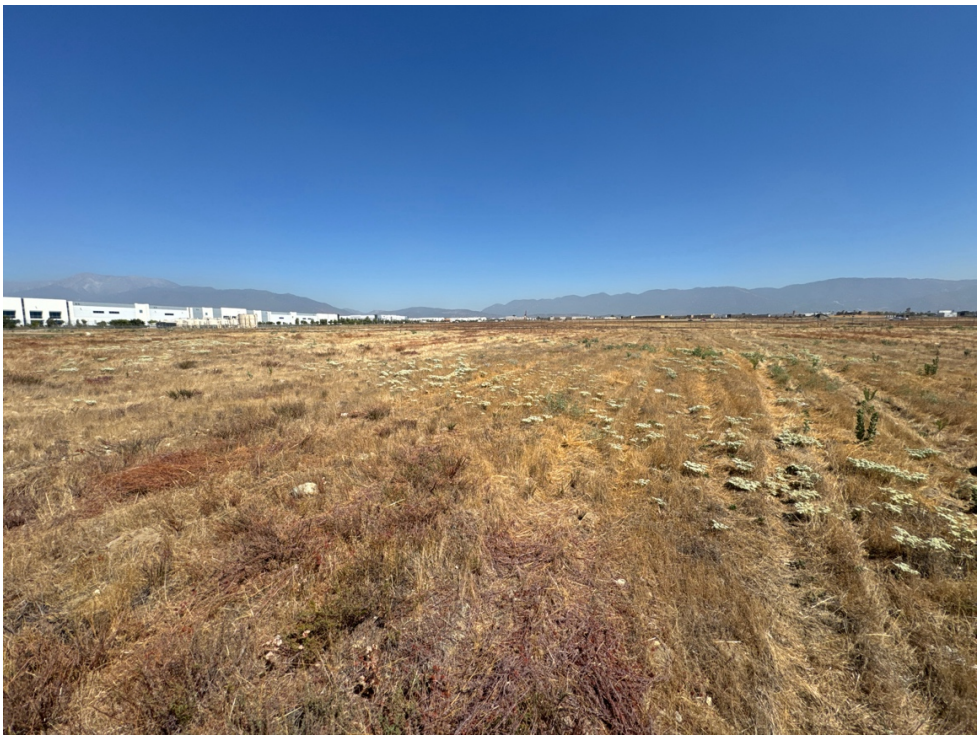


Photo 3. View from the central portion of the survey area, facing north. August 15, 2024.



Photo 4. View from the central portion of the survey area, facing east. August 15, 2024.

APPENDIX B

POTENTIAL NECTAR SOURCES

Appendix B

Potential Nectar Sources Observed

Family	Scientific Name	Common Name
Asteraceae	*Centaurea melitensis*	Tocalote
Asteraceae	*Verbesina encelioides*	Golden crownbeard
Brassicaceae	*Hirschfeldia incana*	Short-pod mustard
Euphorbiaceae	*Croton setiger*	Doveweed
Euphorbiaceae	*Euphorbia albomarginata*	Rattlesnake sandmat
Fabaceae	*Acmispon americanus*	Spanish lotus
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat
Solanaceae	*Datura wrightii*	Jimsonweed
Solanaceae	*Heterotheca grandiflora*	Telegraphweed
Zygophyllaceae	*Tribulus terrestris*	Puncture vine

APPENDIX C

INVERTEBRATES OBSERVED

Appendix C

Invertebrates Observed

Family	Scientific Name	Common Name
Anisoptera (Suborder)	n/a	Dragonfly
Apidae	*Apis mellifera*	European honey bee
Apidae	*Anthophora californica*	California digger bee
Araneidae	*Argiope trifasciata*	Banded garden spider
Asilidae	*Efferia* sp.	Robber fly
Asilidae	*Mallophora fautrix*	Bee killer
Asilidae	*Saropogon* sp.	Robber fly
Bombyliidae	n/a	Bee fly
Caelifera (Suborder)	n/a	Grasshopper
Coenagrionidae	*Enallagma civile*	Familiar bluet
Conopidae	*Physocephala texana*	Thick-headed fly
Crabronidae	*Bembix comatus*	Bembix wasp
Crabronidae	n/a	Square-headed wasp
Crabronidae	*Philanthus* sp.	Beewolf
Formicidae	*Pogonomyrmex sp.*	Harvester ant
Formicidae	*Veromessor* sp.	Smooth harvester ant
Halictidae	*Lasioglossum* sp.	Sweat bee
Hesperiidae	*Pyrgus* sp.	Checkered skipper
Libellulidae	*Libellula saturata*	Flame skimmer
Libellulidae	*Tramea lacerata*	Black saddlebags
Lycaenidae	*Brephidium exilis*	Western pygmy blue
Lycaenidae	*Icaricia monticola*	Clemence's blue
Lycaenidae	*Strymon melinus*	Gray hairstreak
Megachilinae	*Anthidiellum* sp.	Rotund Resin bee
Megachilinae	*Lithurgopsis* sp	Woodborer bee
Mutillidae	*Dasymutilla aureola*	Pacific velvet ant
Nymphalidae	*Junonia coenia*	Common buckeye
Nymphalidae	*Vanessa cardui*	Painted lady
Papilionidae	*Papilio rutulus*	Western tiger swallowtail
Pentatomidae	*Chlorochroa sayi*	Say’s stink bug
Pieridae	*Colias* sp.	Sulphur
Pieridae	*Pieris rapae*	Cabbage white
Pieridae	*Pontia protodice*	Checkered white

Pompilidae	*Pepsis* sp.	Tarantula hawk
Reduviidae	*Apiomerus californicus*	California bee assassin
Reduviidae	*Zelus* sp.	Assassin bug
Scarabaeidae	*Cotinis mutabilis*	Figeater beetle
Sphecidae	*Ammophila* sp.	Thread-waisted wasp
Sphecidae	*Sceliphron caementarium*	Yellow-legged mud-dauber
Sphecidae	*Sphex pensylvanicus*	Great black wasp
Sphecidae	*Prionyx parkeri*	Prionyx wasp
Syrphidae	n/a	Hoverfly
Tenebrionidae	*Eleodes* sp.	Darkling beetle
Vespidae	*Polistes exclamans*	Guinea paper wasp

APPENDIX D

SURVEYOR FIELD NOTES

AL Ayala Dr & Rio Way 7/11

CBB survey

0700	71	1-3	10%
1115	89	1-3	15%

MODO	ROPI	POMO	NRWS	AMKE	HOFI
CAGS	SBLI	RTHA	COYOTE	CORA	

~~X~~ site has been recently mowed. Most vegetation is only a few inches tall and dry. See photos

~~X~~ 5 kestrels hunting in field

Checkered white	Mallophora fautrix
Honeybee	~~Bee~~ Flesh fly
Dronefly sp.	Colias sp.
Buckeye	Swallowtail sp.
orange paper wasp ↓ Polistes sp	Bembix sp.
tiny sweat bee	Repsis sp.
Green stink bug	Assassin bug
grasshopper	Robber fly
Ammophila ↓ thread waist	Orb weaver
	wasp & other

Hover fly sp.	Painted lady
Grey hair streak	Clemence's blue
all black spider wasp	California bee assasin
Small ~~dark~~ ground darkling beetle	

Plants; N = Nectar source

ERI FAS + N
Croton setiger - N
HIR INC - N
Verbesina encelioides (N)
IRI TER - N
Euphorbia sp. N
CEN MEL N
HET GRA
DAE WRI
ACM AMA

Dry ↓ Wet Area
~~HIP INC~~
ACM GLA
CEN MEL
Non native grasses
BROMUS
AVE BAR
~~HET GRA (Dot Flum)~~
RIC COM
SAL TRA
~~AMB ACA~~
AMARANTHUS ALBUS
CRO CAL
~~ACM AMA~~
ONO PIL

- Burrows available and nesting substrate. Mulch debris, etc.
- No Bombus sp.

MIRO WAY CBB #2 7/31/24

0830	72	1-3	0
1100	84	1-3	0

* No Bombus sp. observed (limited nectar sources)

(Pg 1/2)

- Assess PTO for: BUOW, Coast horned lizard, coastal whiptail, rare plants requiring CSS ✓
  - veg map confirmation ✓
  - NO AR confirmation ✓

BUOW → Burrows graded/damaged beyond accessibity PTO = (Present)

Reptiles → PTO changed to low, majority of RSS has been mowed (see new polygon on AGOL)

RARE PLANTS → PTO changed to very low → see above + remaining RSS is on a pile of rubble (likely when it wasn't mowed)

Scale: 1 square =

INSECTS/ARACHNIDS

7/31/24

- Dasymutilla aureola
- Apis mellifera
- Anthidiellum sp.
- Says stink bug
- Bombilidae
- Familiar bluet (Enallagma civile)
- Fig eater beetle
- Pollistes aurifer
- Sarcophagon sp.
- Prionyx parkeri

(pg 2/2)

BLOOMING ANGIOSPERMS

ERIFAS ~~HELIANA~~ CROSET
VERENC TRITER DATWR
HETGLA ACMAME

INSECTS/ARACHNIDS CONT'

- Dragonfly
- checkered white
- brass hopper
- Cabbage white
- Flame Skimmer
- Common gray hairstreak

Scale: 1 square =

AG | Miro Way | Alala | DR | 7/31

KW | CBB | #2

0830 72 0-3 0%,

Inverts 1100 84 1-3 0% Nectar ↓

Dasymutilla aureola

Apis mellifera

Anthidiellum sp
↳ (resin bee)

Pepsis sp.

Chlorochroa sayi
(says stinkbug)

Bombilidae sp.

Enallagma civile
(Familiar bluet)

Fig needle

Polistes aurifer

Lithurgopsis sp
(Woodborer bees)

Scropogon sp.

Prionyx parkeri

Grasshopper sp

CABBAGE WHITE

Harvester ant

FLAME SKIMMER

Common gray hairstreak

ERI FLA

~~HEL ANT~~

CRO SET

VER ENC

TRI FEL

DAR WRI

MER NL

ITE GLA

FLM AME

↓ END DATA ↓

1100 84 1-3 0%

No BOMBUS

Nest substrate available

small mound bare

Bloom not at peak

6AG Mint Way CBB #3 8/15

HS	0830	75	1-3	OK
	1130	88	1-3	OK

INVERTS	NECTAR
Apis mellifera	ERIFAS
Black saddlebags	VER FENC
Grasshopper	CRO SET
Say's stinkbug	DAT WRZ
Polistes sp.	HIRINC
Black & yellow mud dauber	TRITER
	HETGRA
Pygmy Blue	
Fig eater	
Black harvester ant	
Cabbage white	
Pepsis sp	
Megachile sp.	
Crabronidae	
Sphex pensylvanicus	
Philanthus sp.	
Polistes sp.	
Familiar bluet	
Physocephala texana	

Scale: 1 square = _____

Not in flower
NNG; AMBROSIA, Salsola sp.
DATWRI, HETORA, CROCAL

Dist.
nest substrate available
No burrows

Inverts
ANthophora californica
Lasioglossum sp.
Ink checked

Rite in the Rain

12

4/15 MIRO & AYALA CROTCH'S #3

10:00AM - 2:15PM

	TIME	TEMP	WIND	CL
START	8:30AM	75°	2-5	0%
END	11:30AM	88°	1-3	0%

WILDLIFE:
TRAMEA SP., ELEODES, SCELIPHRON CAEMENTARIUM, POLISTINAE (PAPER WASP), APIS MELLIFERA, JAYS, STINKBUG, POLISTES SP., GRAY HAIRSTREAK, PYGMY BLUE, COTINIS MUTABILIS, BLACK HARVEST ANT, CARPENTER ANT, CABBAGE WHITE, PEPSIS SP., MEGACHILE SP., CRABRONIDAE, SPHEX PENSYLVANICUS, PHILANTHUS SP., ERATYRA GMA CINCTE, ANTHOPHORA CALIFORNICA, SKIPPER, NORTHERN WHITE FACED BUMBLEBEE, TEXANA, LASIOGLOSSUM SP., NO BOMBUS

Scale: 1 square =

FLOWERING PLANTS:
FRIOGONUM FASCICULATUM
CROTON SETIGER
VERBECINA ENCELIODES
DATURA WRIGHTII
HIBISCUS FELDIA INCANA
TRIBULUS TERRESTRIS
HETEROTHECA GRANDIFLORA

Attachment 2

Approved Traffic Study

(no revisions, stamped copy included for reference)

Traffic Study

for the:

Miro Way and Ayala Drive Warehouse Project

In the City of Rialto



February 2025

Kimley»Horn

TRAFFIC STUDY
FOR THE PROPOSED
MIRO WAY AND AYALA DRIVE WAREHOUSE PROJECT
IN THE CITY OF RIALTO

Prepared by:

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February 2025

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TRAFFIC STUDY
FOR THE PROPOSED
MIRO WAY AND AYALA DRIVE WAREHOUSE PROJECT
IN THE CITY OF RIALTO

I. INTRODUCTION

A. Purpose of the TIA and Study Objectives

This Traffic Study has been prepared to address the traffic-related effects of the proposed Miro Way and Ayala Drive Warehouse project in the City of Rialto.

This traffic study has been conducted in accordance with the traffic study requirements of the City of Rialto, based on the City's *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS)* (October 2021), and in accordance with San Bernardino Association of Governments (SANBAG) Congestion Management Program (CMP) requirements.

This study addresses existing and short-term future traffic conditions, taking into account the project trips to be generated by the project and potential project-related effects on the surrounding circulation system.

This report includes a description of existing traffic conditions in the surrounding area, estimated project trip generation and distribution, future traffic growth, and an assessment of project-related effects on the roadway system. Where necessary, circulation system improvements have been identified to achieve acceptable intersection operation in the vicinity of the project.

The project will be evaluated for the following conditions:

- Existing Conditions
- Opening Year 2024 – Existing Plus Growth
- Opening Year 2024 – Existing Plus Growth Plus Project
- Opening Year 2024 Cumulative – Without Project
- Opening Year 2024 Cumulative – With Project

B. Site Plan Location and Study Area

The project is located in the northwestern area of the City of Rialto, and is shown in its regional setting on a vicinity map on **Figure 1.** The project site (approximately 20.76 acres) is bounded by vacant land and a truck repair shop to the north, industrial uses to the south, Ayala Drive and Fitzgerald Avenue to the east, and Linden Avenue to the west. The project site is located within the Renaissance Specific Plan area.

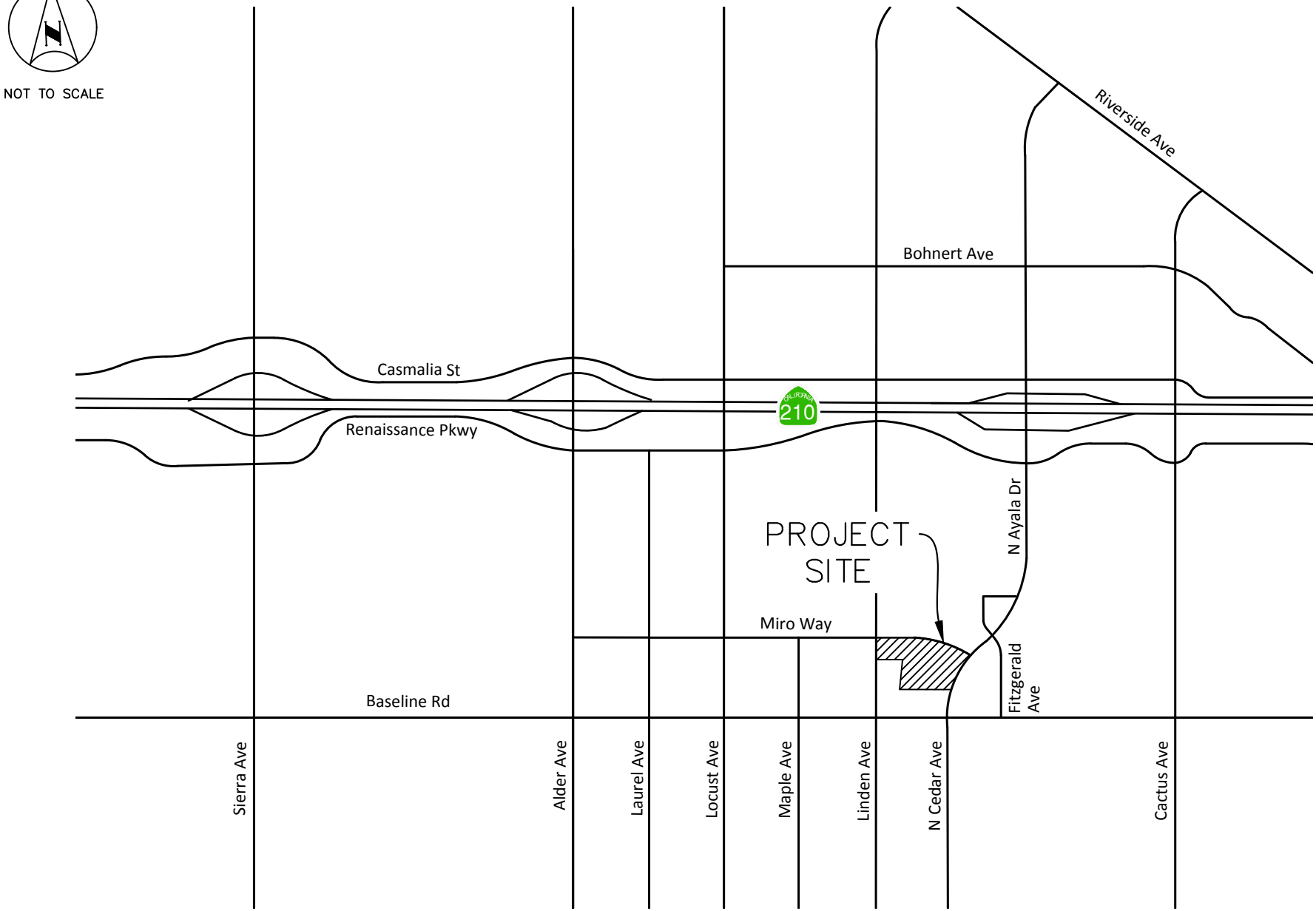


FIGURE 1
VICINITY MAP

C. Development Project Identification

Pending

D. Development Project Description

The project will involve the construction of 2 separate warehouses totaling 428,715 square feet (SF). A copy of the project site plan is provided on **Figure 2**. The site is located within the Renaissance Specific Plan, which is located generally between Renaissance Parkway on the north, Baseline Road on the south, Ayala Drive and Fitzgerald Avenue on the east, and Linden Avenue on the west. The Renaissance Specific Plan area covers 1,445 acres, with 81 separate Planning Areas, and is approved for a variety of land uses, including residential, commercial, industrial, and employment uses. The Specific Plan was approved for build-out in three separate phases, over a 20-year period. An amendment to the Specific Plan was approved in December 2016.

The Miro Way and Ayala Drive Warehouse development is located within Planning Areas 126 and 133 of the Renaissance Specific Plan Amendment. It should be noted that Planning Area 123 is included as a part of the Project, but only for rezoning purposes and does not include proposed building square footage within PA 123. The Project would include the rezone of Planning Area 123 (north of Miro Way) from School to General Commercial with a Residential Overlay. The Project would also include the rezone of Planning Areas 126 and 133 (south of Miro Way) from Park and Employment (with a designated Park Overlay) to Business Center, to allow for the development of two industrial warehouses.

Direct vehicular access provisions for the project site would consist of the following:

- Building 1
    - One shared (with Building 2) full-movement driveway for both trucks and passenger cars on Miro Way

- Building 2
    - One shared (with Building 1) full-movement driveway for both trucks and passenger cars on Miro Way
    - One full-movement driveway for both trucks and passenger cars on Miro Way
    - One right-in right-out (RIRO) driveway for passenger cars on Ayala Drive
    - One RIRO driveway for trucks and passenger cars on Ayala Drive

The proposed opening year for the project is Year 2024. The project will be developed in a single project phase. The project site is located approximately 0.5 miles from the City of Rialto's border with the City of Fontana.

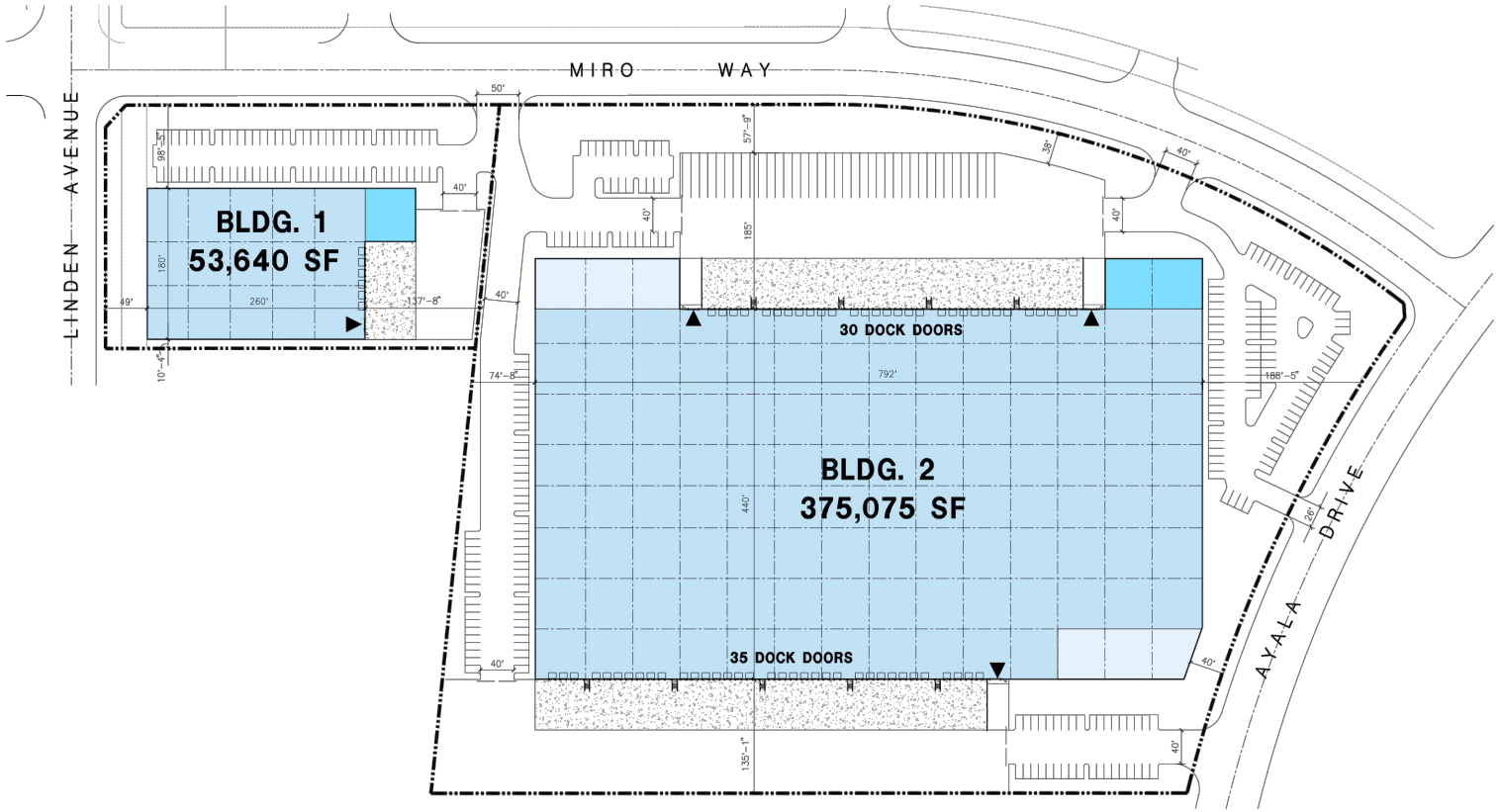


FIGURE 2
PROJECT SITE PLAN

Hours of Operation

The tenant(s) of the warehouse facility has not been identified; therefore, the precise nature of facility operations cannot be determined at this time. Any future occupant would be required to adhere to the pertinent City regulations. The hours of operation are assumed to be 7 days a week, 24 hours per day.

E. Analysis Methodology

1. Intersection Analysis – HCM Methodology

Peak hour intersection operations at signalized and unsignalized intersections were evaluated using the methods prescribed in the Highway Capacity Manual (HCM) 7th Edition, consistent with the requirements of the City of Rialto and the San Bernardino County CMP.

The City of Rialto guidelines require analysis of traffic operations to be based on the vehicular delay methodologies of the HCM (Transportation Research Board Special Report 209). The intersection analysis for the proposed project has been accomplished using the VISTRO software program and using the specified input parameters outlined in the City's *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS)*.

Per the HCM Methodology, Level of Service (LOS) for signalized intersections is defined in terms of average vehicle delay. Specifically, LOS criteria are stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The charts on the following page provide a description of the operating characteristics of each Level of Service and define the LOS in terms of average seconds of delay for signalized and unsignalized intersections.

2. Level of Service Standards and Measure of Significance

Under CEQA Guidelines section 15064.3, automobile delay is no longer considered an environmental impact and is only analyzed for compliance with the City's General Plan. The City of Rialto, per the City of Rialto 2010 General Plan Update, establishes minimum Level of Service standards. According to Policy 4-1.20 of the General Plan document, the City requires that signalized intersections operate at LOS D or better during the morning and evening peak hours. The City's Traffic Study Guidelines require new development to mitigate project-related effects that cause the Level of Service to fall below LOS D, or cause the peak hour delay to increase as follows:

- LOS A/B – by 10.0 seconds
- LOS C – by 8.0 seconds
- LOS D – by 5.0 seconds
- LOS E – by 2.0 seconds
- LOS F – by 1.0 seconds

The City's traffic study guidelines require unsignalized intersections to operate with no vehicular movement having an average delay exceeding 120 seconds during the morning and evening peak hours.

LEVEL OF SERVICE DEFINITIONS	
Level of Service	**Description**
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized, and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted but not objectionably so.
D	This level encompasses a zone of increasing restriction, approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS		
Level of Service	**Signalized Intersection (Average delay per vehicle, in seconds) [1]**	**Unsignalized Intersections (Average delay per vehicle, in seconds) [2]**
A	≤ 10	0 – 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

[1] Source: Highway Capacity Manual (HCM 7th Edition) , Exhibit 19-8.
[2] Source: Highway Capacity Manual (HCM 7th Edition), Exhibit 20-2.

Roadway Segment Analysis

The roadway segment analysis will address the project's effect on daily operating conditions on roadway segments within the project vicinity. Roadway segments are evaluated by comparing the daily traffic volume on a roadway segment to the daily capacity of that segment, to determine the volume-to-capacity (v/c) ratio. Daily capacity is based on the roadway classification, as shown in the following chart:

CITY OF RIALTO ROADWAY CAPACITY [1]				
Roadway Classification	**No. of Lanes**	**Two-Way Traffic Volume (ADT)[2]**		
		Service Level C	**Service Level D**	**Service Level E**
Local	2	2,500-2,799	2,800-3,099	3,100 +
Collector (60' or 64')	2	9,900-11,199	11,200-12,499	12,500 +
Industrial (45')	2	9,900-11,199	11,200-12,499	12,500 +
Arterial[3]	2	14,400-16,199	16,200-17,999	18,000 +
Secondary Highway	4	16,900-19,399	19,400-21,999	22,000 +
Modified Arterial (100')	4	26,200-29,599	29,600-32,999	33,000 +
Arterial (120')	6	38,700-44,099	44,100-49,499	49,500 +

Notes:
(1) All capacity figures are based on optimum conditions and are intended as guidelines for planning purposes only
(2) Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables.
(3) Two-lane roads designated as future arterials that conform to arterial design standards for vertical and horizontal alignments are analyzed as arterials.

Source: City of Rialto *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS)* (2021)

II. AREA CONDITIONS

A. Identify Study Area and Intersections

This traffic study includes documentation of existing conditions, analysis of cumulative traffic conditions, and identification of project-related effects at the following study intersections:

Study Intersections:

1. Alder Avenue at SR-210 Westbound Ramps
2. Alder Avenue at SR-210 Eastbound Ramps
3. Alder Avenue at Renaissance Parkway
4. Alder Avenue at Baseline Road
5. Ayala Drive at Renaissance Parkway
6. Ayala Drive at Fitzgerald Avenue
7. Ayala Drive at Miro Way
8. Ayala Drive at Baseline Road
9. Linden Avenue at Miro Way
10. Linden Avenue at Baseline Road

In addition, the following roadway segments were analyzed:

- Alder Avenue: SR-210 WB Ramps to SR-210 EB Ramps
- Alder Avenue: SR-210 EB Ramps to Renaissance Parkway
- Alder Avenue: Renaissance Parkway to Baseline Road
- Linden Avenue: Miro Way to Baseline Road
- Ayala Drive: Renaissance Parkway to Fitzgerald Avenue
- Ayala Drive: Miro Way to Baseline Road
- Baseline Road: Alder Avenue to Linden Avenue
- Baseline Road: Linden Avenue to Ayala Drive

The study locations were established in conjunction with City staff through the Scoping Agreement process (Exhibit A of the City of Rialto *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS)*). A copy of the approved Scoping Agreement is provided in ***Appendix A***. It should be noted that since approval of the Scoping Agreement, the site plan has been modified to a smaller building footprint and square footage, compared to the site plan that was provided in the approved Scoping Agreement. As a conservative approach, the study locations noted above are consistent with the locations noted in the approved Scoping Agreement and have remained as part of the traffic analysis for this project. New traffic counts were collected (March 2023) for all study locations.

B. Description of Existing Roads, Traffic Control, and Intersection Geometrics

Regional access to the site is provided primarily by the State Route 210 (SR-210) Freeway, approximately 2/3-mile to the north of the project site. In addition, the I-215 Freeway is located approximately 5.5 miles to the east of the site; the I-15 Freeway is approximately 6.5 miles to the west of the site, and access to the I-10 Freeway is approximately 4 miles to the south.

Existing lane configurations and intersection controls at the study intersections at the time the traffic counts were collected (March 2023) are shown on **Figure 3**. The following provides a description of the roadways surrounding the project site.

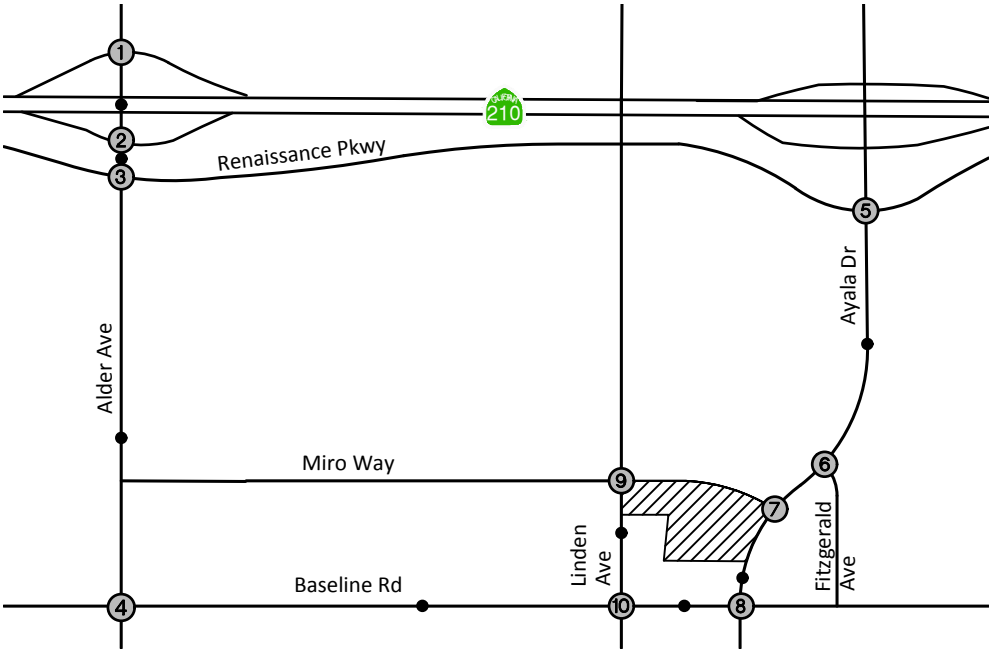
Alder Avenue – Alder Avenue is located approximately 1 mile west of the project site and is designated as a Major Arterial in the Renaissance Specific Plan Amendment, with four travel lanes, a bike lane in each direction, and a raised median within 100 feet of right-of-way. Alder Avenue is a truck route between Baseline Road to Casa Grande Drive. The posted speed limit on Alder Avenue is 50 miles per hour (mph) and on-street parking is not allowed.

Linden Avenue – Linden Avenue is designated as a Secondary Arterial and would provide four travel lanes within 80 feet of right-of-way. Linden Avenue is a designated truck route from Baseline Road to Miro Way and north of Casmalia Street, with truck access restricted to local deliveries between Casmalia Street and Miro Way. The posted speed limit along Linden Avenue is 35 mph. Linden Avenue would provide access to the project site via one signalized full-movement driveway at the intersection of Linden Avenue and Miro Way.

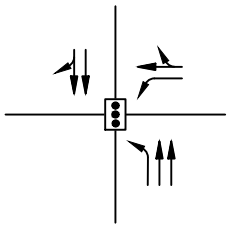
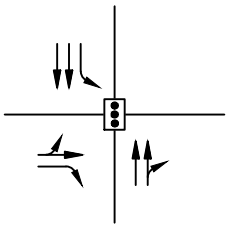
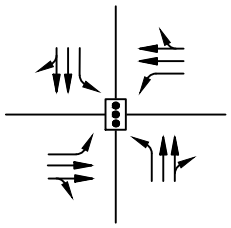
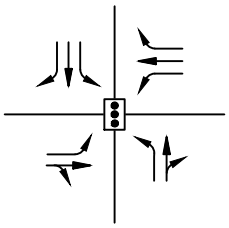
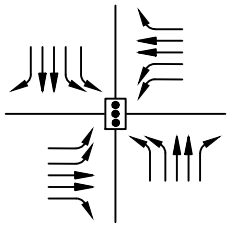
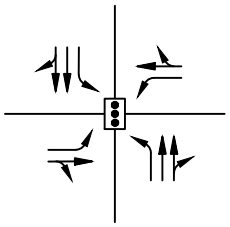
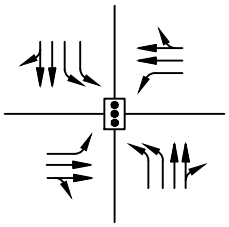
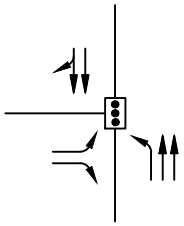
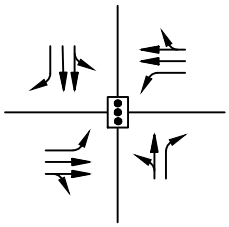
Ayala Drive – Ayala Drive is designated as a Secondary Arterial and would provide four travel lanes and a bike lane in each direction. Ayala Drive is designated as a truck route throughout the Renaissance Specific Plan area with truck access restricted from Baseline Road to Renaissance Parkway. The posted speed limit along Ayala Drive is 45 mph. Ayala Drive will form the east boundary of the project site. Ayala Drive would provide access to the project site via one signalized full-movement driveway at the intersection of Ayala Drive and Miro Way.

Renaissance Parkway – The City of Rialto Circulation Element refers to the Renaissance Specific Plan for roadway classifications within the Specific Plan area. The Renaissance Specific Plan designates Renaissance Parkway as a Major Arterial west of Ayala Drive and a Secondary Arterial between Ayala Drive and the Renaissance Specific Plan eastern boundaries. Within the project area, Renaissance Parkway would provide four travel lanes with bike lanes and a raised median within 108 feet of right-of-way. Renaissance Parkway extends in an east-west orientation through and beyond the boundaries of the City of Rialto, changing to Highland Avenue to the west and Easton Street to the east. Renaissance Parkway connects with north-south streets that have interchanges with the SR-210 Freeway to the north, and the I-10 Freeway to the south. Renaissance Parkway is a truck route between Alder Avenue and Locust Avenue, and east of Ayala Drive; with truck access restricted to local deliveries between Locust Avenue and Ayala Drive, and west of Alder Avenue. The posted speed limit along Renaissance Parkway is 45 mph.

Baseline Road – Baseline Road is designated as a Major Arterial. Baseline Road would provide four travel lanes and a bike lane in each direction within 80 feet of right-of-way. Baseline Road is a designated truck route from Ayala Drive to Linden Avenue. The posted speed limit along Baseline Road is 50 mph.



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
			
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
		FUTURE INTERSECTION	
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
			

LEGEND:
- = Project Site
- = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- = Study Roadway Segment

FIGURE 3
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

C. Existing Traffic Volumes

Traffic count data included vehicle classifications for passenger vehicles and trucks. Vehicle classifications are necessary to compute Passenger Car Equivalent (PCE) volumes, which are used in the traffic analysis to address the effects of truck traffic on intersection and roadway operation. Copies of the traffic count data worksheets are provided in ***Appendix B***.

The PCE volumes were developed by applying a PCE factor of 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with 4 or more axles. These factors are consistent with the City of Rialto's *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS)*. PCE volume worksheets are provided in ***Appendix C***. Existing morning and evening peak hour volumes and daily roadway volumes with the PCE factors applied are presented on **Figure 4**.

D. Existing Delay and Level of Service

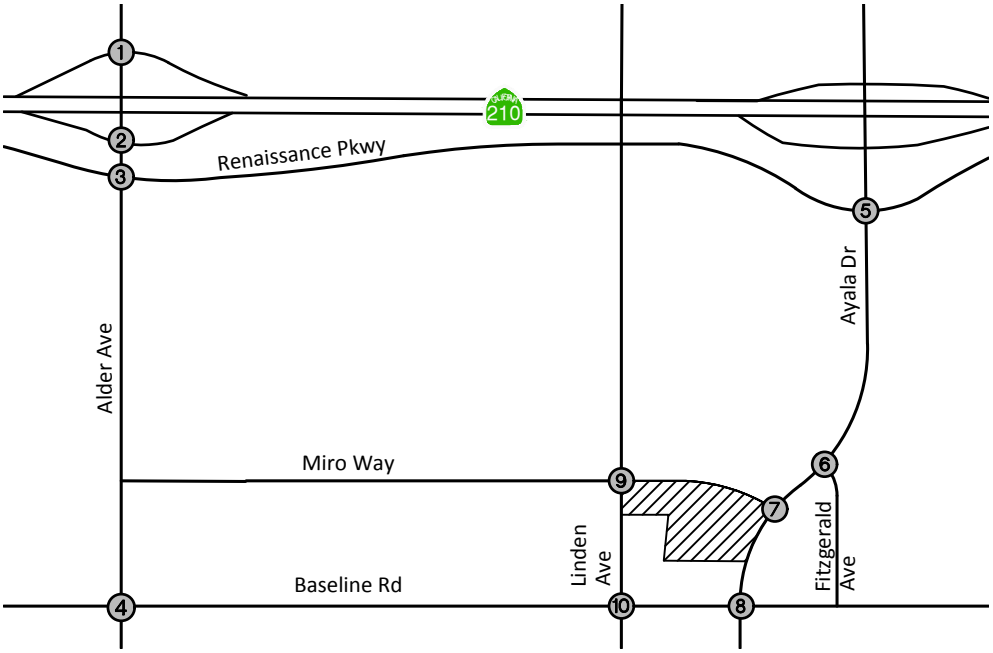
Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours using the analysis procedures and assumptions described previously in this report. The results of the intersection analysis for Existing Conditions are shown on **Table 1**. Review of this table indicates that the study intersections currently operate at an acceptable Level of Service.

Copies of Existing Conditions intersection analysis worksheets are provided in ***Appendix D***.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted based on the roadway capacities presented previously in this report. The results of the roadway analysis for Existing Conditions are shown on **Table 2**. Review of this table indicates that the study roadway segments currently operate at an acceptable LOS.



1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
12/376 17/292 157/123 5/4 431/295 396/475 343/298	421/430 6/155 298/203 3/4 616/502 486/565 333/420	78/138 775/603 155/183 199/221 140/172 26/20 97/95 158/269 80/67 127/51 567/659 15/34	138/123 345/363 63/118 128/87 472/346 41/57 96/79 373/434 74/63 157/43 301/323 100/44
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
341/559 698/805 198/342 350/357 122/184 29/61 235/379 106/378 80/113 47/106 716/774 38/75	8/1 641/851 122/209 136/151 1/3 3/1 1/0 4/5 14/8 717/810 3/8	FUTURE INTERSECTION	56/63 546/678 53/139 39/49 322/350 60/89 115/135 264/447 154/206 197/142 584/647 68/96
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
52/71 233/377 40/70 20/35 8/24 285/402	47/95 93/170 74/153 126/169 436/367 20/39 26/83 402/475 31/27 41/18 134/168 61/45		

LEGEND:

= Project Site

X = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 4
EXISTING PEAK HOUR TRAFFIC VOLUMES

TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Alder Avenue at SR-210 WB Ramps	S	32.0	C	29.7	C
2	Alder Avenue at SR-210 EB Ramps	S	24.7	C	29.3	C
3	Alder Avenue at Renaissance Parkway	S	27.1	C	26.1	C
4	Alder Avenue at Baseline Road	S	35.5	D	30.8	C
5	Ayala Drive at Renaissance Parkway	S	21.5	C	25.3	C
6	Ayala Drive at Fitzgerald Avenue	S	6.7	A	6.9	A
7	Ayala Drive at Miro Way	FUTURE INTERSECTION				
8	Ayala Drive at Baseline Road	S	28.4	C	29.8	C
9	Linden Avenue at Miro Way	S	6.3	A	8.2	A
10	Linden Avenue at Baseline Road	S	28.8	C	28.7	C

Notes:
- **Bold** and shaded values indicate intersections operating at an unacceptable Level of Service.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the worst (highest delay) movement.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, (7^{th} Edition).

S = Signalized
U = Unsignalized

TABLE 2
SUMMARY OF ROADWAY ANALYSIS
EXISTING CONDITIONS

Roadway	Segment	Current Configuration	LOS D Capacity	Existing ADT	LOS D or Better?
Alder Avenue	SR-210 WB Ramps to SR-210 EB Ramps	4 Lanes Divided	32,999	16,020	Yes
	SR-210 EB Ramps to Renaissance Parkway	4 Lanes Divided	32,999	23,147	Yes
	Renaissance Parkway to Baseline Road	4 Lanes Divided	32,999	18,946	Yes
Linden Avenue	Miro Way to Baseline Road	4 Lanes Divided	32,999	9,062	Yes
Ayala Drive	Renaissance Parkway to Fitzgerald Avenue	4 Lanes Divided	32,999	25,610	Yes
	Miro Way to Baseline Road	4 Lanes Divided	32,999	21,446	Yes
Baseline Road	Alder Avenue to Linden Avenue	4 Lanes Divided	32,999	12,697	Yes
	Linden Avenue to Ayala Drive	4 Lanes Divided	32,999	13,739	Yes

Notes: LOS = Level of Service
ADT = Average Daily Traffic

E. General Plan Circulation Element

The General Plan Circulation Element references the Renaissance Specific Plan for roadway designations for the project site and the surrounding vicinity. The original Renaissance Specific Plan was approved in 2010. An amendment to the specific plan – the Renaissance Specific Plan Amendment (RSPA) was approved in December 2016. A copy of the RSPA Vehicular Circulation Plan is provided on **Figure 5**. Designated truck routes in the RSPA area are shown on **Figure 6**.

Beyond the Specific Plan area, Alder Avenue, Locust Avenue, and Ayala Drive continue as truck routes to the north, with only Ayala Drive continuing as a truck route to the south (changing name to Cedar Avenue at Baseline Road). Baseline Road and Casmalia Avenue continue to the west as truck routes outside the Specific Plan area, and Baseline Road continues as a truck route to the east.

F. Transit Service

Transit service to the project area is provided via the OmniTrans transit lines, which serve various San Bernardino cities in the area. Bus stops in the project vicinity are located along Renaissance Parkway, approximately 4,000 ft to the north, Baseline Road, approximately 1,000 ft to the south and Linden Avenue approximately 500 ft to the west. A description of the bus routes serving the project area is provided below.

OmniTrans Route 10 operates between the City of Fontana and the City of San Bernardino, traveling through Rialto along Baseline Road in the project vicinity. Route 10 operates on weekdays from 6:30 AM to 7:30 PM with approximately 1-hour headways (the time between bus arrivals), on Saturdays from 6:20 AM to 7:00 PM with approximately 1-hour headways, and on Sundays from 7:10 AM to 6:00 PM with approximately 1-hour headways.

OmniTrans Route 22 operates between the City of Rialto and the City of Colton through Rialto along Renaissance Parkway in the project vicinity. Route 22 operates on weekdays from 5:00 AM to 9:40 PM with approximately 1-hour headways, on Saturdays from 7:15 AM to 6:30 PM with approximately 1-hour headways, and on Sundays from 7:30 AM to 6:40 PM with approximately 1-hour headways. Route 22 has a transfer point with Route 10 at the intersection of Riverside Avenue and Baseline Road.

OmniTrans Route 312 operates between the City of San Bernardino and the City of Fontana through Cal State San Bernardino and Rialto, along Renaissance Parkway and Linden Avenue in the project vicinity. Route 312 operates on weekdays from 5:20 AM to 10:30 PM with approximately 1-hour headways, on Saturdays and Sundays from 7:15 AM to 6:50 PM with approximately 1-hour headways.

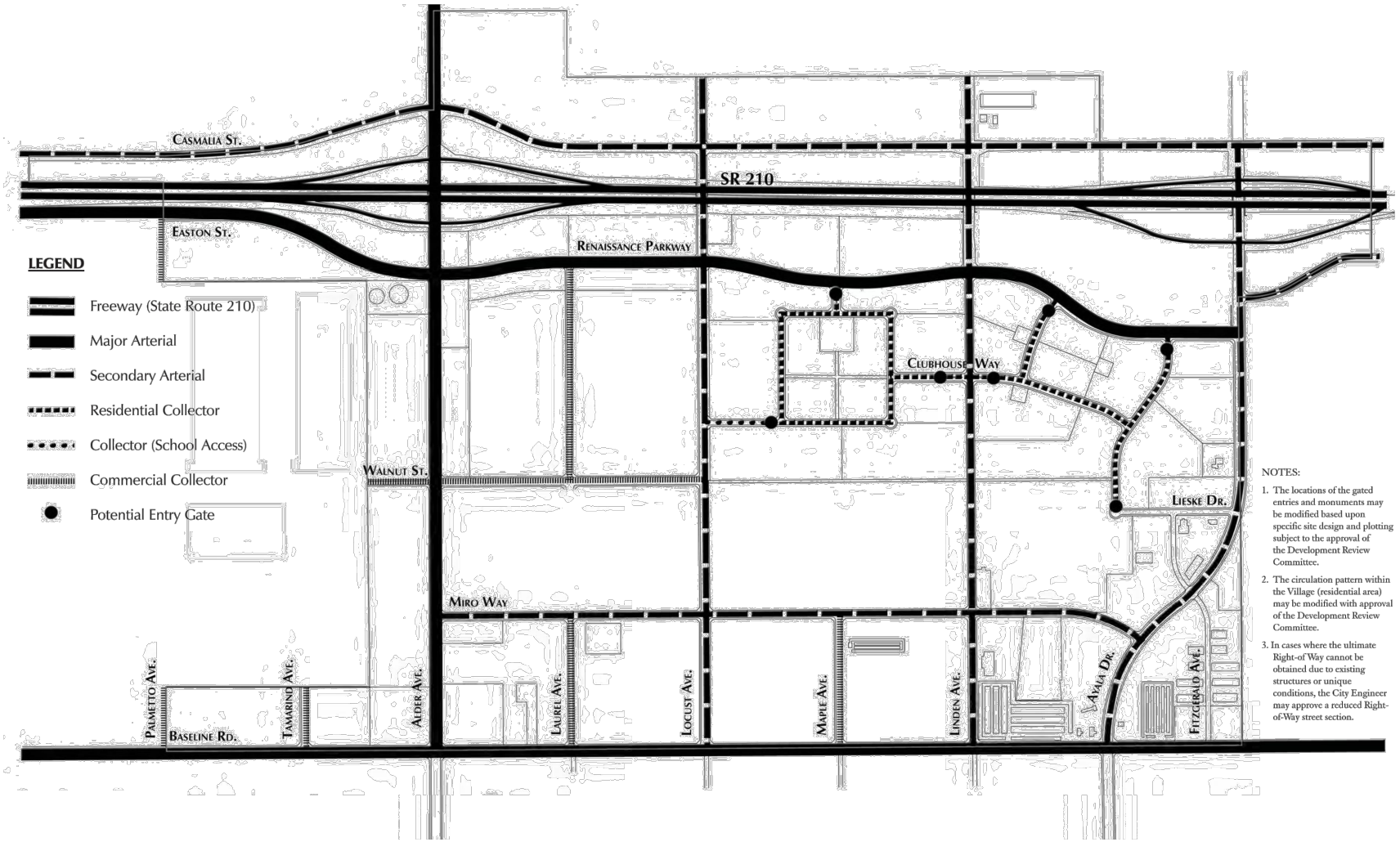


FIGURE 5
RENAISSANCE SPECIFIC PLAN AMENDMENT
VEHICULAR CIRCULATION PLAN

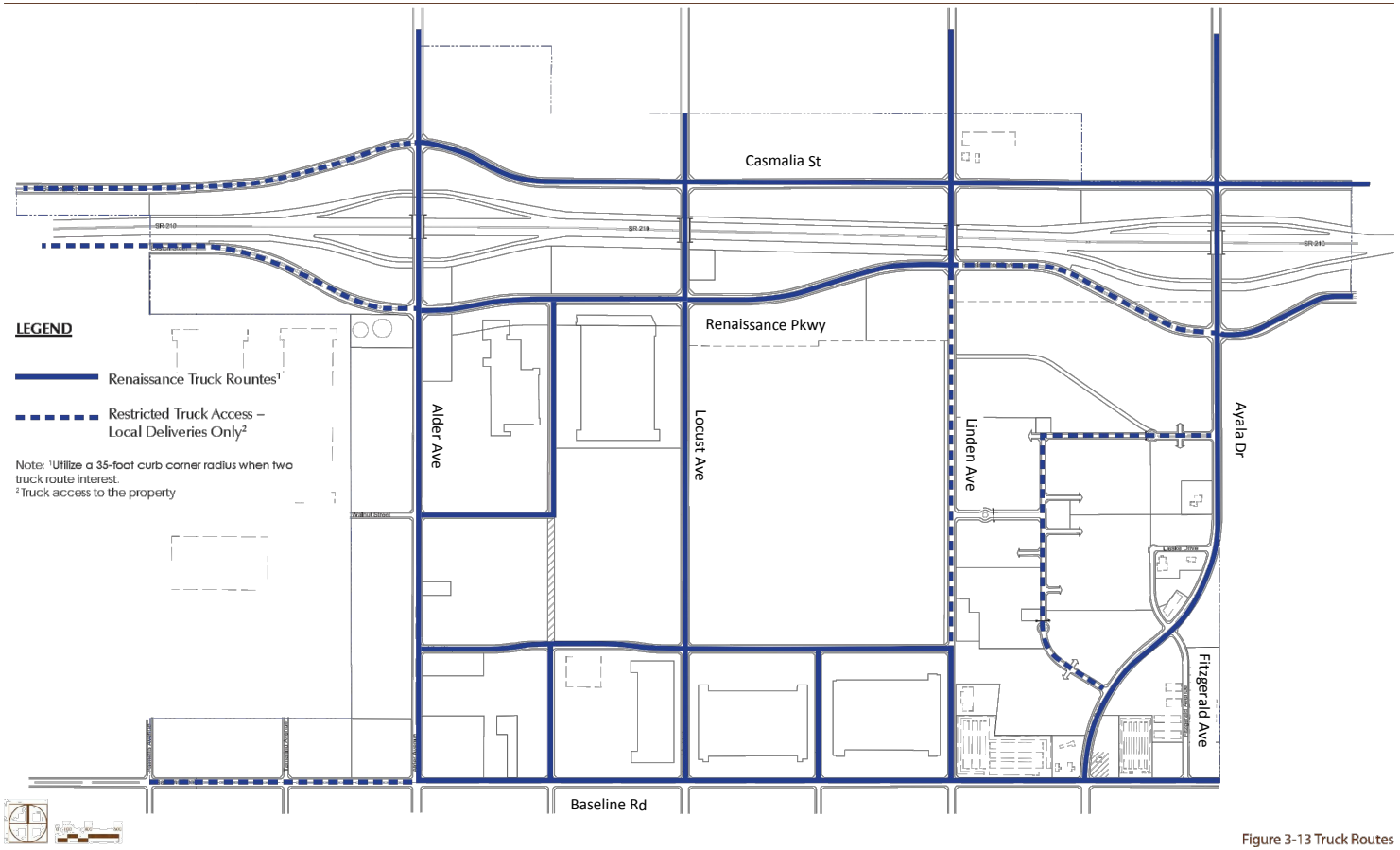


Figure 3-13 Truck Routes

FIGURE 6
RENAISSANCE SPECIFIC PLAN AMENDMENT
TRUCK ROUTES

Kimley»Horn

III. PROJECTED FUTURE TRAFFIC

A. Project Traffic

1. Project Trip Generation

Trip generation estimates for the Miro Way and Ayala Drive Warehouse project are based on daily and peak hourly trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). ITE trip generation estimates for the project are based on the trip generation rates for ITE Land Use 150: Warehousing.

Passenger car equivalent (PCE) factors were then applied to the truck types, based on number of axles (1.5 PCE for 2-axle trucks, 2.0 PCE for 3-axle trucks, and 3.0 PCE for 4+-axle trucks) to determine the total PCE volumes to be generated by the project. The trip generation rates and PCE factors, and the resulting trip generation estimates for the project are summarized on **Table 3**. The project is estimated to generate 1,128 PCE trips on a daily basis, with 123 trips in the morning peak hour, and 131 trips in the evening peak hour.

2. Trip Distribution and Assignment

Trip distribution assumptions for the project were developed by considering the proposed site uses, the location of the site access points and assumed percentages in and out of each access points and the routes to and from nearby roadway gates and the freeway system. It should be noted that a Truck Route Moratorium was adopted by the City of Rialto on December 13, 2022, which has designated Alder Avenue and Baseline Road as truck routes. As such, trucks will enter the project site from the SR-210 freeway by using the Alder Avenue/SR-210 interchange, head south on Alder Avenue, then head east on Baseline Road, and then north on Ayala Drive to Miro Way to access the project site. Trucks exiting the project site to head to the SR-210 freeway would head east on Miro Way, then south on Ayala Drive, west on Baseline Road, and then north on Alder Avenue to access the SR-210 freeway. Trip distribution patterns are shown on **Figure 7**. Trip distribution percentages at each study intersection were applied to the project trip generation to determine the project trips through each intersection. The resulting project-related peak hour trips at the study intersections are shown on **Figure 8.**

3. Volume Redistribution

Based on discussion with City staff, the extension of Miro Way from Linden Avenue to Ayala Drive would provide a more direct route for existing vehicles to/from the SR-210 freeway by using Miro Way instead of Baseline Road or Renaissance Parkway to access Ayala Drive and Alder Avenue. As such, a percentage of existing traffic was rerouted from Baseline Road and Renaissance Parkway to Miro Way between Linden Avenue and Ayala Drive in the Plus Project scenarios. The rerouted existing peak hour and daily volumes for the Plus Project scenarios are provided in ***Appendix G***.

TABLE 3
SUMMARY OF PROJECT TRIP GENERATION
MIRO WAY AND AYALA DRIVE WAREHOUSE PROJECT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	150	KSF	1.710	0.131	0.039	0.170	0.050	0.130	0.180

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Warehousing		428.715	KSF	733	56	17	73	21	56	77
Passenger Vehicles	60.00%			440	34	10	44	13	34	47
Trucks	40.00%			293	22	7	29	8	22	30

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	60.00%	440	1.0	440	34	10	44	13	34	47
2-Axle Trucks	0.80%	6	1.5	9	1	0	1	0	1	1
3-Axle Trucks	11.20%	82	2.0	164	13	4	17	5	13	18
4+ Axle Trucks	28.00%	205	3.0	615	47	14	61	18	47	65
Total Truck PCE Trips				788	61	18	79	23	61	84
Total Project PCE Trips				**1,228**	**95**	**28**	**123**	**36**	**95**	**131**

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition

[2] Source: City of Rialto Traffic Impact Analysis Guidelines for VMT and LOS Assessment (October, 2021)

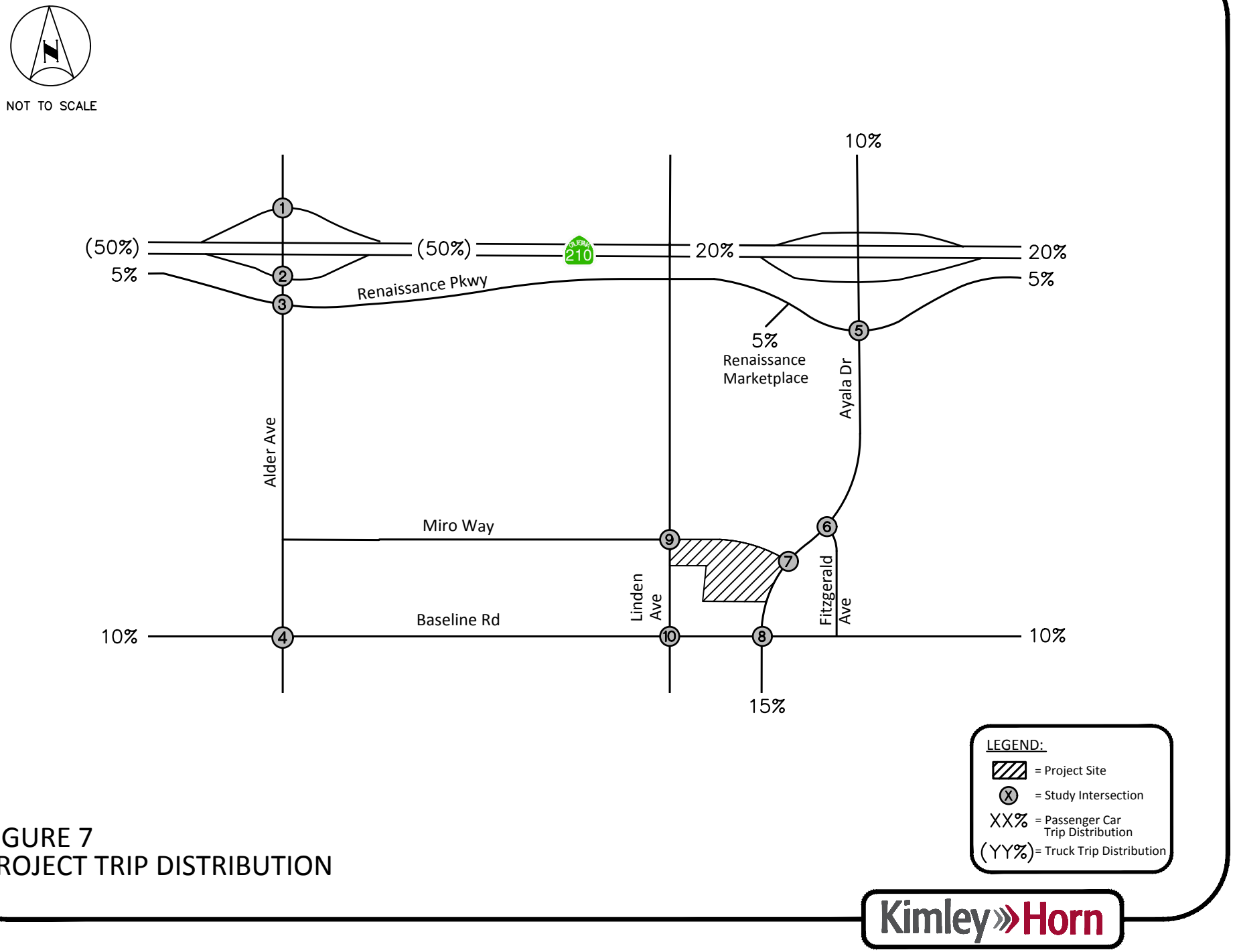
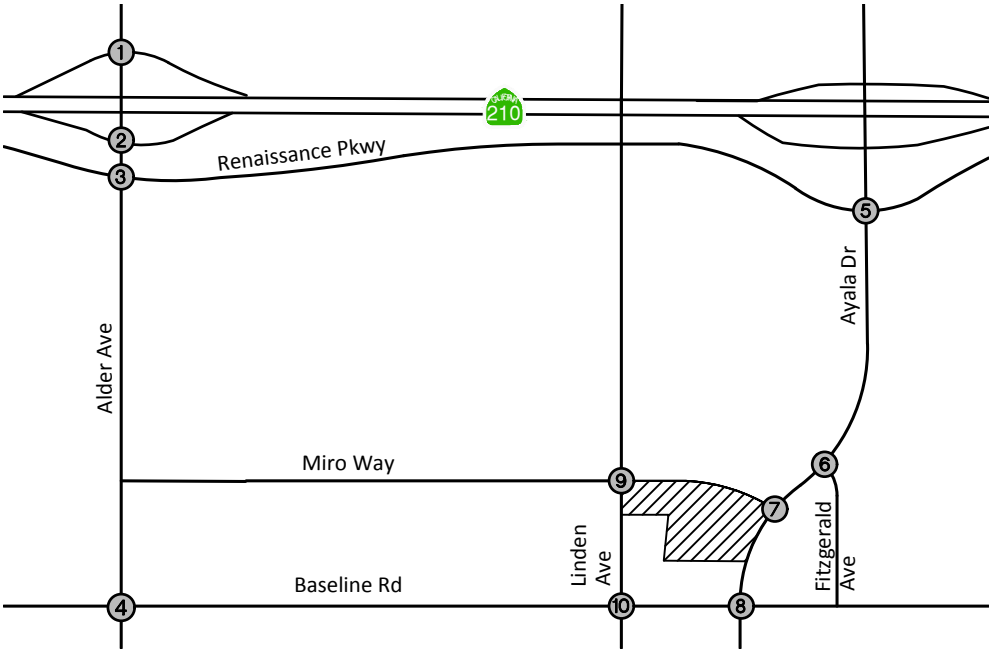


FIGURE 7
PROJECT TRIP DISTRIBUTION



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
←31/11 9/30↑	←31/11 30/12↘ 9/30↑ 9/31↑	←61/23 ←1/2 2/1→ 18/61↑	61/23↙ 18/61↖ 1/3↖ 3/1→
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
17/6↖ ←2/1 2/1↘ 1/2↑ 3/17↑ 1/2↑	21/8↖ 5/21↑	21/8↙ 5/21↘ 33/13↑ 10/33↘	9/30↙ 1/3↙ 3/1↖ 30/12↘ 5/2↑ 2/5↘
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
2/1↙ ←1/2 ←12/39 39/14↑	10/34↙ 2/5↙ 5/2↖ ←9/30 34/12↘ 30/12→		

LEGEND:

= Project Site

X = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 8
PROJECT-RELATED TRAFFIC VOLUMES

B. Existing Plus Growth Plus Project Traffic (Opening Year 2024)

The project Opening Year is anticipated to be Year 2024. Local roadway and intersection improvements that are currently underway or have been conditioned on other projects are expected to be in place by the Project Opening Year 2024.

1. Ambient Growth Rate

An ambient growth rate of 2.0% per year to Opening Year 2024 was applied to existing peak hour traffic volumes to develop Existing Plus Growth forecasts. The resulting daily and peak hour Existing Plus Growth without the project (Opening Year 2024) traffic volumes are shown on **Figure 9**.

Project traffic was then added to develop Existing Plus Growth Plus Project (Opening Year 2024) traffic forecasts. Existing Plus Growth Plus Project daily and peak hour traffic volumes are shown on **Figure 10**.

2. Opening Year 2024 Existing Plus Growth

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for Existing Plus Growth without the project (Opening Year 2024). The results are shown on **Table 4**. Intersection analysis worksheets for this scenario are provided in ***Appendix D***.

Review of this table indicates that with the addition of ambient growth, the study intersections would continue to operate at an acceptable LOS.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Existing Plus Growth conditions and the results are shown on **Table 5**. Review of this table indicates that the study roadway segments would continue to operate at an acceptable LOS.

3. Opening Year 2024 Existing Plus Growth Plus Project

Peak Hour Operating Conditions

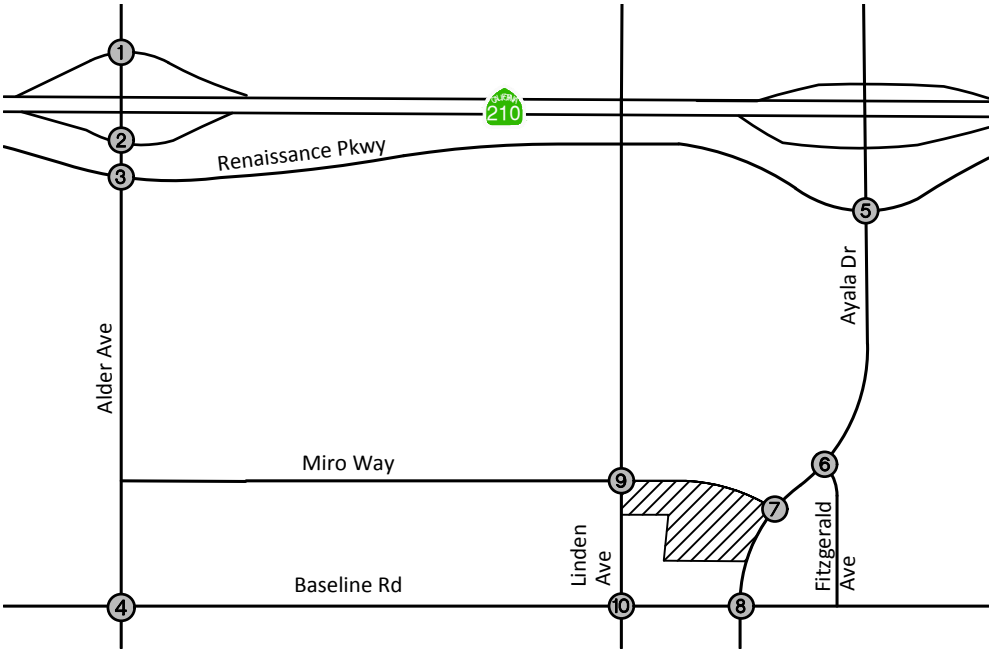
Intersection Level of Service analysis was conducted for the Existing Plus Growth Plus Project conditions. The results of the intersection analysis are shown on **Table 6**. Review of this table indicates that, with the addition of ambient growth and project traffic, the following study intersection would operate at an unacceptable LOS:

- #7 - Ayala Drive at Miro Way: PM – LOS E

The Level of Service for an unsignalized intersection is reported based on the single approach movement with the highest delay, which in this case, would be the eastbound approach for intersection #7. While the side street approach operates at a deficient Level of Service based on the highest delay approach, the overall intersection delay would be acceptable. Any queuing that occurs on the side street is contained on the minor intersection approach and does not impact the progression of traffic on the main arterial.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Existing Plus Growth Plus Project condition and the results are shown on **Table 7**. Review of this table indicates that the study roadway segments would continue to operate at an acceptable LOS.



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
12/384 17/298 160/125 5/4 440/301 404/485 350/304	429/439 6/158 304/207 3/4 628/512 496/576 340/428	80/141 791/615 158/187 203/225 143/175 27/20 99/97 161/274 82/68 130/52 578/672 15/35	141/125 352/370 64/120 131/89 481/353 42/58 98/81 380/443 75/64 160/44 307/329 102/45
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
348/570 712/821 202/349 357/364 124/188 30/62 240/387 108/386 82/115 48/108 730/789 39/77	8/1 654/868 124/213 139/154 1/3 3/1 1/0 4/5 14/8 731/826 3/8	FUTURE INTERSECTION	57/64 557/692 54/142 40/50 328/357 61/91 117/138 269/456 157/210 201/145 596/660 69/98
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
53/72 238/385 41/71 20/36 8/24 291/410	48/97 95/173 75/156 129/172 445/374 20/40 27/85 410/485 32/28 42/18 137/171 62/46		

LEGEND:

= Project Site

X = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 9
OPENING YEAR 2024 - EXISTING PLUS GROWTH TRAFFIC VOLUMES

TABLE 4
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 - EXISTING PLUS GROWTH

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Alder Avenue at SR-210 WB Ramps	S	32.2	C	30.5	C
2	Alder Avenue at SR-210 EB Ramps	S	25.2	C	30.1	C
3	Alder Avenue at Renaissance Parkway	S	27.4	C	26.2	C
4	Alder Avenue at Baseline Road	S	36.1	D	31.1	C
5	Ayala Drive at Renaissance Parkway	S	21.7	C	25.6	C
6	Ayala Drive at Fitzgerald Avenue	S	6.8	A	7.0	A
7	Ayala Drive at Miro Way	FUTURE INTERSECTION				
8	Ayala Drive at Baseline Road	S	28.8	C	30.2	C
9	Linden Avenue at Miro Way	S	6.3	A	8.2	A
10	Linden Avenue at Baseline Road	S	28.7	C	28.8	C

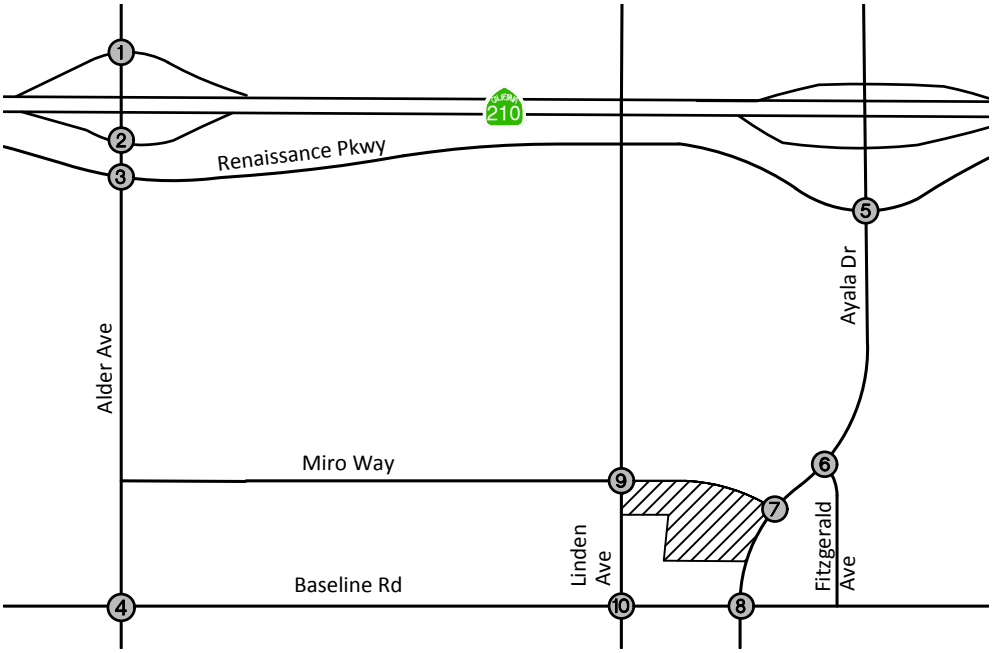
Notes:
- **Bold** and shaded values indicate intersections operating at an unacceptable Level of Service.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the worst (highest delay) movement.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, (7^{th} Edition).

S = Signalized
U = Unsignalized

TABLE 5
SUMMARY OF ROADWAY ANALYSIS
OPENING YEAR 2024 - EXISTING PLUS GROWTH

Roadway	Segment	LOS D Capacity	Existing ADT	Existing Plus Growth ADT	LOS D or Better?
Alder Avenue	SR-210 WB Ramps to SR-210 EB Ramps	32,999	16,020	16,340	Yes
	SR-210 EB Ramps to Renaissance Parkway	32,999	23,147	23,610	Yes
	Renaissance Parkway to Baseline Road	32,999	18,946	19,325	Yes
Linden Avenue	Miro Way to Baseline Road	32,999	9,062	9,243	Yes
Ayala Drive	Renaissance Parkway to Fitzgerald Avenue	32,999	25,610	26,122	Yes
	Miro Way to Baseline Road	32,999	21,446	21,875	Yes
Baseline Road	Alder Avenue to Linden Avenue	32,999	12,697	12,951	Yes
	Linden Avenue to Ayala Drive	32,999	13,739	14,014	Yes

Notes: LOS = Level of Service
ADT = Average Daily Traffic



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
12/384 17/298 160/125 5/4 471/312 413/515 350/304	460/450 6/158 304/207 3/4 658/524 505/606 349/459	80/141 852/638 158/187 203/225 144/177 27/20 99/97 163/275 82/68 130/52 596/733 15/35	141/125 352/370 125/143 149/150 482/356 42/58 98/81 383/444 75/64 160/44 307/329 102/45
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
335/552 742/845 202/349 357/364 124/188 32/63 230/368 108/386 84/116 49/110 744/825 40/79	8/1 688/894 124/213 139/154 1/3 3/1 1/0 4/5 14/8 747/866 3/8	36/32 659/868 20/49 10/33 33/13 744/833	64/88 557/692 55/145 43/51 328/357 61/91 142/141 269/456 159/215 206/147 596/660 69/98
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
40/54 238/385 2/1 1/2 15/24 12/39 31/53 15/28 15/27 6/18 291/410 39/14	58/131 95/173 72/152 131/168 454/404 20/40 61/97 440/497 32/28 42/18 137/171 62/46		

LEGEND:

= Project Site

X = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 10
OPENING YEAR 2024 - EXISTING PLUS GROWTH PLUS PROJECT TRAFFIC VOLUMES

TABLE 6
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 - EXISTING PLUS GROWTH PLUS PROJECT

Int. #	Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
			Without Project		With Project		Change In Delay	Project-Related Effect?	Without Project		With Project		Change In Delay	Project-Related Effect?
			Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
1	Alder Avenue at SR-210 WB Ramps	S	32.2	C	33.0	C	0.8	No	30.5	C	32.5	C	2.0	No
2	Alder Avenue at SR-210 EB Ramps	S	25.2	C	26.7	C	1.5	No	30.1	C	31.9	C	1.8	No
3	Alder Avenue at Renaissance Parkway	S	27.4	C	27.5	C	0.1	No	26.2	C	26.2	C	0.0	No
4	Alder Avenue at Baseline Road	S	36.1	D	37.2	D	1.1	No	31.1	C	31.1	C	0.0	No
5	Ayala Drive at Renaissance Parkway	S	21.7	C	21.6	C	-0.1	No	25.6	C	25.5	C	-0.1	No
6	Ayala Drive at Fitzgerald Avenue	S	6.8	A	6.7	A	-0.1	No	7.0	A	7.0	A	0.0	No
7	Ayala Drive at Miro Way	U	-	-	27.6	D	-	No	-	-	47.9	**E**	-	**Yes**
8	Ayala Drive at Baseline Road	S	28.8	C	32.1	C	3.3	No	30.2	C	30.5	C	0.3	No
9	Linden Avenue at Miro Way	S	6.3	A	7.4	A	1.1	No	8.2	A	10.4	B	2.2	No
10	Linden Avenue at Baseline Road	S	28.7	C	29.1	C	0.4	No	28.8	C	29.1	C	0.3	No

Notes:
- **Bold** and shaded values indicate intersections operating at an unacceptable Level of Service.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the worst (highest delay) movement.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, (7^{th} Edition).

S = Signalized
U = Unsignalized

TABLE 7
SUMMARY OF ROADWAY ANALYSIS
OPENING YEAR 2024 - EXISTING PLUS GROWTH PLUS PROJECT

Roadway	Segment	LOS D Capacity	Existing ADT (Rerouted)	Existing Plus Growth ADT	Daily Project Traffic	Existing + Growth + Project ADT	LOS D or Better?
Alder Avenue	SR-210 WB Ramps to SR-210 EB Ramps	32,999	16,020	16,340	389	16,729	Yes
	SR-210 EB Ramps to Renaissance Parkway	32,999	23,147	23,610	779	24,389	Yes
	Renaissance Parkway to Baseline Road	32,999	18,946	19,325	779	20,104	Yes
Linden Avenue	Miro Way to Baseline Road	32,999	8,762	8,937	500	9,437	Yes
Ayala Drive	Renaissance Parkway to Fitzgerald Avenue	32,999	26,330	26,857	264	27,121	Yes
	Miro Way to Baseline Road	32,999	21,146	21,569	433	22,002	Yes
Baseline Road	Alder Avenue to Linden Avenue	32,999	12,697	12,951	823	13,774	Yes
	Linden Avenue to Ayala Drive	32,999	13,439	13,708	455	14,163	Yes

Notes: LOS = Level of Service
ADT = Average Daily Traffic

C. Cumulative Conditions (Existing Plus Growth Plus Cumulative Projects)

1. Cumulative Projects

In addition to ambient growth, traffic volumes for Cumulative Projects (approved and pending projects) were added to the Existing Plus Growth traffic volumes. Cumulative Projects consist of any project that has been approved and is not yet occupied, and projects that are in various stages of the application and approval process but have not yet been approved.

A summary of Cumulative Projects in the project vicinity and the trip generation associated with each is provided on **Table 8**. The locations of the Cumulative Projects are shown on **Figure 11**. Cumulative Project traffic volumes are shown on **Figure 12**.

2. Background Growth Rate

As discussed earlier, an ambient growth rate of 2.0% per year to Opening Year 2024 was assumed for this analysis.

3. Cumulative Projects Trip Generation

Trip generation information for the Cumulative Projects was derived either from approved traffic studies, where available; or developed by Kimley-Horn if approved traffic studies were not available. Project information and trip generation assumptions for Cumulative Projects are provided in ***Appendix E***.

4. Cumulative Projects Trip Distribution and Assignment

Likewise, trip distribution and assignment for the Cumulative Projects were either derived from approved traffic studies, where available; or were developed by Kimley-Horn if approved traffic studies were not available. Trip distribution assumptions for Cumulative Projects are provided in ***Appendix E***.

TABLE 8
SUMMARY OF CUMULATIVE PROJECTS

Project #	Land Use	Quantity	Units	Trip Generation Estimates						
					AM Peak Hour			PM Peak Hour		
				Daily	In	Out	Total	In	Out	Total
1	Stater Bros									
	Hotel	100	ROOMS	817	31	22	53	31	29	60
	High-Turnover (Sit-Down) Restaurant	2.000	KSF	254	12	11	23	13	9	22
	Pass-by High-Turn (Sit-Down) Restaurant			-57	0	0	0	-2	-2	-4
	Fast-Food Restaurant w/o D.T.	1.000	KSF	716	26	18	44	13	13	26
	Pass-by Fast-Food Restaurant			-161	-6	-4	-10	-3	-3	-6
	Fast-Food Restaurant w/ D.T.	5.440	KSF	2,699	126	121	247	92	85	177
	Pass-by Fast-Food Restaurant			-638	-31	-30	-61	-20	-20	-40
	Gasoline Station w/ Conv. Mkt. & Car Wash	16	VFP	2,445	97	93	190	113	109	222
	Pass-by Gasoline/Service Station			-572	-21	-21	-42	-26	-26	-52
	Site Internal Capture (10%)			-693	-29	-27	-56	-26	-25	-51
2	Lytle Creek SP (10% of Capacity)									
	Single-Family Detached Housing	504	DU	4,823	95	284	379	321	188	509
	Condominium	336	DU	1,952	25	123	148	117	58	175
3	Warehouse II (Baseline and Palmetto NEC)	90.726	KSF	158	12	4	16	5	13	18
4	Renaissance East									
	Specialty Retail Center	4.550	KSF	202	-	-	-	5	7	12
	Pass-by Specialty Retail Center (10%)			-40	0	0	0	-1	-1	-2
	High-Turnover (Sit-Down) Restaurant	8.849	KSF	993	48	40	88	54	33	87
5	Hotel (SWC of Linden and Renaissance)	135	Occupied Room	1,204	52	38	90	46	48	94
6	Morin Warehouse	200.000	KSF	1,193	77	22	99	26	78	104
7	Buildings 7, 8, and 9 Warehouse	540.427	KSF	3,224	216	57	273	73	218	291
8	SEC Casmalia / Linden Warehouse	136.220	KSF	813	54	13	67	18	55	73
9	Fuel Station/Fast Food at SWC of Casmalia / Ayala	7.000	KSF	4,419	202	188	390	174	164	338
10	NWC Baseline / Alder Warehouse	255.655	KSF	1,526	104	28	132	34	104	138
11	NWC Baseline / Tamarind Warehouse	156.500	KSF	935	65	18	83	23	65	88
12	Baseline / Palmetto Warehouse	99.999	KSF	599	41	12	53	13	41	54
13	Warehouse	78.680	KSF	698	32	31	63	34	35	67
14	Warehouse	87.189	KSF	524	25	24	49	26	25	51
15	Warehouse	116.429	KSF	500	24	24	48	25	25	50
16	Rialto Travel Center	-	FUELING POSITIONS	5,532	277	276	553	256	259	515
17	PA 19	168.143	KSF	402	30	10	40	13	31	44
18	Fuel / FF / Market	-	FUELING POSITIONS	9,993	557	556	1,113	454	454	908
19	Olive Grove Warehouse	679.607	KSF	1,981	149	45	194	58	157	215
20	Housing	-	DU	1,487	52	51	103	66	65	131
21	Shopping / Fast Food	-	KSF	4,651	44	44	88	99	98	197
22	Crow Holdings (N/S Baseline E/O Ayala)	668.524	KSF	1,163	88	26	114	34	93	127
23	Orbis (NEC Renaissance and Laurel)	135.408	KSF	236	18	5	23	7	19	26
24	Orbis Rialto II (PCE)	117.255	KSF	704	49	14	63	18	49	67
25	Renaissance Place Residential	435	DU	3,132	65	144	209	141	107	248
Total Project Trips				57,814	2,606	2,261	4,866	2,324	2,658	4,979

DU = Dwelling Units, KSF = 1,000 square feet, VFP = Vehicle Fueling Positions, DT = Drive-through

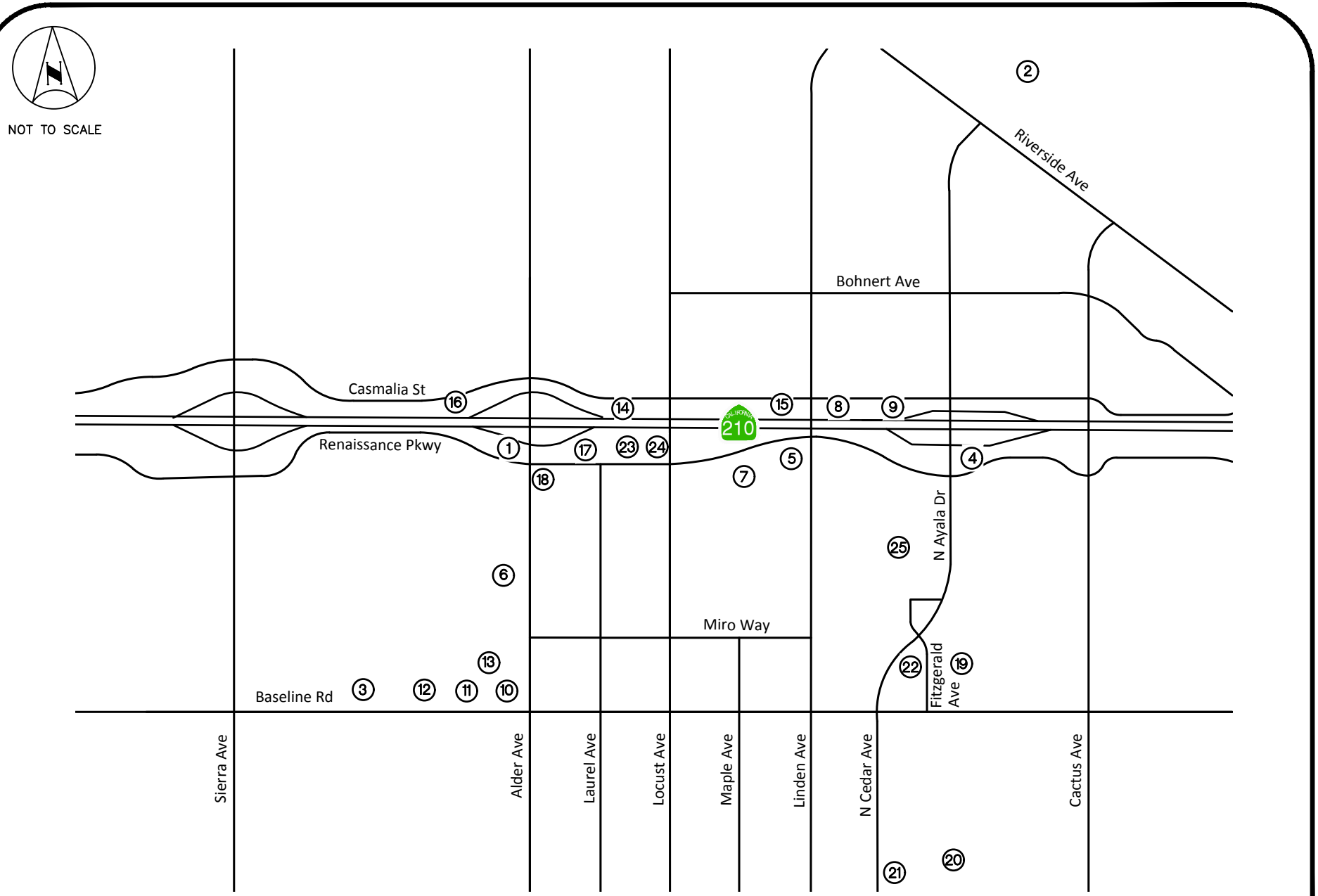
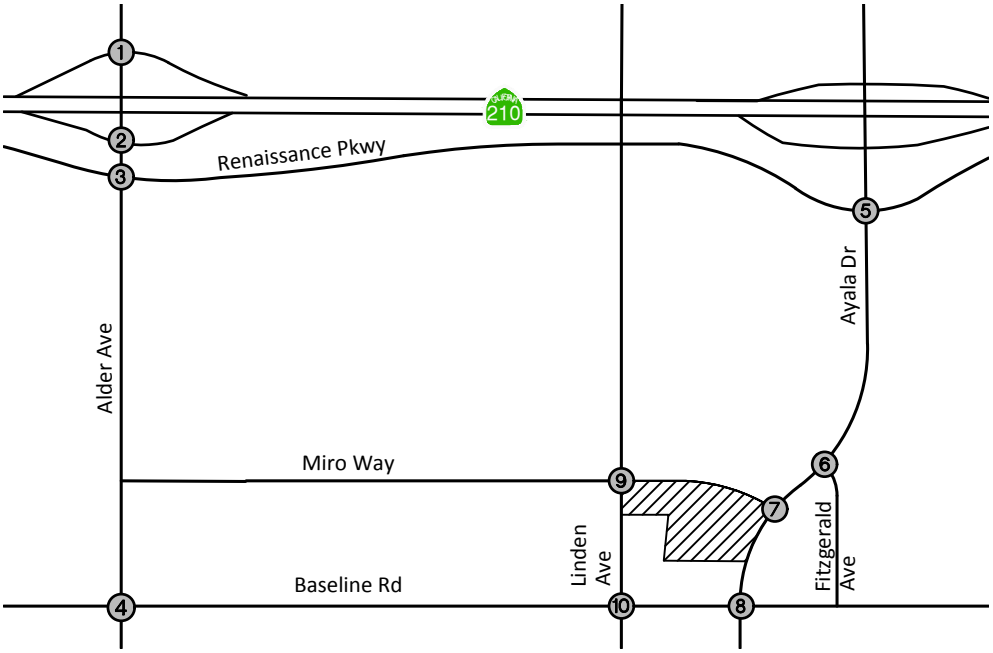


FIGURE 11
LOCATION OF CUMULATIVE PROJECTS

LEGEND:
(X) = Cumulative Project

Kimley»Horn



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
89/91 ← 291/255 ↖ 89/88 ← 339/204 ↗ 210/317 ↑ 292/255 ↑	542/369 ← 89/89 ↖ 89/88 → 339/205 ↘ 413/483 ↑ 210/316 ↑	18/15 ← 533/346 ← 331/214 ↖ 235/297 ← 74/64 ↗ 18/15 → 70/65 → 3/1 ↘ 1/3 ↑ 370/485 ↑	60/30 ← 18/17 ← 108/46 ↖ 39/113 ← 35/50 ↗ 29/61 → 32/52 → 5/13 ↘ 13/5 ↑ 20/18 ↑
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
152/166 ← 19/23 ↙ 16/16 ← 4/8 ← 17/18 ↖ 7/6 → 7/14 ↘ 14/11 ↑ 149/183 ↑ 19/24 ↑	146/125 ← 19/7 ↙ 3/9 ↖ 107/168 ↑	146/125 ← 107/168 ↑	12/19 ↙ 103/108 ← 18/10 ↙ 8/27 ← 53/125 ← 21/39 ↖ 22/15 → 117/65 → 33/56 ↘ 42/51 ↑ 91/114 ↑ 24/35 ↑
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
40/28 ← 17/44 ↑	7/11 ↙ 33/17 ↙ 13/36 ← 57/143 ↖ 4/8 ↘ 127/82 →		

LEGEND:

= Project Site

X = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 12
CUMULATIVE PROJECTS TRAFFIC VOLUMES

5. Opening Year 2024 Cumulative Without Project Conditions

Peak Hour Operating Conditions

Daily and peak hour traffic volumes for Opening Year 2024 Cumulative Without Project Conditions are shown on **Figure 13**. Intersection Level of Service results are shown on **Table 9.** Review of this table indicates that, with the addition of Cumulative Projects traffic, the following intersections would operate at an unacceptable Level of Service:

- #1 - Alder Avenue at SR-210 WB Ramps: AM – LOS F, PM – LOS F
- #2 - Alder Avenue at SR-210 EB Ramps: AM – LOS F, PM – LOS F
- #3 - Alder Avenue at Renaissance Parkway: AM – LOS F, PM – LOS F

Copies of intersection analysis worksheets for this scenario are provided in ***Appendix D***.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for Opening Year 2024 Cumulative without Project conditions and the results are shown on **Table 10.** Review of this table indicates that the following study roadway segment would operate at an unacceptable LOS:

- Alder Avenue: SR-210 EB Ramps to Renaissance Parkway

6. Opening Year 2024 Cumulative Plus Project Conditions

Peak Hour Operating Conditions

Project traffic was added to Opening Year 2024 Cumulative traffic volumes to develop Opening Year 2024 Cumulative plus Project traffic forecast volumes. The resulting daily and peak hour traffic volumes are shown on **Figure 14**.

Intersection Level of Service analysis results are shown on **Table 11**. As this table indicates, with the addition of project traffic, the following intersections would continue to operate at an unacceptable Level of Service:

- #1 - Alder Avenue at SR-210 WB Ramps: AM – LOS F, PM – LOS F
- #2 - Alder Avenue at SR-210 EB Ramps: AM – LOS F, PM – LOS F
- #3 - Alder Avenue at Renaissance Parkway: AM – LOS F, PM – LOS F
- #7 - Ayala Drive at Miro Way: PM – LOS F

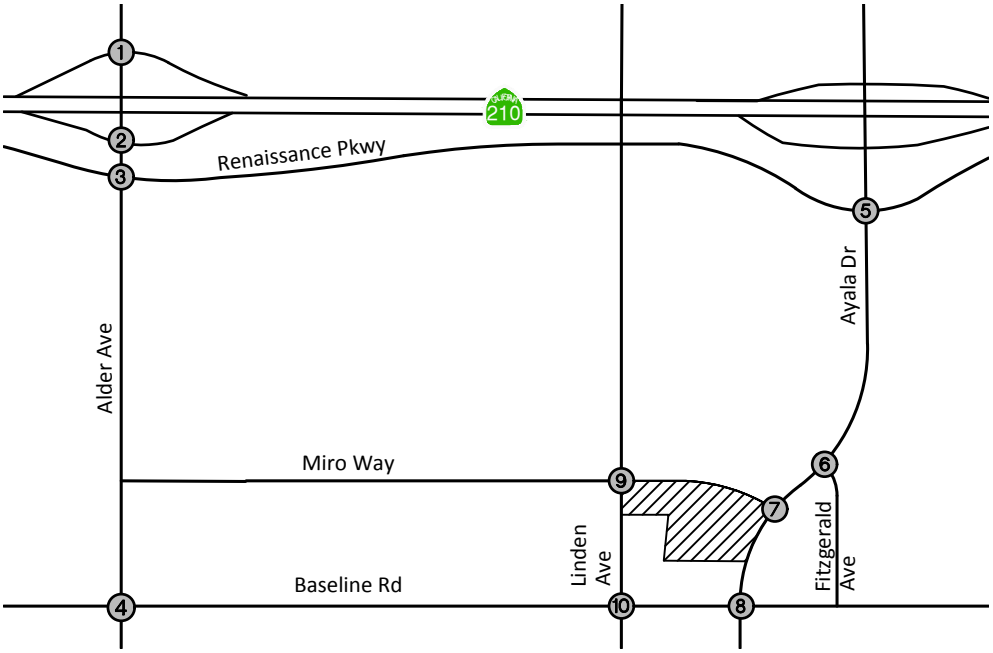
These intersections were also forecasted to operate at an unacceptable Level of Service under Opening Year Cumulative Without Project conditions. Based on the significance thresholds presented earlier in this report, the project effect is considered to be a cumulative effect at these intersections.

Recommended measures to improve the project-related effects are presented in the Recommended Improvements section of this report. Copies of intersection analysis worksheets for this scenario are provided in ***Appendix D***.

Daily Roadway Operating Conditions

Roadway Level of Service analysis results for Opening Year 2024 Cumulative Plus Project conditions are shown on **Table 12.** Review of this table indicates that the following study roadway segment would continue to operate at an unacceptable LOS:

- Alder Avenue: SR-210 EB Ramps to Renaissance Parkway



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
101/475 ← 308/553 → 249/213 ← 5/4 ← 779/505	971/808 ← 95/247 → 393/295 → 3/4 → 967/717 → 909/1059 ← 550/744	98/156 ← 1324/961 ← 489/401 → 438/522 ← 217/239 ← 27/20 → 117/112 → 231/339 → 85/69 → 131/55 ← 948/1157 ← 15/35	201/155 ← 370/387 ← 172/166 → 170/202 ← 516/403 ← 42/58 → 127/142 → 412/495 → 80/77 → 173/49 ← 327/347 ← 102/45
614/802 ← 642/559			

5. Ayala Dr at Renaissance Pkwy	6. Ayala Dr at Fitzgerald Ave	7. Ayala Dr at Miro Way	8. Ayala Dr at Baseline Rd
348/570 ← 864/987 ← 221/372 → 373/380 ← 128/196 ← 47/80 → 240/387 → 115/392 → 89/129 → 62/119 ← 879/972 ← 58/101	8/1 ← 800/993 ← 143/220 → 142/163 ← 1/3 ← 3/1 → 1/0 → 4/5 → 14/8 ← 838/994 ← 3/8	FUTURE INTERSECTION	69/83 ← 660/800 ← 72/152 → 48/77 ← 381/482 ← 82/130 → 139/153 → 386/521 → 190/266 → 243/196 ← 687/774 ← 93/133

9. Linden Ave at Miro Way	10. Linden Ave at Baseline Rd
53/72 ← 278/413 → 41/71 → 20/36 → 8/24 ← 308/454	55/108 ← 95/173 ← 108/173 → 142/208 ← 502/517 ← 20/40 → 31/93 → 537/567 → 32/28 → 42/18 ← 137/171 ← 62/46

LEGEND:

= Project Site

X = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 13
OPENING YEAR 2024 CUMULATIVE TRAFFIC VOLUMES

TABLE 9
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 CUMULATIVE WITHOUT PROJECT

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Alder Avenue at SR-210 WB Ramps	S	94.7	**F**	130.1	**F**
2	Alder Avenue at SR-210 EB Ramps	S	135.6	**F**	131.7	**F**
3	Alder Avenue at Renaissance Parkway	S	86.6	**F**	82.9	**F**
4	Alder Avenue at Baseline Road	S	48.7	D	33.7	C
5	Ayala Drive at Renaissance Parkway	S	22.7	C	26.1	C
6	Ayala Drive at Fitzgerald Avenue	S	6.6	A	7.4	A
7	Ayala Drive at Miro Way	FUTURE INTERSECTION				
8	Ayala Drive at Baseline Road	S	36.3	D	37.4	D
9	Linden Avenue at Miro Way	S	5.9	A	7.4	A
10	Linden Avenue at Baseline Road	S	29.1	C	29.0	C

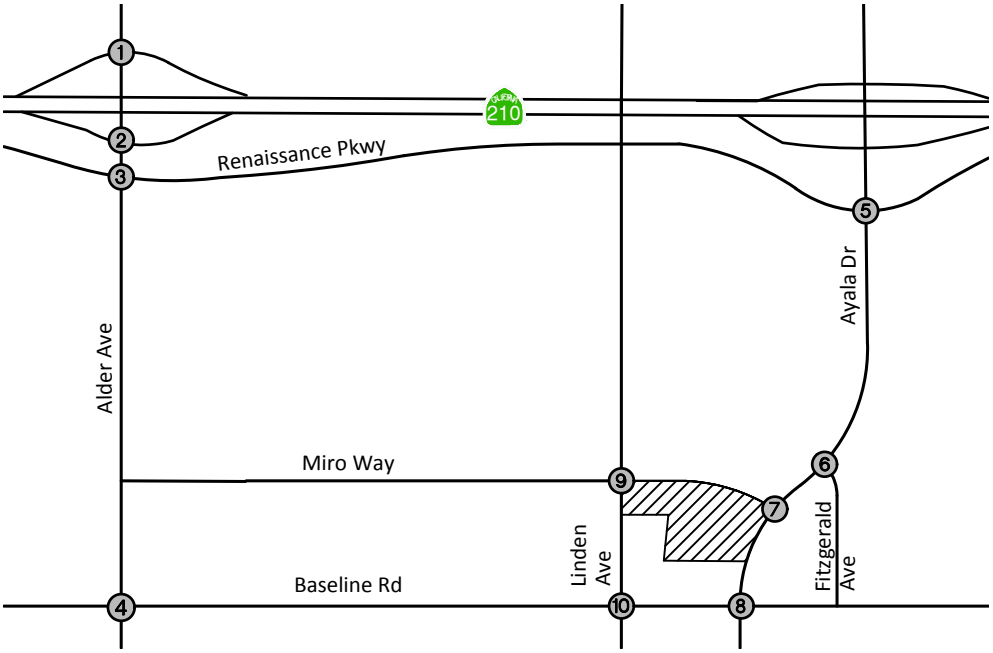
Notes:
- **Bold** and shaded values indicate intersections operating at an unacceptable Level of Service.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the worst (highest delay) movement.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, (7^{th} Edition).

S = Signalized
U = Unsignalized

TABLE 10
SUMMARY OF ROADWAY ANALYSIS
OPENING YEAR 2024 CUMULATIVE WITHOUT PROJECT

Roadway	Segment	LOS D Capacity	Existing Plus Growth ADT	Cumulative Projects ADT	Opening Year + Cum. Projects ADT	LOS D or Better?
Alder Avenue	SR-210 WB Ramps to SR-210 EB Ramps	32,999	16,340	10,310	26,650	Yes
	SR-210 EB Ramps to Renaissance Parkway	32,999	23,610	13,730	37,340	**No**
	Renaissance Parkway to Baseline Road	32,999	19,325	8,350	27,675	Yes
Linden Avenue	Miro Way to Baseline Road	32,999	9,243	720	9,963	Yes
Ayala Drive	Renaissance Parkway to Fitzgerald Avenue	32,999	26,122	4,160	30,282	Yes
	Miro Way to Baseline Road	32,999	21,875	2,930	24,805	Yes
Baseline Road	Alder Avenue to Linden Avenue	32,999	12,951	2,610	15,561	Yes
	Linden Avenue to Ayala Drive	32,999	14,014	3,310	17,324	Yes

Notes: LOS = Level of Service
ADT = Average Daily Traffic



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
101/475 ← 308/553 ← 249/213 ← 5/4 ← 810/516	1002/819 ← 95/247 ← 393/295 → 3/4 → 997/729 ↘	98/156 ← 1385/984 ← 489/401 ← 438/522 ← 218/241 ← 27/20	201/155 ← 370/387 ← 233/189 ← 188/263 ← 517/406 ← 42/58
623/832 ↑ 642/559 ↑	918/1089 ↑ 559/775 ↑	117/112 → 233/340 → 85/69 ↘ 131/55 ↑ 966/1218 ↑ 15/35 ↑	127/142 → 415/496 → 80/77 ↘ 173/49 ↑ 327/347 ↑ 102/45 ↑
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
335/552 ← 894/1011 ← 221/372 ← 373/380 ← 128/196 ← 49/81	8/1 ← 834/1019 ← 143/220 ← 142/163 ← 1/3 ← 3/1	36/32 ← 805/993	76/107 ← 660/800 ← 73/155 ← 51/78 ← 381/482 ← 82/130
230/368 → 115/392 → 91/130 ↘ 63/121 ↑ 893/1008 ↑ 59/103 ↑	1/0 → 4/5 ↘ 14/8 ↑ 854/1034 ↑ 3/8 ↑	20/49 → 10/33 ↘ 33/13 ↑ 851/1001 ↑	164/156 → 386/521 → 192/271 ↘ 248/198 ↑ 687/774 ↑ 93/133 ↑
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
40/54 ← 278/413 ← 14/38 ← 38/18 ← 15/24 ← 12/39	65/142 ← 95/173 ← 105/169 ← 144/204 ← 511/547 ← 20/40		
31/53 → 15/28 → 15/27 ↘ 6/18 ↑ 308/454 ↑ 39/14 ↑	65/105 → 567/579 → 32/28 ↘ 42/18 ↑ 137/171 ↑ 62/46 ↑		

LEGEND:

= Project Site

X = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 14
OPENING YEAR 2024 CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES

TABLE 11
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2024 CUMULATIVE PLUS PROJECT

Int. #	Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
			Without Project		With Project		Change In Delay	Project-Related Effect?	Without Project		With Project		Change In Delay	Project-Related Effect?
			Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS		
1	Alder Avenue at SR-210 WB Ramps	S	94.7	**F**	103.0	**F**	8.3	**Yes**	130.1	**F**	138.6	**F**	8.5	**Yes**
2	Alder Avenue at SR-210 EB Ramps	S	135.6	**F**	143.2	**F**	7.6	**Yes**	131.7	**F**	136.3	**F**	4.6	**Yes**
3	Alder Avenue at Renaissance Parkway	S	86.6	**F**	92.1	**F**	5.5	**Yes**	82.9	**F**	90.8	**F**	7.9	**Yes**
4	Alder Avenue at Baseline Road	S	48.7	D	51.7	D	3.0	No	33.7	C	34.5	C	0.8	No
5	Ayala Drive at Renaissance Parkway	S	22.7	C	22.6	C	-0.1	No	26.1	C	26.0	C	-0.1	No
6	Ayala Drive at Fitzgerald Avenue	S	6.6	A	6.6	A	0.0	No	7.4	A	7.5	A	0.1	No
7	Ayala Drive at Miro Way	U	-	-	37.5	**E**	-	**Yes**	-	-	79.7	**F**	-	**Yes**
8	Ayala Drive at Baseline Road	S	36.3	D	41.7	D	5.4	**Yes**	37.4	D	38.1	D	0.7	No
9	Linden Avenue at Miro Way	S	5.9	A	8.5	A	2.6	No	7.4	A	10.2	B	2.8	No
10	Linden Avenue at Baseline Road	S	29.1	C	29.3	C	0.2	No	29.0	C	29.1	C	0.1	No

Notes:
- **Bold** and shaded values indicate intersections operating at an unacceptable Level of Service.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the worst (highest delay) movement.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, (7^{th} Edition).

S = Signalized
U = Unsignalized

TABLE 12
SUMMARY OF ROADWAY ANALYSIS
OPENING YEAR 2024 CUMULATIVE PLUS PROJECT

Roadway	Segment	LOS D Capacity	Existing ADT (Rerouted)	Existing Plus Growth ADT	Cumulative Projects ADT	Daily Project Traffic	Opening Year + Cum. Project + Project ADT	LOS D or Better?
Alder Avenue	SR-210 WB Ramps to SR-210 EB Ramps	32,999	16,020	16,340	10,310	389	27,039	Yes
	SR-210 EB Ramps to Renaissance Parkway	32,999	23,147	23,610	13,730	779	38,119	**No**
	Renaissance Parkway to Baseline Road	32,999	18,946	19,325	8,350	779	28,454	Yes
Linden Avenue	Miro Way to Baseline Road	32,999	8,762	8,937	720	500	10,157	Yes
Ayala Drive	Renaissance Parkway to Fitzgerald Avenue	32,999	26,330	26,857	4,160	264	31,281	Yes
	Miro Way to Baseline Road	32,999	21,146	21,569	2,930	433	24,932	Yes
Baseline Road	Alder Avenue to Linden Avenue	32,999	12,697	12,951	2,610	823	16,384	Yes
	Linden Avenue to Ayala Drive	32,999	13,439	13,708	3,310	455	17,473	Yes

Notes: LOS = Level of Service
ADT = Average Daily Traffic

IV. RECOMMENDED IMPROVEMENTS

A. Intersection Improvements

Based on the significance criteria in the City's *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS)*, there would be a project-related effect at the following intersections:

- #1 - Alder Avenue at SR-210 WB Ramps (Cumulative effect)
- #2 - Alder Avenue at SR-210 EB Ramps (Cumulative effect)
- #3 - Alder Avenue at Renaissance Parkway (Cumulative effect)
- #7 - Ayala Drive at Miro Way (Direct effect)
- #8 - Ayala Drive at Baseline Road (Cumulative effect)

Implementation of the following recommended improvements would offset the project-related effect at the following intersections:

#1 – Alder Avenue at SR-210 Westbound Ramps: Restripe the northbound approach to add a second northbound left-turn lane. Although the intersection would continue to operate at an unacceptable Level of Service, the addition of a second northbound left-turn lane would improve the overall intersection delay and would more than offset the project-related incremental increase in delay.

#2 – Alder Avenue at SR-210 Eastbound Ramps: Restripe the southbound approach to add a second southbound left-turn lane and modify the existing eastbound shared left/through lane to a shared left/through/right lane. Although the intersection would continue to operate at an unacceptable Level of Service, the addition of a second southbound left-turn lane and modified shared left/through/right lane would improve the overall intersection delay and would more than offset the project-related incremental increase in delay.

#3 – Alder Avenue at Renaissance Parkway: Restripe the southbound approach to provide a second dedicated southbound left-turn lane. Although the intersection would continue to operate at an unacceptable Level of Service, the addition of a second southbound left-turn lane would improve the overall intersection delay and would more than offset the project-related incremental increase in delay.

The Alder Avenue interchange with the SR-210 Freeway is the subject of a Feasibility Study Report (August 2017), which proposes improvements to the freeway off-ramps and to Alder Avenue between Sierra Lakes Parkway and Renaissance Parkway. The Build Alternative Layout Plan has identified the need for additional right- and left-turn capacity to and from the freeway ramps and on Alder Avenue through the interchange.

The recommended improvements identified above to offset the project-related effect are consistent with and a sub-set of the more comprehensive Build Alternative improvement plan and recommended improvements as noted in the *Renaissance Specific Plan Amendment Traffic Impact Analysis* (September 2016).

#7 – Ayala Drive at Miro Way: Install a traffic signal.

#8 – Ayala Drive at Baseline Road: Signal retiming. With volume growth overtime, signal retiming is an ordinary responsibility of the City and would be included as part of routine signal maintenance. Therefore, the project would not be responsible for any cost associated with this improvement. It should be noted that the project causes only a sliding-scale effect based on the City's guidelines and does not cause the intersection to operate deficiently. The study intersection would operate at an acceptable LOS under Opening Year 2024 Cumulative Plus Project conditions.

A summary of the intersection operation before and after implementation of these improvements is provided on **Table 13**. Intersection Analysis Worksheets with improvements are provided in ***Appendix D***. The project fair share proportion of the improvements are shown on **Table 14**, and the estimated costs of the proposed improvements, as derived from the Renaissance Specific Plan fee program, the Citywide Development Impact Fee Program, and the Congestion Management Program (CMP) Appendix G, are shown on **Table 15**.

B. Roadway Improvements

The following study roadway segment would exceed its daily LOS D roadway capacity based on a four-lane cross-section:

- Alder Avenue: SR-210 EB Ramps to Renaissance Parkway

The Alder Avenue/SR-210 Interchange improvements noted above would offset the project-related effect on the study roadway segment.

TABLE 13
SUMMARY OF INTERSECTION OPERATIONS WITH PROPOSED IMPROVEMENTS

Int. #	Intersection	AM Peak Hour				PM Peak Hour			
		Without Mitigation		With Mitigation		Without Mitigation		With Mitigation	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Alder Avenue at SR-210 WB Ramps								
	- Alder Avenue Improvement Project (Restripe NB approach to add a second NB Left-Turn Lane)[1]	103.0	**F**	45.6	D	138.6	**F**	57.6	**E**
2	Alder Avenue at SR-210 EB Ramps								
	- Alder Avenue Improvement Project (Restripe SB approach to add a second SB Left-Turn lane, and modify existing EB shared left/through lane to a shared left/through/right lane)[1]	143.2	**F**	82.5	**F**	136.3	**F**	72.7	**E**
3	Alder Avenue at Renaissance Parkway								
	- Alder Avenue Improvement Project (Restripe SB approach to add a second SB Left-Turn lane)[1]	92.1	**F**	66.7	**E**	90.8	**F**	60.5	**E**
7	Ayala Drive at Miro Way								
	- Install Traffic Signal	37.5	**E**	2.2	A	79.7	**F**	4.0	A
8	Ayala Drive at Baseline Road								
	- Signal Retiming	41.7	D	32.6	C	38.1	D	36.6	D

Notes:
- **Bold** and shaded values indicate intersections operating at an unacceptable Level of Service.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, (7th Edition).

[1] Source: Feasibility Study Report: Alder Avenue at SR-210 Interchange (August 2017).

[2] Source: Renaissance Specific Plan Amendment Traffic Impact Analysis (September 2016).

TABLE 14

SUMMARY OF PROJECT FAIR SHARE FOR IMPROVEMENTS

Intersection	AM Peak Hour					PM Peak Hour					Fair-Share Percentage (Total of Both Peak Hours)		
	Total Volume		Total Growth	Project Trips	%-age	Total Volume		Total Growth	Project Trips	%-age	Total Growth	Project Trips	%-age
	RSP Baseline	2035				RSP Baseline	2035						
Build-Out 2035 Conditions [1]													
Alder Avenue at Sierra Lakes Parkway/Casmalia Street	1,173	2,729	1,556	0	0.0%	1,312	2,642	1,330	0	0.0%	2,886	0	0.0%
#1 - Alder Avenue at SR-210 WB Ramps	1,448	3,381	1,933	38	2.0%	1,297	3,820	2,523	40	1.6%	4,456	78	1.8%
#2 - Alder Avenue at SR-210 EB Ramps	1,205	3,929	2,724	76	2.8%	1,491	4,413	2,922	82	2.8%	5,646	158	2.8%
#3 - Alder Avenue at Renaissance Parkway	1,014	4,226	3,212	79	2.5%	1,165	5,668	4,503	85	1.9%	7,715	164	2.1%
Peak-Hour Fair-Share Percentage for Interchange	4,840	14,265	9,425	193	**2.0%**	5,265	16,543	11,278	207	**1.8%**	20,703	400	**1.9%**

[1] Existing 2010 and Build-Out 2035 total volumes are based Figures 4C and 34C, respectively, of the Traffic Impact Analysis for the Renaissance Specific Plan (July, 2010). Since the deficiencies at the interchange occur during both peak hours, the fair-share percentage is based on the average fair-share during both the AM and PM peak hours for the interchange, which results in 3.3%.

TABLE 15
TRAFFIC IMPROVEMENT FAIR-SHARE COST

#1, #2, #3 = Alder Avenue Interchange Improvement			
Alder Avenue Improvement Project	$ 5,015,059 [1]	1	$ 5,015,059
Project Fair Share percentage[2]			1.9%
Project Cost			$ 95,286
#7 - Ayala Drive at Miro Way	**Unit Cost[4]**	**Quantity**	**Total**
Install Traffic Signal	$ 400,000	1	$ 400,000
Project Fair Share percentage[3]			100.0%
Project Cost			$ 400,000
	Total Project Cost		**$ 495,286**

[1] Cost based on Exhibit A - PS&E Final Design Cost Estimate ($1,192,059) for the SR-210/Alder Ave Interchange Improvements Project, provided as part of City Council Agenda Item #20-0741 (dated November 10, 2020), and Appendix C - Cost Estimate ($3,823,000) for the SR-210/Alder Ave Interchange Improvements Project, provided as part of the Approved Permit Engineering Evaulation Report (PEER) 08-SBd-210, PM 15.7/16.2 (approved August 24, 2022).

[2] Average blended fair share percentage calculated based on AM and PM peak hour volumes between intersections #1, #2 and #3, as noted in Table 14.

[3] Since the improvement is a result of a direct effect, the improvement fair share is 100%.

[4] The unit cost is based on the Renaissance Specific Plan Amendment Traffic Impact Analysis (September 2016).

V. VEHICLE MILES TRAVELED ANALYSIS

A. Introduction

Senate Bill 743 (SB 743) was approved by California legislature in September 2013. SB 743 requires changes to California Environmental Quality Act (CEQA), specifically directing the Governor's Office of Planning and Research (OPR) to develop alternative metrics to the use of vehicular "Level of Service" (LOS) for evaluating transportation projects. OPR has prepared a technical advisory ("OPR Technical Advisory") for evaluating transportation impacts in CEQA and has recommended that Vehicle Miles Traveled (VMT) replace LOS as the primary measure of transportation impacts. The Natural Resources Agency has adopted updates to CEQA Guidelines to incorporate SB 743 that requires VMT for the purposes of determining a significant transportation impact under CEQA.

B. VMT Analysis

The City of Rialto *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* (LOS) (TIA Guidelines October 2021) provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less-than-significant impact without conducting a more detailed level analysis. Screening thresholds are broken down into the following three criteria:

1. Transit Priority Area (TPA) Screening
2. Low VMT Area Screening
3. Project Type Screening

Land development projects that meet one or more of the above screening thresholds may be presumed to create a less-than-significant impact on transportation and circulation. The screening thresholds were reviewed and evaluated for this project.

Transit Priority Area (TPA) Screening

A project located within a TPA as determined by the San Bernardino Transportation Analysis (SBTAM) VMT Screening would be considered to have a less-than-significant transportation impact. Based on the SBCTA VMT Screening Tool, the proposed project is not located within a TPA.

The Transit Priority Area threshold is not met.

Low VMT Generating Area

A project located within a low VMT generating area as determined by the City's guidelines and the SBCTA VMT Screening Tool would be considered to have a less-than-significant transportation impact. A Transportation Analysis Zone (TAZ) with a VMT below the County baseline of 16.9 is considered to be a low VMT area. Based on the SBCTA VMT Screening Tool, the project site is located within TAZ 53745301, which has PA VMT per worker of 15.7. Therefore, the proposed project is located within a low VMT generating area. Results of the SBCTA VMT Screening Tool are provided in the Approved Scoping Agreement in ***Appendix A***.

The Low VMT Generating Area threshold is met.

Project Type Screening

The City's TIA Guidelines identify that the following project types would be presumed to have a less-than-significant VMT impact:

- Local-serving K-12 schools
- Local parks
- Day care centers
- Local-serving retail uses less than 50,000 square feet, including:
    - Gas stations
    - Banks
    - Restaurants
    - Shopping Center
- Local-serving hotels (e.g., non-destination hotels)
- Student housing projects on or adjacent to college campuses
- Local-serving assembly uses (places of worship, community organizations)
- Community institutions (Public libraries, fire stations, local government)
- Local-serving community colleges that are consistent with the assumptions noted in the RTP/SCS Affordable or supportive housing
- Assisted living facilities
- Senior housing as defined by the U.S. Department of Housing and Urban Development (HUD)
- Projects generating less than 110 daily vehicle trips
    - This generally corresponds to the following "typical" development potentials:
        - 11 single family housing units
        - 16 multi-family, condominiums, or townhouse housing units
        - 10,000 sq. ft. of office
        - 15,000 sq. ft. of light industrial
        - 63,000 sq. ft. of warehousing
        - 79,000 sq. ft. of high cube transload and short-term storage warehouse

The project will involve the construction 2 separate warehouses totaling 428,715 square feet that generates more than 110 daily trips; therefore, the project would not be screened out based on project type.

The Project Type Screening threshold is not met.

Based on the City of Rialto Traffic Impact Analysis Guidelines VMT and LOS (October 2021) and the SBCTA VMT Screening tool, the project is located in a low VMT generating area. Therefore, the proposed project would create a less-than-significant VMT impact, and no further VMT analysis is required.

I. ALTERNATIVE SITE PLAN

An alternative site plan was evaluated for the proposed project. The alternative site plan would involve the construction of three warehouse buildings totaling 411,853 square feet and would have the same access provisions as the proposed site plan. A copy of the project site plan is provided on **Figure 15**. Trip generation rates, PCE factors, and the resulting trip generation estimates for the alternative site plan are summarized on **Table 16**. The alternative site plan would generate 1,180 PCE trips on a daily basis, with 117 PCE trips in the morning peak hour, and 126 PCE trips in the evening peak hour. Since the alternative site plan would generate less trips than the proposed project, the traffic-related effects would be considered less for the alternative site plan, compared to the proposed project. Therefore, no further analysis would be required for the alternative site plan.

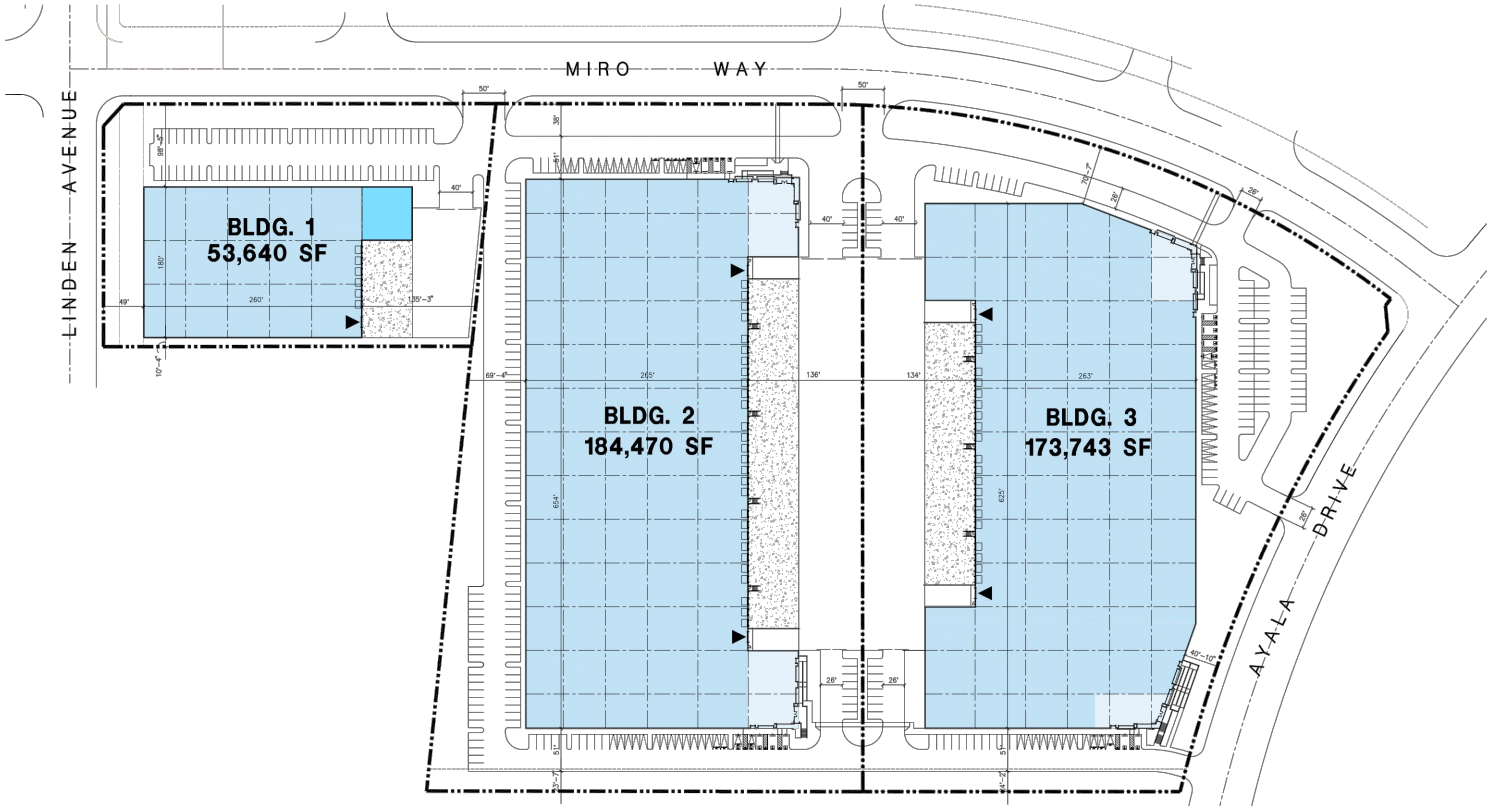


FIGURE 15
ALTERNATIVE PROJECT SITE PLAN

TABLE 16
SUMMARY OF ALTERNATIVE PROJECT TRIP GENERATION
MIRO WAY AND AYALA DRIVE WAREHOUSE PROJECT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	150	KSF	1.710	0.131	0.039	0.170	0.050	0.130	0.180

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Warehousing		411.853	KSF	704	54	16	70	21	54	75
Passenger Vehicles	60.00%			422	32	10	42	13	32	45
Trucks	40.00%			282	22	6	28	8	22	30

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	60.00%	422	1.0	422	32	10	42	13	32	45
2-Axle Trucks	0.80%	6	1.5	9	1	0	1	0	1	1
3-Axle Trucks	11.20%	79	2.0	158	12	4	16	5	12	17
4+ Axle Trucks	28.00%	197	3.0	591	45	13	58	18	45	63
Total Truck PCE Trips				758	58	17	75	23	58	81
Total Project PCE Trips				**1,180**	**90**	**27**	**117**	**36**	**90**	**126**

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition

[2] Source: City of Rialto Traffic Impact Analysis Guidelines for VMT and LOS Assessment (October, 2021)

II. FINDINGS AND RECOMMENDATIONS

A. Improvements

Off-site recommended improvements were identified to offset the project-related effect at the following study intersections and roadway segments:

Intersections:

- #1 - Alder Avenue at SR-210 WB Ramps
- #2 - Alder Avenue at SR-210 EB Ramps
- #3 - Alder Avenue at Renaissance Parkway
- #7 - Ayala Drive at Miro Way
- #8 - Ayala Drive at Baseline Road

Roadway Segments:

- Alder Avenue: SR-210 EB Ramps to Renaissance Parkway

B. Traffic Signal Warrant Analysis

A peak hour signal warrant analysis was conducted for the following unsignalized intersection:

- #7 - Ayala Drive at Miro Way

For intersection #7, the signal warrant analysis shows that the Peak Hour Signal Warrant is satisfied in the PM peak hour under both Opening Year 2024 Cumulative Plus Project conditions and Opening Year 2024 Existing Plus Growth Plus Project conditions.

Signal analysis worksheets are provided in ***Appendix F***.

C. Site Circulation

Vehicular access provisions for the project site would consist of two driveways on Miro Way and two driveways on Ayala Drive, as noted below:

- Building 1
    - One shared (with Building 2) full-movement driveway for both trucks and passenger cars on Miro Way

- Building 2
    - One shared (with Building 1) full-movement driveway for both trucks and passenger cars on Miro Way
    - One full-movement driveway for both trucks and passenger cars on Miro Way
    - One right-in right-out (RIRO) driveway for passenger cars on Ayala Drive
    - One RIRO driveway for trucks and passenger cars on Ayala Drive

D. Safety and Operational Improvement

The site driveways and project improvements must be designed so that adequate sight distance for drivers entering and exiting the site is maintained.

The line of sight – a straight line between the driver's eye and oncoming vehicles on the adjacent roadway defines the Limited Use Area. The Limited Use Area for each driveway must be kept clear of visual obstructions, including project signs, building structures, and landscaping, in order to maintain adequate sight distance.

E. Fair Share Calculations

The project fair share proportion of the improvements are shown on Table 14 (presented previously), and the estimated costs of the proposed improvements, are shown on Table 15 (presented previously).

F. Specific Plan Signalization

Not Applicable.

G. General Plan Conformance

The proposed Renaissance Place Residential project is anticipated to conform on the Renaissance Specific Plan and the City of Rialto General Plan.

H. Regional Funding Mechanisms

The project is located in the Renaissance Specific Plan area, and as such, is subject to the Renaissance Specific Plan Traffic Fee Program, as well as the City's city-wide traffic impact fee program. To the extent that a recommended improvement is included in an existing fee program, the project's payment of impact fees can be used to offset the costs of implementing the recommended improvements. In addition, the project may be required to construct a needed improvement in advance of the City's receipt of full funding, in which case the improvement may be subject to a reimbursement agreement, to allow the project to recoup costs from future development. Any reimbursement agreements are at the discretion of the City Engineer.

APPENDIX A

APPROVED SCOPING AGREEMENT

Exhibit A

SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

This following form shall be used to acknowledge preliminary approval of the scope for the traffic impact analysis (TIA) of the following project. The TIA must follow the City of Rialto Traffic Impact Analysis – Report Guidelines and Requirements, adopted by the City Council on _____.

City of Rialto

Traffic Impact Analysis

Scoping Agreement

Case No. _____

Related Cases -

SP No. _____

EIR No. _____

GPA No. _____

ZC No. _____

Project Name: Miro Way and Ayala Drive Warehouse Project

Project Address: Northwest and southwest corners of Miro Way and Ayala Drive

Project Description: 6 separate warehouses totaling 739,653 square-feet

	Consultant	Developer
Name:	Kimley-Horn and Associates, Inc.	Lewis-Hillwood Rialto Company, LLC
Address:	3880 Lemon St #420, Riverside, CA 92501	1156 N. Mountain Ave. Upland, CA 91786
Telephone:	(951) 543-9868	(909) 579-5193
Fax:		

1. Trip Generation Source: ITE Trip Generation Manual, 11th Edition

Existing GP Land Use Vacant Proposed Land Use Industrial

Current Zoning: Industrial/Residential Proposed Zoning: Medium Industrial

Total Daily Project Trips: 2,120 PCE **See Attachment B**

	Current Trip Generation			Proposed Trip Generation (PCE)		
	In	Out	Total	In	Out	Total
AM Trips	N/A	N/A	N/A	162	47	209
PM Trips	N/A	N/A	N/A	61	162	223

Internal Trip Allowance Yes (No) (_____ % Trip Discount)

Pass-By Trip Allowance Yes (No) (_____ % Trip Discount)

For appropriate land uses, a pass-by trip discount may be allowed not to exceed 25%. Discount trips shall be indicated on a report figure for intersections and access locations.

2. Trip Geographic Distribution: N 10 % S 15 % E 40 % W 35 %

(Detailed exhibits of trip distribution must be attached with Trucks as a separate exhibit)

See Attachment C

3. Background Growth Traffic

Project Completion Year: 2024 Annual Background Growth Rate: 2 %

Other Phase Years _____

Other area projects to be considered: We will include the Cumulative Projects list as noted by the City's Planning Department

(Contact Planning for Lists. Correlate projects to exhibit map and also indicate which projects have been included in study area forecasts for existing + background growth + project + cumulative)

Model/Forecast methodology: Existing + Growth + Cumulative Projects + Project to Opening Year

4. Study Intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies received.)

1. Alder Ave at SR-210 WB Ramps
2. Alder Ave at SR-210 EB Ramps
3. Alder Ave at Renaissance Pkwy
4. Alder Ave at Base Line Rd
5. Ayala Dr at Renaissance Pkwy
6. Ayala Dr at Fitzgerald Ave
7. Ayala Dr at Miro Way
8. Ayala Dr at Base Line Rd
9. Linden Ave at Miro Way
10. Linden Ave at Base Line Rd

5. Study Roadway Segments: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies received.)

1. Alder Ave: I-210 WB to I-210 EB Ramps
2. Alder Ave: I-210 EB Ramps to Renaissance Pkwy
3. Alder Ave: Renaissance Way to Base Line Rd
4. Ayala Dr: Renaissance Pkwy to Fitzgerald Ave
5. Ayala Dr: Miro Way to Base Line Rd
6. Linden Ave: Miro Way to Base Line Rd
7. Base Line Rd: Alder Ave to Linden Ave
8. Base Line Rd: Linden Ave to Ayala Dr
9.
10.

6. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or within one-mile of another jurisdictional boundary?

(YES)
NO

If so, name of Jurisdiction: City of Fontana

7. Site Plan (please attach 11" x 17" legible copy) **See Attachment A**

8. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (to be filled out by the City of Rialto Public Works Department) (NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing un-signalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

9. Existing Conditions

Traffic count data must be new or within one year. Provide traffic count dates if using other than new counts.

Date of counts: New counts will be collected with truck classification

NOTE Fees are due and must be submitted with, or prior to submittal of this form. The City will not process the Scoping Agreement prior to the receipt of the processing fee.

Fees Paid: _____ Date _____

Recommended:

Scoping Agreement Submittal date 03/08/2023

Scoping Agreement Resubmittal date _____

Kimley-Horn and Associates, Inc. 03/08/2023

Applicant/Engineer Date

Land Use Concurrence:

Development Services Department Date

Approved by:

Justin P. Schlaefli 3/14/23

Public Works Department Date

NOTE:

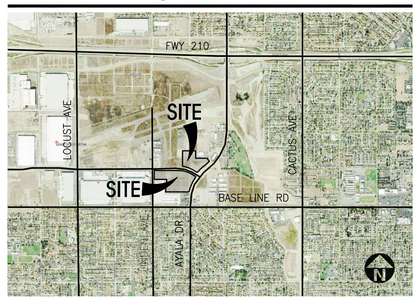
The Applicant/Engineer acknowledges that the Scoping Agreement is intended to assist in the preparation of any required TIA. It is preliminary in nature and the City does not have sufficient data to determine the ultimate conditions that may be imposed for the project. It does not provide nor limit the requirements imposed on the Project but is intended only to provide initial input into the parameters for review of the traffic generated by the Project and the initial areas to be considered and studied. Subsequent changes to scope of required analysis to be included in the TIA may be required by the Transportation Commission, Planning Commission, and/or the City Council upon Public Works Director/City Engineer review and approval.

CAUTION: IF THIS SHEET IS NOT 30"X42", IT IS A REDUCED PRINT

ATTACHMENT A



Aerial Map



Legend

- POTENTIAL OFFICE
- WAREHOUSE
- DRIVE THRU DOOR

Tabulation

	BLDG. 1	BLDG. 2	BLDG. 3	BLDG. 4	BLDG. 5	BLDG. 6	TOTAL
SITE AREA							
In s.f.	130,791	390,549	383,940	282,410	158,900	305,126	1,651,716 s.f.
In acres	3.00	8.97	8.81	6.48	3.65	7.00	37.92 ac
BUILDING AREA							
Office	3,000	10,000	10,000	6,000	5,000	5,000	39,000 s.f.
Warehouse	54,770	174,470	163,743	118,930	62,430	123,040	697,383 s.f.
TOTAL	57,770	184,470	173,743	124,930	67,430	128,040	736,383 s.f.
COVERAGE	44.2%	47.2%	45.3%	44.2%	42.4%	42.0%	44.6%
AUTO PARKING REQUIRED							
Office: 1/250 s.f.	12	40	40	24	20	20	156 stalls
Whse: 1st 40K @ 1/1,000 s.f.	40	40	40	40	40	40	240 stalls
above 40K @ 1/4,000 s.f.	4	34	31	20	6	21	116 stalls
TOTAL	56	114	111	84	66	81	512 stalls
AUTO PARKING PROVIDED							
Standard (9' x 18')	59	185	122	114	78	126	684 stalls

ZONING ORDINANCE FOR CITY

Proposed Zoning Designation - Renaisasance SP (Business Center)

MAXIMUM BUILDING HEIGHT ALLOWED

Height - 75'

MAXIMUM FLOOR AREA RATIO

FAR - .50

SETBACKS

Front / street side

Bldgs < 100K - 20' ave. 15' min.

Bldgs > 100K - 30' ave. 25' min.

Interior side

adjacent to business uses - 0 or separated by 20' plus 10' for each additional floor

adjacent to Residential uses - 40' single story and 10' for each additional floor

- loading and unloading areas directly face R zone - 120' from PL to the loading bay door.

Rear

adjacent to business uses / streets - 25' ave. 20' min.

adjacent to residential uses - 40' single story and 10' for each additional floor

- loading and unloading areas directly face R zone - 120' from PL to the loading bay door.

north

1" = 80'

0 80 160 240

Conceptual Site Plan

Miro Way and Ayala Dr.

Rialto, CA

HPA architecture

18831 Bardeen Ave. - Ste. #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

HILLWOOD A PEROT COMPANY

November 09, 2022 /Job #18277

Scheme 14 rev b

ATTACHMENT B

SUMMARY OF PROJECT TRIP GENERATION

MIRO WAY AND AYALA DRIVE WAREHOUSE PROJECT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	150	KSF	1.710	0.131	0.039	0.170	0.050	0.130	0.180

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Warehousing		739.653	KSF	1,265	97	29	126	37	96	133
Passenger Vehicles	60.00%			759	58	17	75	22	58	80
Trucks	40.00%			506	39	12	51	15	38	53

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	60.00%	759	1.0	759	58	17	75	22	58	80
2-Axle Trucks	0.80%	10	1.5	15	1	0	1	0	1	1
3-Axle Trucks	11.20%	142	2.0	284	22	6	28	8	22	30
4+ Axle Trucks	28.00%	354	3.0	1,062	81	24	105	31	81	112
Total Truck PCE Trips				1,361	104	30	134	39	104	143
Total Project PCE Trips				2,120	162	47	209	61	162	223

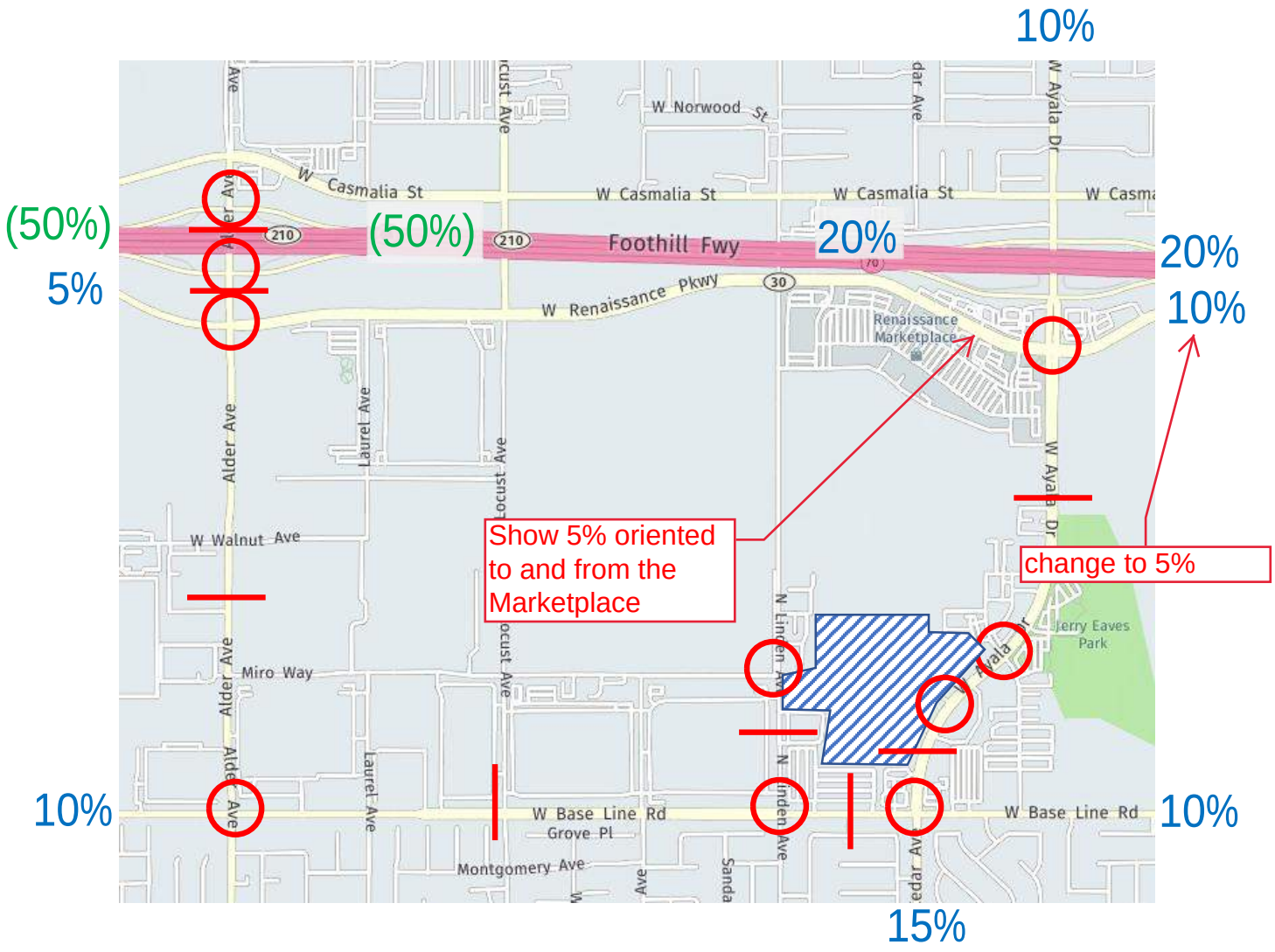
PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition

[2] Source: City of Rialto Traffic Impact Analysis Guidelines for VMT and LOS Assessment (October, 2021)

ATTACHMENT C
PROJECT STUDY AREA
AND TRIP DISTRIBUTION



Legend:

= Project Site

= Study Intersection

= Study Roadway Segment

XX% = Passenger Car Distribution

(YY%) = Truck Trip Distribution

VMT Analysis Project Scoping Form

This scoping form shall be submitted to the City of Rialto to assist in identifying infrastructure improvements that may be required to support traffic from the proposed project.

Project Identification:

Case Number:	
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Miro Way and Ayala Drive Warehouse Project
Project Address:	Northwest and southwest corners of Miro Way and Ayala Drive
Project Opening Year:	2024
Project Description:	6 separate warehouses totaling 739,653 square-feet

	Consultant:	**Developer:**
Name:	Kimley-Horn and Associates, Inc.	Lewis-Hillwood Rialto Company, LLC
Address:	3880 Lemon Street, Suite 420,	1156 N. Mountain Avenue
	Riverside, CA 92501	Upland, CA 91786
Telephone:	(951) 543-9868	(909) 579-5193
Fax/Email:		

Trip Generation Information:

Trip Generation Data Source: ITE Trip Generation Manual, 11th Edition

Current General Plan Land Use: Vacant

Proposed General Plan Land Use: Industrial

Current Zoning: Residential/Public Park/School

Proposed Zoning: Medium Industrial

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	NA	NA	NA	162 PCE	47 PCE	209 PCE
PM Trips	NA	NA	NA	61 PCE	162 PCE	223 PCE

Trip Internalization: ☐ Yes ☒ No (____0____% Trip Discount)

Pass-By Allowance: ☐ Yes ☒ No (____0____% Trip Discount)

Potential Screening Checks

Is the project screened from VMT assessment? ☒ Yes ☐ No

VMT screening justification_____
Please see attached VMT Screening Memorandum

VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used _____
- Attach SBCTA Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Approved by:

3/14/23

Public Works Department Date

NOTE:

The Applicant/Engineer acknowledges that the Scoping Agreement is intended to assist in the preparation of any required TIA. It is preliminary in nature and the City does not have sufficient data to determine the ultimate conditions that may be imposed for the project. It does not provide nor limit the requirements imposed on the Project but is intended only to provide initial input into the parameters for review of the traffic generated by the Project and the initial areas to be considered and studied. Subsequent changes to scope of required analysis to be included in the TIA may be required by the Transportation Commission, Planning Commission, and/or the City Council upon Public Works Director/City Engineer review and approval

March 8, 2023

Daniel Casey
Senior Planner
City of Rialto
150 S. Palm Avenue
Rialto, CA 92376

Subject: *Vehicle Miles Traveled Memorandum for the Miro Way and Ayala Drive Warehouse Project in the City of Rialto*

Dear Mr. Casey:

Kimley-Horn and Associates, Inc. has prepared a Vehicle Miles Traveled (VMT) memorandum for the proposed Miro Way and Ayala Drive Warehouse Project. This memorandum based on the City of Rialto *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service (LOS) Assessment* (October 2021).

PROJECT DESCRIPTION

The project site is located on the northwest and southwest corners of Miro Way and Ayala Drive in the City of Rialto. The project site is bounded by Ayala Drive to the east, commercial and industrial uses to the south, Linden Avenue to the west, and vacant land to the north. The project will involve the construction of 6 separate warehouses totaling 739,653 square feet. A copy of the project site plan is provided on Attachment A.

Vehicular access provisions for the project site would be provided via one full-movement driveway on Ayala Drive and one full-movement driveway on Linden Avenue.

PROPOSED TRIP GENERATION

Trip generation estimates for the proposed project are based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition) trip generation rates for Warehousing (ITE 150). Trip generation rates and the resulting trip generation estimates for the proposed project are summarized on Attachment B.

The project is estimated to generate 759 PC trips on a daily basis with 75 PC trips in the morning peak hour and 80 PC trips in the evening peak hour; and 509 truck trips on a daily basis with 51 truck trips in the morning peak hour and 53 truck trips in the evening peak hour.

PCE factors were then applied to the truck types, based on the number of axles, to determine the total PCE volumes generated by the proposed project. Daily and peak hour trip generation estimates for the proposed project are summarized on Table 1 (previously mentioned). The proposed project is estimated to generate 2,120 daily PCE trips, with 209 PCE trips in the morning peak hour, and 223 PCE trips in the evening peak hour.

CEQA VEHICLE MILES TRAVELED (VMT) SCREENING

Senate Bill 743 (SB 743) was approved by California legislature in September 2013. SB 743 requires changes to California Environmental Quality Act (CEQA), specifically directing the Governor's Office of Planning and Research (OPR) to develop alternative metrics to the use of vehicular "Level of Service" (LOS) for evaluating transportation projects. OPR has prepared a technical advisory ("OPR Technical Advisory") for evaluating transportation impacts in CEQA and has recommended that Vehicle Miles Traveled (VMT) replace LOS as the primary measure of transportation impacts. The Natural Resources Agency has adopted updates to CEQA Guidelines to incorporate SB 743 that requires VMT for the purposes of determining a significant transportation impact under CEQA.

The City of Rialto *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* (LOS) (TIA Guidelines October 2021) provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less-than-significant impact without conducting a more detailed level analysis. Screening thresholds are broken down into the following three criteria:

1. Transit Priority Area (TPA) Screening
2. Low VMT Area Screening
3. Project Type Screening

Land development projects that meet one or more of the above screening thresholds may be presumed to create a less-than-significant impact on transportation and circulation. The screening thresholds were reviewed and evaluated for this project.

Transit Priority Area (TPA) Screening

A project located within a TPA as determined by the San Bernardino Transportation Analysis (SBTAM) VMT Screening would be considered to have a less-than-significant transportation impact. Based on the SBCTA VMT Screening Tool, the proposed project is not located within a TPA.

The Transit Priority Area threshold is not met.

Low VMT Generating Area

A project located within a low VMT generating area as determined by the SBCTA VMT Screening Tool and the City's TIA guidelines would be considered to have a less-than-significant transportation impact. Based on the SBCTA VMT Screening Tool and the City's TIA guidelines, the proposed project is located within a low VMT generating area. Results of the SBCTA VMT Screening Tool are provided in Attachment C.

The Low VMT Generating Area threshold is met.

Project Type Screening

The City's TIA Guidelines identify that the following project types would be presumed to have a less-than-significant VMT impact:

- Local-serving K-12 schools
- Local parks
- Day care centers
- Local-serving retail uses less than 50,000 square feet, including:
    - Gas stations
    - Banks
    - Restaurants
    - Shopping Center
- Local-serving hotels (e.g., non-destination hotels)
- Student housing projects on or adjacent to college campuses
- Local-serving assembly uses (places of worship, community organizations)
- Community institutions (Public libraries, fire stations, local government)
- Local-serving community colleges that are consistent with the assumptions noted in the RTP/SCS Affordable or supportive housing
- Assisted living facilities
- Senior housing as defined by the U.S. Department of Housing and Urban Development (HUD)
- Projects generating less than 110 daily vehicle trips
    - This generally corresponds to the following "typical" development potentials:
        - 11 single family housing units
        - 16 multi-family, condominiums, or townhouse housing units
        - 10,000 sq. ft. of office
        - 15,000 sq. ft. of light industrial
        - 63,000 sq. ft. of warehousing
        - 79,000 sq. ft. of high cube transload and short-term storage warehouse

The project will involve the construction 6 separate warehouses totaling 735,653 square feet that generates more than 110 daily trips; therefore, the project would not be screened out based on project type.

The Project Type Screening threshold is not met.

FINDINGS AND CONCLUSIONS

Based on the City of Rialto *Traffic Impact Analysis Guidelines for VMT and LOS Assessment* (October 2021) and the SBCTA VMT Screening tool, the project is located in a low VMT generating area. Therefore, the project would have a less-than-significant VMT impact and no further VMT analysis is required.

Please contact me if you have any questions or if you need additional information.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.



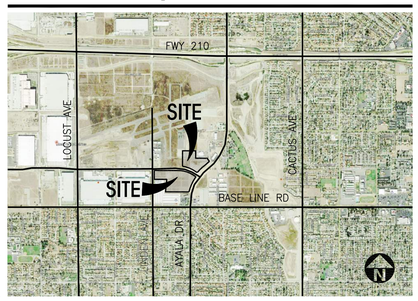
Trevor Briggs, P.E (C87664)

CAUTION: IF THIS SHEET IS NOT 30"X42", IT IS A REDUCED PRINT

ATTACHMENT A



Aerial Map



Legend

- POTENTIAL OFFICE
- WAREHOUSE
- ▼ DRIVE THRU DOOR

Tabulation

	BLDG. 1	BLDG. 2	BLDG. 3	BLDG. 4	BLDG. 5	BLDG. 6	TOTAL
SITE AREA							
In s.f.	130,791	390,549	383,940	282,410	158,900	305,126	1,651,716 s.f.
In acres	3.00	8.97	8.81	6.48	3.65	7.00	37.92 ac
BUILDING AREA							
Office	3,000	10,000	10,000	6,000	5,000	5,000	39,000 s.f.
Warehouse	54,770	174,470	163,743	118,930	62,430	123,040	697,383 s.f.
TOTAL	57,770	184,470	173,743	124,930	67,430	128,040	736,383 s.f.
COVERAGE	44.2%	47.2%	45.3%	44.2%	42.4%	42.0%	44.6%
AUTO PARKING REQUIRED							
Office: 1/250 s.f.	12	40	40	24	20	20	156 stalls
Whse: 1st 40K @ 1/1,000 s.f.	40	40	40	40	40	40	240 stalls
above 40K @ 1/4,000 s.f.	4	34	31	20	6	21	116 stalls
TOTAL	56	114	111	84	66	81	512 stalls
AUTO PARKING PROVIDED							
Standard (9' x 18')	59	185	122	114	78	126	684 stalls

ZONING ORDINANCE FOR CITY

Proposed Zoning Designation - Renaisasance SP (Business Center)

MAXIMUM BUILDING HEIGHT ALLOWED

Height - 75'

MAXIMUM FLOOR AREA RATIO

FAR - .50

SETBACKS

Front / street side

Bldgs < 100K - 20' ave. 15' min.

Bldgs > 100K - 30' ave. 25' min.

Interior side

adjacent to business uses - 0 or separated by 20' plus 10' for each additional floor

adjacent to Residential uses - 40' single story and 10' for each additional floor

- loading and unloading areas directly face R zone - 120' from PL to the loading bay door.

Rear

adjacent to business uses / streets - 25' ave. 20' min.

adjacent to residential uses - 40' single story and 10' for each additional floor

- loading and unloading areas directly face R zone - 120' from PL to the loading bay door.

north

1" = 80'

0 80 160 240

Conceptual Site Plan

Miro Way and Ayala Dr.

Rialto, CA

HPA architecture

18831 Bardeen Ave. - Ste. #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

HILLWOOD A PEROT COMPANY

November 09, 2022 /Job #18277

Scheme 14 rev b

ATTACHMENT B

SUMMARY OF PROJECT TRIP GENERATION

MIRO WAY AND AYALA DRIVE WAREHOUSE PROJECT

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	150	KSF	1.710	0.131	0.039	0.170	0.050	0.130	0.180

PROJECT TRIP GENERATION

Project Land Use		Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Warehousing		739.653	KSF	1,265	97	29	126	37	96	133
Passenger Vehicles	60.00%			759	58	17	75	22	58	80
Trucks	40.00%			506	39	12	51	15	38	53

PROJECT TRIPS - PASSENGER CAR EQUIVALENTS (PCE)

Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Passenger Vehicles	60.00%	759	1.0	759	58	17	75	22	58	80
2-Axle Trucks	0.80%	10	1.5	15	1	0	1	0	1	1
3-Axle Trucks	11.20%	142	2.0	284	22	6	28	8	22	30
4+ Axle Trucks	28.00%	354	3.0	1,062	81	24	105	31	81	112
Total Truck PCE Trips				1,361	104	30	134	39	104	143
Total Project PCE Trips				2,120	162	47	209	61	162	223

PCE = Passenger Car Equivalent

KSF = Thousand Square Feet

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition

[2] Source: City of Rialto Traffic Impact Analysis Guidelines for VMT and LOS Assessment (October, 2021)

ATTACHMENT C - VMT SCREENING TOOL



APPENDIX B

TRAFFIC COUNT DATA SHEETS

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 WB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-001
Date: 3/7/2023

Data - Total

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	74	53	0	0	0	5	4	0	0	0	0	0	85	1	26	0	248
7:15 AM	81	63	0	0	0	1	3	0	0	0	0	0	99	1	27	0	275
7:30 AM	77	57	0	0	0	1	2	0	0	0	0	0	91	0	18	0	246
7:45 AM	84	67	0	0	0	4	2	0	0	0	0	0	123	1	38	0	319
8:00 AM	80	54	0	0	0	1	3	0	0	0	0	0	67	1	23	0	229
8:15 AM	77	67	0	0	0	1	2	0	0	0	0	0	72	1	15	0	235
8:30 AM	72	52	0	0	0	10	0	0	0	0	0	0	47	0	23	0	204
8:45 AM	63	56	0	0	0	19	1	0	0	0	0	0	52	0	26	0	217
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	608	469	0	0	0	42	17	0	0	0	0	0	636	5	196	0	1973
APPROACH %'s :	56.45%	43.55%	0.00%	0.00%	0.00%	71.19%	28.81%	0.00%					75.99%	0.60%	23.42%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	316	240	0	0	0	11	11	0	0	0	0	0	398	3	109	0	1088
PEAK HR FACTOR :	0.940	0.896	0.000	0.000	0.000	0.550	0.688	0.000	0.000	0.000	0.000	0.000	0.809	0.750	0.717	0.000	0.853
	0.921				0.611								0.787				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	81	53	0	0	0	55	84	0	0	0	0	0	70	0	22	0	365
4:15 PM	77	57	0	0	0	57	53	0	0	0	0	0	76	0	27	0	347
4:30 PM	121	50	0	0	0	77	79	0	0	0	0	0	65	2	19	0	413
4:45 PM	93	57	0	0	0	59	63	0	0	0	0	0	75	1	15	0	363
5:00 PM	108	63	0	0	0	53	72	0	0	0	0	0	62	0	22	0	380
5:15 PM	76	59	0	0	0	46	58	0	0	0	0	0	92	1	14	0	346
5:30 PM	99	44	0	0	0	46	33	0	0	0	0	0	87	0	14	0	323
5:45 PM	80	57	0	0	0	35	36	0	0	0	0	0	99	0	24	0	331
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	735	440	0	0	0	428	478	0	0	0	0	0	626	4	157	0	2868
APPROACH %'s :	62.55%	37.45%	0.00%	0.00%	0.00%	47.24%	52.76%	0.00%					79.54%	0.51%	19.95%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	399	227	0	0	0	246	267	0	0	0	0	0	278	3	83	0	1503
PEAK HR FACTOR :	0.824	0.901	0.000	0.000	0.000	0.799	0.845	0.000	0.000	0.000	0.000	0.000	0.914	0.375	0.769	0.000	0.910
	0.915				0.822								0.883				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 WB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-001
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	66	36	0	0	0	5	3	0	0	0	0	0	80	1	17	0	208
7:15 AM	74	43	0	0	0	0	2	0	0	0	0	0	92	0	17	0	228
7:30 AM	61	40	0	0	0	0	2	0	0	0	0	0	89	0	12	0	204
7:45 AM	68	54	0	0	0	2	2	0	0	0	0	0	116	1	26	0	269
8:00 AM	62	33	0	0	0	0	2	0	0	0	0	0	60	1	20	0	178
8:15 AM	61	44	0	0	0	1	2	0	0	0	0	0	61	1	8	0	178
8:30 AM	48	36	0	0	0	10	0	0	0	0	0	0	42	0	16	0	152
8:45 AM	45	33	0	0	0	19	1	0	0	0	0	0	45	0	13	0	156
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	485	319	0	0	0	37	14	0	0	0	0	0	585	4	129	0	1573
APPROACH %'s :	60.32%	39.68%	0.00%	0.00%	0.00%	72.55%	27.45%	0.00%					81.48%	0.56%	17.97%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	269	173	0	0	0	7	9	0	0	0	0	0	377	2	72	0	909
PEAK HR FACTOR :	0.909	0.801	0.000	0.000	0.000	0.350	0.750	0.000	0.000	0.000	0.000	0.000	0.813	0.500	0.692	0.000	0.845
	0.906				0.500								0.788				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	68	45	0	0	0	44	70	0	0	0	0	0	70	0	13	0	310
4:15 PM	68	45	0	0	0	45	38	0	0	0	0	0	72	0	19	0	287
4:30 PM	111	36	0	0	0	73	64	0	0	0	0	0	62	1	14	0	361
4:45 PM	80	46	0	0	0	50	46	0	0	0	0	0	73	1	11	0	307
5:00 PM	97	54	0	0	0	49	52	0	0	0	0	0	61	0	15	0	328
5:15 PM	66	55	0	0	0	43	46	0	0	0	0	0	88	1	11	0	310
5:30 PM	87	42	0	0	0	40	28	0	0	0	0	0	86	0	13	0	296
5:45 PM	68	54	0	0	0	32	32	0	0	0	0	0	92	0	20	0	298
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	645	377	0	0	0	376	376	0	0	0	0	0	604	3	116	0	2497
APPROACH %'s :	63.11%	36.89%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%					83.54%	0.41%	16.04%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	356	181	0	0	0	217	200	0	0	0	0	0	268	2	59	0	1283
PEAK HR FACTOR :	0.802	0.838	0.000	0.000	0.000	0.743	0.781	0.000	0.000	0.000	0.000	0.000	0.918	0.500	0.776	0.000	0.889
	0.889				0.761								0.904				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 WB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-001
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	0	0	0	0	1	0	0	0	0	0	2	0	2	0	10
7:15 AM	2	1	0	0	0	0	1	0	0	0	0	0	3	0	3	0	10
7:30 AM	2	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	8
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	5
8:00 AM	2	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7
8:15 AM	1	5	0	0	0	0	0	0	0	0	0	0	1	0	2	0	9
8:30 AM	4	1	0	0	0	0	0	0	0	0	0	0	2	0	2	0	9
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0	5	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	21	0	0	0	1	2	0	0	0	0	0	10	0	21	0	67
APPROACH %'s :	36.36%	63.64%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%					32.26%	0.00%	67.74%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	5	9	0	0	0	1	2	0	0	0	0	0	5	0	11	0	33
PEAK HR FACTOR :	0.625	0.563	0.000	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.417	0.000	0.688	0.000	0.825
	0.583				0.750								0.667				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	2	0	0	0	5	3	0	0	0	0	0	0	0	1	0	14
4:15 PM	0	2	0	0	0	3	1	0	0	0	0	0	1	0	0	0	7
4:30 PM	1	2	0	0	0	1	3	0	0	0	0	0	0	0	1	0	8
4:45 PM	1	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5
5:00 PM	0	3	0	0	0	1	1	0	0	0	0	0	0	0	2	0	7
5:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
5:45 PM	4	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	11	0	0	0	13	12	0	0	0	0	0	3	0	4	0	52
APPROACH %'s :	45.00%	55.00%	0.00%	0.00%	0.00%	52.00%	48.00%	0.00%					42.86%	0.00%	57.14%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	2	9	0	0	0	6	6	0	0	0	0	0	1	0	3	0	27
PEAK HR FACTOR :	0.500	0.750	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.375	0.000	0.844
	0.917				0.750								0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 WB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-001
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	0	0	0	0	0	0	0	0	0	0	1	0	3	0	9
7:15 AM	1	3	0	0	0	1	0	0	0	0	0	0	0	0	2	0	7
7:30 AM	5	5	0	0	0	0	0	0	0	0	0	0	1	0	1	0	12
7:45 AM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	4	0	10
8:00 AM	3	4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	10
8:15 AM	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5
8:30 AM	2	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7
8:45 AM	0	4	0	0	0	0	0	0	0	0	0	0	1	0	3	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	34	0	0	0	1	0	0	0	0	0	0	7	0	14	0	68
APPROACH %'s :	26.09%	73.91%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					33.33%	0.00%	66.67%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	7	18	0	0	0	1	0	0	0	0	0	0	2	0	10	0	38
PEAK HR FACTOR :	0.350	0.750	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.625	0.000	0.792
	0.625				0.250								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	3	0	0	0	3	2	0	0	0	0	0	0	0	5	0	14
4:15 PM	1	1	0	0	0	2	3	0	0	0	0	0	1	0	3	0	11
4:30 PM	1	3	0	0	0	0	2	0	0	0	0	0	0	1	1	0	8
4:45 PM	2	2	0	0	0	1	6	0	0	0	0	0	1	0	0	0	12
5:00 PM	3	2	0	0	0	0	5	0	0	0	0	0	0	0	0	0	10
5:15 PM	1	2	0	0	0	0	3	0	0	0	0	0	0	0	1	0	7
5:30 PM	4	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	7
5:45 PM	1	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	14	0	0	0	8	23	0	0	0	0	0	2	1	12	0	74
APPROACH %'s :	50.00%	50.00%	0.00%	0.00%	0.00%	25.81%	74.19%	0.00%					13.33%	6.67%	80.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	7	8	0	0	0	3	16	0	0	0	0	0	2	1	4	0	41
PEAK HR FACTOR :	0.583	0.667	0.000	0.000	0.000	0.375	0.667	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.333	0.000	0.854
	0.750				0.679								0.438				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 WB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-001
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	6	9	0	0	0	0	0	0	0	0	0	0	2	0	4	0	21
7:15 AM	4	16	0	0	0	0	0	0	0	0	0	0	4	1	5	0	30
7:30 AM	9	8	0	0	0	1	0	0	0	0	0	0	1	0	3	0	22
7:45 AM	16	7	0	0	0	1	0	0	0	0	0	0	7	0	4	0	35
8:00 AM	13	13	0	0	0	1	1	0	0	0	0	0	4	0	2	0	34
8:15 AM	15	14	0	0	0	0	0	0	0	0	0	0	9	0	5	0	43
8:30 AM	18	11	0	0	0	0	0	0	0	0	0	0	3	0	4	0	36
8:45 AM	18	17	0	0	0	0	0	0	0	0	0	0	4	0	5	0	44
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	99	95	0	0	0	3	1	0	0	0	0	0	34	1	32	0	265
APPROACH %'s :	51.03%	48.97%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%					50.75%	1.49%	47.76%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	35	40	0	0	0	2	0	0	0	0	0	0	14	1	16	0	108
PEAK HR FACTOR :	0.547	0.625	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.800	0.000	0.771
	0.815				0.500								0.705				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	3	0	0	0	3	9	0	0	0	0	0	0	0	3	0	27
4:15 PM	8	9	0	0	0	7	11	0	0	0	0	0	2	0	5	0	42
4:30 PM	8	9	0	0	0	3	10	0	0	0	0	0	3	0	3	0	36
4:45 PM	10	7	0	0	0	7	10	0	0	0	0	0	1	0	4	0	39
5:00 PM	8	4	0	0	0	3	14	0	0	0	0	0	1	0	5	0	35
5:15 PM	9	2	0	0	0	3	7	0	0	0	0	0	4	0	2	0	27
5:30 PM	8	2	0	0	0	4	3	0	0	0	0	0	1	0	0	0	18
5:45 PM	7	2	0	0	0	1	3	0	0	0	0	0	5	0	3	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	67	38	0	0	0	31	67	0	0	0	0	0	17	0	25	0	245
APPROACH %'s :	63.81%	36.19%	0.00%	0.00%	0.00%	31.63%	68.37%	0.00%					40.48%	0.00%	59.52%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	34	29	0	0	0	20	45	0	0	0	0	0	7	0	17	0	152
PEAK HR FACTOR :	0.850	0.806	0.000	0.000	0.000	0.714	0.804	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.850	0.000	0.905
	0.926				0.903								0.857				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 WB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-001
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 WB Ramps				SR-210 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	17	0	0	0	0	1	0	0	0	0	0	5	0	9	0	40
7:15 AM	7	20	0	0	0	1	1	0	0	0	0	0	7	1	10	0	47
7:30 AM	16	17	0	0	0	1	0	0	0	0	0	0	2	0	6	0	42
7:45 AM	16	13	0	0	0	2	0	0	0	0	0	0	7	0	12	0	50
8:00 AM	18	21	0	0	0	1	1	0	0	0	0	0	7	0	3	0	51
8:15 AM	16	23	0	0	0	0	0	0	0	0	0	0	11	0	7	0	57
8:30 AM	24	16	0	0	0	0	0	0	0	0	0	0	5	0	7	0	52
8:45 AM	18	23	0	0	0	0	0	0	0	0	0	0	7	0	13	0	61
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	123	150	0	0	0	5	3	0	0	0	0	0	51	1	67	0	400
APPROACH %'s :	45.05%	54.95%	0.00%	0.00%	0.00%	62.50%	37.50%	0.00%					42.86%	0.84%	56.30%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	47	67	0	0	0	4	2	0	0	0	0	0	21	1	37	0	179
PEAK HR FACTOR :	0.734	0.838	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.750	0.250	0.771	0.000	0.895
	0.864				0.750								0.776				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	0	0	0	1	0.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	8	0	0	0	11	14	0	0	0	0	0	0	0	9	0	55
4:15 PM	9	12	0	0	0	12	15	0	0	0	0	0	4	0	8	0	60
4:30 PM	10	14	0	0	0	4	15	0	0	0	0	0	3	1	5	0	52
4:45 PM	13	11	0	0	0	9	17	0	0	0	0	0	2	0	4	0	56
5:00 PM	11	9	0	0	0	4	20	0	0	0	0	0	1	0	7	0	52
5:15 PM	10	4	0	0	0	3	12	0	0	0	0	0	4	0	3	0	36
5:30 PM	12	2	0	0	0	6	5	0	0	0	0	0	1	0	1	0	27
5:45 PM	12	3	0	0	0	3	4	0	0	0	0	0	7	0	4	0	33
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	90	63	0	0	0	52	102	0	0	0	0	0	22	1	41	0	371
APPROACH %'s :	58.82%	41.18%	0.00%	0.00%	0.00%	33.77%	66.23%	0.00%					34.38%	1.56%	64.06%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	43	46	0	0	0	29	67	0	0	0	0	0	10	1	24	0	220
PEAK HR FACTOR :	0.827	0.821	0.000	0.000	0.000	0.604	0.838	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.750	0.000	0.917
	0.927				0.889								0.729				

Prepared by National Data & Surveying Services

Alder Ave & SR-210 WB Ramps

Peak Hour Turning Movement Count

ID: 23-030023-001
City: Rialto

Day: Tuesday
Date: 3/7/2023

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

SOUTHBOUND — Alder Ave

AM	11	11	0	0	349	AM
NOON	0	0	0	0	0	NOON
PM	267	246	0	0	310	PM

0 2 1 0

EASTBOUND — SR-210 WB Ramps

AM	NOON	PM	
330	0	669	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND — SR-210 WB Ramps

PM	NOON	AM	
83	0	109	0.5
3	0	3	0.5
278	0	398	1
0	0	0	0
0	0	0	
PM	NOON	AM	

CONTROL

Signalized

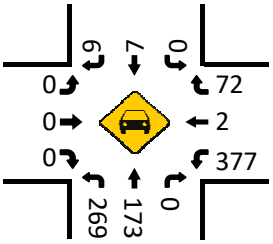
TEV	1088 AM	0 NOON	1503 PM
PHF	0.85		0.91

0 1 2 0

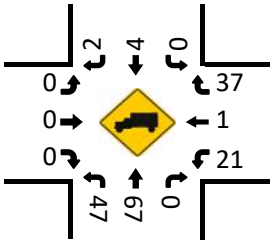
NORTHBOUND — Alder Ave

PM	524	0	399	227	0	PM
NOON	0	0	0	0	0	NOON
AM	409	0	316	240	0	AM

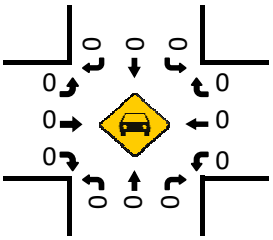
Cars (AM)



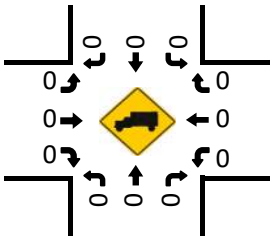
Total Trucks (AM)



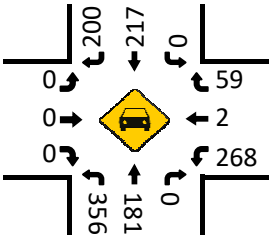
Cars (NOON)



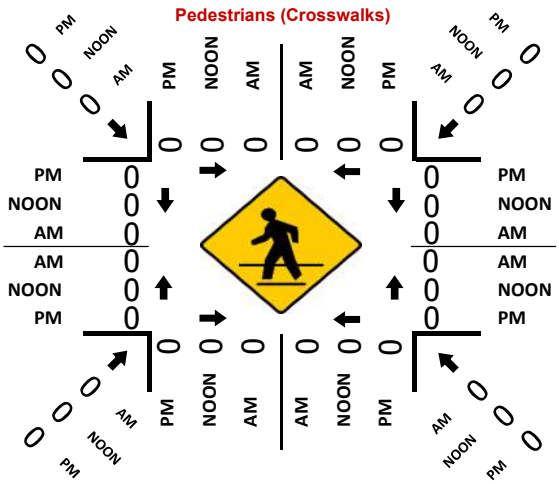
Total Trucks (NOON)



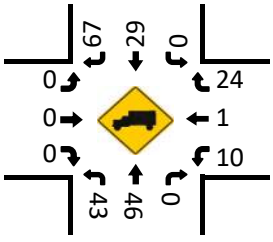
Cars (PM)



Pedestrians (Crosswalks)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 EB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-002
Date: 3/7/2023

Data - Total

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	88	60	0	4	92	0	0	39	0	91	0	0	0	0	0	374
7:15 AM	0	91	73	0	2	94	0	0	54	0	122	0	0	0	0	0	436
7:30 AM	0	96	72	0	0	96	0	0	40	0	120	0	0	0	0	0	424
7:45 AM	0	96	72	0	1	122	0	0	52	1	135	0	0	0	0	0	479
8:00 AM	0	91	58	0	1	67	0	0	54	1	109	0	0	0	0	0	381
8:15 AM	0	91	77	0	1	76	0	0	43	0	109	0	0	0	0	0	397
8:30 AM	0	88	78	0	1	53	0	0	37	0	81	0	0	0	0	0	338
8:45 AM	0	80	54	0	2	72	0	0	40	0	80	0	0	0	0	0	328
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	721	544	0	12	672	0	0	359	2	847	0	0	0	0	0	3157
APPROACH %'s :	0.00%	57.00%	43.00%	0.00%	1.75%	98.25%	0.00%	0.00%	29.72%	0.17%	70.12%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	374	275	0	4	379	0	0	200	2	486	0	0	0	0	0	1720
PEAK HR FACTOR :	0.000	0.974	0.942	0.000	0.500	0.777	0.000	0.000	0.926	0.500	0.900	0.000	0.000	0.000	0.000	0.000	0.898
		0.966				0.778				0.915							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	110	87	0	31	92	0	0	24	0	91	0	0	0	0	0	435
4:15 PM	0	100	84	0	36	98	0	0	33	0	110	0	0	0	0	0	461
4:30 PM	0	146	93	0	38	102	0	0	33	1	105	0	0	0	0	0	518
4:45 PM	0	104	96	0	42	95	0	0	38	0	114	0	0	0	0	0	489
5:00 PM	0	124	98	0	21	91	0	0	46	1	109	0	0	0	0	0	490
5:15 PM	0	108	98	0	28	113	0	0	35	0	99	0	0	0	0	0	481
5:30 PM	0	107	104	0	25	108	0	0	28	0	97	0	0	0	0	0	469
5:45 PM	0	109	85	0	22	107	0	0	31	0	112	0	0	0	0	0	466
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	908	745	0	243	806	0	0	268	2	837	0	0	0	0	0	3809
APPROACH %'s :	0.00%	54.93%	45.07%	0.00%	23.16%	76.84%	0.00%	0.00%	24.21%	0.18%	75.61%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	482	385	0	129	401	0	0	152	2	427	0	0	0	0	0	1978
PEAK HR FACTOR :	0.000	0.825	0.982	0.000	0.768	0.887	0.000	0.000	0.826	0.500	0.936	0.000	0.000	0.000	0.000	0.000	0.955
		0.907				0.940				0.931							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 EB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-002
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	76	53	0	4	86	0	0	26	0	74	0	0	0	0	0	319
7:15 AM	0	82	61	0	1	87	0	0	35	0	96	0	0	0	0	0	362
7:30 AM	0	74	65	0	0	93	0	0	29	0	105	0	0	0	0	0	366
7:45 AM	0	81	66	0	0	114	0	0	39	0	116	0	0	0	0	0	416
8:00 AM	0	69	49	0	1	60	0	0	34	1	91	0	0	0	0	0	305
8:15 AM	0	71	60	0	0	65	0	0	26	0	90	0	0	0	0	0	312
8:30 AM	0	62	67	0	1	49	0	0	24	0	63	0	0	0	0	0	266
8:45 AM	0	59	44	0	2	64	0	0	17	0	57	0	0	0	0	0	243
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	574	465	0	9	618	0	0	230	1	692	0	0	0	0	0	2589
APPROACH %'s :	0.00%	55.25%	44.75%	0.00%	1.44%	98.56%	0.00%	0.00%	24.92%	0.11%	74.97%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	306	241	0	2	354	0	0	137	1	408	0	0	0	0	0	1449
PEAK HR FACTOR :	0.000	0.933	0.913	0.000	0.500	0.776	0.000	0.000	0.878	0.250	0.879	0.000	0.000	0.000	0.000	0.000	0.871
		0.930				0.781				0.881							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	98	81	0	23	91	0	0	17	0	78	0	0	0	0	0	388
4:15 PM	0	91	76	0	25	92	0	0	20	0	93	0	0	0	0	0	397
4:30 PM	0	134	89	0	34	99	0	0	22	0	92	0	0	0	0	0	470
4:45 PM	0	89	91	0	35	90	0	0	28	0	102	0	0	0	0	0	435
5:00 PM	0	113	93	0	19	88	0	0	38	1	99	0	0	0	0	0	451
5:15 PM	0	97	88	0	26	108	0	0	31	0	87	0	0	0	0	0	437
5:30 PM	0	97	98	0	20	106	0	0	25	0	82	0	0	0	0	0	428
5:45 PM	0	98	80	0	20	100	0	0	27	0	98	0	0	0	0	0	423
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	817	696	0	202	774	0	0	208	1	731	0	0	0	0	0	3429
APPROACH %'s :	0.00%	54.00%	46.00%	0.00%	20.70%	79.30%	0.00%	0.00%	22.13%	0.11%	77.77%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	433	361	0	114	385	0	0	119	1	380	0	0	0	0	0	1793
PEAK HR FACTOR :	0.000	0.808	0.970	0.000	0.814	0.891	0.000	0.000	0.783	0.250	0.931	0.000	0.000	0.000	0.000	0.000	0.954
		0.890				0.931				0.906							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 EB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-002
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	0	2	0	0	2	0	4	0	0	0	0	0	11
7:15 AM	0	3	1	0	0	3	0	0	0	0	3	0	0	0	0	0	10
7:30 AM	0	3	1	0	0	0	0	0	3	0	0	0	0	0	0	0	7
7:45 AM	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	4
8:00 AM	0	2	0	0	0	0	0	0	6	0	4	0	0	0	0	0	12
8:15 AM	0	4	4	0	0	1	0	0	1	0	0	0	0	0	0	0	10
8:30 AM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
8:45 AM	0	1	0	0	0	2	0	0	2	0	3	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	20	6	0	1	10	0	0	14	1	16	0	0	0	0	0	68
APPROACH %'s :	0.00%	76.92%	23.08%	0.00%	9.09%	90.91%	0.00%	0.00%	45.16%	3.23%	51.61%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	8	2	0	1	3	0	0	9	1	9	0	0	0	0	0	33
PEAK HR FACTOR :	0.000	0.667	0.500	0.000	0.250	0.250	0.000	0.000	0.375	0.250	0.563	0.000	0.000	0.000	0.000	0.000	0.688
	0.625				0.333				0.475								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	1	0	4	1	0	0	2	0	2	0	0	0	0	0	13
4:15 PM	0	0	4	0	2	1	0	0	2	0	2	0	0	0	0	0	11
4:30 PM	0	2	0	0	1	0	0	0	1	0	4	0	0	0	0	0	8
4:45 PM	0	1	2	0	1	1	0	0	2	0	2	0	0	0	0	0	9
5:00 PM	0	1	1	0	1	0	0	0	2	0	1	0	0	0	0	0	6
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	4
5:45 PM	0	3	2	0	0	3	0	0	1	0	1	0	0	0	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	10	11	0	10	6	0	0	10	0	15	0	0	0	0	0	62
APPROACH %'s :	0.00%	47.62%	52.38%	0.00%	62.50%	37.50%	0.00%	0.00%	40.00%	0.00%	60.00%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	4	4	0	3	1	0	0	5	0	7	0	0	0	0	0	24
PEAK HR FACTOR :	0.000	0.500	0.500	0.000	0.750	0.250	0.000	0.000	0.625	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.667
	0.667				0.500				0.600								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 EB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-002
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	2	0	0	2	0	0	4	0	1	0	0	0	0	0	10
7:15 AM	0	2	3	0	1	0	0	0	3	0	5	0	0	0	0	0	14
7:30 AM	0	6	1	0	0	1	0	0	3	0	4	0	0	0	0	0	15
7:45 AM	0	0	2	0	0	0	0	0	6	0	3	0	0	0	0	0	11
8:00 AM	0	4	1	0	0	3	0	0	3	0	1	0	0	0	0	0	12
8:15 AM	0	3	2	0	0	1	0	0	1	0	1	0	0	0	0	0	8
8:30 AM	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	6
8:45 AM	0	0	4	0	0	1	0	0	5	0	1	0	0	0	0	0	11
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	19	15	0	1	8	0	0	28	0	16	0	0	0	0	0	87
APPROACH %'s :	0.00%	55.88%	44.12%	0.00%	11.11%	88.89%	0.00%	0.00%	63.64%	0.00%	36.36%	0.00%					
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	0	12	7	0	1	4	0	0	15	0	13	0	0	0	0	0	52
PEAK HR FACTOR :	0.000	0.500	0.583	0.000	0.250	0.333	0.000	0.000	0.625	0.000	0.650	0.000	0.000	0.000	0.000	0.000	0.867
		0.679				0.417				0.778							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	1	0	2	0	0	0	2	0	2	0	0	0	0	0	8
4:15 PM	0	1	1	0	3	1	0	0	1	0	1	0	0	0	0	0	8
4:30 PM	0	1	3	0	0	0	0	0	3	0	1	0	0	0	0	0	8
4:45 PM	0	3	0	0	0	2	0	0	1	0	0	0	0	0	0	0	6
5:00 PM	0	3	3	0	0	0	0	0	2	0	5	0	0	0	0	0	13
5:15 PM	0	2	1	0	0	0	0	0	2	0	3	0	0	0	0	0	8
5:30 PM	0	2	2	0	1	0	0	0	1	0	2	0	0	0	0	0	8
5:45 PM	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	14	12	0	7	3	0	0	13	0	15	0	0	0	0	0	64
APPROACH %'s :	0.00%	53.85%	46.15%	0.00%	70.00%	30.00%	0.00%	0.00%	46.43%	0.00%	53.57%	0.00%					
PEAK HR :	**04:30 PM - 05:30 PM**																TOTAL
PEAK HR VOL :	0	9	7	0	0	2	0	0	8	0	9	0	0	0	0	0	35
PEAK HR FACTOR :	0.000	0.750	0.583	0.000	0.000	0.250	0.000	0.000	0.667	0.000	0.450	0.000	0.000	0.000	0.000	0.000	0.673
		0.667				0.250				0.607							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 EB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-002
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	8	5	0	0	2	0	0	7	0	12	0	0	0	0	0	34
7:15 AM	0	4	8	0	0	4	0	0	16	0	18	0	0	0	0	0	50
7:30 AM	0	13	5	0	0	2	0	0	5	0	11	0	0	0	0	0	36
7:45 AM	0	15	4	0	0	8	0	0	7	0	14	0	0	0	0	0	48
8:00 AM	0	16	8	0	0	4	0	0	11	0	13	0	0	0	0	0	52
8:15 AM	0	13	11	0	1	9	0	0	15	0	18	0	0	0	0	0	67
8:30 AM	0	19	11	0	0	2	0	0	10	0	18	0	0	0	0	0	60
8:45 AM	0	20	6	0	0	5	0	0	16	0	19	0	0	0	0	0	66
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	108	58	0	1	36	0	0	87	0	123	0	0	0	0	0	413
APPROACH %'s :	0.00%	65.06%	34.94%	0.00%	2.70%	97.30%	0.00%	0.00%	41.43%	0.00%	58.57%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	48	25	0	0	18	0	0	39	0	56	0	0	0	0	0	186
PEAK HR FACTOR :	0.000	0.750	0.781	0.000	0.000	0.563	0.000	0.000	0.609	0.000	0.778	0.000	0.000	0.000	0.000	0.000	0.894
	0.760				0.563				0.699								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	8	4	0	2	0	0	0	3	0	9	0	0	0	0	0	26
4:15 PM	0	8	3	0	6	4	0	0	10	0	14	0	0	0	0	0	45
4:30 PM	0	9	1	0	3	3	0	0	7	1	8	0	0	0	0	0	32
4:45 PM	0	11	3	0	6	2	0	0	7	0	10	0	0	0	0	0	39
5:00 PM	0	7	1	0	1	3	0	0	4	0	4	0	0	0	0	0	20
5:15 PM	0	9	8	0	2	5	0	0	2	0	9	0	0	0	0	0	35
5:30 PM	0	8	4	0	3	2	0	0	2	0	10	0	0	0	0	0	29
5:45 PM	0	7	2	0	1	4	0	0	2	0	12	0	0	0	0	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	67	26	0	24	23	0	0	37	1	76	0	0	0	0	0	254
APPROACH %'s :	0.00%	72.04%	27.96%	0.00%	51.06%	48.94%	0.00%	0.00%	32.46%	0.88%	66.67%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	36	13	0	12	13	0	0	20	1	31	0	0	0	0	0	126
PEAK HR FACTOR :	0.000	0.818	0.406	0.000	0.500	0.650	0.000	0.000	0.714	0.250	0.775	0.000	0.000	0.000	0.000	0.000	0.808
	0.721				0.781				0.765								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & SR-210 EB Ramps
City: Rialto
Control: Signalized

Project ID: 23-030023-002
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Alder Ave				Alder Ave				SR-210 EB Ramps				SR-210 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	12	7	0	0	6	0	0	13	0	17	0	0	0	0	0	55
7:15 AM	0	9	12	0	1	7	0	0	19	0	26	0	0	0	0	0	74
7:30 AM	0	22	7	0	0	3	0	0	11	0	15	0	0	0	0	0	58
7:45 AM	0	15	6	0	1	8	0	0	13	1	19	0	0	0	0	0	63
8:00 AM	0	22	9	0	0	7	0	0	20	0	18	0	0	0	0	0	76
8:15 AM	0	20	17	0	1	11	0	0	17	0	19	0	0	0	0	0	85
8:30 AM	0	26	11	0	0	4	0	0	13	0	18	0	0	0	0	0	72
8:45 AM	0	21	10	0	0	8	0	0	23	0	23	0	0	0	0	0	85
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	147	79	0	3	54	0	0	129	1	155	0	0	0	0	0	568
APPROACH %'s :	0.00%	65.04%	34.96%	0.00%	5.26%	94.74%	0.00%	0.00%	45.26%	0.35%	54.39%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	68	34	0	2	25	0	0	63	1	78	0	0	0	0	0	271
PEAK HR FACTOR :	0.000	0.773	0.708	0.000	0.500	0.781	0.000	0.000	0.788	0.250	0.750	0.000	0.000	0.000	0.000	0.000	0.891
	0.823				0.750				0.789								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	2	0	0	0.5	0.5	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	12	6	0	8	1	0	0	7	0	13	0	0	0	0	0	47
4:15 PM	0	9	8	0	11	6	0	0	13	0	17	0	0	0	0	0	64
4:30 PM	0	12	4	0	4	3	0	0	11	1	13	0	0	0	0	0	48
4:45 PM	0	15	5	0	7	5	0	0	10	0	12	0	0	0	0	0	54
5:00 PM	0	11	5	0	2	3	0	0	8	0	10	0	0	0	0	0	39
5:15 PM	0	11	10	0	2	5	0	0	4	0	12	0	0	0	0	0	44
5:30 PM	0	10	6	0	5	2	0	0	3	0	15	0	0	0	0	0	41
5:45 PM	0	11	5	0	2	7	0	0	4	0	14	0	0	0	0	0	43
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	91	49	0	41	32	0	0	60	1	106	0	0	0	0	0	380
APPROACH %'s :	0.00%	65.00%	35.00%	0.00%	56.16%	43.84%	0.00%	0.00%	35.93%	0.60%	63.47%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	49	24	0	15	16	0	0	33	1	47	0	0	0	0	0	185
PEAK HR FACTOR :	0.000	0.817	0.600	0.000	0.536	0.800	0.000	0.000	0.750	0.250	0.904	0.000	0.000	0.000	0.000	0.000	0.856
	0.869				0.646				0.810								

Prepared by National Data & Surveying Services

Alder Ave & SR-210 EB Ramps

Peak Hour Turning Movement Count

ID: 23-030023-002
City: Rialto

Day: Tuesday
Date: 3/7/2023

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

SOUTHBOUND (Alder Ave)

AM	0	379	4	0	574	AM
NOON	0	0	0	0	0	NOON
PM	0	401	129	0	634	PM

EASTBOUND (SR-210 EB Ramps)

AM	NOON	PM	
0	0	0	
0	0	0	0
200	0	152	0.5
2	0	2	0.5
486	0	427	1

WESTBOUND (SR-210 EB Ramps)

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
516	0	281	

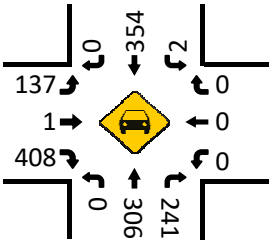
NORTHBOUND (Alder Ave)

PM	828	0	0	482	385	PM
NOON	0	0	0	0	0	NOON
AM	865	0	0	374	275	AM

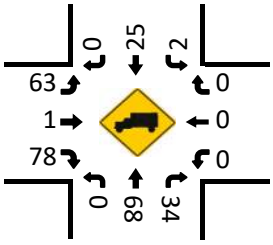
Turning movements at the intersection: 0 | 2 | 1 | 0 (SB); 0 | 0 | 2 | 0 (NB)

CONTROL			
Signalized			
TEV	1720 AM	0 NOON	1978 PM
PHF	0.90		0.95

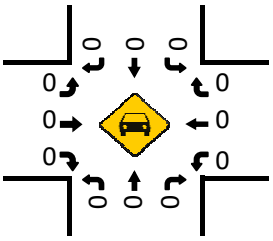
Cars (AM)



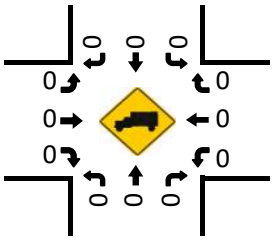
Total Trucks (AM)



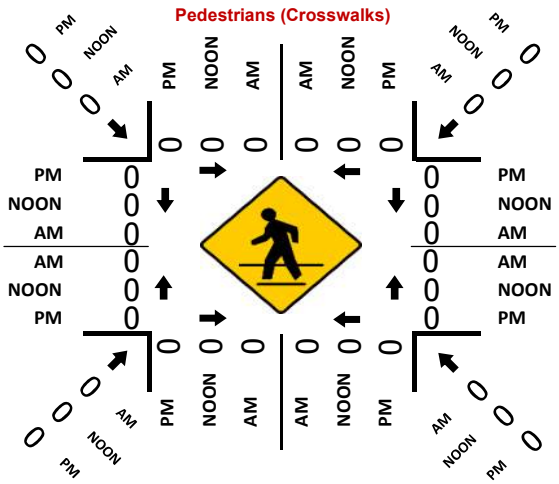
Cars (NOON)



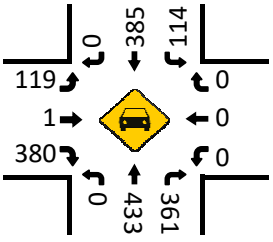
Total Trucks (NOON)



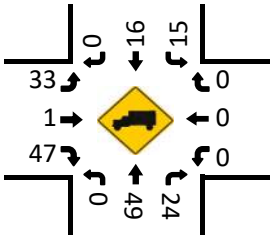
Pedestrians (Crosswalks)



Cars (PM)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-003
Date: 3/7/2023

Data - Total

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	100	2	0	30	136	14	0	19	22	8	0	6	21	28	0	398
7:15 AM	11	109	6	0	30	165	24	0	23	20	9	0	7	22	31	0	457
7:30 AM	14	110	4	0	23	163	22	0	30	28	12	0	8	24	30	0	468
7:45 AM	24	122	2	0	27	219	17	0	18	45	10	0	8	34	28	0	554
8:00 AM	50	111	3	0	24	137	14	0	19	36	25	0	3	30	23	0	475
8:15 AM	32	117	4	0	26	141	20	0	19	45	21	0	5	42	35	0	507
8:30 AM	12	107	10	0	23	92	13	0	28	53	21	0	7	25	29	0	420
8:45 AM	10	91	3	0	24	112	23	0	12	26	11	0	2	18	24	0	356
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	165	867	34	0	207	1165	147	0	168	275	117	0	46	216	228	0	3635
APPROACH %'s :	15.48%	81.33%	3.19%	0.00%	13.63%	76.70%	9.68%	0.00%	30.00%	49.11%	20.89%	0.00%	9.39%	44.08%	46.53%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	120	460	13	0	100	660	73	0	86	154	68	0	24	130	116	0	2004
PEAK HR FACTOR :	0.600	0.943	0.813	0.000	0.926	0.753	0.830	0.000	0.717	0.856	0.680	0.000	0.750	0.774	0.829	0.000	0.904
	0.904				0.792				0.906				0.823				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	133	12	0	31	122	23	0	16	80	22	0	3	48	44	0	545
4:15 PM	18	135	7	0	47	132	36	0	20	66	17	0	4	28	40	0	550
4:30 PM	15	161	9	0	33	143	28	0	20	70	16	0	5	44	47	0	591
4:45 PM	8	143	8	0	38	136	32	0	25	60	15	0	2	45	37	0	549
5:00 PM	14	152	7	0	44	127	35	0	20	64	17	0	4	40	53	0	577
5:15 PM	11	134	9	0	37	132	36	0	25	66	19	0	3	42	39	0	553
5:30 PM	16	164	16	0	29	149	34	0	17	53	6	0	7	35	35	0	561
5:45 PM	9	124	11	0	31	140	41	0	36	86	9	0	6	35	31	0	559
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	102	1146	79	0	290	1081	265	0	179	545	121	0	34	317	326	0	4485
APPROACH %'s :	7.69%	86.36%	5.95%	0.00%	17.73%	66.08%	16.20%	0.00%	21.18%	64.50%	14.32%	0.00%	5.02%	46.82%	48.15%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	48	590	33	0	152	538	131	0	90	260	67	0	14	171	176	0	2270
PEAK HR FACTOR :	0.800	0.916	0.917	0.000	0.864	0.941	0.910	0.000	0.900	0.929	0.882	0.000	0.700	0.950	0.830	0.000	0.960
	0.907				0.996				0.948				0.930				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-003
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	10	92	2	0	23	125	10	0	19	19	8	0	5	21	18	0	352
7:15 AM	9	103	6	0	19	145	21	0	21	17	8	0	6	22	19	0	396
7:30 AM	12	95	4	0	20	150	20	0	27	25	9	0	8	23	19	0	412
7:45 AM	24	111	1	0	20	202	16	0	17	43	8	0	8	33	17	0	500
8:00 AM	49	90	3	0	14	121	14	0	18	36	22	0	3	27	13	0	410
8:15 AM	30	100	3	0	15	122	20	0	16	43	21	0	4	39	19	0	432
8:30 AM	10	92	8	0	17	77	11	0	25	53	20	0	5	24	9	0	351
8:45 AM	10	77	3	0	14	92	22	0	12	24	11	0	2	17	10	0	294
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	154	760	30	0	142	1034	134	0	155	260	107	0	41	206	124	0	3147
APPROACH %'s :	16.31%	80.51%	3.18%	0.00%	10.84%	78.93%	10.23%	0.00%	29.69%	49.81%	20.50%	0.00%	11.05%	55.53%	33.42%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	115	396	11	0	69	595	70	0	78	147	60	0	23	122	68	0	1754
PEAK HR FACTOR :	0.587	0.892	0.688	0.000	0.863	0.736	0.875	0.000	0.722	0.855	0.682	0.000	0.719	0.782	0.895	0.000	0.877
	0.919				0.771				0.891				0.859				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	124	10	0	28	111	23	0	15	79	21	0	2	48	36	0	508
4:15 PM	18	124	6	0	38	119	35	0	20	66	17	0	3	28	34	0	508
4:30 PM	14	149	8	0	30	132	26	0	19	70	16	0	5	44	44	0	557
4:45 PM	8	129	8	0	35	123	32	0	23	58	15	0	2	45	32	0	510
5:00 PM	13	142	7	0	37	120	35	0	20	61	17	0	3	39	48	0	542
5:15 PM	11	127	9	0	32	122	34	0	24	64	19	0	1	42	26	0	511
5:30 PM	16	159	16	0	25	136	34	0	17	53	6	0	7	33	24	0	526
5:45 PM	9	116	11	0	29	123	40	0	34	86	9	0	4	34	23	0	518
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	100	1070	75	0	254	986	259	0	172	537	120	0	27	313	267	0	4180
APPROACH %'s :	8.03%	85.94%	6.02%	0.00%	16.94%	65.78%	17.28%	0.00%	20.75%	64.78%	14.48%	0.00%	4.45%	51.57%	43.99%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	46	547	32	0	134	497	127	0	86	253	67	0	11	170	150	0	2120
PEAK HR FACTOR :	0.821	0.918	0.889	0.000	0.905	0.941	0.907	0.000	0.896	0.904	0.882	0.000	0.550	0.944	0.781	0.000	0.952
	0.914				0.987				0.949				0.890				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-003
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	1	0	0	2	2	2	0	0	3	0	0	0	0	2	0	14
7:15 AM	0	1	0	0	2	2	2	0	2	1	0	0	0	0	1	0	11
7:30 AM	0	4	0	0	0	0	0	0	0	3	0	0	0	1	0	0	8
7:45 AM	0	1	1	0	0	1	0	0	0	2	1	0	0	0	0	0	6
8:00 AM	0	1	0	0	3	1	0	0	0	0	1	0	0	2	2	0	10
8:15 AM	1	1	0	0	1	1	0	0	2	2	0	0	0	1	3	0	12
8:30 AM	1	2	0	0	0	1	1	0	0	0	0	0	0	1	2	0	8
8:45 AM	0	1	0	0	1	4	0	0	0	1	0	0	0	1	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	12	1	0	9	12	5	0	4	12	2	0	0	6	10	0	77
APPROACH %'s :	23.53%	70.59%	5.88%	0.00%	34.62%	46.15%	19.23%	0.00%	22.22%	66.67%	11.11%	0.00%	0.00%	37.50%	62.50%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	7	1	0	4	3	0	0	2	7	2	0	0	4	5	0	36
PEAK HR FACTOR :	0.250	0.438	0.250	0.000	0.333	0.750	0.000	0.000	0.250	0.583	0.500	0.000	0.000	0.500	0.417	0.000	0.750
	0.563				0.438				0.688				0.563				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	0	0	0	3	0	0	0	1	0	0	0	0	0	0	8
4:15 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	1	0	7
4:30 PM	1	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0	7
4:45 PM	0	2	0	0	1	2	0	0	1	1	0	0	0	0	1	0	8
5:00 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
5:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	5
5:45 PM	0	3	0	0	0	3	0	0	2	0	0	0	0	1	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	16	0	0	2	18	0	0	3	4	0	0	0	3	2	0	49
APPROACH %'s :	5.88%	94.12%	0.00%	0.00%	10.00%	90.00%	0.00%	0.00%	42.86%	57.14%	0.00%	0.00%	0.00%	60.00%	40.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	1	6	0	0	2	6	0	0	1	3	0	0	0	0	1	0	20
PEAK HR FACTOR :	0.250	0.750	0.000	0.000	0.500	0.500	0.000	0.000	0.250	0.750	0.000	0.000	0.000	0.000	0.250	0.000	0.625
	0.583				0.500				0.500				0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-003
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	1	1	1	0	0	0	0	0	0	0	2	0	7
7:15 AM	0	0	0	0	1	4	0	0	0	1	0	0	0	0	4	0	10
7:30 AM	1	3	0	0	0	4	1	0	2	0	0	0	0	0	2	0	13
7:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	4
8:00 AM	0	5	0	0	1	4	0	0	0	0	1	0	0	0	1	0	12
8:15 AM	1	2	1	0	0	1	0	0	0	0	0	0	0	0	2	0	7
8:30 AM	1	2	1	0	1	0	0	0	0	0	0	0	1	0	1	0	7
8:45 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	2	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	17	2	0	4	18	2	0	2	1	1	0	1	0	15	0	66
APPROACH %'s :	13.64%	77.27%	9.09%	0.00%	16.67%	75.00%	8.33%	0.00%	50.00%	25.00%	25.00%	0.00%	6.25%	0.00%	93.75%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	11	1	0	1	11	1	0	2	0	1	0	0	0	6	0	36
PEAK HR FACTOR :	0.500	0.550	0.250	0.000	0.250	0.688	0.250	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.692
	0.700				0.650				0.375				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0	4
4:15 PM	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	2	1	0	0	0	1	0	1	0	0	0	0	0	1	0	6
4:45 PM	0	1	0	0	0	2	0	0	1	0	0	0	0	0	1	0	5
5:00 PM	0	5	0	0	2	3	0	0	0	1	0	0	0	1	1	0	13
5:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	6
5:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	3	0	6
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	1	0	3	14	1	0	3	1	0	0	0	1	12	0	48
APPROACH %'s :	0.00%	92.31%	7.69%	0.00%	16.67%	77.78%	5.56%	0.00%	75.00%	25.00%	0.00%	0.00%	0.00%	7.69%	92.31%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	8	1	0	2	8	1	0	2	1	0	0	0	1	6	0	30
PEAK HR FACTOR :	0.000	0.400	0.250	0.000	0.250	0.667	0.250	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.500	0.000	0.577
	0.450				0.550				0.750				0.583				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-003
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	0	0	4	8	1	0	0	0	0	0	1	0	6	0	25
7:15 AM	2	5	0	0	8	14	1	0	0	1	1	0	1	0	7	0	40
7:30 AM	1	8	0	0	3	9	1	0	1	0	3	0	0	0	9	0	35
7:45 AM	0	9	0	0	7	14	1	0	1	0	1	0	0	1	10	0	44
8:00 AM	1	15	0	0	6	11	0	0	1	0	1	0	0	1	7	0	43
8:15 AM	0	14	0	0	10	17	0	0	1	0	0	0	1	2	11	0	56
8:30 AM	0	11	1	0	5	14	1	0	3	0	1	0	1	0	17	0	54
8:45 AM	0	11	0	0	9	14	1	0	0	1	0	0	0	0	12	0	48
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	78	1	0	52	101	6	0	7	2	7	0	4	4	79	0	345
APPROACH %'s :	4.82%	93.98%	1.20%	0.00%	32.70%	63.52%	3.77%	0.00%	43.75%	12.50%	43.75%	0.00%	4.60%	4.60%	90.80%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	46	0	0	26	51	2	0	4	0	5	0	1	4	37	0	178
PEAK HR FACTOR :	0.500	0.767	0.000	0.000	0.650	0.750	0.500	0.000	1.000	0.000	0.417	0.000	0.250	0.500	0.841	0.000	0.795
	0.750				0.731				0.563				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	4	2	0	3	6	0	0	0	0	1	0	1	0	8	0	25
4:15 PM	0	6	1	0	8	9	1	0	0	0	0	0	1	0	5	0	31
4:30 PM	0	8	0	0	2	8	1	0	0	0	0	0	0	0	2	0	21
4:45 PM	0	11	0	0	2	9	0	0	0	1	0	0	0	0	3	0	26
5:00 PM	1	4	0	0	5	3	0	0	0	1	0	0	1	0	4	0	19
5:15 PM	0	6	0	0	5	7	2	0	1	1	0	0	2	0	10	0	34
5:30 PM	0	4	0	0	4	8	0	0	0	0	0	0	0	0	8	0	24
5:45 PM	0	5	0	0	2	13	1	0	0	0	0	0	2	0	5	0	28
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	48	3	0	31	63	5	0	1	3	1	0	7	0	45	0	208
APPROACH %'s :	1.92%	92.31%	5.77%	0.00%	31.31%	63.64%	5.05%	0.00%	20.00%	60.00%	20.00%	0.00%	13.46%	0.00%	86.54%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	1	29	0	0	14	27	3	0	1	3	0	0	3	0	19	0	100
PEAK HR FACTOR :	0.250	0.659	0.000	0.000	0.700	0.750	0.375	0.000	0.250	0.750	0.000	0.000	0.375	0.000	0.475	0.000	0.735
	0.682				0.786				0.500				0.458				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-003
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Alder Ave				Alder Ave				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	8	0	0	7	11	4	0	0	3	0	0	1	0	10	0	46
7:15 AM	2	6	0	0	11	20	3	0	2	3	1	0	1	0	12	0	61
7:30 AM	2	15	0	0	3	13	2	0	3	3	3	0	0	1	11	0	56
7:45 AM	0	11	1	0	7	17	1	0	1	2	2	0	0	1	11	0	54
8:00 AM	1	21	0	0	10	16	0	0	1	0	3	0	0	3	10	0	65
8:15 AM	2	17	1	0	11	19	0	0	3	2	0	0	1	3	16	0	75
8:30 AM	2	15	2	0	6	15	2	0	3	0	1	0	2	1	20	0	69
8:45 AM	0	14	0	0	10	20	1	0	0	2	0	0	0	1	14	0	62
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	107	4	0	65	131	13	0	13	15	10	0	5	10	104	0	488
APPROACH %'s :	9.02%	87.70%	3.28%	0.00%	31.10%	62.68%	6.22%	0.00%	34.21%	39.47%	26.32%	0.00%	4.20%	8.40%	87.39%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	5	64	2	0	31	65	3	0	8	7	8	0	1	8	48	0	250
PEAK HR FACTOR :	0.625	0.762	0.500	0.000	0.705	0.855	0.375	0.000	0.667	0.583	0.667	0.000	0.250	0.667	0.750	0.000	0.833
	0.807				0.825				0.639				0.713				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	9	2	0	3	11	0	0	1	1	1	0	1	0	8	0	37
4:15 PM	0	11	1	0	9	13	1	0	0	0	0	0	1	0	6	0	42
4:30 PM	1	12	1	0	3	11	2	0	1	0	0	0	0	0	3	0	34
4:45 PM	0	14	0	0	3	13	0	0	2	2	0	0	0	0	5	0	39
5:00 PM	1	10	0	0	7	7	0	0	0	3	0	0	1	1	5	0	35
5:15 PM	0	7	0	0	5	10	2	0	1	2	0	0	2	0	13	0	42
5:30 PM	0	5	0	0	4	13	0	0	0	0	0	0	0	2	11	0	35
5:45 PM	0	8	0	0	2	17	1	0	2	0	0	0	2	1	8	0	41
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	76	4	0	36	95	6	0	7	8	1	0	7	4	59	0	305
APPROACH %'s :	2.44%	92.68%	4.88%	0.00%	26.28%	69.34%	4.38%	0.00%	43.75%	50.00%	6.25%	0.00%	10.00%	5.71%	84.29%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	43	1	0	18	41	4	0	4	7	0	0	3	1	26	0	150
PEAK HR FACTOR :	0.500	0.768	0.250	0.000	0.643	0.788	0.500	0.000	0.500	0.583	0.000	0.000	0.375	0.250	0.500	0.000	0.893
	0.821				0.926				0.688				0.500				

Prepared by National Data & Surveying Services

Alder Ave & Renaissance Pkwy

Peak Hour Turning Movement Count

ID: 23-030023-003
City: Rialto

Day: Tuesday
Date: 3/7/2023

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

SOUTHBOUND (Alder Ave)

AM	73	660	100	0	662	AM
NOON	0	0	0	0	0	NOON
PM	131	538	152	0	856	PM
	0	2	1	0		

EASTBOUND (Renaissance Pkwy)

AM	NOON	PM	
323	0	350	
0	0	0	0
86	0	90	1
154	0	260	2
68	0	67	0
AM	NOON	PM	

WESTBOUND (Renaissance Pkwy)

PM	NOON	AM	
176	0	116	0
171	0	130	2
14	0	24	1
0	0	0	0
445	0	267	
PM	NOON	AM	

CONTROL

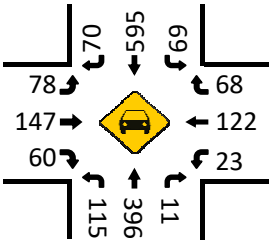
Signalized

TEV	2004 AM	0 NOON	2270 PM
PHF	0.90		0.96

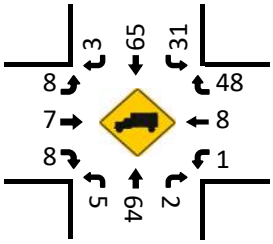
NORTHBOUND (Alder Ave)

PM	619	0	48	590	33	PM
NOON	0	0	0	0	0	NOON
AM	752	0	120	460	13	AM
		0	1	2	0	

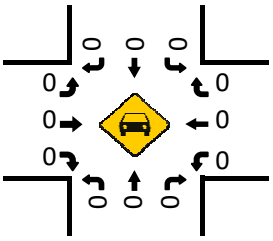
Cars (AM)



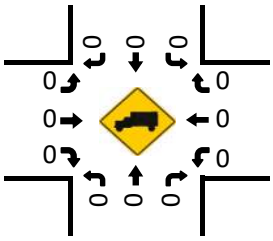
Total Trucks (AM)



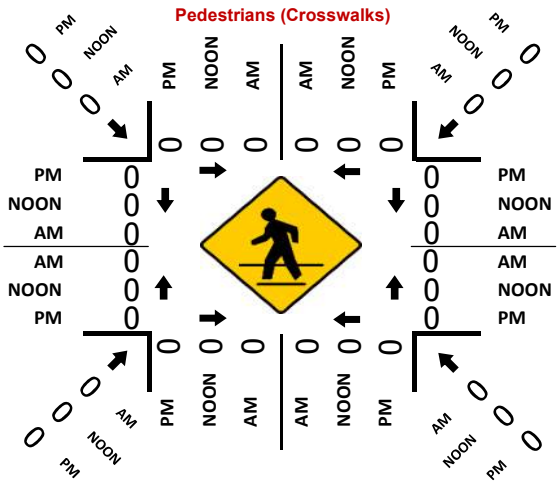
Cars (NOON)



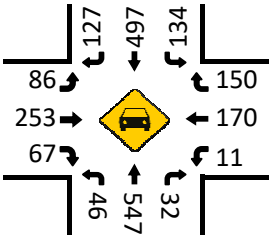
Total Trucks (NOON)



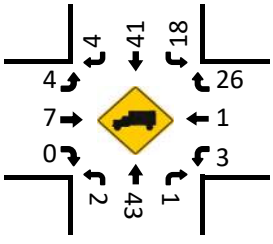
Pedestrians (Crosswalks)



Cars (PM)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-004
Date: 3/7/2023

Data - Total

NS/EW Streets:	Alder Ave				Alder Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	17	54	4	0	11	42	13	0	11	32	9	0	5	71	35	0	304
7:15 AM	19	67	15	0	12	78	16	0	21	53	16	0	6	74	24	0	401
7:30 AM	40	71	42	0	6	71	29	0	26	78	16	0	15	126	29	0	549
7:45 AM	51	77	39	0	10	106	41	0	34	90	22	0	14	110	33	0	627
8:00 AM	41	82	13	0	15	98	33	0	16	84	18	0	1	111	23	0	535
8:15 AM	23	64	3	0	18	64	30	0	17	99	14	0	9	108	20	0	469
8:30 AM	11	68	1	0	19	63	8	0	19	92	12	0	9	63	19	0	384
8:45 AM	9	55	4	0	9	38	18	0	14	60	8	0	7	62	17	0	301
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	211	538	121	0	100	560	188	0	158	588	115	0	66	725	200	0	3570
APPROACH %'s :	24.25%	61.84%	13.91%	0.00%	11.79%	66.04%	22.17%	0.00%	18.35%	68.29%	13.36%	0.00%	6.66%	73.16%	20.18%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	155	294	97	0	49	339	133	0	93	351	70	0	39	455	105	0	2180
PEAK HR FACTOR :	0.760	0.896	0.577	0.000	0.681	0.800	0.811	0.000	0.684	0.886	0.795	0.000	0.650	0.903	0.795	0.000	0.869
	0.817				0.830				0.880				0.881				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	84	11	0	27	88	33	0	19	106	15	0	14	78	13	0	501
4:15 PM	7	77	13	0	26	86	28	0	13	103	15	0	13	83	23	0	487
4:30 PM	10	86	6	0	28	98	36	0	20	94	17	0	13	80	25	0	513
4:45 PM	13	75	14	0	15	85	19	0	23	120	15	0	14	89	12	0	494
5:00 PM	10	102	8	0	19	70	26	0	13	102	8	0	9	94	14	0	475
5:15 PM	12	88	7	0	24	77	18	0	18	110	15	0	16	88	23	0	496
5:30 PM	12	91	5	0	18	83	29	0	16	79	6	0	10	77	31	0	457
5:45 PM	8	87	12	0	30	74	19	0	18	86	9	0	9	85	22	0	459
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	85	690	76	0	187	661	208	0	140	800	100	0	98	674	163	0	3882
APPROACH %'s :	9.99%	81.08%	8.93%	0.00%	17.71%	62.59%	19.70%	0.00%	13.46%	76.92%	9.62%	0.00%	10.48%	72.09%	17.43%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	43	322	44	0	96	357	116	0	75	423	62	0	54	330	73	0	1995
PEAK HR FACTOR :	0.827	0.936	0.786	0.000	0.857	0.911	0.806	0.000	0.815	0.881	0.912	0.000	0.964	0.927	0.730	0.000	0.972
	0.947				0.878				0.886				0.960				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-004
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Alder Ave				Alder Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	16	54	4	0	10	42	11	0	11	30	9	0	5	67	33	0	292
7:15 AM	18	66	15	0	12	78	15	0	21	49	14	0	6	70	22	0	386
7:30 AM	40	68	41	0	5	71	28	0	24	76	14	0	15	120	24	0	526
7:45 AM	50	76	38	0	10	104	40	0	34	84	20	0	14	104	30	0	604
8:00 AM	39	81	12	0	13	95	31	0	15	78	18	0	1	107	19	0	509
8:15 AM	23	61	2	0	14	64	29	0	17	94	13	0	8	106	17	0	448
8:30 AM	11	66	1	0	16	63	7	0	17	89	12	0	9	59	16	0	366
8:45 AM	9	54	4	0	8	35	15	0	13	59	8	0	5	61	15	0	286
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	206	526	117	0	88	552	176	0	152	559	108	0	63	694	176	0	3417
APPROACH %'s :	24.26%	61.96%	13.78%	0.00%	10.78%	67.65%	21.57%	0.00%	18.56%	68.25%	13.19%	0.00%	6.75%	74.38%	18.86%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	152	286	93	0	42	334	128	0	90	332	65	0	38	437	90	0	2087
PEAK HR FACTOR :	0.760	0.883	0.567	0.000	0.750	0.803	0.800	0.000	0.662	0.883	0.813	0.000	0.633	0.910	0.750	0.000	0.864
	0.809				0.818				0.882				0.888				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	84	11	0	22	87	31	0	16	102	14	0	13	74	13	0	480
4:15 PM	7	76	13	0	20	84	27	0	12	101	15	0	12	80	21	0	468
4:30 PM	10	85	6	0	26	97	36	0	19	93	17	0	13	79	22	0	503
4:45 PM	13	75	14	0	14	84	18	0	23	118	15	0	14	84	9	0	481
5:00 PM	10	101	7	0	14	70	25	0	13	101	8	0	8	90	11	0	458
5:15 PM	12	88	7	0	21	76	17	0	17	105	15	0	16	86	20	0	480
5:30 PM	12	90	5	0	17	82	28	0	15	79	6	0	10	77	29	0	450
5:45 PM	8	87	12	0	26	73	18	0	18	81	9	0	9	83	21	0	445
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	85	686	75	0	160	653	200	0	133	780	99	0	95	653	146	0	3765
APPROACH %'s :	10.05%	81.09%	8.87%	0.00%	15.79%	64.46%	19.74%	0.00%	13.14%	77.08%	9.78%	0.00%	10.63%	73.04%	16.33%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	43	320	44	0	82	352	112	0	70	414	61	0	52	317	65	0	1932
PEAK HR FACTOR :	0.827	0.941	0.786	0.000	0.788	0.907	0.778	0.000	0.761	0.877	0.897	0.000	0.929	0.943	0.739	0.000	0.960
	0.942				0.858				0.873				0.952				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-004
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Alder Ave				Alder Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	0	0	0	0	1	0	0	2	0	0	0	4	0	0	8
7:15 AM	0	1	0	0	0	0	0	0	0	3	1	0	0	1	0	0	6
7:30 AM	0	1	0	0	0	0	0	0	1	2	2	0	0	5	1	0	12
7:45 AM	1	1	1	0	0	1	0	0	0	3	1	0	0	4	1	0	13
8:00 AM	1	0	1	0	0	1	1	0	0	2	0	0	0	3	0	0	9
8:15 AM	0	1	1	0	0	0	1	0	0	3	1	0	0	0	0	0	7
8:30 AM	0	2	0	0	1	0	0	0	0	1	0	0	0	2	1	0	7
8:45 AM	0	1	0	0	1	3	1	0	0	0	0	0	0	1	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	7	3	0	2	5	4	0	1	16	5	0	0	20	3	0	69
APPROACH %'s :	23.08%	53.85%	23.08%	0.00%	18.18%	45.45%	36.36%	0.00%	4.55%	72.73%	22.73%	0.00%	0.00%	86.96%	13.04%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	3	3	0	0	2	2	0	1	10	4	0	0	12	2	0	41
PEAK HR FACTOR :	0.500	0.750	0.750	0.000	0.000	0.500	0.500	0.000	0.250	0.833	0.500	0.000	0.000	0.600	0.500	0.000	0.788
	0.667				0.500				0.750				0.583				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	1	0	3	2	1	0	0	4	0	0	12
4:15 PM	0	1	0	0	1	1	0	0	0	2	0	0	1	1	0	0	7
4:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	3
4:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3
5:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	1	4	0	0	0	1	0	0	6
5:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	3	4	2	0	5	10	1	0	1	9	2	0	40
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	33.33%	44.44%	22.22%	0.00%	31.25%	62.50%	6.25%	0.00%	8.33%	75.00%	16.67%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	3	2	1	0	4	4	1	0	1	6	1	0	25
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.750	0.500	0.250	0.000	0.333	0.500	0.250	0.000	0.250	0.375	0.250	0.000	0.521
	0.500				0.750				0.375				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-004
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Alder Ave				Alder Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	2	1	0	0	0	0	0	1	0	0	0	0	0	2	0	6
7:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	3
8:00 AM	1	1	0	0	0	0	1	0	1	1	0	0	0	1	1	0	7
8:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	5	1	0	1	1	2	0	3	3	0	0	2	2	5	0	26
APPROACH %'s :	14.29%	71.43%	14.29%	0.00%	25.00%	25.00%	50.00%	0.00%	50.00%	50.00%	0.00%	0.00%	22.22%	22.22%	55.56%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	5	1	0	0	1	2	0	2	1	0	0	0	1	4	0	18
PEAK HR FACTOR :	0.250	0.625	0.250	0.000	0.000	0.250	0.500	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.500	0.000	0.643
	0.583				0.375				0.375				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	1	0	3	0	0	0	0	0	0	0	0	0	1	0	5
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	6	1	0	0	0	3	0	0	0	1	3	0	15
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	85.71%	14.29%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	25.00%	75.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	1	0	0	0	1	0	0	0	1	1	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.375
					0.250				0.250				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-004
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Alder Ave				Alder Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	3
7:15 AM	1	0	0	0	0	0	1	0	0	1	1	0	0	2	2	0	8
7:30 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	1	2	0	5
7:45 AM	0	0	0	0	0	0	0	0	0	3	1	0	0	2	1	0	7
8:00 AM	0	0	0	0	2	2	0	0	0	3	0	0	0	0	3	0	10
8:15 AM	0	0	0	0	4	0	0	0	0	2	0	0	1	2	3	0	12
8:30 AM	0	0	0	0	1	0	1	0	1	1	0	0	0	2	2	0	8
8:45 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	2	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	9	2	6	0	2	10	2	0	1	9	16	0	58
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	52.94%	11.76%	35.29%	0.00%	14.29%	71.43%	14.29%	0.00%	3.85%	34.62%	61.54%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	7	2	1	0	0	8	1	0	1	5	9	0	34
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.438	0.250	0.250	0.000	0.000	0.667	0.250	0.000	0.250	0.625	0.750	0.000	0.708
					0.625				0.563				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	1	1	1	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	2	0	1	0	0	1	0	0	1	0	0	0	5
4:15 PM	0	0	0	0	5	1	1	0	1	0	0	0	0	2	2	0	12
4:30 PM	0	0	0	0	2	1	0	0	0	1	0	0	0	1	1	0	6
4:45 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	3	3	0	9
5:00 PM	0	0	0	0	2	0	1	0	0	0	0	0	1	3	2	0	9
5:15 PM	0	0	0	0	2	1	1	0	0	1	0	0	0	1	3	0	9
5:30 PM	0	1	0	0	1	0	0	0	1	0	0	0	0	0	1	0	4
5:45 PM	0	0	0	0	4	0	1	0	0	2	0	0	0	1	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	18	3	6	0	2	7	0	0	2	11	12	0	62
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	66.67%	11.11%	22.22%	0.00%	22.22%	77.78%	0.00%	0.00%	8.00%	44.00%	48.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	9	2	3	0	1	4	0	0	1	6	6	0	32
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.450	0.500	0.750	0.000	0.250	0.500	0.000	0.000	0.250	0.500	0.500	0.000	0.667
					0.500				0.625				0.542				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Alder Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-004
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Alder Ave				Alder Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	TOTAL
7:00 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	4	2	0	12
7:15 AM	1	1	0	0	0	0	1	0	0	4	2	0	0	4	2	0	15
7:30 AM	0	3	1	0	1	0	1	0	2	2	2	0	0	6	5	0	23
7:45 AM	1	1	1	0	0	2	1	0	0	6	2	0	0	6	3	0	23
8:00 AM	2	1	1	0	2	3	2	0	1	6	0	0	0	4	4	0	26
8:15 AM	0	3	1	0	4	0	1	0	0	5	1	0	1	2	3	0	21
8:30 AM	0	2	0	0	3	0	1	0	2	3	0	0	0	4	3	0	18
8:45 AM	0	1	0	0	1	3	3	0	1	1	0	0	2	1	2	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	12	4	0	12	8	12	0	6	29	7	0	3	31	24	0	153
APPROACH %'s :	23.81%	57.14%	19.05%	0.00%	37.50%	25.00%	37.50%	0.00%	14.29%	69.05%	16.67%	0.00%	5.17%	53.45%	41.38%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	3	8	4	0	7	5	5	0	3	19	5	0	1	18	15	0	93
PEAK HR FACTOR :	0.375	0.667	1.000	0.000	0.438	0.417	0.625	0.000	0.375	0.792	0.625	0.000	0.250	0.750	0.750	0.000	0.894
	0.938				0.607				0.844				0.773				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1 NL	1 NT	0 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	1 ET	0 ER	0 EU	1 WL	1 WT	1 WR	0 WU	TOTAL
4:00 PM	0	0	0	0	5	1	2	0	3	4	1	0	1	4	0	0	21
4:15 PM	0	1	0	0	6	2	1	0	1	2	0	0	1	3	2	0	19
4:30 PM	0	1	0	0	2	1	0	0	1	1	0	0	0	1	3	0	10
4:45 PM	0	0	0	0	1	1	1	0	0	2	0	0	0	5	3	0	13
5:00 PM	0	1	1	0	5	0	1	0	0	1	0	0	1	4	3	0	17
5:15 PM	0	0	0	0	3	1	1	0	1	5	0	0	0	2	3	0	16
5:30 PM	0	1	0	0	1	1	1	0	1	0	0	0	0	0	2	0	7
5:45 PM	0	0	0	0	4	1	1	0	0	5	0	0	0	2	1	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	1	0	27	8	8	0	7	20	1	0	3	21	17	0	117
APPROACH %'s :	0.00%	80.00%	20.00%	0.00%	62.79%	18.60%	18.60%	0.00%	25.00%	71.43%	3.57%	0.00%	7.32%	51.22%	41.46%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	14	5	4	0	5	9	1	0	2	13	8	0	63
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.583	0.625	0.500	0.000	0.417	0.563	0.250	0.000	0.500	0.650	0.667	0.000	0.750
	0.500				0.639				0.469				0.719				

Prepared by National Data & Surveying Services

Alder Ave & Baseline Rd

Peak Hour Turning Movement Count

ID: 23-030023-004
City: Rialto

Day: Tuesday
Date: 3/7/2023

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Alder Ave)

AM	133	339	49	0	492	AM
NOON	0	0	0	0	0	NOON
PM	116	357	96	0	470	PM

EASTBOUND (Baseline Rd)

AM	NOON	PM		
743	0	489	⇦	
0	0	0	↶	0
93	0	75	↱	1
351	0	423	→	1
70	0	62	↴	0
AM	NOON	PM		

WESTBOUND (Baseline Rd)

PM	NOON	AM		
73	0	105	↰	1
330	0	455	←	1
54	0	39	↰	1
0	0	0	↶	0
563	0	497	⇨	
PM	NOON	AM		

NORTHBOUND (Alder Ave)

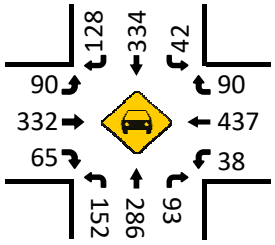
PM	473	0	43	322	44	PM
NOON	0	0	0	0	0	NOON
AM	448	0	155	294	97	AM

CONTROL

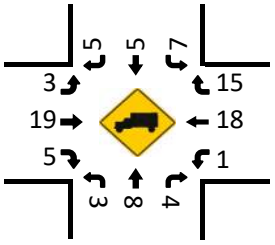
Signalized

TEV	2180 AM	0 NOON	1995 PM
PHF	0.87		0.97

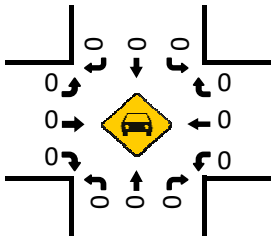
Cars (AM)



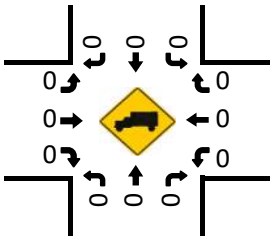
Total Trucks (AM)



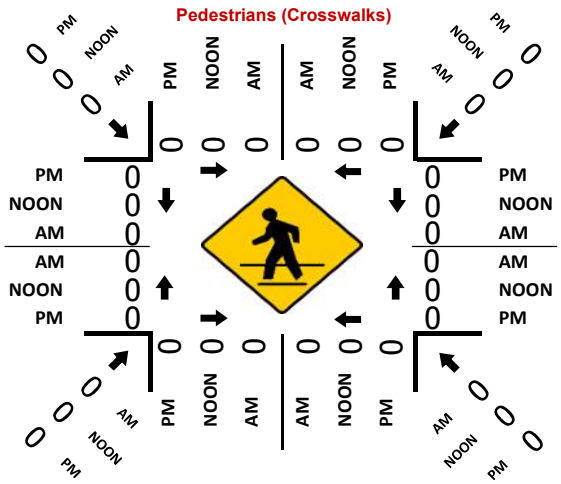
Cars (NOON)



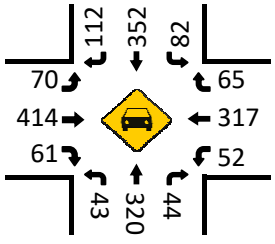
Total Trucks (NOON)



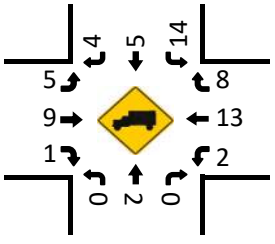
Pedestrians (Crosswalks)



Cars (PM)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-005
Date: 3/7/2023

Data - Total

NS/EW Streets:	Ayala Dr				Ayala Dr				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	6	163	3	0	29	121	73	0	61	21	18	0	2	20	96	0	613
7:15 AM	15	148	2	0	43	180	79	0	45	10	15	0	4	23	95	0	659
7:30 AM	8	174	7	0	39	179	83	0	50	26	18	0	8	28	78	0	698
7:45 AM	1	162	11	0	57	175	90	0	52	19	17	0	8	32	89	0	713
8:00 AM	4	190	12	0	42	174	86	0	75	34	18	0	5	28	95	0	763
8:15 AM	32	174	7	0	58	150	73	0	51	26	26	0	5	32	85	1	720
8:30 AM	20	146	8	0	49	136	92	0	51	42	14	2	5	36	79	0	680
8:45 AM	11	126	10	0	53	146	100	0	54	20	15	0	4	24	73	0	636
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	97	1283	60	0	370	1261	676	0	439	198	141	2	41	223	690	1	5482
APPROACH %'s :	6.74%	89.10%	4.17%	0.00%	16.04%	54.66%	29.30%	0.00%	56.28%	25.38%	18.08%	0.26%	4.29%	23.35%	72.25%	0.10%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	45	700	37	0	196	678	332	0	228	105	79	0	26	120	347	1	2894
PEAK HR FACTOR :	0.352	0.921	0.771	0.000	0.845	0.947	0.922	0.000	0.760	0.772	0.760	0.000	0.813	0.938	0.913	0.250	0.948
	0.918				0.936				0.811				0.957				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	28	162	14	0	95	197	128	0	90	103	20	0	11	61	84	0	993
4:15 PM	25	158	16	0	73	206	141	0	94	84	27	0	15	49	73	0	961
4:30 PM	26	196	11	0	98	203	124	0	85	100	25	0	19	44	91	0	1022
4:45 PM	22	196	26	0	69	206	146	0	92	100	30	0	18	46	78	0	1029
5:00 PM	28	191	21	0	95	210	138	0	96	100	31	0	11	52	98	0	1071
5:15 PM	30	185	17	0	79	180	145	0	102	76	24	0	12	41	89	0	980
5:30 PM	24	206	16	0	83	182	139	0	93	80	44	1	13	48	70	0	999
5:45 PM	19	172	18	0	70	204	172	0	94	79	25	0	14	65	56	0	988
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	202	1466	139	0	662	1588	1133	0	746	722	226	1	113	406	639	0	8043
APPROACH %'s :	11.18%	81.13%	7.69%	0.00%	19.57%	46.94%	33.49%	0.00%	44.01%	42.60%	13.33%	0.06%	9.76%	35.06%	55.18%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	106	768	75	0	341	799	553	0	375	376	110	0	60	183	356	0	4102
PEAK HR FACTOR :	0.883	0.980	0.721	0.000	0.870	0.951	0.947	0.000	0.919	0.940	0.887	0.000	0.789	0.880	0.908	0.000	0.958
	0.972				0.955				0.948				0.930				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-005
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Ayala Dr				Ayala Dr				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	6	161	3	0	29	115	69	0	60	20	18	0	2	20	95	0	598
7:15 AM	15	146	2	0	43	179	75	0	44	10	15	0	4	23	95	0	651
7:30 AM	8	169	7	0	38	174	79	0	48	26	18	0	8	28	78	0	681
7:45 AM	0	161	10	0	56	169	89	0	48	18	16	0	7	30	88	0	692
8:00 AM	3	186	12	0	42	167	85	0	74	33	18	0	3	28	93	0	744
8:15 AM	32	172	6	0	58	144	72	0	48	26	25	0	5	32	84	1	705
8:30 AM	19	141	6	0	48	132	88	0	49	42	14	2	5	36	78	0	660
8:45 AM	11	122	10	0	51	139	97	0	54	20	15	0	3	24	70	0	616
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	94	1258	56	0	365	1219	654	0	425	195	139	2	37	221	681	1	5347
APPROACH %'s :	6.68%	89.35%	3.98%	0.00%	16.31%	54.47%	29.22%	0.00%	55.85%	25.62%	18.27%	0.26%	3.94%	23.51%	72.45%	0.11%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	43	688	35	0	194	654	325	0	218	103	77	0	23	118	343	1	2822
PEAK HR FACTOR :	0.336	0.925	0.729	0.000	0.836	0.940	0.913	0.000	0.736	0.780	0.770	0.000	0.719	0.922	0.922	0.250	0.948
	0.912				0.934				0.796				0.970				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	28	158	12	0	95	194	128	0	89	101	20	0	11	59	83	0	978
4:15 PM	25	156	16	0	72	198	141	0	94	83	27	0	15	47	73	0	947
4:30 PM	26	195	11	0	98	201	123	0	84	98	24	0	19	43	91	0	1013
4:45 PM	22	194	26	0	68	204	144	0	91	100	30	0	17	46	78	0	1020
5:00 PM	28	189	21	0	95	207	136	0	94	99	29	0	10	51	97	0	1056
5:15 PM	30	184	17	0	79	179	143	0	102	76	24	0	12	41	89	0	976
5:30 PM	24	204	16	0	83	181	137	0	91	80	44	1	13	48	69	0	991
5:45 PM	19	171	18	0	68	203	170	0	94	78	24	0	14	64	56	0	979
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	202	1451	137	0	658	1567	1122	0	739	715	222	1	111	399	636	0	7960
APPROACH %'s :	11.28%	81.06%	7.65%	0.00%	19.66%	46.82%	33.52%	0.00%	44.07%	42.64%	13.24%	0.06%	9.69%	34.82%	55.50%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	106	762	75	0	340	791	546	0	371	373	107	0	58	181	355	0	4065
PEAK HR FACTOR :	0.883	0.977	0.721	0.000	0.867	0.955	0.948	0.000	0.909	0.933	0.892	0.000	0.763	0.887	0.915	0.000	0.962
	0.974				0.957				0.958				0.940				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-005
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	0	2	0	0	0	3	3	0	1	1	0	0	0	0	0	0	10
7:15 AM	0	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	1	0	0	0	2	1	0	1	0	0	0	0	0	0	0	5
7:45 AM	0	1	1	0	1	5	0	0	4	1	1	0	1	1	0	0	16
8:00 AM	1	2	0	0	0	6	1	0	1	1	0	0	2	0	2	0	16
8:15 AM	0	1	1	0	0	5	0	0	2	0	1	0	0	0	1	0	11
8:30 AM	1	4	1	0	1	2	2	0	0	0	0	0	0	0	1	0	12
8:45 AM	0	3	0	0	1	5	2	0	0	0	0	0	0	0	3	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	15	3	0	3	29	11	0	9	3	2	0	3	1	7	0	88
APPROACH %'s :	10.00%	75.00%	15.00%	0.00%	6.98%	67.44%	25.58%	0.00%	64.29%	21.43%	14.29%	0.00%	27.27%	9.09%	63.64%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	5	2	0	1	18	2	0	8	2	2	0	3	1	3	0	48
PEAK HR FACTOR :	0.250	0.625	0.500	0.000	0.250	0.750	0.500	0.000	0.500	0.500	0.500	0.000	0.375	0.250	0.375	0.000	0.750
	0.667				0.750				0.500				0.438				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	0	3	2	0	0	2	0	0	1	1	0	0	0	2	0	0	11
4:15 PM	0	1	0	0	0	4	0	0	0	1	0	0	0	1	0	0	7
4:30 PM	0	0	0	0	0	2	1	0	1	2	0	0	0	1	0	0	7
4:45 PM	0	2	0	0	1	1	1	0	0	0	0	0	1	0	0	0	6
5:00 PM	0	2	0	0	0	3	1	0	1	1	0	0	1	1	1	0	11
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	2	0	0	0	1	1	0	2	0	0	0	0	0	1	0	7
5:45 PM	0	1	0	0	2	1	1	0	0	1	1	0	0	1	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	11	2	0	3	15	5	0	5	6	1	0	2	6	2	0	58
APPROACH %'s :	0.00%	84.62%	15.38%	0.00%	13.04%	65.22%	21.74%	0.00%	41.67%	50.00%	8.33%	0.00%	20.00%	60.00%	20.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	4	0	0	1	7	3	0	2	3	0	0	2	2	1	0	25
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.250	0.583	0.750	0.000	0.500	0.375	0.000	0.000	0.500	0.500	0.250	0.000	0.568
	0.500				0.688				0.417				0.417				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-005
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3
7:30 AM	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	4
7:45 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	4
8:45 AM	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	1	0	1	4	7	0	3	0	0	0	1	1	1	0	22
APPROACH %'s :	25.00%	50.00%	25.00%	0.00%	8.33%	33.33%	58.33%	0.00%	100.00%	0.00%	0.00%	0.00%	33.33%	33.33%	33.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	1	1	0	0	1	1	2	0	1	0	0	0	0	1	1	0	9
PEAK HR FACTOR :	0.250	0.250	0.000	0.000	0.250	0.250	0.500	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.563
	0.500				0.500				0.250				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
4:15 PM	0	1	0	0	1	4	0	0	0	0	0	0	0	1	0	0	7
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	1	4	6	0	1	1	3	0	0	1	1	0	19
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	9.09%	36.36%	54.55%	0.00%	20.00%	20.00%	60.00%	0.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	4	0	1	0	3	0	0	0	0	0	8
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.250	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.667
					0.500				0.500								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-005
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	3	0	0	0	3	2	0	0	0	0	0	0	0	0	0	8
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	0	0	1	9	4	0	2	0	0	0	0	0	1	0	25
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	7.14%	64.29%	28.57%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	6	0	0	0	5	3	0	1	0	0	0	0	0	0	0	15
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.417	0.375	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.469
	0.500				0.400				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	2	0	0	1	0	0	0	0	0	0	0	6
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
	0.500				0.250				0.250								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Renaissance Pkwy
City: Rialto
Control: Signalized

Project ID: 23-030023-005
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Ayala Dr				Ayala Dr				Renaissance Pkwy				Renaissance Pkwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
7:00 AM	0	2	0	0	0	6	4	0	1	1	0	0	0	0	1	0	15
7:15 AM	0	2	0	0	0	1	4	0	1	0	0	0	0	0	0	0	8
7:30 AM	0	5	0	0	1	5	4	0	2	0	0	0	0	0	0	0	17
7:45 AM	1	1	1	0	1	6	1	0	4	1	1	0	1	2	1	0	21
8:00 AM	1	4	0	0	0	7	1	0	1	1	0	0	2	0	2	0	19
8:15 AM	0	2	1	0	0	6	1	0	3	0	1	0	0	0	1	0	15
8:30 AM	1	5	2	0	1	4	4	0	2	0	0	0	0	0	1	0	20
8:45 AM	0	4	0	0	2	7	3	0	0	0	0	0	1	0	3	0	20
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	25	4	0	5	42	22	0	14	3	2	0	4	2	9	0	135
APPROACH %'s :	9.38%	78.13%	12.50%	0.00%	7.25%	60.87%	31.88%	0.00%	73.68%	15.79%	10.53%	0.00%	26.67%	13.33%	60.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	12	2	0	2	24	7	0	10	2	2	0	3	2	4	0	72
PEAK HR FACTOR :	0.500	0.600	0.500	0.000	0.500	0.857	0.438	0.000	0.625	0.500	0.500	0.000	0.375	0.250	0.500	0.000	0.857
	0.800				0.825				0.583				0.563				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	1 NR	0 NU	2 SL	2 ST	1 SR	0 SU	2 EL	2 ET	1 ER	0 EU	2 WL	2 WT	1 WR	0 WU	TOTAL
4:00 PM	0	4	2	0	0	3	0	0	1	2	0	0	0	2	1	0	15
4:15 PM	0	2	0	0	1	8	0	0	0	1	0	0	0	2	0	0	14
4:30 PM	0	1	0	0	0	2	1	0	1	2	1	0	0	1	0	0	9
4:45 PM	0	2	0	0	1	2	2	0	1	0	0	0	1	0	0	0	9
5:00 PM	0	2	0	0	0	3	2	0	2	1	2	0	1	1	1	0	15
5:15 PM	0	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	2	0	0	0	1	2	0	2	0	0	0	0	0	1	0	8
5:45 PM	0	1	0	0	2	1	2	0	0	1	1	0	0	1	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	15	2	0	4	21	11	0	7	7	4	0	2	7	3	0	83
APPROACH %'s :	0.00%	88.24%	11.76%	0.00%	11.11%	58.33%	30.56%	0.00%	38.89%	38.89%	22.22%	0.00%	16.67%	58.33%	25.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	6	0	0	1	8	7	0	4	3	3	0	2	2	1	0	37
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.250	0.667	0.875	0.000	0.500	0.375	0.375	0.000	0.500	0.500	0.250	0.000	0.617
	0.750				0.800				0.500				0.417				

Prepared by National Data & Surveying Services

Ayala Dr & Renaissance Pkwy

Peak Hour Turning Movement Count

ID: 23-030023-005
City: Rialto

Day: Tuesday
Date: 3/7/2023

PEAK HOURS

AM: 07:30 AM - 08:30 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 (Ayala Dr)

AM	332	678	196	0	1275	AM
NOON	0	0	0	0	0	NOON
PM	553	799	341	0	1499	PM
	1	2	2	0		

EASTBOUND (Renaissance Pkwy)

AM	NOON	PM	
497	0	842	
0	0	0	0
228	0	375	2
105	0	376	2
79	0	110	1

WESTBOUND (Renaissance Pkwy)

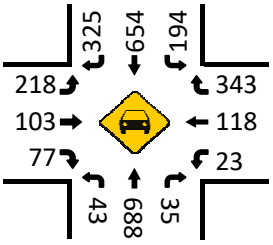
	PM	NOON	AM
1	356	0	347
2	183	0	120
2	60	0	26
0	0	0	1
	792	0	339

NORTHBOUND (Ayala Dr)

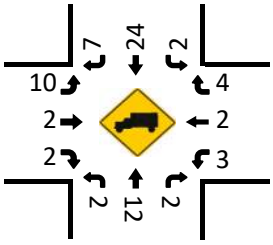
PM	969	0	106	768	75	PM
NOON	0	0	0	0	0	NOON
AM	783	0	45	700	37	AM
		0	2	2	1	

CONTROL			
Signalized			
TEV	2894 AM	0 NOON	4102 PM
PHF	0.95		0.96

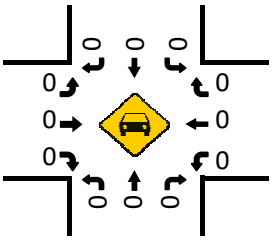
Cars (AM)



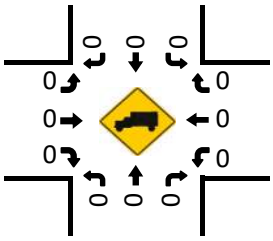
Total Trucks (AM)



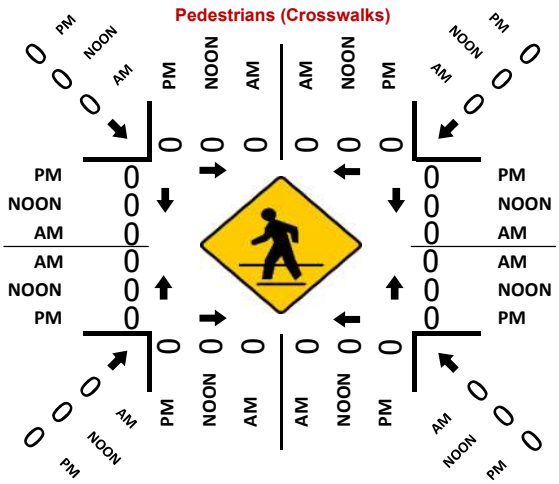
Cars (NOON)



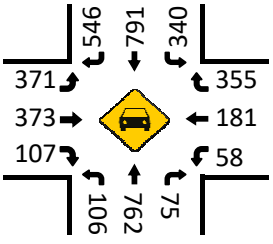
Total Trucks (NOON)



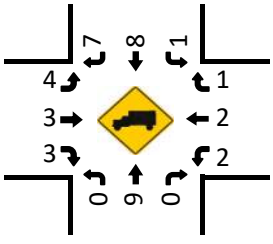
Pedestrians (Crosswalks)



Cars (PM)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Fitzgerald Ave
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-006
Date: 3/7/2023

Data - Total

NS/EW Streets:	Ayala Dr				Ayala Dr				Fitzgerald Ave				Fitzgerald Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	149	0	0	30	126	0	0	0	0	0	0	0	0	40	0	349
7:15 AM	0	150	0	0	26	160	1	0	0	0	1	0	1	0	28	0	367
7:30 AM	2	165	2	0	27	186	1	1	1	0	2	0	0	0	44	0	431
7:45 AM	5	179	0	0	26	143	1	1	0	0	1	0	1	1	27	0	385
8:00 AM	7	213	1	0	37	135	4	2	0	0	0	0	1	0	36	0	436
8:15 AM	3	146	2	0	35	126	2	1	1	0	0	0	1	0	31	0	348
8:30 AM	1	135	2	0	31	137	1	0	0	0	0	0	0	0	33	0	340
8:45 AM	2	123	2	0	32	117	0	0	0	0	1	0	0	0	30	0	307
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	24	1260	9	0	244	1130	10	5	2	0	5	0	4	1	269	0	2963
APPROACH %'s :	1.86%	97.45%	0.70%	0.00%	17.57%	81.35%	0.72%	0.36%	28.57%	0.00%	71.43%	0.00%	1.46%	0.36%	98.18%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	14	707	3	0	116	624	7	4	1	0	4	0	3	1	135	0	1619
PEAK HR FACTOR :	0.500	0.830	0.375	0.000	0.784	0.839	0.438	0.500	0.250	0.000	0.500	0.000	0.750	0.250	0.767	0.000	0.928
	0.819				0.873				0.417				0.790				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	167	2	0	37	210	2	1	1	0	1	0	0	1	26	0	449
4:15 PM	0	179	4	1	51	188	1	3	0	0	1	0	0	1	33	0	462
4:30 PM	1	208	3	0	51	188	1	2	0	0	4	0	0	0	42	0	500
4:45 PM	2	197	0	2	53	224	0	2	0	0	0	0	0	0	28	0	508
5:00 PM	1	185	1	0	43	241	0	2	0	0	1	0	0	1	47	0	522
5:15 PM	2	217	4	0	55	188	0	0	0	0	0	0	1	1	34	0	502
5:30 PM	2	193	1	0	43	210	0	0	0	0	0	1	0	0	42	0	492
5:45 PM	0	205	2	0	41	211	0	0	0	0	2	0	0	0	31	0	492
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	1551	17	3	374	1660	4	10	1	0	9	1	1	4	283	0	3927
APPROACH %'s :	0.57%	98.16%	1.08%	0.19%	18.26%	81.05%	0.20%	0.49%	9.09%	0.00%	81.82%	9.09%	0.35%	1.39%	98.26%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	6	807	8	2	202	841	1	6	0	0	5	0	1	2	151	0	2032
PEAK HR FACTOR :	0.750	0.930	0.500	0.250	0.918	0.872	0.250	0.750	0.000	0.000	0.313	0.000	0.250	0.500	0.803	0.000	0.973
	0.923				0.918				0.313				0.802				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Fitzgerald Ave
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-006
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Ayala Dr				Ayala Dr				Fitzgerald Ave				Fitzgerald Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	145	0	0	29	123	0	0	0	0	0	0	0	0	40	0	341
7:15 AM	0	146	0	0	26	155	1	0	0	0	1	0	1	0	28	0	358
7:30 AM	2	162	2	0	27	183	1	1	1	0	2	0	0	0	43	0	424
7:45 AM	5	179	0	0	25	138	1	1	0	0	1	0	1	1	27	0	379
8:00 AM	7	209	1	0	37	130	3	2	0	0	0	0	1	0	35	0	425
8:15 AM	3	142	2	0	34	118	2	1	0	0	0	0	1	0	31	0	334
8:30 AM	1	128	2	0	31	132	1	0	0	0	0	0	0	0	31	0	326
8:45 AM	2	122	2	0	32	114	0	0	0	0	1	0	0	0	29	0	302
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	24	1233	9	0	241	1093	9	5	1	0	5	0	4	1	264	0	2889
APPROACH %'s :	1.90%	97.39%	0.71%	0.00%	17.88%	81.08%	0.67%	0.37%	16.67%	0.00%	83.33%	0.00%	1.49%	0.37%	98.14%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	14	696	3	0	115	606	6	4	1	0	4	0	3	1	133	0	1586
PEAK HR FACTOR :	0.500	0.833	0.375	0.000	0.777	0.828	0.500	0.500	0.250	0.000	0.500	0.000	0.750	0.250	0.773	0.000	0.933
	0.821				0.862				0.417				0.797				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	164	2	0	37	207	2	1	1	0	1	0	0	1	26	0	443
4:15 PM	0	178	4	1	47	185	0	3	0	0	1	0	0	1	32	0	452
4:30 PM	1	206	3	0	50	183	1	2	0	0	4	0	0	0	42	0	492
4:45 PM	2	196	0	2	52	220	0	2	0	0	0	0	0	0	28	0	502
5:00 PM	1	184	1	0	43	238	0	2	0	0	1	0	0	0	47	0	517
5:15 PM	2	216	4	0	55	187	0	0	0	0	0	0	1	1	34	0	500
5:30 PM	2	189	1	0	43	209	0	0	0	0	0	1	0	0	42	0	487
5:45 PM	0	204	2	0	41	210	0	0	0	0	2	0	0	0	30	0	489
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	1537	17	3	368	1639	3	10	1	0	9	1	1	3	281	0	3882
APPROACH %'s :	0.57%	98.15%	1.09%	0.19%	18.22%	81.14%	0.15%	0.50%	9.09%	0.00%	81.82%	9.09%	0.35%	1.05%	98.60%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	6	802	8	2	200	828	1	6	0	0	5	0	1	1	151	0	2011
PEAK HR FACTOR :	0.750	0.928	0.500	0.250	0.909	0.870	0.250	0.750	0.000	0.000	0.313	0.000	0.250	0.250	0.803	0.000	0.972
	0.921				0.914				0.313				0.814				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Fitzgerald Ave
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-006
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Fitzgerald Ave				Fitzgerald Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	1	1	0	0	0	0	0	0	0	0	0	0	5
7:15 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
7:30 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
7:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	4	0	0	0	5	1	0	0	0	0	0	0	0	1	0	11
8:15 AM	0	2	0	0	1	6	0	0	1	0	0	0	0	0	0	0	10
8:30 AM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	1	0	11
8:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	19	0	0	2	26	1	0	1	0	0	0	0	0	4	0	53
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	6.90%	89.66%	3.45%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	8	0	0	0	13	1	0	0	0	0	0	0	0	2	0	24
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.650	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.545
	0.500				0.583								0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	1	0	0	2	2	1	0	0	0	0	0	0	0	1	0	7
4:30 PM	0	2	0	0	1	4	0	0	0	0	0	0	0	0	0	0	7
4:45 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
5:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	5
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	9	0	0	4	15	1	0	0	0	0	0	0	1	2	0	32
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	20.00%	75.00%	5.00%	0.00%					0.00%	33.33%	66.67%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	5	0	0	2	9	0	0	0	0	0	0	0	1	0	0	17
PEAK HR FACTOR :	0.000	0.625	0.000	0.000	0.500	0.563	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.607
	0.625				0.550								0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Fitzgerald Ave
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-006
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Fitzgerald Ave				Fitzgerald Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	2	5	0	0	0	0	0	0	0	0	0	0	9
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	28.57%	71.43%	0.00%	0.00%									
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375
						0.375											

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Fitzgerald Ave
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-006
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Fitzgerald Ave				Fitzgerald Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	0	0	1	7	0	0	0	0	0	0	0	0	1	0	15
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	12.50%	87.50%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	3	0	0	1	5	0	0	0	0	0	0	0	0	0	0	9
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.250	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
		0.375				0.500											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Fitzgerald Ave
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-006
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Ayala Dr				Ayala Dr				Fitzgerald Ave				Fitzgerald Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	1	3	0	0	0	0	0	0	0	0	0	0	8
7:15 AM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9
7:30 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	1	0	7
7:45 AM	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	6
8:00 AM	0	4	0	0	0	5	1	0	0	0	0	0	0	0	1	0	11
8:15 AM	0	4	0	0	1	8	0	0	1	0	0	0	0	0	0	0	14
8:30 AM	0	7	0	0	0	5	0	0	0	0	0	0	0	0	2	0	14
8:45 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	27	0	0	3	37	1	0	1	0	0	0	0	0	5	0	74
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	7.32%	90.24%	2.44%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	11	0	0	1	18	1	0	0	0	0	0	0	0	2	0	33
PEAK HR FACTOR :	0.000	0.688	0.000	0.000	0.250	0.900	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.750
		0.688				0.833								0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
4:15 PM	0	1	0	0	4	3	1	0	0	0	0	0	0	0	1	0	10
4:30 PM	0	2	0	0	1	5	0	0	0	0	0	0	0	0	0	0	8
4:45 PM	0	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0	6
5:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	5
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	14	0	0	6	21	1	0	0	0	0	0	0	1	2	0	45
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	21.43%	75.00%	3.57%	0.00%					0.00%	33.33%	66.67%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	5	0	0	2	13	0	0	0	0	0	0	0	1	0	0	21
PEAK HR FACTOR :	0.000	0.625	0.000	0.000	0.500	0.650	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.656
		0.625				0.625								0.250			

Prepared by National Data & Surveying Services

Ayala Dr & Fitzgerald Ave

Peak Hour Turning Movement Count

ID: 23-030023-006
City: Rialto

Day: Tuesday
Date: 3/7/2023

PEAK HOURS

AM: 07:15 AM - 08:15 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 (Ayala Dr)

AM	7	624	116	4	847	AM
NOON	0	0	0	0	0	NOON
PM	1	841	202	6	964	PM

EASTBOUND (Fitzgerald Ave)

AM	NOON	PM	
22	0	9	
0	0	0	0
1	0	0	0
0	0	0	1
4	0	5	0

WESTBOUND (Fitzgerald Ave)

	PM	NOON	AM
0	151	0	135
1	2	0	1
1	1	0	3
0	0	0	0
	210	0	119

NORTHBOUND (Ayala Dr)

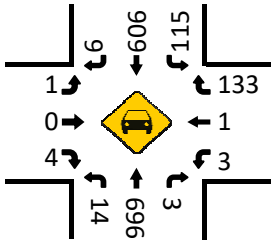
PM	849	2	6	807	8	PM
NOON	0	0	0	0	0	NOON
AM	631	0	14	707	3	AM

CONTROL

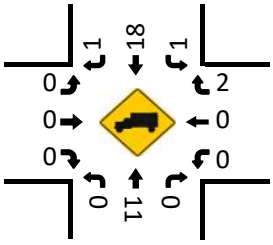
2-Way Stop (EB/WB)

TEV	1619	0	2032
	AM	NOON	PM
PHF	0.93		0.97

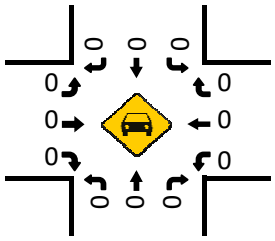
Cars (AM)



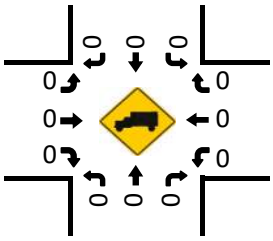
Total Trucks (AM)



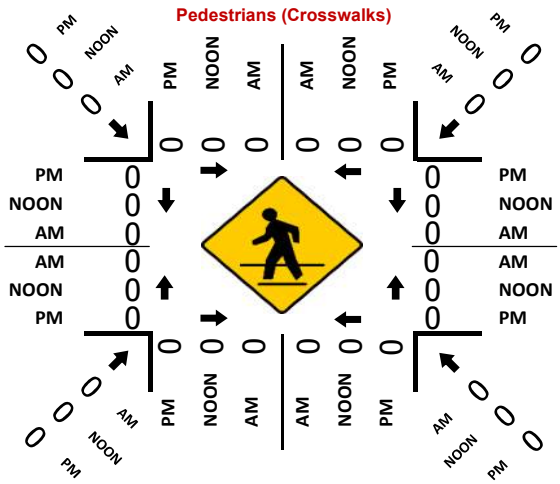
Cars (NOON)



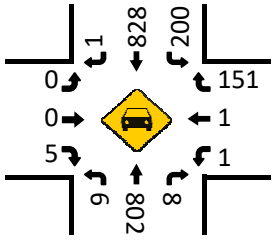
Total Trucks (NOON)



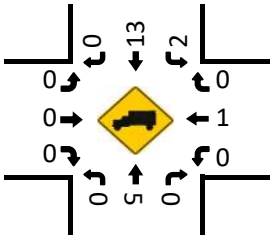
Pedestrians (Crosswalks)



Cars (PM)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Baseline Rd
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-007
Date: 3/7/2023

Data - Total

NS/EW Streets:	Ayala Dr				Ayala Dr				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	24	109	11	0	5	106	10	6	26	37	25	0	20	58	8	1	446
7:15 AM	27	128	11	0	5	140	11	5	16	45	26	0	11	72	6	1	504
7:30 AM	49	132	13	0	14	142	18	1	25	52	31	3	6	98	8	0	592
7:45 AM	38	160	19	0	11	137	15	2	37	76	34	3	24	70	4	0	630
8:00 AM	40	157	20	0	12	112	11	2	30	72	23	1	14	77	18	0	589
8:15 AM	48	119	19	0	9	107	7	0	26	39	30	3	14	58	15	1	495
8:30 AM	29	102	10	0	3	115	9	1	17	56	31	3	23	51	8	1	459
8:45 AM	22	98	14	0	13	99	11	1	23	38	29	1	19	45	5	1	419
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	277	1005	117	0	72	958	92	18	200	415	229	14	131	529	72	5	4134
APPROACH %'s :	19.80%	71.84%	8.36%	0.00%	6.32%	84.04%	8.07%	1.58%	23.31%	48.37%	26.69%	1.63%	17.77%	71.78%	9.77%	0.68%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	154	577	63	0	42	531	55	10	108	245	114	7	55	317	36	1	2315
PEAK HR FACTOR :	0.786	0.902	0.788	0.000	0.750	0.935	0.764	0.500	0.730	0.806	0.838	0.583	0.573	0.809	0.500	0.250	0.919
	0.915				0.911				0.790				0.913				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	33	138	22	0	36	142	18	2	28	119	39	6	13	90	10	1	697
4:15 PM	20	133	27	0	26	158	14	3	22	98	31	1	20	103	12	0	668
4:30 PM	20	179	28	0	28	149	11	3	35	105	50	2	17	61	10	0	698
4:45 PM	33	137	22	0	33	189	15	0	36	93	34	3	26	86	17	1	725
5:00 PM	37	168	22	0	37	169	21	8	27	138	47	2	19	88	12	3	798
5:15 PM	23	160	23	0	26	161	16	3	26	105	44	4	22	104	10	0	727
5:30 PM	28	163	18	0	28	147	16	0	33	75	28	2	23	83	16	0	660
5:45 PM	40	153	17	0	37	169	18	9	22	74	28	5	20	103	10	1	706
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	234	1231	179	0	251	1284	129	28	229	807	301	25	160	718	97	6	5679
APPROACH %'s :	14.23%	74.88%	10.89%	0.00%	14.83%	75.89%	7.62%	1.65%	16.81%	59.25%	22.10%	1.84%	16.31%	73.19%	9.89%	0.61%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	113	644	95	0	124	668	63	14	124	441	175	11	84	339	49	4	2948
PEAK HR FACTOR :	0.764	0.899	0.848	0.000	0.838	0.884	0.750	0.438	0.861	0.799	0.875	0.688	0.808	0.815	0.721	0.333	0.924
	0.938				0.917				0.877				0.875				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Baseline Rd
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-007
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Ayala Dr				Ayala Dr				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	0 NR	0 NU	2 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	TOTAL
7:00 AM	20	106	10	0	4	105	9	5	26	34	20	0	19	54	8	1	421
7:15 AM	23	124	6	0	5	136	11	5	16	42	19	0	10	71	6	1	475
7:30 AM	40	130	13	0	14	138	17	1	25	47	25	3	6	97	7	0	563
7:45 AM	31	160	19	0	10	134	15	2	37	72	27	3	22	67	4	0	603
8:00 AM	33	155	18	0	11	109	11	2	30	67	20	1	12	75	16	0	560
8:15 AM	36	115	18	0	8	98	7	0	26	36	24	3	14	58	15	1	459
8:30 AM	25	97	10	0	3	112	9	1	16	55	25	3	23	49	8	1	437
8:45 AM	12	97	14	0	13	97	10	1	23	37	23	1	18	44	5	1	396
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	220	984	108	0	68	929	89	17	199	390	183	14	124	515	69	5	3914
APPROACH %'s :	16.77%	75.00%	8.23%	0.00%	6.17%	84.22%	8.07%	1.54%	25.32%	49.62%	23.28%	1.78%	17.39%	72.23%	9.68%	0.70%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	127	569	56	0	40	517	54	10	108	228	91	7	50	310	33	1	2201
PEAK HR FACTOR :	0.794	0.889	0.737	0.000	0.714	0.937	0.794	0.500	0.730	0.792	0.843	0.583	0.568	0.799	0.516	0.250	0.913
	0.895				0.913				0.781				0.895				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	0 NR	0 NU	2 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	TOTAL
4:00 PM	31	135	22	0	36	139	18	2	28	113	32	6	13	89	10	1	675
4:15 PM	19	133	27	0	26	155	14	3	22	97	26	1	20	102	12	0	657
4:30 PM	17	177	28	0	27	145	11	3	35	104	42	2	16	60	10	0	677
4:45 PM	27	136	22	0	33	185	15	0	36	92	34	3	26	83	17	1	710
5:00 PM	33	167	22	0	37	166	21	8	27	137	40	2	19	86	12	3	780
5:15 PM	20	158	22	0	26	159	16	3	26	102	37	4	22	101	10	0	706
5:30 PM	26	161	18	0	28	147	16	0	32	75	23	2	23	83	16	0	650
5:45 PM	37	152	17	0	36	168	18	9	22	74	25	5	20	102	10	1	696
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	210	1219	178	0	249	1264	129	28	228	794	259	25	159	706	97	6	5551
APPROACH %'s :	13.07%	75.86%	11.08%	0.00%	14.91%	75.69%	7.72%	1.68%	17.46%	60.80%	19.83%	1.91%	16.43%	72.93%	10.02%	0.62%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	97	638	94	0	123	655	63	14	124	435	153	11	83	330	49	4	2873
PEAK HR FACTOR :	0.735	0.901	0.839	0.000	0.831	0.885	0.750	0.438	0.861	0.794	0.911	0.688	0.798	0.817	0.721	0.333	0.921
	0.934				0.917				0.877				0.876				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Baseline Rd
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-007
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	2	0	0	0	1	0	1	0	2	0	0	0	3	0	0	11
7:15 AM	0	2	5	0	0	3	0	0	0	2	0	0	1	1	0	0	14
7:30 AM	2	2	0	0	0	2	1	0	0	3	2	0	0	1	0	0	13
7:45 AM	2	0	0	0	1	2	0	0	0	2	1	0	1	1	0	0	10
8:00 AM	2	2	1	0	1	2	0	0	0	2	0	0	2	2	2	0	16
8:15 AM	2	1	1	0	1	7	0	0	0	3	1	0	0	0	0	0	16
8:30 AM	1	4	0	0	0	3	0	0	1	1	1	0	0	1	0	0	12
8:45 AM	2	1	0	0	0	1	0	0	0	0	1	0	1	1	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	14	7	0	3	21	1	1	1	15	6	0	5	10	2	0	99
APPROACH %'s :	38.24%	41.18%	20.59%	0.00%	11.54%	80.77%	3.85%	3.85%	4.55%	68.18%	27.27%	0.00%	29.41%	58.82%	11.76%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	6	6	6	0	2	9	1	0	0	9	3	0	4	5	2	0	53
PEAK HR FACTOR :	0.750	0.750	0.300	0.000	0.500	0.750	0.250	0.000	0.000	0.750	0.375	0.000	0.500	0.625	0.250	0.000	0.828
	0.643				1.000				0.600				0.458				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	1	0	0	0	2	0	0	0	5	3	0	0	1	0	0	14
4:15 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0	4
4:30 PM	0	2	0	0	1	3	0	0	0	1	2	0	1	0	0	0	10
4:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	1	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	6
5:15 PM	0	2	1	0	0	2	0	0	0	2	1	0	0	3	0	0	11
5:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	9	1	0	2	14	0	0	0	9	6	0	1	7	0	0	52
APPROACH %'s :	23.08%	69.23%	7.69%	0.00%	12.50%	87.50%	0.00%	0.00%	0.00%	60.00%	40.00%	0.00%	12.50%	87.50%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	1	6	1	0	1	9	0	0	0	3	3	0	1	4	0	0	29
PEAK HR FACTOR :	0.250	0.750	0.250	0.000	0.250	0.750	0.000	0.000	0.000	0.375	0.375	0.000	0.250	0.333	0.000	0.000	0.659
	0.667				0.625				0.500				0.417				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Baseline Rd
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-007
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
7:45 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	4
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
8:45 AM	3	0	0	0	0	0	1	0	0	1	3	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	2	1	0	1	2	1	0	0	3	6	0	0	2	0	0	24
APPROACH %'s :	66.67%	22.22%	11.11%	0.00%	25.00%	50.00%	25.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	2	0	0	0	0	0	0	0	0	2	2	0	0	2	0	0	8
PEAK HR FACTOR :	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.250	0.000	0.000	0.500
	0.500				0.000				0.500				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	3
4:45 PM	2	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	5
5:00 PM	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	4
5:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	1	0	0	0	5	0	0	0	3	11	0	0	1	0	0	24
APPROACH %'s :	75.00%	25.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	21.43%	78.57%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	0	0	0	0	3	0	0	0	2	9	0	0	1	0	0	17
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.500	0.563	0.000	0.000	0.250	0.000	0.000	0.850
	0.250				0.375				0.550				0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Baseline Rd
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-007
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Ayala Dr				Ayala Dr				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	0 NR	0 NU	2 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	TOTAL
7:00 AM	2	1	0	0	0	0	1	0	0	1	5	0	1	1	0	0	12
7:15 AM	4	2	0	0	0	1	0	0	0	1	6	0	0	0	0	0	14
7:30 AM	7	0	0	0	0	2	0	0	0	1	3	0	0	0	1	0	14
7:45 AM	4	0	0	0	0	1	0	0	0	1	6	0	1	0	0	0	13
8:00 AM	4	0	1	0	0	1	0	0	0	3	3	0	0	0	0	0	12
8:15 AM	9	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	15
8:30 AM	3	1	0	0	0	0	0	0	0	0	4	0	0	1	0	0	9
8:45 AM	5	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	38	5	1	0	0	6	1	0	0	7	34	0	2	2	1	0	97
APPROACH %'s :	86.36%	11.36%	2.27%	0.00%	0.00%	85.71%	14.29%	0.00%	0.00%	17.07%	82.93%	0.00%	40.00%	40.00%	20.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	19	2	1	0	0	5	0	0	0	6	18	0	1	0	1	0	53
PEAK HR FACTOR :	0.679	0.250	0.250	0.000	0.000	0.625	0.000	0.000	0.000	0.500	0.750	0.000	0.250	0.000	0.250	0.000	0.946
	0.786				0.625				0.857				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2 NL	2 NT	0 NR	0 NU	2 SL	2 ST	0 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	0 WR	0 WU	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5
4:15 PM	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	5
4:30 PM	3	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	8
4:45 PM	4	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0	8
5:00 PM	3	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	7
5:15 PM	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	6
5:30 PM	1	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	7
5:45 PM	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	18	2	0	0	0	1	0	0	1	1	25	0	0	4	0	0	52
APPROACH %'s :	90.00%	10.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	3.70%	3.70%	92.59%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	13	0	0	0	0	1	0	0	0	1	10	0	0	4	0	0	29
PEAK HR FACTOR :	0.813	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.625	0.000	0.000	0.500	0.000	0.000	0.906
	0.813				0.250				0.688				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Ayala Dr & Baseline Rd
City: Rialto
Control: 2-Way Stop (EB/WB)

Project ID: 23-030023-007
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Ayala Dr				Ayala Dr				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	3	1	0	1	1	1	1	0	3	5	0	1	4	0	0	25
7:15 AM	4	4	5	0	0	4	0	0	0	3	7	0	1	1	0	0	29
7:30 AM	9	2	0	0	0	4	1	0	0	5	6	0	0	1	1	0	29
7:45 AM	7	0	0	0	1	3	0	0	0	4	7	0	2	3	0	0	27
8:00 AM	7	2	2	0	1	3	0	0	0	5	3	0	2	2	2	0	29
8:15 AM	12	4	1	0	1	9	0	0	0	3	6	0	0	0	0	0	36
8:30 AM	4	5	0	0	0	3	0	0	1	1	6	0	0	2	0	0	22
8:45 AM	10	1	0	0	0	2	1	0	0	1	6	0	1	1	0	0	23
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	57	21	9	0	4	29	3	1	1	25	46	0	7	14	3	0	220
APPROACH %'s :	65.52%	24.14%	10.34%	0.00%	10.81%	78.38%	8.11%	2.70%	1.39%	34.72%	63.89%	0.00%	29.17%	58.33%	12.50%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	27	8	7	0	2	14	1	0	0	17	23	0	5	7	3	0	114
PEAK HR FACTOR :	0.750	0.500	0.350	0.000	0.500	0.875	0.250	0.000	0.000	0.850	0.821	0.000	0.625	0.583	0.375	0.000	0.983
	0.808				0.850				0.909				0.625				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	2	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	3	0	0	0	3	0	0	0	6	7	0	0	1	0	0	22
4:15 PM	1	0	0	0	0	3	0	0	0	1	5	0	0	1	0	0	11
4:30 PM	3	2	0	0	1	4	0	0	0	1	8	0	1	1	0	0	21
4:45 PM	6	1	0	0	0	4	0	0	0	1	0	0	0	3	0	0	15
5:00 PM	4	1	0	0	0	3	0	0	0	1	7	0	0	2	0	0	18
5:15 PM	3	2	1	0	0	2	0	0	0	3	7	0	0	3	0	0	21
5:30 PM	2	2	0	0	0	0	0	0	1	0	5	0	0	0	0	0	10
5:45 PM	3	1	0	0	1	1	0	0	0	0	3	0	0	1	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	24	12	1	0	2	20	0	0	1	13	42	0	1	12	0	0	128
APPROACH %'s :	64.86%	32.43%	2.70%	0.00%	9.09%	90.91%	0.00%	0.00%	1.79%	23.21%	75.00%	0.00%	7.69%	92.31%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	16	6	1	0	1	13	0	0	0	6	22	0	1	9	0	0	75
PEAK HR FACTOR :	0.667	0.750	0.250	0.000	0.250	0.813	0.000	0.000	0.000	0.500	0.688	0.000	0.250	0.750	0.000	0.000	0.893
	0.821				0.700				0.700				0.833				

Prepared by National Data & Surveying Services

Ayala Dr & Baseline Rd

Peak Hour Turning Movement Count

ID: 23-030023-007
City: Rialto

Day: Tuesday
Date: 3/7/2023

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

CONTROL: 2-Way Stop (EB/WB)

	AM	NOON	PM	AM
TEV	2315	0	2948	
PHF	0.92		0.92	

SOUTHBOUND (Ayala Dr)

AM	55	531	42	10	731
NOON	0	0	0	0	0
PM	63	668	124	14	831
	0	2	2	0	

EASTBOUND (Baseline Rd)

AM	NOON	PM	
533	0	526	
7	0	11	0
108	0	124	1
245	0	441	2
114	0	175	0
AM	NOON	PM	

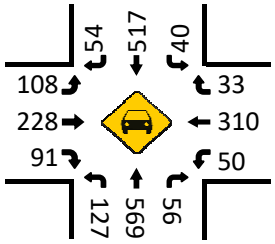
WESTBOUND (Baseline Rd)

PM	NOON	AM	
49	0	36	0
339	0	317	2
84	0	55	1
4	0	1	0
664	0	351	
PM	NOON	AM	

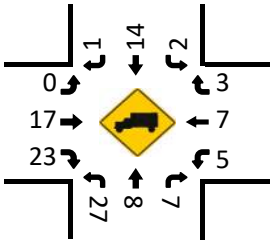
NORTHBOUND (Ayala Dr)

PM	927	0	113	644	95
NOON	0	0	0	0	0
AM	700	0	154	577	63
	0	2	2	0	

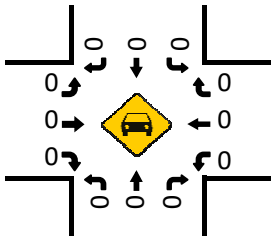
Cars (AM)



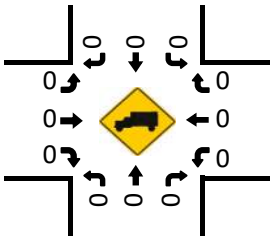
Total Trucks (AM)



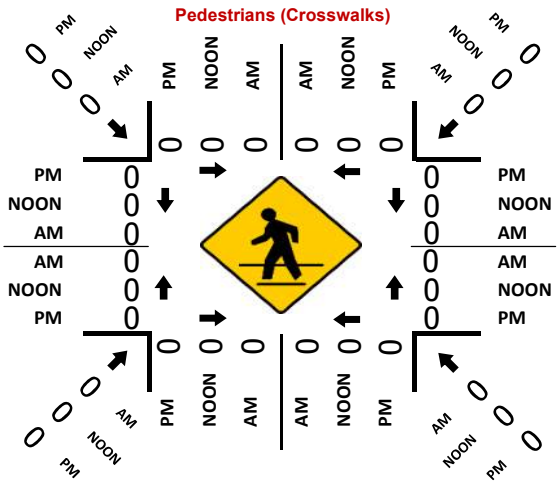
Cars (NOON)



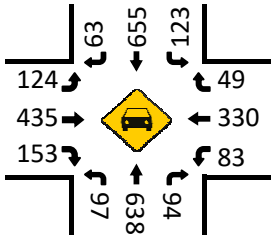
Total Trucks (NOON)



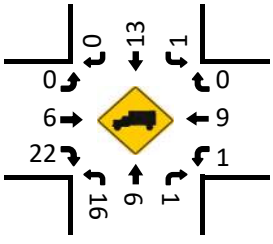
Pedestrians (Crosswalks)



Cars (PM)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Miro Way
City: Rialto
Control: Signalized

Project ID: 23-030023-008
Date: 3/7/2023

Data - Total

NS/EW Streets:	Linden Ave				Linden Ave				Miro Way				Miro Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	15	46	0	0	0	51	10	0	21	0	6	0	0	0	0	0	149
7:15 AM	4	35	0	0	0	39	8	0	6	0	2	0	0	0	0	0	94
7:30 AM	17	45	0	0	0	35	12	0	15	0	3	0	0	0	0	0	127
7:45 AM	4	47	0	0	0	46	19	0	7	0	3	0	0	0	0	0	126
8:00 AM	1	75	0	0	0	63	7	0	11	0	4	0	0	0	0	0	161
8:15 AM	1	93	0	0	0	56	9	0	8	0	6	0	0	0	0	0	173
8:30 AM	2	64	0	0	0	63	11	0	14	0	4	0	0	0	0	0	158
8:45 AM	3	42	0	0	0	42	10	0	4	0	4	0	0	0	0	0	105
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	47	447	0	0	0	395	86	0	86	0	32	0	0	0	0	0	1093
APPROACH %'s :	9.51%	90.49%	0.00%	0.00%	0.00%	82.12%	17.88%	0.00%	72.88%	0.00%	27.12%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	8	279	0	0	0	228	46	0	40	0	17	0	0	0	0	0	618
PEAK HR FACTOR :	0.500	0.750	0.000	0.000	0.000	0.905	0.605	0.000	0.714	0.000	0.708	0.000	0.000	0.000	0.000	0.000	0.893
	0.763				0.926				0.792								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	76	0	0	0	71	7	0	16	0	14	0	0	0	0	0	187
4:15 PM	3	102	0	0	0	66	3	0	18	0	4	0	0	0	0	0	196
4:30 PM	1	61	0	0	0	106	14	0	38	0	16	0	0	0	0	0	236
4:45 PM	7	84	0	0	0	72	6	0	16	0	3	0	0	0	0	0	188
5:00 PM	5	80	0	0	0	156	26	0	22	0	12	0	0	0	0	0	301
5:15 PM	7	99	0	0	0	73	10	0	12	0	9	0	0	0	0	0	210
5:30 PM	5	88	0	0	0	72	14	0	18	0	7	0	0	0	0	0	204
5:45 PM	5	127	0	1	0	70	18	0	17	0	4	0	0	0	0	0	242
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	36	717	0	1	0	686	98	0	157	0	69	0	0	0	0	0	1764
APPROACH %'s :	4.77%	95.09%	0.00%	0.13%	0.00%	87.50%	12.50%	0.00%	69.47%	0.00%	30.53%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	22	394	0	1	0	371	68	0	69	0	32	0	0	0	0	0	957
PEAK HR FACTOR :	0.786	0.776	0.000	0.250	0.000	0.595	0.654	0.000	0.784	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.795
	0.784				0.603				0.743								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Miro Way
City: Rialto
Control: Signalized

Project ID: 23-030023-008
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Linden Ave				Linden Ave				Miro Way				Miro Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	14	45	0	0	0	49	8	0	21	0	5	0	0	0	0	0	142
7:15 AM	3	33	0	0	0	36	8	0	6	0	1	0	0	0	0	0	87
7:30 AM	16	44	0	0	0	33	12	0	15	0	3	0	0	0	0	0	123
7:45 AM	4	47	0	0	0	44	18	0	7	0	3	0	0	0	0	0	123
8:00 AM	1	73	0	0	0	61	7	0	11	0	3	0	0	0	0	0	156
8:15 AM	1	84	0	0	0	54	8	0	8	0	5	0	0	0	0	0	160
8:30 AM	2	64	0	0	0	61	9	0	14	0	3	0	0	0	0	0	153
8:45 AM	3	37	0	0	0	42	9	0	3	0	4	0	0	0	0	0	98
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	44	427	0	0	0	380	79	0	85	0	27	0	0	0	0	0	1042
APPROACH %'s :	9.34%	90.66%	0.00%	0.00%	0.00%	82.79%	17.21%	0.00%	75.89%	0.00%	24.11%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	8	268	0	0	0	220	42	0	40	0	14	0	0	0	0	0	592
PEAK HR FACTOR :	0.500	0.798	0.000	0.000	0.000	0.902	0.583	0.000	0.714	0.000	0.700	0.000	0.000	0.000	0.000	0.000	0.925
	0.812				0.936				0.794								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	74	0	0	0	68	6	0	16	0	14	0	0	0	0	0	181
4:15 PM	3	102	0	0	0	64	3	0	18	0	4	0	0	0	0	0	194
4:30 PM	1	61	0	0	0	104	14	0	37	0	16	0	0	0	0	0	233
4:45 PM	7	83	0	0	0	72	6	0	16	0	3	0	0	0	0	0	187
5:00 PM	5	78	0	0	0	155	26	0	22	0	11	0	0	0	0	0	297
5:15 PM	7	99	0	0	0	70	10	0	11	0	9	0	0	0	0	0	206
5:30 PM	4	87	0	0	0	71	13	0	18	0	7	0	0	0	0	0	200
5:45 PM	5	125	0	1	0	70	17	0	17	0	3	0	0	0	0	0	238
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	709	0	1	0	674	95	0	155	0	67	0	0	0	0	0	1736
APPROACH %'s :	4.70%	95.17%	0.00%	0.13%	0.00%	87.65%	12.35%	0.00%	69.82%	0.00%	30.18%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	21	389	0	1	0	366	66	0	68	0	30	0	0	0	0	0	941
PEAK HR FACTOR :	0.750	0.778	0.000	0.250	0.000	0.590	0.635	0.000	0.773	0.000	0.682	0.000	0.000	0.000	0.000	0.000	0.792
	0.784				0.597				0.742								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Miro Way
City: Rialto
Control: Signalized

Project ID: 23-030023-008
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Linden Ave				Linden Ave				Miro Way				Miro Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
7:15 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	2	0	0	0	2	0	0	0	0	1	0	0	0	0	0	5
8:15 AM	0	8	0	0	0	2	0	0	0	0	0	0	0	0	0	0	10
8:30 AM	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	3
8:45 AM	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	15	0	0	0	13	2	0	0	0	2	0	0	0	0	0	34
APPROACH %'s :	11.76%	88.24%	0.00%	0.00%	0.00%	86.67%	13.33%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	10	0	0	0	7	1	0	0	0	2	0	0	0	0	0	20
PEAK HR FACTOR :	0.000	0.313	0.000	0.000	0.000	0.875	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500
	0.313				1.000				0.500								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
5:30 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	3	0	0	0	5	1	0	2	0	0	0	0	0	0	0	12
APPROACH %'s :	25.00%	75.00%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	100.00%	0.00%	0.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	5
PEAK HR FACTOR :	0.250	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625
	0.500				0.500				0.250								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Miro Way
City: Rialto
Control: Signalized

Project ID: 23-030023-008
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Linden Ave				Linden Ave				Miro Way				Miro Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%									
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.250				0.500												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	5	0	0	0	0	1	0	0	0	0	0	7
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	3	0	0	0	0	1	0	0	0	0	0	5
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.417
	0.250				0.375				0.250								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Miro Way
City: Rialto
Control: Signalized

Project ID: 23-030023-008
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Linden Ave				Linden Ave				Miro Way				Miro Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	3
7:15 AM	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	0	0	0	1	4	0	1	0	3	0	0	0	0	0	12
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	0.00%	20.00%	80.00%	0.00%	25.00%	0.00%	75.00%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.375
					0.500				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	0	0	0	2	2	0	0	0	1	0	0	0	0	0	9
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	0	1	1	0	0	0	1	0	0	0	0	0	6
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500
		0.750				0.500				0.250							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Miro Way
City: Rialto
Control: Signalized

Project ID: 23-030023-008
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Linden Ave				Linden Ave				Miro Way				Miro Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	1	0	0	0	2	2	0	0	0	1	0	0	0	0	0	7
7:15 AM	1	2	0	0	0	3	0	0	0	0	1	0	0	0	0	0	7
7:30 AM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
7:45 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	2	0	0	0	2	0	0	0	0	1	0	0	0	0	0	5
8:15 AM	0	9	0	0	0	2	1	0	0	0	1	0	0	0	0	0	13
8:30 AM	0	0	0	0	0	2	2	0	0	0	1	0	0	0	0	0	5
8:45 AM	0	5	0	0	0	0	1	0	1	0	0	0	0	0	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	20	0	0	0	15	7	0	1	0	5	0	0	0	0	0	51
APPROACH %'s :	13.04%	86.96%	0.00%	0.00%	0.00%	68.18%	31.82%	0.00%	16.67%	0.00%	83.33%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	11	0	0	0	8	4	0	0	0	3	0	0	0	0	0	26
PEAK HR FACTOR :	0.000	0.306	0.000	0.000	0.000	1.000	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.500
	0.306				0.750				0.750								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	3	1	0	0	0	0	0	0	0	0	0	6
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4
5:15 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	4
5:30 PM	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	8	0	0	0	12	3	0	2	0	2	0	0	0	0	0	28
APPROACH %'s :	11.11%	88.89%	0.00%	0.00%	0.00%	80.00%	20.00%	0.00%	50.00%	0.00%	50.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	5	0	0	0	5	2	0	1	0	2	0	0	0	0	0	16
PEAK HR FACTOR :	0.250	0.625	0.000	0.000	0.000	0.417	0.500	0.000	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	1.000
	0.750				0.583				0.750								

Prepared by National Data & Surveying Services

Linden Ave & Miro Way

Peak Hour Turning Movement Count

ID: 23-030023-008
City: Rialto

Day: Tuesday
Date: 3/7/2023

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 (Linden Ave)

AM	46	228	0	0	319	AM
NOON	0	0	0	0	0	NOON
PM	68	371	0	0	463	PM
	0	2	0	0		

EASTBOUND (Miro Way)

AM	NOON	PM	
54	0	90	
0	0	0	0
40	0	69	1
0	0	0	0
17	0	32	1
AM	NOON	PM	

WESTBOUND (Miro Way)

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	
PM	NOON	AM	

NORTHBOUND (Linden Ave)

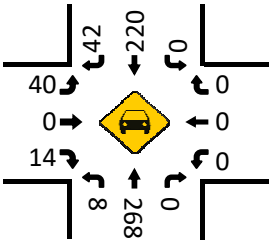
PM	404	1	22	394	0	PM
NOON	0	0	0	0	0	NOON
AM	245	0	8	279	0	AM
		0	1	2	0	

CONTROL

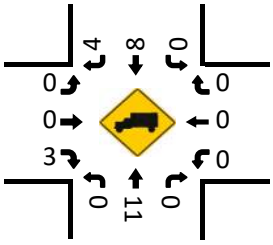
Signalized

TEV	618 AM	0 NOON	957 PM
PHF	0.89		0.79

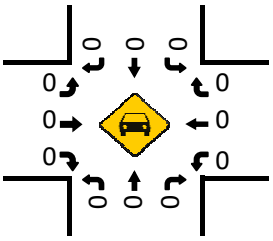
Cars (AM)



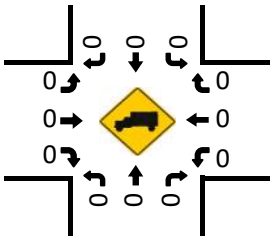
Total Trucks (AM)



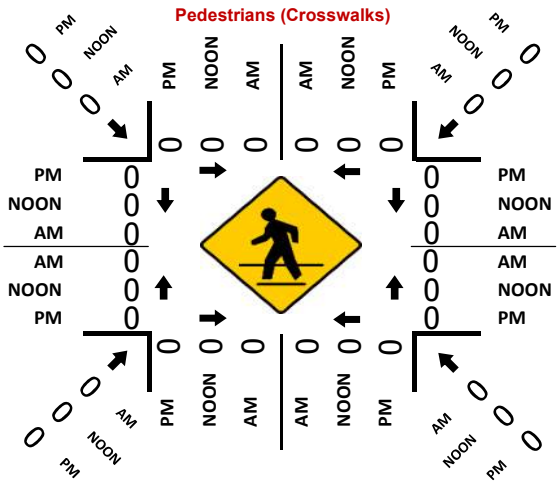
Cars (NOON)



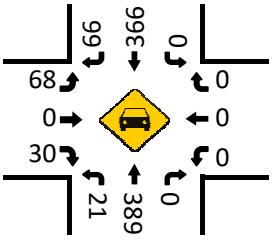
Total Trucks (NOON)



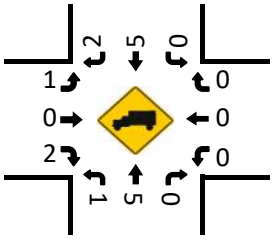
Pedestrians (Crosswalks)



Cars (PM)



Total Trucks (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-009
Date: 3/7/2023

Data - Total

NS/EW Streets:	Linden Ave				Linden Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	22	11	0	28	16	14	0	9	49	3	0	1	53	32	0	243
7:15 AM	15	12	10	0	16	17	8	0	6	61	4	0	8	99	22	0	278
7:30 AM	11	26	15	0	13	15	9	0	7	83	6	0	2	126	26	0	339
7:45 AM	15	26	16	0	16	14	15	0	7	107	11	0	5	107	18	0	357
8:00 AM	5	40	18	0	23	30	7	0	7	87	5	0	6	80	31	0	339
8:15 AM	9	39	11	0	19	32	15	0	5	73	9	0	7	72	46	0	337
8:30 AM	7	43	12	0	25	33	12	0	8	63	9	0	4	45	23	0	284
8:45 AM	1	19	12	0	18	24	8	0	7	62	4	0	3	68	18	0	244
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	68	227	105	0	158	181	88	0	56	585	51	0	36	650	216	0	2421
APPROACH %'s :	17.00%	56.75%	26.25%	0.00%	37.00%	42.39%	20.61%	0.00%	8.09%	84.54%	7.37%	0.00%	3.99%	72.06%	23.95%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	40	131	60	0	71	91	46	0	26	350	31	0	20	385	121	0	1372
PEAK HR FACTOR :	0.667	0.819	0.833	0.000	0.772	0.711	0.767	0.000	0.929	0.818	0.705	0.000	0.714	0.764	0.658	0.000	0.961
	0.917				0.788				0.814				0.854				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	31	16	0	32	30	24	0	15	143	9	0	13	92	33	0	441
4:15 PM	3	51	12	0	21	30	23	0	20	115	7	1	14	91	32	0	420
4:30 PM	5	27	8	0	49	39	31	0	17	131	2	0	9	66	16	0	400
4:45 PM	5	52	10	0	27	31	18	0	12	128	7	0	3	78	30	0	401
5:00 PM	3	32	8	0	63	47	45	0	14	131	10	0	7	92	37	0	489
5:15 PM	5	46	10	0	35	44	16	0	18	121	5	0	10	73	40	0	423
5:30 PM	7	29	10	0	23	38	21	0	24	102	7	0	9	93	39	0	402
5:45 PM	3	60	17	0	24	40	13	0	25	88	4	0	13	87	49	0	423
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	34	328	91	0	274	299	191	0	145	959	51	1	78	672	276	0	3399
APPROACH %'s :	7.51%	72.41%	20.09%	0.00%	35.86%	39.14%	25.00%	0.00%	12.54%	82.96%	4.41%	0.09%	7.60%	65.50%	26.90%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	18	167	45	0	145	169	95	0	81	442	26	0	39	345	165	0	1737
PEAK HR FACTOR :	0.643	0.696	0.662	0.000	0.575	0.899	0.528	0.000	0.810	0.844	0.650	0.000	0.750	0.927	0.842	0.000	0.888
	0.719				0.660				0.885				0.921				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-009
Date: 3/7/2023

Data - Cars

NS/EW Streets:	Linden Ave				Linden Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	22	10	0	27	14	14	0	9	43	3	0	1	46	29	0	223
7:15 AM	15	12	10	0	13	17	7	0	6	53	4	0	8	96	20	0	261
7:30 AM	11	26	14	0	12	14	9	0	7	74	6	0	2	116	24	0	315
7:45 AM	13	26	16	0	15	14	14	0	7	98	11	0	5	99	17	0	335
8:00 AM	5	39	18	0	23	29	7	0	7	79	5	0	6	73	30	0	321
8:15 AM	9	34	11	0	18	31	14	0	5	64	9	0	7	64	42	0	308
8:30 AM	7	43	12	0	22	32	12	0	8	57	9	0	4	37	23	0	266
8:45 AM	1	18	12	0	18	24	8	0	6	55	4	0	3	62	15	0	226
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	66	220	103	0	148	175	85	0	55	523	51	0	36	593	200	0	2255
APPROACH %'s :	16.97%	56.56%	26.48%	0.00%	36.27%	42.89%	20.83%	0.00%	8.74%	83.15%	8.11%	0.00%	4.34%	71.53%	24.13%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	38	125	59	0	68	88	44	0	26	315	31	0	20	352	113	0	1279
PEAK HR FACTOR :	0.731	0.801	0.819	0.000	0.739	0.710	0.786	0.000	0.929	0.804	0.705	0.000	0.714	0.759	0.673	0.000	0.954
	0.895				0.794				0.802				0.854				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	30	16	0	28	30	24	0	14	133	9	0	13	89	33	0	421
4:15 PM	3	51	12	0	20	29	23	0	20	108	7	1	13	88	32	0	407
4:30 PM	5	27	8	0	48	39	30	0	17	125	2	0	9	62	16	0	388
4:45 PM	5	51	10	0	27	31	18	0	12	127	7	0	3	71	29	0	391
5:00 PM	3	32	8	0	61	47	45	0	14	124	10	0	7	87	36	0	474
5:15 PM	5	46	10	0	33	43	16	0	18	112	5	0	10	70	40	0	408
5:30 PM	7	28	10	0	22	38	21	0	24	98	7	0	9	92	38	0	394
5:45 PM	3	59	17	0	23	40	13	0	24	86	3	0	13	83	49	0	413
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	33	324	91	0	262	297	190	0	143	913	50	1	77	642	273	0	3296
APPROACH %'s :	7.37%	72.32%	20.31%	0.00%	34.98%	39.65%	25.37%	0.00%	12.92%	82.48%	4.52%	0.09%	7.76%	64.72%	27.52%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	18	165	45	0	139	168	95	0	80	420	25	0	39	332	163	0	1689
PEAK HR FACTOR :	0.643	0.699	0.662	0.000	0.570	0.894	0.528	0.000	0.833	0.847	0.625	0.000	0.750	0.902	0.832	0.000	0.891
	0.722				0.657				0.887				0.921				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-009
Date: 3/7/2023

Data - 2axle

NS/EW Streets:	Linden Ave				Linden Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	2	0	0	0	1	0	0	0	4	2	0	10
7:15 AM	0	0	0	0	1	0	1	0	0	2	0	0	0	0	1	0	5
7:30 AM	0	0	0	0	1	1	0	0	0	3	0	0	0	3	2	0	10
7:45 AM	2	0	0	0	1	0	1	0	0	2	0	0	0	2	1	0	9
8:00 AM	0	1	0	0	0	1	0	0	0	2	0	0	0	2	1	0	7
8:15 AM	0	5	0	0	0	1	1	0	0	4	0	0	0	1	3	0	15
8:30 AM	0	0	0	0	2	1	0	0	0	1	0	0	0	2	0	0	6
8:45 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	2	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	7	1	0	5	6	3	0	0	18	0	0	0	14	12	0	68
APPROACH %'s :	20.00%	70.00%	10.00%	0.00%	35.71%	42.86%	21.43%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	53.85%	46.15%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	6	0	0	2	3	2	0	0	11	0	0	0	8	7	0	41
PEAK HR FACTOR :	0.250	0.300	0.000	0.000	0.500	0.750	0.500	0.000	0.000	0.688	0.000	0.000	0.000	0.667	0.583	0.000	0.683
	0.400				0.875				0.688				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	0	0	4	0	0	0	0	5	0	0	0	2	0	0	13
4:15 PM	0	0	0	0	0	1	0	0	0	2	0	0	1	2	0	0	6
4:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:15 PM	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	4
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	0	0	4	2	0	0	0	13	0	0	1	6	0	0	31
APPROACH %'s :	20.00%	80.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	14.29%	85.71%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	1	0	0	0	4	0	0	0	2	0	0	9
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.333	0.000	0.000	0.000	0.500	0.000	0.000	0.563
	0.500				0.250				0.333				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-009
Date: 3/7/2023

Data - 3axle

NS/EW Streets:	Linden Ave				Linden Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	1	3	0	0	0	1	1	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	1	0	0	0	1	7	0	0	0	4	2	0	16
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	12.50%	87.50%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	2	0	0	0	3	1	0	7
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.375	0.250	0.000	0.583
	0.250				0.500				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
5:00 PM	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	5
5:15 PM	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	6	0	0	0	0	8	1	0	0	4	1	0	20
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%	0.00%	88.89%	11.11%	0.00%	0.00%	80.00%	20.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	4	0	0	0	0	5	1	0	0	1	0	0	11
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.417	0.250	0.000	0.000	0.250	0.000	0.000	0.550
					0.500				0.500				0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-009
Date: 3/7/2023

Data - 4axle

NS/EW Streets:	Linden Ave				Linden Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	1	0	0	0	0	5	0	0	0	3	1	0	10
7:15 AM	0	0	0	0	2	0	0	0	0	5	0	0	0	3	1	0	11
7:30 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	7	0	0	12
7:45 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	0	10
8:00 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	0	10
8:15 AM	0	0	0	0	1	0	0	0	0	5	0	0	0	7	0	0	13
8:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0	10
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	4	0	0	0	0	37	0	0	0	39	2	0	82
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	95.12%	4.88%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	22	0	0	0	22	0	0	45
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.917	0.000	0.000	0.000	0.786	0.000	0.000	0.865
					0.250				0.917				0.786				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	0	6
4:30 PM	0	0	0	0	0	0	1	0	0	3	0	0	0	4	0	0	8
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	6
5:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	1	0	8
5:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0	7
5:30 PM	0	0	0	0	1	0	0	0	0	4	0	0	0	0	1	0	6
5:45 PM	0	0	0	0	1	0	0	0	1	2	0	0	0	3	0	0	7
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	2	0	1	0	2	25	0	0	0	20	2	0	52
APPROACH %'s :					66.67%	0.00%	33.33%	0.00%	7.41%	92.59%	0.00%	0.00%	0.00%	90.91%	9.09%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	0	0	0	1	13	0	0	0	10	2	0	28
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.813	0.000	0.000	0.000	0.625	0.500	0.000	0.875
					0.500				0.875				0.600				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Linden Ave & Baseline Rd
City: Rialto
Control: Signalized

Project ID: 23-030023-009
Date: 3/7/2023

Data - Total Trucks

NS/EW Streets:	Linden Ave				Linden Ave				Baseline Rd				Baseline Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	1	2	0	0	0	6	0	0	0	7	3	0	20
7:15 AM	0	0	0	0	3	0	1	0	0	8	0	0	0	3	2	0	17
7:30 AM	0	0	1	0	1	1	0	0	0	9	0	0	0	10	2	0	24
7:45 AM	2	0	0	0	1	0	1	0	0	9	0	0	0	8	1	0	22
8:00 AM	0	1	0	0	0	1	0	0	0	8	0	0	0	7	1	0	18
8:15 AM	0	5	0	0	1	1	1	0	0	9	0	0	0	8	4	0	29
8:30 AM	0	0	0	0	3	1	0	0	0	6	0	0	0	8	0	0	18
8:45 AM	0	1	0	0	0	0	0	0	1	7	0	0	0	6	3	0	18
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	7	2	0	10	6	3	0	1	62	0	0	0	57	16	0	166
APPROACH %'s :	18.18%	63.64%	18.18%	0.00%	52.63%	31.58%	15.79%	0.00%	1.59%	98.41%	0.00%	0.00%	0.00%	78.08%	21.92%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	2	6	1	0	3	3	2	0	0	35	0	0	0	33	8	0	93
PEAK HR FACTOR :	0.250	0.300	0.250	0.000	0.750	0.750	0.500	0.000	0.000	0.972	0.000	0.000	0.000	0.825	0.500	0.000	0.802
	0.450				0.667				0.972				0.854				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	0.5	1	0	0.5	1.5	1	0	1	1.5	0.5	0	1	1.5	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	0	0	4	0	0	0	1	10	0	0	0	3	0	0	20
4:15 PM	0	0	0	0	1	1	0	0	0	7	0	0	1	3	0	0	13
4:30 PM	0	0	0	0	1	0	1	0	0	6	0	0	0	4	0	0	12
4:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	7	1	0	10
5:00 PM	0	0	0	0	2	0	0	0	0	7	0	0	0	5	1	0	15
5:15 PM	0	0	0	0	2	1	0	0	0	9	0	0	0	3	0	0	15
5:30 PM	0	1	0	0	1	0	0	0	0	4	0	0	0	1	1	0	8
5:45 PM	0	1	0	0	1	0	0	0	1	2	1	0	0	4	0	0	10
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	0	0	12	2	1	0	2	46	1	0	1	30	3	0	103
APPROACH %'s :	20.00%	80.00%	0.00%	0.00%	80.00%	13.33%	6.67%	0.00%	4.08%	93.88%	2.04%	0.00%	2.94%	88.24%	8.82%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	2	0	0	6	1	0	0	1	22	1	0	0	13	2	0	48
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.750	0.250	0.000	0.000	0.250	0.611	0.250	0.000	0.000	0.650	0.500	0.000	0.800
	0.500				0.583				0.667				0.625				

Prepared by National Data & Surveying Services

Linden Ave & Baseline Rd

Peak Hour Turning Movement Count

ID: 23-030023-009
City: Rialto

Day: Tuesday
Date: 3/7/2023

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Linden Ave)

AM	46	91	71	0	278	AM
NOON	0	0	0	0	0	NOON
PM	95	169	145	0	413	PM
	1	1.5	0.5	0		

EASTBOUND (Baseline Rd)

AM	NOON	PM	
471	0	458	
0	0	0	0
26	0	81	1
350	0	442	1.5
31	0	26	0.5

WESTBOUND (Baseline Rd)

PM	NOON	AM	
165	0	121	0.5
345	0	385	1.5
39	0	20	1
0	0	0	0
632	0	481	

NORTHBOUND (Linden Ave)

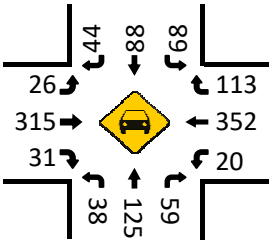
	0	0.5	0.5	1		
PM	234	0	18	167	45	PM
NOON	0	0	0	0	0	NOON
AM	142	0	40	131	60	AM

CONTROL

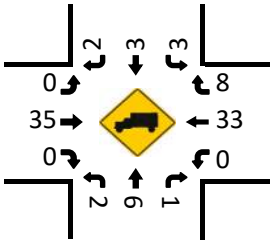
Signalized

TEV	1372 AM	0 NOON	1737 PM
PHF	0.96		0.89

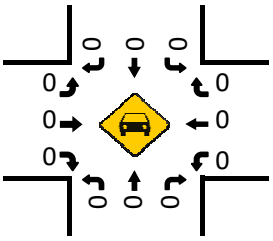
Cars (AM)



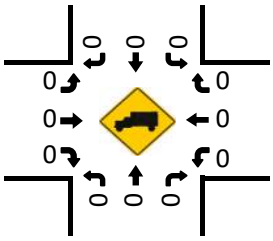
Total Trucks (AM)



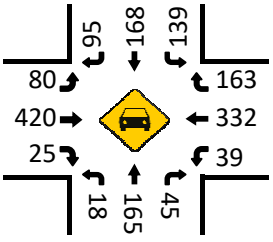
Cars (NOON)



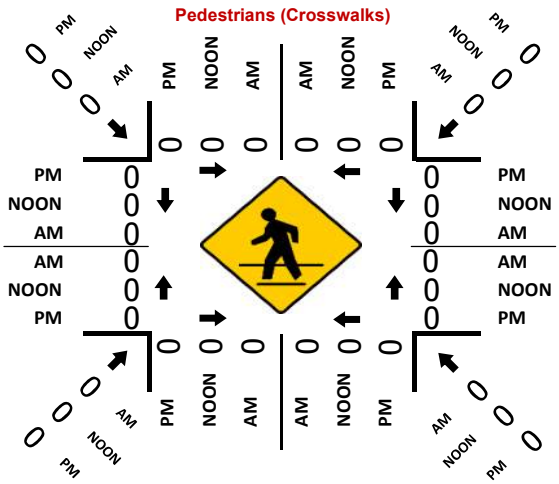
Total Trucks (NOON)



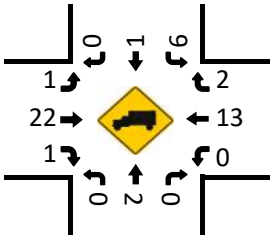
Cars (PM)



Pedestrians (Crosswalks)



Total Trucks (PM)



Prepared by NDS/ATD

VOLUME

Alder Ave Bet. I-21O WB Ramps & I-210 EB Ramps

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_001

DAILY TOTALS	NB	SB	EB	WB	Total
	9,292	6,728	0	0	16,020

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	17		15				32		12:00	143		77				220	
00:15	36		12				48		12:15	135		78				213	
00:30	30		18				48		12:30	163		94				257	
00:45	22	105	14	59			36	164	12:45	167	608	89	338			256	946
01:00	36		21				57		13:00	155		82				237	
01:15	33		14				47		13:15	121		63				184	
01:30	27		18				45		13:30	183		58				241	
01:45	31	127	26	79			57	206	13:45	141	600	80	283			221	883
02:00	23		13				36		14:00	146		98				244	
02:15	21		18				39		14:15	135		112				247	
02:30	24		33				57		14:30	155		135				290	
02:45	22	90	33	97			55	187	14:45	142	578	164	509			306	1087
03:00	22		30				52		15:00	129		149				278	
03:15	40		29				69		15:15	149		127				276	
03:30	54		33				87		15:30	140		127				267	
03:45	40	156	59	151			99	307	15:45	181	599	138	541			319	1140
04:00	51		27				78		16:00	137		126				263	
04:15	65		32				97		16:15	130		130				260	
04:30	72		49				121		16:30	174		145				319	
04:45	96	284	74	182			170	466	16:45	147	588	132	533			279	1121
05:00	82		34				116		17:00	172		118				290	
05:15	101		39				140		17:15	134		142				276	
05:30	114		69				183		17:30	145		130				275	
05:45	152	449	93	235			245	684	17:45	133	584	135	525			268	1109
06:00	110		50				160		18:00	141		115				256	
06:15	115		62				177		18:15	93		108				201	
06:30	129		99				228		18:30	98		90				188	
06:45	112	466	79	290			191	756	18:45	81	413	76	389			157	802
07:00	127		93				220		19:00	88		87				175	
07:15	143		100				243		19:15	85		90				175	
07:30	135		94				229		19:30	92		66				158	
07:45	149	554	125	412			274	966	19:45	71	336	79	322			150	658
08:00	134		70				204		20:00	65		52				117	
08:15	143		72				215		20:15	64		67				131	
08:30	125		54				179		20:30	61		50				111	
08:45	117	519	75	271			192	790	20:45	54	244	54	223			108	467
09:00	110		59				169		21:00	58		51				109	
09:15	118		61				179		21:15	37		43				80	
09:30	128		56				184		21:30	58		53				111	
09:45	109	465	80	256			189	721	21:45	31	184	45	192			76	376
10:00	118		64				182		22:00	64		34				98	
10:15	124		77				201		22:15	44		43				87	
10:30	107		68				175		22:30	46		42				88	
10:45	123	472	64	273			187	745	22:45	38	192	40	159			78	351
11:00	122		67				189		23:00	33		25				58	
11:15	121		72				193		23:15	42		28				70	
11:30	146		83				229		23:30	40		28				68	
11:45	139	528	78	300			217	828	23:45	36	151	28	109			64	260
TOTALS		4215		2605				6820	TOTALS		5077		4123				9200
SPLIT %		61.8%		38.2%				42.6%	SPLIT %		55.2%		44.8%				57.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	9,292	6,728	0	0	16,020

AM Peak Hour	11:45	07:00				07:00	PM Peak Hour	16:30	14:30				16:30
AM Pk Volume	580	412				966	PM Pk Volume	627	575				1164
Pk Hr Factor	0.890	0.824				0.881	Pk Hr Factor	0.901	0.877				0.912
7 - 9 Volume	1073	683	0	0		1756	4 - 6 Volume	1172	1058	0	0		2230
7 - 9 Peak Hour	07:15	07:00				07:00	4 - 6 Peak Hour	16:30	16:30				16:30
7 - 9 Pk Volume	561	412	0	0		966	4 - 6 Pk Volume	627	537	0	0		1164
Pk Hr Factor	0.941	0.824	0.000	0.000		0.881	Pk Hr Factor	0.901	0.926	0.000	0.000		0.912

Prepared by NDS/ATD

VOLUME

Alder Ave Bet. I-210 EB Ramps & Renaissance Pkwy

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_002

DAILY TOTALS	NB	SB	EB	WB	Total
	10,752	12,395	0	0	23,147

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	21		31				52		12:00	138		125				263	
00:15	42		41				83		12:15	112		148				260	
00:30	35		32				67		12:30	171		167				338	
00:45	31	129	40	144			71	273	12:45	144	565	165	605			309	1170
01:00	39		38				77		13:00	138		145				283	
01:15	31		27				58		13:15	119		165				284	
01:30	25		43				68		13:30	184		146				330	
01:45	26	121	39	147			65	268	13:45	144	585	166	622			310	1207
02:00	23		19				42		14:00	149		161				310	
02:15	21		25				46		14:15	146		199				345	
02:30	35		29				64		14:30	209		197				406	
02:45	21	100	55	128			76	228	14:45	156	660	224	781			380	1441
03:00	31		28				59		15:00	172		198				370	
03:15	42		49				91		15:15	160		198				358	
03:30	65		71				136		15:30	234		199				433	
03:45	62	200	118	266			180	466	15:45	215	781	242	837			457	1618
04:00	73		48				121		16:00	200		183				383	
04:15	79		63				142		16:15	183		207				390	
04:30	131		91				222		16:30	241		207				448	
04:45	110	393	126	328			236	721	16:45	203	827	207	804			410	1631
05:00	127		62				189		17:00	220		202				422	
05:15	123		92				215		17:15	208		216				424	
05:30	125		152				277		17:30	207		208				415	
05:45	112	487	175	481			287	968	17:45	197	832	219	845			416	1677
06:00	132		125				257		18:00	169		196				365	
06:15	119		150				269		18:15	138		214				352	
06:30	137		182				319		18:30	133		168				301	
06:45	131	519	209	666			340	1185	18:45	108	548	170	748			278	1296
07:00	149		183				332		19:00	107		162				269	
07:15	166		213				379		19:15	101		165				266	
07:30	162		221				383		19:30	101		129				230	
07:45	165	642	260	877			425	1519	19:45	70	379	120	576			190	955
08:00	152		175				327		20:00	105		108				213	
08:15	166		186				352		20:15	82		138				220	
08:30	167		135				302		20:30	83		120				203	
08:45	132	617	152	648			284	1265	20:45	66	336	105	471			171	807
09:00	117		116				233		21:00	66		98				164	
09:15	98		125				223		21:15	59		95				154	
09:30	133		121				254		21:30	64		89				153	
09:45	123	471	146	508			269	979	21:45	46	235	85	367			131	602
10:00	109		127				236		22:00	71		64				135	
10:15	104		135				239		22:15	49		73				122	
10:30	121		125				246		22:30	52		70				122	
10:45	99	433	136	523			235	956	22:45	35	207	70	277			105	484
11:00	123		135				258		23:00	36		43				79	
11:15	107		149				256		23:15	51		49				100	
11:30	131		145				276		23:30	67		47				114	
11:45	133	494	139	568			272	1062	23:45	37	191	39	178			76	369
TOTALS		4606		5284				**9890**	**TOTALS**		6146		7111				**13257**
SPLIT %		46.6%		53.4%				**42.7%**	**SPLIT %**		46.4%		53.6%				**57.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	10,752	12,395	0	0	23,147

AM Peak Hour	07:45	07:00				**07:00**	**PM Peak Hour**	16:30	17:00				**16:30**
AM Pk Volume	650	877				**1519**	**PM Pk Volume**	872	845				**1704**
Pk Hr Factor	0.973	0.843				**0.894**	**Pk Hr Factor**	0.905	0.965				**0.951**
7 - 9 Volume	1259	1525	0	0		**2784**	**4 - 6 Volume**	1659	1649	0	0		**3308**
7 - 9 Peak Hour	07:45	07:00				**07:00**	**4 - 6 Peak Hour**	16:30	17:00				**16:30**
7 - 9 Pk Volume	650	877	0	0		**1519**	**4 - 6 Pk Volume**	872	845	0	0		**1704**
Pk Hr Factor	0.973	0.843	0.000	0.000		**0.894**	**Pk Hr Factor**	0.905	0.965	0.000	0.000		**0.951**

Prepared by NDS/ATD

VOLUME

Alder Ave Bet. Renaissance Pkwy & Baseline Rd

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_003

DAILY TOTALS	NB	SB	EB	WB	Total
	9,273	9,673	0	0	18,946

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	14		22				36		12:00	136		97				233	
00:15	26		24				50		12:15	95		135				230	
00:30	25		20				45		12:30	163		144				307	
00:45	20	85	28	94			48	179	12:45	136	530	131	507			267	1037
01:00	21		22				43		13:00	125		115				240	
01:15	22		12				34		13:15	107		146				253	
01:30	21		24				45		13:30	154		113				267	
01:45	19	83	28	86			47	169	13:45	134	520	132	506			266	1026
02:00	22		12				34		14:00	129		132				261	
02:15	18		24				42		14:15	138		156				294	
02:30	31		19				50		14:30	202		167				369	
02:45	15	86	46	101			61	187	14:45	140	609	181	636			321	1245
03:00	25		24				49		15:00	171		156				327	
03:15	36		39				75		15:15	158		153				311	
03:30	43		57				100		15:30	181		158				339	
03:45	44	148	88	208			132	356	15:45	183	693	205	672			388	1365
04:00	60		41				101		16:00	154		147				301	
04:15	53		45				98		16:15	159		167				326	
04:30	100		75				175		16:30	185		157				342	
04:45	89	302	104	265			193	567	16:45	159	657	152	623			311	1280
05:00	107		45				152		17:00	172		149				321	
05:15	94		55				149		17:15	155		162				317	
05:30	104		98				202		17:30	194		158				352	
05:45	90	395	121	319			211	714	17:45	152	673	155	624			307	1297
06:00	109		67				176		18:00	192		157				349	
06:15	118		109				227		18:15	149		169				318	
06:30	111		123				234		18:30	137		124				261	
06:45	107	445	150	449			257	894	18:45	108	586	123	573			231	1159
07:00	112		155				267		19:00	105		127				232	
07:15	122		189				311		19:15	89		122				211	
07:30	128		179				307		19:30	93		94				187	
07:45	148	510	237	760			385	1270	19:45	57	344	90	433			147	777
08:00	163		155				318		20:00	84		87				171	
08:15	147		165				312		20:15	70		88				158	
08:30	128		119				247		20:30	80		97				177	
08:45	103	541	124	563			227	1104	20:45	50	284	75	347			125	631
09:00	108		93				201		21:00	51		69				120	
09:15	95		97				192		21:15	51		75				126	
09:30	97		100				197		21:30	47		69				116	
09:45	111	411	122	412			233	823	21:45	38	187	69	282			107	469
10:00	97		90				187		22:00	63		55				118	
10:15	84		113				197		22:15	43		51				94	
10:30	102		94				196		22:30	42		53				95	
10:45	99	382	114	411			213	793	22:45	21	169	56	215			77	384
11:00	121		100				221		23:00	25		43				68	
11:15	116		119				235		23:15	36		33				69	
11:30	128		121				249		23:30	64		38				102	
11:45	115	480	105	445			220	925	23:45	28	153	28	142			56	295
TOTALS		3868		4113				7981	TOTALS		5405		5560				10965
SPLIT %		48.5%		51.5%				42.1%	SPLIT %		49.3%		50.7%				57.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	9,273	9,673	0	0	18,946

AM Peak Hour	07:30	07:00				07:30	PM Peak Hour	15:00	15:30				15:00
AM Pk Volume	586	760				1322	PM Pk Volume	693	677				1365
Pk Hr Factor	0.899	0.802				0.858	Pk Hr Factor	0.947	0.826				0.880
7 - 9 Volume	1051	1323	0	0		2374	4 - 6 Volume	1330	1247	0	0		2577
7 - 9 Peak Hour	07:30	07:00				07:30	4 - 6 Peak Hour	16:45	16:15				16:45
7 - 9 Pk Volume	586	760	0	0		1322	4 - 6 Pk Volume	680	625	0	0		1301
Pk Hr Factor	0.899	0.802	0.000	0.000		0.858	Pk Hr Factor	0.876	0.936	0.000	0.000		0.924

Prepared by NDS/ATD

VOLUME

Ayala Dr Bet. Renaissance Pkwy & Fitzgerald Ave

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_004

DAILY TOTALS	NB	SB	EB	WB	Total
	12,546	13,064	0	0	25,610

AM Period	NB		SB		EB		WB		TOTAL	
00:00	16		34						50	
00:15	19		35						54	
00:30	12		34						46	
00:45	17	64	24	127					41	191
01:00	7		22						29	
01:15	18		23						41	
01:30	14		13						27	
01:45	12	51	12	70					24	121
02:00	11		11						22	
02:15	19		14						33	
02:30	20		14						34	
02:45	32	82	13	52					45	134
03:00	21		18						39	
03:15	31		19						50	
03:30	39		21						60	
03:45	49	140	27	85					76	225
04:00	51		25						76	
04:15	61		25						86	
04:30	97		35						132	
04:45	74	283	68	153					142	436
05:00	108		42						150	
05:15	98		42						140	
05:30	153		76						229	
05:45	100	459	117	277					217	736
06:00	124		77						201	
06:15	118		90						208	
06:30	150		119						269	
06:45	166	558	161	447					327	1005
07:00	189		160						349	
07:15	176		188						364	
07:30	213		216						429	
07:45	208	786	176	740					384	1526
08:00	249		177						426	
08:15	179		160						339	
08:30	167		167						334	
08:45	152	747	150	654					302	1401
09:00	154		130						284	
09:15	142		123						265	
09:30	149		129						278	
09:45	132	577	139	521					271	1098
10:00	128		129						257	
10:15	166		128						294	
10:30	151		135						286	
10:45	146	591	145	537					291	1128
11:00	158		139						297	
11:15	161		169						330	
11:30	210		137						347	
11:45	150	679	169	614					319	1293
TOTALS		5017		4277						**9294**
SPLIT %		54.0%		46.0%						**36.3%**

PM Period	NB		SB		EB		WB		TOTAL	
12:00	195		137						332	
12:15	197		162						359	
12:30	159		189						348	
12:45	149	700	197	685					346	1385
13:00	163		158						321	
13:15	188		186						374	
13:30	163		200						363	
13:45	187	701	201	745					388	1446
14:00	182		233						415	
14:15	232		205						437	
14:30	239		256						495	
14:45	250	903	261	955					511	1858
15:00	226		257						483	
15:15	267		207						474	
15:30	272		262						534	
15:45	247	1012	266	992					513	2004
16:00	196		251						447	
16:15	214		238						452	
16:30	251		240						491	
16:45	225	886	279	1008					504	1894
17:00	236		286						522	
17:15	254		247						501	
17:30	234		252						486	
17:45	234	958	245	1030					479	1988
18:00	202		225						427	
18:15	219		222						441	
18:30	176		233						409	
18:45	191	788	254	934					445	1722
19:00	163		222						385	
19:15	169		237						406	
19:30	142		141						283	
19:45	101	575	183	783					284	1358
20:00	105		160						265	
20:15	109		163						272	
20:30	89		148						237	
20:45	108	411	142	613					250	1024
21:00	89		122						211	
21:15	93		140						233	
21:30	70		110						180	
21:45	53	305	127	499					180	804
22:00	56		89						145	
22:15	47		95						142	
22:30	47		89						136	
22:45	31	181	55	328					86	509
23:00	38		59						97	
23:15	22		66						88	
23:30	31		48						79	
23:45	18	109	42	215					60	324
TOTALS		7529		8787						**16316**
SPLIT %		46.1%		53.9%						**63.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	12,546	13,064	0	0	25,610

AM Peak Hour	07:30	07:15			**07:15**	**PM Peak Hour**	14:45	16:45			**16:30**
AM Pk Volume	849	757			**1603**	**PM Pk Volume**	1015	1064			**2018**
Pk Hr Factor	0.852	0.876			**0.934**	**Pk Hr Factor**	0.933	0.930			**0.966**
7 - 9 Volume	1533	1394	0	0	**2927**	**4 - 6 Volume**	1844	2038	0	0	**3882**
7 - 9 Peak Hour	07:30	07:15			**07:15**	**4 - 6 Peak Hour**	16:30	16:45			**16:30**
7 - 9 Pk Volume	849	757	0	0	**1603**	**4 - 6 Pk Volume**	966	1064	0	0	**2018**
Pk Hr Factor	0.852	0.876	0.000	0.000	**0.934**	**Pk Hr Factor**	0.951	0.930	0.000	0.000	**0.966**

Prepared by NDS/ATD

VOLUME

Ayala Dr Bet. Fitzgerald Ave & Baseline Rd

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_005

DAILY TOTALS	NB	SB	EB	WB	Total
	10,732	10,714	0	0	21,446

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	15		28				43		12:00	171		112				283	
00:15	15		27				42		12:15	162		128				290	
00:30	11		27				38		12:30	142		161				303	
00:45	16	57	21	103			37	160	12:45	142	617	169	570			311	1187
01:00	5		16				21		13:00	137		128				265	
01:15	14		17				31		13:15	154		157				311	
01:30	14		11				25		13:30	144		164				308	
01:45	13	46	9	53			22	99	13:45	157	592	163	612			320	1204
02:00	12		8				20		14:00	153		188				341	
02:15	17		9				26		14:15	199		156				355	
02:30	17		12				29		14:30	201		214				415	
02:45	29	75	11	40			40	115	14:45	214	767	219	777			433	1544
03:00	14		18				32		15:00	192		201				393	
03:15	26		16				42		15:15	226		173				399	
03:30	30		21				51		15:30	238		217				455	
03:45	44	114	24	79			68	193	15:45	219	875	227	818			446	1693
04:00	41		19				60		16:00	171		212				383	
04:15	49		23				72		16:15	182		184				366	
04:30	83		33				116		16:30	211		190				401	
04:45	59	232	61	136			120	368	16:45	197	761	224	810			421	1571
05:00	92		37				129		17:00	189		241				430	
05:15	69		39				108		17:15	226		191				417	
05:30	125		64				189		17:30	195		209				404	
05:45	81	367	85	225			166	592	17:45	206	816	208	849			414	1665
06:00	112		54				166		18:00	178		181				359	
06:15	101		77				178		18:15	176		180				356	
06:30	126		99				225		18:30	154		197				351	
06:45	137	476	134	364			271	840	18:45	162	670	204	762			366	1432
07:00	153		130				283		19:00	144		183				327	
07:15	148		163				311		19:15	144		199				343	
07:30	171		189				360		19:30	121		119				240	
07:45	185	657	150	632			335	1289	19:45	89	498	144	645			233	1143
08:00	220		136				356		20:00	91		129				220	
08:15	151		123				274		20:15	96		136				232	
08:30	137		135				272		20:30	82		126				208	
08:45	126	634	119	513			245	1147	20:45	96	365	122	513			218	878
09:00	122		100				222		21:00	75		101				176	
09:15	121		105				226		21:15	84		114				198	
09:30	133		100				233		21:30	59		90				149	
09:45	103	479	114	419			217	898	21:45	41	259	100	405			141	664
10:00	109		106				215		22:00	48		76				124	
10:15	138		107				245		22:15	40		76				116	
10:30	144		106				250		22:30	41		71				112	
10:45	138	529	123	442			261	971	22:45	30	159	42	265			72	424
11:00	121		108				229		23:00	31		50				81	
11:15	147		145				292		23:15	21		50				71	
11:30	192		121				313		23:30	29		37				66	
11:45	127	587	140	514			267	1101	23:45	19	100	31	168			50	268
TOTALS		4253		3520				7773	TOTALS		6479		7194				13673
SPLIT %		54.7%		45.3%				36.2%	SPLIT %		47.4%		52.6%				63.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,732	10,714	0	0	21,446

AM Peak Hour	07:30	07:15				07:15	PM Peak Hour	15:00	16:45				15:00
AM Pk Volume	727	638				1362	PM Pk Volume	875	865				1693
Pk Hr Factor	0.826	0.844				0.946	Pk Hr Factor	0.919	0.897				0.930
7 - 9 Volume	1291	1145	0	0		2436	4 - 6 Volume	1577	1659	0	0		3236
7 - 9 Peak Hour	07:30	07:15				07:15	4 - 6 Peak Hour	16:30	16:45				16:45
7 - 9 Pk Volume	727	638	0	0		1362	4 - 6 Pk Volume	823	865	0	0		1672
Pk Hr Factor	0.826	0.844	0.000	0.000		0.946	Pk Hr Factor	0.910	0.897	0.000	0.000		0.972

Prepared by NDS/ATD

VOLUME

Linden Ave Bet. Miro Way & Baseline Rd

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_006

DAILY TOTALS	NB	SB	EB	WB	Total
	4,336	4,726	0	0	9,062

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	6		18				24		12:00	54		52				106	
00:15	7		19				26		12:15	52		51				103	
00:30	3		15				18		12:30	53		58				111	
00:45	7	23	14	66			21	89	12:45	56	215	56	217			112	432
01:00	11		85				96		13:00	49		52				101	
01:15	30		17				47		13:15	35		56				91	
01:30	53		15				68		13:30	42		60				102	
01:45	20	114	14	131			34	245	13:45	57	183	69	237			126	420
02:00	2		10				12		14:00	43		55				98	
02:15	7		10				17		14:15	44		38				82	
02:30	9		15				24		14:30	49		92				141	
02:45	11	29	6	41			17	70	14:45	82	218	70	255			152	473
03:00	7		8				15		15:00	72		75				147	
03:15	10		5				15		15:15	73		78				151	
03:30	18		17				35		15:30	98		195				293	
03:45	34	69	21	51			55	120	15:45	69	312	139	487			208	799
04:00	15		61				76		16:00	78		85				163	
04:15	12		32				44		16:15	105		71				176	
04:30	25		88				113		16:30	62		122				184	
04:45	36	88	31	212			67	300	16:45	91	336	75	353			166	689
05:00	26		18				44		17:00	85		168				253	
05:15	28		22				50		17:15	106		82				188	
05:30	44		23				67		17:30	93		79				172	
05:45	83	181	29	92			112	273	17:45	132	416	73	402			205	818
06:00	70		45				115		18:00	73		70				143	
06:15	98		107				205		18:15	57		73				130	
06:30	73		62				135		18:30	58		51				109	
06:45	104	345	43	257			147	602	18:45	47	235	53	247			100	482
07:00	61		57				118		19:00	38		56				94	
07:15	39		41				80		19:15	44		42				86	
07:30	62		38				100		19:30	47		39				86	
07:45	53	215	49	185			102	400	19:45	34	163	44	181			78	344
08:00	76		67				143		20:00	34		44				78	
08:15	94		63				157		20:15	34		43				77	
08:30	67		66				133		20:30	37		42				79	
08:45	44	281	47	243			91	524	20:45	48	153	27	156			75	309
09:00	42		34				76		21:00	32		54				86	
09:15	39		43				82		21:15	29		45				74	
09:30	25		39				64		21:30	26		49				75	
09:45	53	159	28	144			81	303	21:45	27	114	35	183			62	297
10:00	38		37				75		22:00	22		42				64	
10:15	34		23				57		22:15	27		23				50	
10:30	31		36				67		22:30	29		26				55	
10:45	42	145	37	133			79	278	22:45	15	93	35	126			50	219
11:00	46		74				120		23:00	15		37				52	
11:15	62		51				113		23:15	7		19				26	
11:30	56		53				109		23:30	4		23				27	
11:45	48	212	50	228			98	440	23:45	11	37	20	99			31	136
TOTALS		1861		1783				3644	TOTALS		2475		2943				5418
SPLIT %		51.1%		48.9%				40.2%	SPLIT %		45.7%		54.3%				59.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	4,336	4,726	0	0	9,062

AM Peak Hour	06:00	06:15				06:15	PM Peak Hour	17:00	15:15				15:30
AM Pk Volume	345	269				605	PM Pk Volume	416	497				840
Pk Hr Factor	0.829	0.629				0.738	Pk Hr Factor	0.788	0.637				0.717
7 - 9 Volume	496	428	0	0		924	4 - 6 Volume	752	755	0	0		1507
7 - 9 Peak Hour	07:45	07:45				07:45	4 - 6 Peak Hour	17:00	16:30				17:00
7 - 9 Pk Volume	290	245	0	0		535	4 - 6 Pk Volume	416	447	0	0		818
Pk Hr Factor	0.771	0.914	0.000	0.000		0.852	Pk Hr Factor	0.788	0.665	0.000	0.000		0.808

Prepared by NDS/ATD

VOLUME

Baseline Rd Bet. Alder Ave & Linden Ave

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,212	6,485	12,697

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			12		16		28		12:00			87		80		167	
00:15			4		13		17		12:15			65		81		146	
00:30			15		11		26		12:30			103		90		193	
00:45			9	40	12	52	21	92	12:45			79	334	92	343	171	677
01:00			9		37		46		13:00			90		97		187	
01:15			12		14		26		13:15			73		100		173	
01:30			24		15		39		13:30			106		102		208	
01:45			11	56	10	76	21	132	13:45			100	369	91	390	191	759
02:00			3		9		12		14:00			94		105		199	
02:15			7		5		12		14:15			96		135		231	
02:30			5		22		27		14:30			140		117		257	
02:45			6	21	16	52	22	73	14:45			155	485	128	485	283	970
03:00			9		15		24		15:00			124		116		240	
03:15			2		11		13		15:15			130		118		248	
03:30			2		29		31		15:30			131		145		276	
03:45			12	25	49	104	61	129	15:45			155	540	119	498	274	1038
04:00			16		30		46		16:00			161		98		259	
04:15			11		42		53		16:15			151		132		283	
04:30			29		64		93		16:30			146		98		244	
04:45			24	80	66	202	90	282	16:45			152	610	101	429	253	1039
05:00			18		35		53		17:00			150		139		289	
05:15			27		33		60		17:15			146		100		246	
05:30			36		69		105		17:30			118		111		229	
05:45			38	119	75	212	113	331	17:45			121	535	98	448	219	983
06:00			39		60		99		18:00			122		105		227	
06:15			63		69		132		18:15			107		81		188	
06:30			38		65		103		18:30			90		74		164	
06:45			46	186	98	292	144	478	18:45			85	404	80	340	165	744
07:00			49		87		136		19:00			71		88		159	
07:15			75		121		196		19:15			71		67		138	
07:30			101		149		250		19:30			73		51		124	
07:45			123	348	137	494	260	842	19:45			57	272	69	275	126	547
08:00			114		107		221		20:00			50		46		96	
08:15			92		102		194		20:15			50		51		101	
08:30			102		68		170		20:30			60		42		102	
08:45			65	373	70	347	135	720	20:45			44	204	39	178	83	382
09:00			66		75		141		21:00			46		50		96	
09:15			61		63		124		21:15			35		44		79	
09:30			59		73		132		21:30			33		44		77	
09:45			62	248	72	283	134	531	21:45			36	150	26	164	62	314
10:00			57		68		125		22:00			33		25		58	
10:15			63		73		136		22:15			34		32		66	
10:30			78		55		133		22:30			34		30		64	
10:45			63	261	93	289	156	550	22:45			16	117	23	110	39	227
11:00			79		71		150		23:00			22		22		44	
11:15			86		86		172		23:15			30		26		56	
11:30			82		86		168		23:30			29		18		47	
11:45			87	334	94	337	181	671	23:45			20	101	19	85	39	186
TOTALS				2091		2740		4831	TOTALS				4121		3745		7866
SPLIT %				43.3%		56.7%		38.0%	SPLIT %				52.4%		47.6%		62.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,212	6,485	12,697

AM Peak Hour			07:45	07:15	07:15	PM Peak Hour			15:45	14:45	15:30
AM Pk Volume			431	514	927	PM Pk Volume			613	507	1092
Pk Hr Factor			0.876	0.862	0.891	Pk Hr Factor			0.952	0.874	0.965
7 - 9 Volume	0	0	721	841	1562	4 - 6 Volume	0	0	1145	877	2022
7 - 9 Peak Hour			07:45	07:15	07:15	4 - 6 Peak Hour			16:00	16:15	16:15
7 - 9 Pk Volume	0	0	431	514	927	4 - 6 Pk Volume	0	0	610	470	1069
Pk Hr Factor	0.000	0.000	0.876	0.862	0.891	Pk Hr Factor	0.000	0.000	0.947	0.845	0.925

Prepared by NDS/ATD

VOLUME

Baseline Rd Bet. Linden Ave & Ayala Dr

Day: Tuesday
Date: 3/7/2023

City: Rialto
Project #: CA23_030024_008

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,466	6,273	13,739

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			21		17		38		12:00			96		73		169	
00:15			11		11		22		12:15			90		75		165	
00:30			19		11		30		12:30			113		82		195	
00:45			14	65	11	50	25	115	12:45			100	399	100	330	200	729
01:00			44		16		60		13:00			105		94		199	
01:15			13		11		24		13:15			82		89		171	
01:30			19		23		42		13:30			131		82		213	
01:45			15	91	11	61	26	152	13:45			112	430	85	350	197	780
02:00			8		5		13		14:00			113		89		202	
02:15			13		4		17		14:15			105		111		216	
02:30			10		21		31		14:30			179		100		279	
02:45			15	46	18	48	33	94	14:45			139	536	113	413	252	949
03:00			10		13		23		15:00			143		109		252	
03:15			5		10		15		15:15			131		88		219	
03:30			11		36		47		15:30			227		82		309	
03:45			25	51	52	111	77	162	15:45			191	692	97	376	288	1068
04:00			50		14		64		16:00			186		131		317	
04:15			30		34		64		16:15			146		127		273	
04:30			72		36		108		16:30			184		135		319	
04:45			32	184	73	157	105	341	16:45			161	677	118	511	279	1188
05:00			26		32		58		17:00			200		130		330	
05:15			33		39		72		17:15			159		112		271	
05:30			41		66		107		17:30			129		134		263	
05:45			42	142	72	209	114	351	17:45			127	615	131	507	258	1122
06:00			50		46		96		18:00			145		114		259	
06:15			109		36		145		18:15			107		82		189	
06:30			65		50		115		18:30			115		84		199	
06:45			65	289	98	230	163	519	18:45			95	462	85	365	180	827
07:00			87		84		171		19:00			80		81		161	
07:15			85		124		209		19:15			52		66		118	
07:30			112		151		263		19:30			82		53		135	
07:45			141	425	127	486	268	911	19:45			55	269	62	262	117	531
08:00			128		114		242		20:00			56		47		103	
08:15			108		118		226		20:15			54		48		102	
08:30			96		81		177		20:30			73		49		122	
08:45			86	418	87	400	173	818	20:45			42	225	49	193	91	418
09:00			77		71		148		21:00			53		41		94	
09:15			82		56		138		21:15			49		49		98	
09:30			80		68		148		21:30			52		47		99	
09:45			70	309	77	272	147	581	21:45			41	195	32	169	73	364
10:00			75		58		133		22:00			59		27		86	
10:15			66		79		145		22:15			31		37		68	
10:30			92		54		146		22:30			35		26		61	
10:45			65	298	101	292	166	590	22:45			25	150	16	106	41	256
11:00			89		52		141		23:00			28		15		43	
11:15			102		85		187		23:15			37		24		61	
11:30			95		79		174		23:30			30		18		48	
11:45			96	382	84	300	180	682	23:45			21	116	18	75	39	191
TOTALS				2700		2616		5316	TOTALS				4766		3657		8423
SPLIT %				50.8%		49.2%		38.7%	SPLIT %				56.6%		43.4%		61.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,466	6,273	13,739

AM Peak Hour			07:30	07:15	07:30	PM Peak Hour	15:30	16:00	16:15
AM Pk Volume			489	516	999	PM Pk Volume	750	511	1201
Pk Hr Factor			0.867	0.854	0.932	Pk Hr Factor	0.826	0.946	0.910
7 - 9 Volume	0	0	843	886	1729	4 - 6 Volume	0 0 1292	1018	2310
7 - 9 Peak Hour			07:30	07:15	07:30	4 - 6 Peak Hour	16:30	16:00	16:15
7 - 9 Pk Volume	0	0	489	516	999	4 - 6 Pk Volume	0 0 704	511	1201
Pk Hr Factor	0.000	0.000	0.867	0.854	0.932	Pk Hr Factor	0.000 0.000 0.880	0.946	0.910

APPENDIX C

PCE WORKSHEETS

Existing Peak Hour Volumes - Classification Counts

1 **Alder Ave at SR-210 WB Ramps**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	269	5	7	35	47	14.9%	127	2.7	396	356	2	7	34	43	10.8%	119	2.8	475
NT	173	9	18	40	67	27.9%	170	2.5	343	181	9	8	29	46	20.3%	117	2.5	298
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	7	1	1	2	4	36.4%	10	2.5	17	217	6	3	20	29	11.8%	75	2.6	292
SR	9	2	0	0	2	18.2%	3	1.5	12	200	6	16	45	67	25.1%	176	2.6	376
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	377	5	2	14	21	5.3%	54	2.6	431	268	1	2	7	10	3.6%	27	2.7	295
WT	2	0	0	1	1	33.3%	3	3.0	5	2	0	1	0	1	33.3%	2	2.0	4
WR	72	11	10	16	37	33.9%	85	2.3	157	59	3	4	17	24	28.9%	64	2.7	123
									1,361									1,863
North Leg Volumes																		
Approach	16	3	1	2	6		13		29	417	12	19	65	96		251		668
Depart	245	20	28	56	104		255		500	240	12	12	46	70		181		421
Total	261	23	29	58	110	29.6%	268	2.4	529	657	24	31	111	166	20.2%	432	2.6	1,089
South Leg Volumes																		
Approach	442	14	25	75	114		297		739	537	11	15	63	89		236		773
Depart	384	6	3	16	25		64		448	485	7	5	27	39		102		587
Total	826	20	28	91	139	14.4%	361	2.6	1,187	1,022	18	20	90	128	11.1%	338	2.6	1,360
East Leg Volumes																		
Approach	451	16	12	31	59		142		593	329	4	7	24	35		93		422
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	451	16	12	31	59	11.6%	142	2.4	593	329	4	7	24	35	9.6%	93	2.7	422
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	280	7	7	36	50		133		413	558	8	24	79	111		297		855
Total	280	7	7	36	50	15.2%	133	2.7	413	558	8	24	79	111	16.6%	297	2.7	855
All Legs																		
Approach	909	33	38	108	179		452		1,361	1,283	27	41	152	220		580		1,863
Depart	909	33	38	108	179		452		1,361	1,283	27	41	152	220		580		1,863
Total	1,818	66	76	216	358	16.5%	904	2.5	2,722	2,566	54	82	304	440	14.6%	1,160	2.6	3,726

Existing Peak Hour Volumes - Classification Counts

2 **Alder Ave at SR-210 EB Ramps**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	306	8	12	48	68	18.2%	180	2.6	486	433	4	9	36	49	10.2%	132	2.7	565
NR	241	2	7	25	34	12.4%	92	2.7	333	361	4	7	13	24	6.2%	59	2.5	420
SL	2	1	1	0	2	50.0%	4	2.0	6	114	3	0	12	15	11.6%	41	2.7	155
ST	354	3	4	18	25	6.6%	67	2.7	421	385	1	2	13	16	4.0%	45	2.8	430
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	137	9	15	39	63	31.5%	161	2.6	298	119	5	8	20	33	21.7%	84	2.5	203
ET	1	1	0	0	1	50.0%	2	2.0	3	1	0	0	1	1	50.0%	3	3.0	4
ER	408	9	13	56	78	16.0%	208	2.7	616	380	7	9	31	47	11.0%	122	2.6	502
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									2,163									2,279
North Leg Volumes																		
Approach	356	4	5	18	27		71		427	499	4	2	25	31		86		585
Depart	443	17	27	87	131		341		784	552	9	17	56	82		216		768
Total	799	21	32	105	158	16.5%	412	2.6	1,211	1,051	13	19	81	113	9.7%	302	2.7	1,353
South Leg Volumes																		
Approach	547	10	19	73	102		272		819	794	8	16	49	73		191		985
Depart	762	12	17	74	103		275		1,037	765	8	11	44	63		167		932
Total	1,309	22	36	147	205	13.5%	547	2.7	1,856	1,559	16	27	93	136	8.0%	358	2.6	1,917
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	244	4	8	25	37		98		342	476	7	7	26	40		103		579
Total	244	4	8	25	37	13.2%	98	2.6	342	476	7	7	26	40	7.8%	103	2.6	579
West Leg Volumes																		
Approach	546	19	28	95	142		371		917	500	12	17	52	81		209		709
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	546	19	28	95	142	20.6%	371	2.6	917	500	12	17	52	81	13.9%	209	2.6	709
All Legs																		
Approach	1,449	33	52	186	271		714		2,163	1,793	24	35	126	185		486		2,279
Depart	1,449	33	52	186	271		714		2,163	1,793	24	35	126	185		486		2,279
Total	2,898	66	104	372	542	15.8%	1,428	2.6	4,326	3,586	48	70	252	370	9.4%	972	2.6	4,558

Existing Peak Hour Volumes - Classification Counts

3 **Alder Ave at Renaissance Pkwy**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	115	1	2	2	5	4.2%	12	2.4	127	46	1	0	1	2	4.2%	5	2.5	51
NT	396	7	11	46	64	13.9%	171	2.7	567	547	6	8	29	43	7.3%	112	2.6	659
NR	11	1	1	0	2	15.4%	4	2.0	15	32	0	1	0	1	3.0%	2	2.0	34
SL	69	4	1	26	31	31.0%	86	2.8	155	134	2	2	14	18	11.8%	49	2.7	183
ST	595	3	11	51	65	9.8%	180	2.8	775	497	6	8	27	41	7.6%	106	2.6	603
SR	70	0	1	2	3	4.1%	8	2.7	78	127	0	1	3	4	3.1%	11	2.8	138
EL	78	2	2	4	8	9.3%	19	2.4	97	86	1	2	1	4	4.4%	9	2.3	95
ET	147	7	0	0	7	4.5%	11	1.6	158	253	3	1	3	7	2.7%	16	2.3	269
ER	60	2	1	5	8	11.8%	20	2.5	80	67	0	0	0	0	0.0%	0	0.0	67
WL	23	0	0	1	1	4.2%	3	3.0	26	11	0	0	3	3	21.4%	9	3.0	20
WT	122	4	0	4	8	6.2%	18	2.3	140	170	0	1	0	1	0.6%	2	2.0	172
WR	68	5	6	37	48	41.4%	131	2.7	199	150	1	6	19	26	14.8%	71	2.7	221
									2,417									2,512
North Leg Volumes																		
Approach	734	7	13	79	99		274		1,008	758	8	11	44	63		166		924
Depart	542	14	19	87	120		321		863	783	8	16	49	73		192		975
Total	1,276	21	32	166	219	14.6%	595	2.7	1,871	1,541	16	27	93	136	8.1%	358	2.6	1,899
South Leg Volumes																		
Approach	522	9	14	48	71		187		709	625	7	9	30	46		119		744
Depart	678	5	12	57	74		203		881	575	6	8	30	44		115		690
Total	1,200	14	26	105	145	10.8%	390	2.7	1,590	1,200	13	17	60	90	7.0%	234	2.6	1,434
East Leg Volumes																		
Approach	213	9	6	42	57		152		365	331	1	7	22	30		82		413
Depart	227	12	2	26	40		101		328	419	5	4	17	26		67		486
Total	440	21	8	68	97	18.1%	253	2.6	693	750	6	11	39	56	6.9%	149	2.7	899
West Leg Volumes																		
Approach	285	11	3	9	23		50		335	406	4	3	4	11		25		431
Depart	307	5	3	8	16		38		345	343	1	2	4	7		18		361
Total	592	16	6	17	39	6.2%	88	2.3	680	749	5	5	8	18	2.3%	43	2.4	792
All Legs																		
Approach	1,754	36	36	178	250		663		2,417	2,120	20	30	100	150		392		2,512
Depart	1,754	36	36	178	250		663		2,417	2,120	20	30	100	150		392		2,512
Total	3,508	72	72	356	500	12.5%	1,326	2.7	4,834	4,240	40	60	200	300	6.6%	784	2.6	5,024

Existing Peak Hour Volumes - Classification Counts

4 **Alder Ave at Base Line Rd**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	152	2	1	0	3	1.9%	5	1.7	157	43	0	0	0	0	0.0%	0	0.0	43
NT	286	3	5	0	8	2.7%	15	1.9	301	320	2	0	0	2	0.6%	3	1.5	323
NR	93	3	1	0	4	4.1%	7	1.8	100	44	0	0	0	0	0.0%	0	0.0	44
SL	42	0	0	7	7	14.3%	21	3.0	63	82	3	2	9	14	14.6%	36	2.6	118
ST	334	2	1	2	5	1.5%	11	2.2	345	352	2	1	2	5	1.4%	11	2.2	363
SR	128	2	2	1	5	3.8%	10	2.0	138	112	1	0	3	4	3.4%	11	2.8	123
EL	90	1	2	0	3	3.2%	6	2.0	96	70	4	0	1	5	6.7%	9	1.8	79
ET	332	10	1	8	19	5.4%	41	2.2	373	414	4	1	4	9	2.1%	20	2.2	434
ER	65	4	0	1	5	7.1%	9	1.8	74	61	1	0	0	1	1.6%	2	2.0	63
WL	38	0	0	1	1	2.6%	3	3.0	41	52	1	0	1	2	3.7%	5	2.5	57
WT	437	12	1	5	18	4.0%	35	1.9	472	317	6	1	6	13	3.9%	29	2.2	346
WR	90	2	4	9	15	14.3%	38	2.5	128	65	1	1	6	8	11.0%	22	2.8	87
									2,288									2,080
North Leg Volumes																		
Approach	504	4	3	10	17		42		546	546	6	3	14	23		58		604
Depart	466	6	11	9	26		59		525	455	7	1	7	15		34		489
Total	970	10	14	19	43	4.2%	101	2.3	1,071	1,001	13	4	21	38	3.7%	92	2.4	1,093
South Leg Volumes																		
Approach	531	8	7	0	15		27		558	407	2	0	0	2		3		410
Depart	437	6	1	4	11		23		460	465	4	1	3	8		18		483
Total	968	14	8	4	26	2.6%	50	1.9	1,018	872	6	1	3	10	1.1%	21	2.1	893
East Leg Volumes																		
Approach	565	14	5	15	34		76		641	434	8	2	13	23		56		490
Depart	467	13	2	15	30		69		536	540	7	3	13	23		56		596
Total	1,032	27	7	30	64	5.8%	145	2.3	1,177	974	15	5	26	46	4.5%	112	2.4	1,086
West Leg Volumes																		
Approach	487	15	3	9	27		56		543	545	9	1	5	15		31		576
Depart	717	16	4	6	26		50		767	472	7	1	9	17		40		512
Total	1,204	31	7	15	53	4.2%	106	2.0	1,310	1,017	16	2	14	32	3.1%	71	2.2	1,088
All Legs																		
Approach	2,087	41	18	34	93		201		2,288	1,932	25	6	32	63		148		2,080
Depart	2,087	41	18	34	93		201		2,288	1,932	25	6	32	63		148		2,080
Total	4,174	82	36	68	186	4.3%	402	2.2	4,576	3,864	50	12	64	126	3.2%	296	2.3	4,160

Existing Peak Hour Volumes - Classification Counts

5 **Ayala Dr at Renaissance Pkwy**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	43	1	1	0	2	4.4%	4	2.0	47	106	0	0	0	0	0.0%	0	0.0	106
NT	688	5	1	6	12	1.7%	28	2.3	716	762	4	0	2	6	0.8%	12	2.0	774
NR	35	2	0	0	2	5.4%	3	1.5	38	75	0	0	0	0	0.0%	0	0.0	75
SL	194	1	1	0	2	1.0%	4	2.0	198	340	1	0	0	1	0.3%	2	2.0	342
ST	654	18	1	5	24	3.5%	44	1.8	698	791	7	0	1	8	1.0%	14	1.8	805
SR	325	2	2	3	7	2.1%	16	2.3	341	546	3	4	0	7	1.3%	13	1.9	559
EL	218	8	1	1	10	4.4%	17	1.7	235	371	2	1	1	4	1.1%	8	2.0	379
ET	103	2	0	0	2	1.9%	3	1.5	106	373	3	0	0	3	0.8%	5	1.7	378
ER	77	2	0	0	2	2.5%	3	1.5	80	107	0	3	0	3	2.7%	6	2.0	113
WL	24	3	0	0	3	11.1%	5	1.7	29	58	2	0	0	2	3.3%	3	1.5	61
WT	118	1	1	0	2	1.7%	4	2.0	122	181	2	0	0	2	1.1%	3	1.5	184
WR	343	3	1	0	4	1.2%	7	1.8	350	355	1	0	0	1	0.3%	2	2.0	357
									2,960									4,133
North Leg Volumes																		
Approach	1,173	21	4	8	33		64		1,237	1,677	11	4	1	16		29		1,706
Depart	1,249	16	3	7	26		52		1,301	1,488	7	1	3	11		22		1,510
Total	2,422	37	7	15	59	2.4%	116	2.0	2,538	3,165	18	5	4	27	0.8%	51	1.9	3,216
South Leg Volumes																		
Approach	766	8	2	6	16		35		801	943	4	0	2	6		12		955
Depart	755	23	1	5	29		52		807	956	9	3	1	13		23		979
Total	1,521	31	3	11	45	2.9%	87	1.9	1,608	1,899	13	3	3	19	1.0%	35	1.8	1,934
East Leg Volumes																		
Approach	485	7	2	0	9		16		501	594	5	0	0	5		8		602
Depart	332	5	1	0	6		10		342	788	4	0	0	4		7		795
Total	817	12	3	0	15	1.8%	26	1.7	843	1,382	9	0	0	9	0.6%	15	1.7	1,397
West Leg Volumes																		
Approach	398	12	1	1	14		23		421	851	5	4	1	10		19		870
Depart	486	4	4	3	11		24		510	833	5	4	0	9		16		849
Total	884	16	5	4	25	2.8%	47	1.9	931	1,684	10	8	1	19	1.1%	35	1.8	1,719
All Legs																		
Approach	2,822	48	9	15	72		138		2,960	4,065	25	8	4	37		68		4,133
Depart	2,822	48	9	15	72		138		2,960	4,065	25	8	4	37		68		4,133
Total	5,644	96	18	30	144	2.5%	276	1.9	5,920	8,130	50	16	8	74	0.9%	136	1.8	8,266

Existing Peak Hour Volumes - Classification Counts

6 **Ayala Dr at Fitzgerald Ave**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	14	0	0	0	0	0.0%	0	0.0	14	8	0	0	0	0	0.0%	0	0.0	8
NT	696	8	0	3	11	1.6%	21	1.9	717	802	5	0	0	5	0.6%	8	1.6	810
NR	3	0	0	0	0	0.0%	0	0.0	3	8	0	0	0	0	0.0%	0	0.0	8
SL	119	0	0	1	1	0.8%	3	3.0	122	206	2	0	0	2	1.0%	3	1.5	209
ST	606	13	0	5	18	2.9%	35	1.9	641	828	9	3	1	13	1.5%	23	1.8	851
SR	6	1	0	0	1	14.3%	2	2.0	8	1	0	0	0	0	0.0%	0	0.0	1
EL	1	0	0	0	0	0.0%	0	0.0	1	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	4	0	0	0	0	0.0%	0	0.0	4	5	0	0	0	0	0.0%	0	0.0	5
WL	3	0	0	0	0	0.0%	0	0.0	3	1	0	0	0	0	0.0%	0	0.0	1
WT	1	0	0	0	0	0.0%	0	0.0	1	1	1	0	0	1	50.0%	2	2.0	3
WR	133	2	0	0	2	1.5%	3	1.5	136	151	0	0	0	0	0.0%	0	0.0	151
									1,650									2,047
North Leg Volumes																		
Approach	731	14	0	6	20		40		771	1,035	11	3	1	15		26		1,061
Depart	830	10	0	3	13		24		854	953	5	0	0	5		8		961
Total	1,561	24	0	9	33	2.1%	64	1.9	1,625	1,988	16	3	1	20	1.0%	34	1.7	2,022
South Leg Volumes																		
Approach	713	8	0	3	11		21		734	818	5	0	0	5		8		826
Depart	613	13	0	5	18		35		648	834	9	3	1	13		23		857
Total	1,326	21	0	8	29	2.1%	56	1.9	1,382	1,652	14	3	1	18	1.1%	31	1.7	1,683
East Leg Volumes																		
Approach	137	2	0	0	2		3		140	153	1	0	0	1		2		155
Depart	122	0	0	1	1		3		125	214	2	0	0	2		3		217
Total	259	2	0	1	3	1.1%	6	2.0	265	367	3	0	0	3	0.8%	5	1.7	372
West Leg Volumes																		
Approach	5	0	0	0	0		0		5	5	0	0	0	0		0		5
Depart	21	1	0	0	1		2		23	10	1	0	0	1		2		12
Total	26	1	0	0	1	3.7%	2	2.0	28	15	1	0	0	1	6.3%	2	2.0	17
All Legs																		
Approach	1,586	24	0	9	33		64		1,650	2,011	17	3	1	21		36		2,047
Depart	1,586	24	0	9	33		64		1,650	2,011	17	3	1	21		36		2,047
Total	3,172	48	0	18	66	2.0%	128	1.9	3,300	4,022	34	6	2	42	1.0%	72	1.7	4,094

Existing Peak Hour Volumes - Classification Counts

7 **Ayala Dr at Miro Way - FUTURE INT**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
EL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									0									0
North Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
South Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
West Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
All Legs																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0

Existing Peak Hour Volumes - Classification Counts

8 **Ayala Dr at Base Line Rd**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	127	6	2	19	27	17.5%	70	2.6	197	97	1	2	13	16	14.2%	45	2.8	142
NT	569	6	0	2	8	1.4%	15	1.9	584	638	6	0	0	6	0.9%	9	1.5	647
NR	56	6	0	1	7	11.1%	12	1.7	68	94	1	0	0	1	1.1%	2	2.0	96
SL	50	2	0	0	2	3.8%	3	1.5	53	137	1	0	0	1	0.7%	2	2.0	139
ST	517	9	0	5	14	2.6%	29	2.1	546	655	9	3	1	13	1.9%	23	1.8	678
SR	54	1	0	0	1	1.8%	2	2.0	56	63	0	0	0	0	0.0%	0	0.0	63
EL	115	0	0	0	0	0.0%	0	0.0	115	135	0	0	0	0	0.0%	0	0.0	135
ET	228	9	2	6	17	6.9%	36	2.1	264	435	3	2	1	6	1.4%	12	2.0	447
ER	91	3	2	18	23	20.2%	63	2.7	154	153	3	9	10	22	12.6%	53	2.4	206
WL	51	4	0	1	5	8.9%	9	1.8	60	87	1	0	0	1	1.1%	2	2.0	89
WT	310	5	2	0	7	2.2%	12	1.7	322	330	4	1	4	9	2.7%	20	2.2	350
WR	33	2	0	1	3	8.3%	6	2.0	39	49	0	0	0	0	0.0%	0	0.0	49
									2,458									3,041
North Leg Volumes																		
Approach	621	12	0	5	17		34		655	855	10	3	1	14		25		880
Depart	717	8	0	3	11		21		738	822	6	0	0	6		9		831
Total	1,338	20	0	8	28	2.0%	55	2.0	1,393	1,677	16	3	1	20	1.2%	34	1.7	1,711
South Leg Volumes																		
Approach	752	18	2	22	42		97		849	829	8	2	13	23		56		885
Depart	659	16	2	24	42		101		760	895	13	12	11	36		78		973
Total	1,411	34	4	46	84	5.6%	198	2.4	1,609	1,724	21	14	24	59	3.3%	134	2.3	1,858
East Leg Volumes																		
Approach	394	11	2	2	15		27		421	466	5	1	4	10		22		488
Depart	334	17	2	7	26		51		385	666	5	2	1	8		16		682
Total	728	28	4	9	41	5.3%	78	1.9	806	1,132	10	3	5	18	1.6%	38	2.1	1,170
West Leg Volumes																		
Approach	434	12	4	24	40		99		533	723	6	11	11	28		65		788
Depart	491	12	4	19	35		84		575	490	5	3	17	25		65		555
Total	925	24	8	43	75	7.5%	183	2.4	1,108	1,213	11	14	28	53	4.2%	130	2.5	1,343
All Legs																		
Approach	2,201	53	8	53	114		257		2,458	2,873	29	17	29	75		168		3,041
Depart	2,201	53	8	53	114		257		2,458	2,873	29	17	29	75		168		3,041
Total	4,402	106	16	106	228	4.9%	514	2.3	4,916	5,746	58	34	58	150	2.5%	336	2.2	6,082

Existing Peak Hour Volumes - Classification Counts

9 **Linden Ave at Miro Way**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	8	0	0	0	0	0.0%	0	0.0	8	22	1	0	0	1	4.3%	2	2.0	24
NT	268	10	1	0	11	3.9%	17	1.5	285	389	1	1	3	5	1.3%	13	2.6	402
NR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
SL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ST	220	7	1	0	8	3.5%	13	1.6	233	366	1	3	1	5	1.3%	11	2.2	377
SR	42	1	1	2	4	8.7%	10	2.5	52	66	1	0	1	2	2.9%	5	2.5	71
EL	40	0	0	0	0	0.0%	0	0.0	40	68	1	0	0	1	1.4%	2	2.0	70
ET	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
ER	14	2	0	1	3	17.6%	6	2.0	20	30	0	1	1	2	6.3%	5	2.5	35
WL	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WT	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
WR	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
									638									979
North Leg Volumes																		
Approach	262	8	2	2	12		23		285	432	2	3	2	7		16		448
Depart	308	10	1	0	11		17		325	457	2	1	3	6		15		472
Total	570	18	3	2	23	3.9%	40	1.7	610	889	4	4	5	13	1.4%	31	2.4	920
South Leg Volumes																		
Approach	276	10	1	0	11		17		293	411	2	1	3	6		15		426
Depart	234	9	1	1	11		19		253	396	1	4	2	7		16		412
Total	510	19	2	1	22	4.1%	36	1.6	546	807	3	5	5	13	1.6%	31	2.4	838
East Leg Volumes																		
Approach	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Depart	0	0	0	0	0		0		0	0	0	0	0	0		0		0
Total	0	0	0	0	0	0.0%	0	0.0	0	0	0	0	0	0	0.0%	0	0.0	0
West Leg Volumes																		
Approach	54	2	0	1	3		6		60	98	1	1	1	3		7		105
Depart	50	1	1	2	4		10		60	88	2	0	1	3		7		95
Total	104	3	1	3	7	6.3%	16	2.3	120	186	3	1	2	6	3.1%	14	2.3	200
All Legs																		
Approach	592	20	3	3	26		46		638	941	5	5	6	16		38		979
Depart	592	20	3	3	26		46		638	941	5	5	6	16		38		979
Total	1,184	40	6	6	52	4.2%	92	1.8	1,276	1,882	10	10	12	32	1.7%	76	2.4	1,958

Existing Peak Hour Volumes - Classification Counts

10 **Linden Ave at Base Line Rd**

	AM Peak Hour Volumes									PM Peak Hour Volumes								
		Truck Volumes							Total		Truck Volumes							Total
	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume	Passenger Vehicles	2-Axle 1.5	3-Axle 2.0	4-Axle 3.0	Total Trucks	Truck %-age	PCE	Average PCE	PCE Volume
NL	38	2	0	0	2	5.0%	3	1.5	41	18	0	0	0	0	0.0%	0	0.0	18
NT	125	6	0	0	6	4.6%	9	1.5	134	165	2	0	0	2	1.2%	3	1.5	168
NR	59	0	1	0	1	1.7%	2	2.0	61	45	0	0	0	0	0.0%	0	0.0	45
SL	68	2	0	1	3	4.2%	6	2.0	74	139	0	4	2	6	4.1%	14	2.3	153
ST	88	3	0	0	3	3.3%	5	1.7	93	168	1	0	0	1	0.6%	2	2.0	170
SR	44	2	0	0	2	4.3%	3	1.5	47	95	0	0	0	0	0.0%	0	0.0	95
EL	26	0	0	0	0	0.0%	0	0.0	26	80	0	0	1	1	1.2%	3	3.0	83
ET	315	11	2	22	35	10.0%	87	2.5	402	420	4	5	13	22	5.0%	55	2.5	475
ER	31	0	0	0	0	0.0%	0	0.0	31	25	0	1	0	1	3.8%	2	2.0	27
WL	20	0	0	0	0	0.0%	0	0.0	20	39	0	0	0	0	0.0%	0	0.0	39
WT	352	8	3	22	33	8.6%	84	2.5	436	332	2	1	10	13	3.8%	35	2.7	367
WR	113	7	1	0	8	6.6%	13	1.6	126	163	0	0	2	2	1.2%	6	3.0	169
									1,491									1,809
North Leg Volumes																		
Approach	200	7	0	1	8		14		214	402	1	4	2	7		16		418
Depart	264	13	1	0	14		22		286	408	2	0	3	5		12		420
Total	464	20	1	1	22	4.5%	36	1.6	500	810	3	4	5	12	1.5%	28	2.3	838
South Leg Volumes																		
Approach	222	8	1	0	9		14		236	228	2	0	0	2		3		231
Depart	139	3	0	0	3		5		144	232	1	1	0	2		4		236
Total	361	11	1	0	12	3.2%	19	1.6	380	460	3	1	0	4	0.9%	7	1.8	467
East Leg Volumes																		
Approach	485	15	4	22	41		97		582	534	2	1	12	15		41		575
Depart	442	13	3	23	39		95		537	604	4	9	15	28		69		673
Total	927	28	7	45	80	7.9%	192	2.4	1,119	1,138	6	10	27	43	3.6%	110	2.6	1,248
West Leg Volumes																		
Approach	372	11	2	22	35		87		459	525	4	6	14	24		60		585
Depart	434	12	3	22	37		90		524	445	2	1	10	13		35		480
Total	806	23	5	44	72	8.2%	177	2.5	983	970	6	7	24	37	3.7%	95	2.6	1,065
All Legs																		
Approach	1,279	41	7	45	93		212		1,491	1,689	9	11	28	48		120		1,809
Depart	1,279	41	7	45	93		212		1,491	1,689	9	11	28	48		120		1,809
Total	2,558	82	14	90	186	6.8%	424	2.3	2,982	3,378	18	22	56	96	2.8%	240	2.5	3,618

Int	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
1	396	343	0	0	17	12	0	0	0	431	5	157	Alder Ave at SR-210 WB Ramps
2	0	486	333	6	421	0	298	3	616	0	0	0	Alder Ave at SR-210 EB Ramps
3	127	567	15	155	775	78	97	158	80	26	140	199	Alder Ave at Renaissance Pkwy
4	157	301	100	63	345	138	96	373	74	41	472	128	Alder Ave at Base Line Rd
5	47	716	38	198	698	341	235	106	80	29	122	350	Ayala Dr at Renaissance Pkwy
6	14	717	3	122	641	8	1	0	4	3	1	136	Ayala Dr at Fitzgerald Ave
7	0	0	0	0	0	0	0	0	0	0	0	0	Ayala Dr at Miro Way - FUTURE INT
8	197	584	68	53	546	56	115	264	154	60	322	39	Ayala Dr at Base Line Rd
9	8	285	0	0	233	52	40	0	20	0	0	0	Linden Ave at Miro Way
10	41	134	61	74	93	47	26	402	31	20	436	126	Linden Ave at Base Line Rd

Int	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
1	475	298	0	0	292	376	0	0	0	295	4	123	Alder Ave at SR-210 WB Ramps
2	0	565	420	155	430	0	203	4	502	0	0	0	Alder Ave at SR-210 EB Ramps
3	51	659	34	183	603	138	95	269	67	20	172	221	Alder Ave at Renaissance Pkwy
4	43	323	44	118	363	123	79	434	63	57	346	87	Alder Ave at Base Line Rd
5	106	774	75	342	805	559	379	378	113	61	184	357	Ayala Dr at Renaissance Pkwy
6	8	810	8	209	851	1	0	0	5	1	3	151	Ayala Dr at Fitzgerald Ave
7	0	0	0	0	0	0	0	0	0	0	0	0	Ayala Dr at Miro Way - FUTURE INT
8	142	647	96	139	678	63	135	447	206	89	350	49	Ayala Dr at Base Line Rd
9	24	402	0	0	377	71	70	0	35	0	0	0	Linden Ave at Miro Way
10	18	168	45	153	170	95	83	475	27	39	367	169	Linden Ave at Base Line Rd

APPENDIX D

INTERSECTION ANALYSIS WORKSHEETS

APPENDIX D-1

INTERSECTION ANALYSIS
WORKSHEETS –
EXISTING CONDITIONS

Miro Way and Ayala Drive Warehouse

Vistro File: \...\Miro Way_AM.vistro
Report File: \...\1. EX AM.pdf

Scenario 1 EX AM
5/16/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	NB Left	0.546	32.0	C
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	SB Left	0.703	24.7	C
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	WB Left	0.525	27.1	C
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.656	35.5	D
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	EB Left	0.352	21.5	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.296	6.7	A
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.411	28.4	C
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.119	6.3	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.284	28.8	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	396	343	0	0	17	12	0	0	0	431	5	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	396	343	0	0	17	12	0	0	0	431	5	157
Peak Hour Factor	0.8530	0.8530	1.0000	1.0000	0.8530	0.8530	1.0000	1.0000	1.0000	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	116	101	0	0	5	4	0	0	0	126	1	46
Total Analysis Volume [veh/h]	464	402	0	0	20	14	0	0	0	505	6	184
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	38	52	0	0	14	0	0	0	0	0	38	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	25	54	25	25		28	28
g / C, Green / Cycle	0.28	0.61	0.28	0.28		0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.26	0.11	0.01	0.01		0.28	0.12
s, saturation flow rate [veh/h]	1810	3618	1900	1659		1810	1623
c, Capacity [veh/h]	508	2190	532	465		553	496
d1, Uniform Delay [s]	31.31	7.89	23.54	23.57		30.07	24.56
k, delay calibration	0.22	0.50	0.50	0.50		0.26	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	12.38	0.18	0.11	0.15		13.32	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.18	0.03	0.04		0.91	0.38
d, Delay for Lane Group [s/veh]	43.69	8.07	23.65	23.72		43.39	25.04
Lane Group LOS	D	A	C	C		D	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	11.17	1.63	0.28	0.28		12.19	3.18
50th-Percentile Queue Length [ft/ln]	279.30	40.87	6.89	6.96		304.65	79.54
95th-Percentile Queue Length [veh/ln]	16.65	2.94	0.50	0.50		17.91	5.73
95th-Percentile Queue Length [ft/ln]	416.34	73.56	12.40	12.53		447.78	143.17

Movement, Approach, & Intersection Results

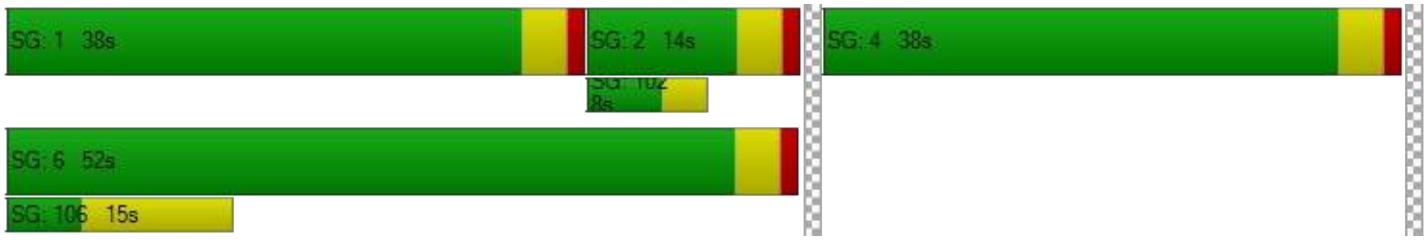
d_M, Delay for Movement [s/veh]	43.69	8.07	0.00	0.00	23.66	23.72	0.00	0.00	0.00	43.39	25.04	25.04
Movement LOS	D	A			C	C				D	C	C
d_A, Approach Delay [s/veh]	27.16			23.68			0.00			38.38		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	31.97											
Intersection LOS	C											
Intersection V/C	0.546											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	1.897	2.055
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	222	0	756
d_b, Bicycle Delay [s]	9.80	35.56	45.00	17.42
l_b,int, Bicycle LOS Score for Intersection	2.274	1.588	4.132	2.706
Bicycle LOS	B	A	D	B

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.703

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	486	333	6	421	0	298	3	616	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	486	333	6	421	0	298	3	616	0	0	0
Peak Hour Factor	1.0000	0.8980	0.8980	0.8980	0.8980	1.0000	0.8980	0.8980	0.8980	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	135	93	2	117	0	83	1	171	0	0	0
Total Analysis Volume [veh/h]	0	541	371	7	469	0	332	3	686	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	14	0	9	23	0	0	67	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	36	36	1	41	41	41	
g / C, Green / Cycle	0.40	0.40	0.01	0.45	0.46	0.46	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.27	0.00	0.13	0.19	0.42	
s, saturation flow rate [veh/h]	1900	1661	1810	3618	1810	1615	
c, Capacity [veh/h]	757	662	19	1639	829	740	
d1, Uniform Delay [s]	21.44	22.46	44.24	15.46	16.22	22.98	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.18	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	3.54	5.79	11.82	0.44	0.32	8.70	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.60	0.69	0.37	0.29	0.40	0.93	
d, Delay for Lane Group [s/veh]	24.98	28.25	56.06	15.90	16.54	31.68	
Lane Group LOS	C	C	E	B	B	C	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.03	8.69	0.22	3.01	4.46	14.51	
50th-Percentile Queue Length [ft/ln]	200.69	217.36	5.38	75.17	111.44	362.67	
95th-Percentile Queue Length [veh/ln]	12.67	13.53	0.39	5.41	7.92	20.75	
95th-Percentile Queue Length [ft/ln]	316.86	338.26	9.69	135.30	198.00	518.83	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	25.49	28.25	56.06	15.90	0.00	16.54	16.54	31.68	0.00	0.00	0.00
Movement LOS		C	C	E	B		B	B	C			
d_A, Approach Delay [s/veh]	26.61			16.49			26.71			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	24.65											
Intersection LOS	C											
Intersection V/C	0.703											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.214	1.796
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	222	422	1400	0
d_b, Bicycle Delay [s]	35.56	28.01	4.05	45.00
l_b,int, Bicycle LOS Score for Intersection	2.312	1.952	3.244	4.132
Bicycle LOS	B	A	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	127	567	15	155	775	78	97	158	80	26	140	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	127	567	15	155	775	78	97	158	80	26	140	199
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	157	4	43	214	22	27	44	22	7	39	55
Total Analysis Volume [veh/h]	140	627	17	171	857	86	107	175	88	29	155	220
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	35	0	17	37	0	12	26	0	12	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	42	42	10	44	44	7	19	19	3	15	15
g / C, Green / Cycle	0.10	0.47	0.47	0.11	0.49	0.49	0.08	0.21	0.21	0.03	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.08	0.17	0.17	0.09	0.25	0.25	0.06	0.07	0.07	0.02	0.08	0.14
s, saturation flow rate [veh/h]	1810	1900	1882	1810	1900	1840	1810	1900	1693	1810	1900	1615
c, Capacity [veh/h]	174	892	883	207	927	897	136	395	352	55	310	263
d1, Uniform Delay [s]	39.84	15.28	15.28	38.96	15.79	15.80	40.90	30.42	30.53	42.98	34.32	36.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.36	1.14	1.16	7.99	2.06	2.13	9.51	0.52	0.62	7.51	1.25	6.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.36	0.36	0.82	0.52	0.52	0.79	0.35	0.36	0.52	0.50	0.84
d, Delay for Lane Group [s/veh]	48.20	16.42	16.43	46.94	17.85	17.92	50.41	30.94	31.15	50.50	35.57	43.36
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.40	4.32	4.28	4.10	6.87	6.67	2.66	2.54	2.38	0.75	3.15	5.10
50th-Percentile Queue Length [ft/ln]	84.91	108.01	107.12	102.43	171.68	166.81	66.54	63.51	59.45	18.63	78.87	127.52
95th-Percentile Queue Length [veh/ln]	6.11	7.73	7.68	7.37	11.16	10.91	4.79	4.57	4.28	1.34	5.68	8.80
95th-Percentile Queue Length [ft/ln]	152.84	193.23	191.99	184.37	279.12	272.72	119.77	114.33	107.01	33.54	141.97	220.12

Movement, Approach, & Intersection Results

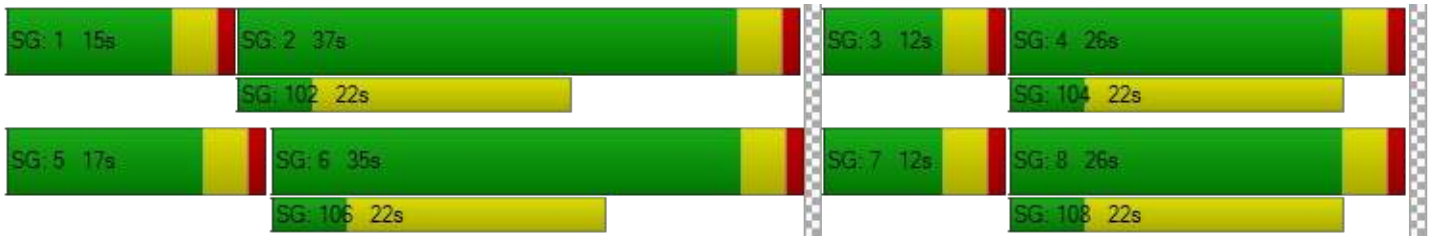
d_M, Delay for Movement [s/veh]	48.20	16.43	16.43	46.94	17.88	17.92	50.41	30.99	31.15	50.50	35.57	43.36
Movement LOS	D	B	B	D	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	22.10			22.35			36.64			40.89		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	27.06											
Intersection LOS	C											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.644	2.705	2.448	2.451
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	733	489	489
d_b, Bicycle Delay [s]	19.34	18.05	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.206	2.479	1.865	1.893
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.656

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	157	301	100	63	345	138	96	373	74	41	472	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	301	100	63	345	138	96	373	74	41	472	128
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	87	29	18	99	40	28	107	21	12	136	37
Total Analysis Volume [veh/h]	181	346	115	72	397	159	110	429	85	47	543	147
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	19	29	0	15	25	25	11	37	0	9	35	35
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	11	33	6	28	39	7	31	3	28	38
g / C, Green / Cycle	0.12	0.37	0.07	0.32	0.44	0.08	0.35	0.04	0.31	0.42
(v / s)_i Volume / Saturation Flow Rate	0.10	0.25	0.04	0.21	0.10	0.06	0.28	0.03	0.29	0.09
s, saturation flow rate [veh/h]	1810	1820	1810	1900	1615	1810	1846	1810	1900	1615
c, Capacity [veh/h]	219	667	126	598	706	141	641	70	586	682
d1, Uniform Delay [s]	38.62	24.20	40.57	26.70	15.82	40.75	26.57	42.67	30.13	16.51
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.26	0.11	0.33	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.67	5.81	4.04	5.72	0.74	9.05	5.45	10.35	16.78	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.69	0.57	0.66	0.23	0.78	0.80	0.67	0.93	0.22
d, Delay for Lane Group [s/veh]	46.29	30.00	44.61	32.43	16.56	49.80	32.02	53.02	46.91	16.67
Lane Group LOS	D	C	D	C	B	D	C	D	D	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.31	9.07	1.67	8.09	2.12	2.72	10.54	1.22	13.69	1.90
50th-Percentile Queue Length [ft/ln]	107.70	226.63	41.75	202.32	52.90	67.91	263.41	30.58	342.13	47.51
95th-Percentile Queue Length [veh/ln]	7.71	14.00	3.01	12.76	3.81	4.89	15.86	2.20	19.75	3.42
95th-Percentile Queue Length [ft/ln]	192.80	350.07	75.16	318.95	95.22	122.24	396.49	55.04	493.80	85.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.29	30.00	30.00	44.61	32.43	16.56	49.80	32.02	32.02	53.02	46.91	16.67
Movement LOS	D	C	C	D	C	B	D	C	C	D	D	B
d_A, Approach Delay [s/veh]	34.59			29.80			35.15			41.27		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.45											
Intersection LOS	D											
Intersection V/C	0.656											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.322	2.541	2.431	2.565
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	467	733	689
d_b, Bicycle Delay [s]	23.47	26.45	18.05	19.34
l_b,int, Bicycle LOS Score for Intersection	2.619	2.596	2.589	2.776
Bicycle LOS	B	B	B	C

Sequence

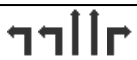
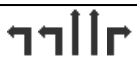
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.352

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	47	716	38	198	698	341	235	106	80	29	122	350
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	716	38	198	698	341	235	106	80	29	122	350
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	189	10	52	184	90	62	28	21	8	32	92
Total Analysis Volume [veh/h]	50	755	40	209	736	360	248	112	84	31	129	369
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	19	39	39	12	33	33	9	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	42	48	14	52	64	8	15	23	3	10	28
g / C, Green / Cycle	0.04	0.46	0.54	0.16	0.58	0.71	0.09	0.17	0.26	0.03	0.11	0.31
(v / s)_i Volume / Saturation Flow Rate	0.01	0.21	0.02	0.06	0.20	0.22	0.07	0.03	0.05	0.01	0.04	0.23
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	157	1675	868	558	2088	1147	312	616	419	105	403	508
d1, Uniform Delay [s]	41.65	16.40	9.87	33.85	10.10	4.86	40.19	31.97	26.03	42.72	36.84	27.38
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.15	0.88	0.10	0.42	0.47	0.72	4.57	0.14	0.23	1.53	0.45	3.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.45	0.05	0.37	0.35	0.31	0.79	0.18	0.20	0.29	0.32	0.73
d, Delay for Lane Group [s/veh]	42.80	17.28	9.97	34.26	10.57	5.57	44.76	32.11	26.26	44.24	37.29	31.37
Lane Group LOS	D	B	A	C	B	A	D	C	C	D	D	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.56	5.22	0.38	2.05	3.69	2.24	2.85	1.04	1.41	0.36	1.32	7.39
50th-Percentile Queue Length [ft/ln]	13.94	130.58	9.48	51.25	92.16	56.10	71.31	26.10	35.30	8.91	32.96	184.68
95th-Percentile Queue Length [veh/ln]	1.00	8.97	0.68	3.69	6.64	4.04	5.13	1.88	2.54	0.64	2.37	11.84
95th-Percentile Queue Length [ft/ln]	25.09	224.29	17.07	92.25	165.88	100.98	128.36	46.99	63.54	16.04	59.33	296.11

Movement, Approach, & Intersection Results

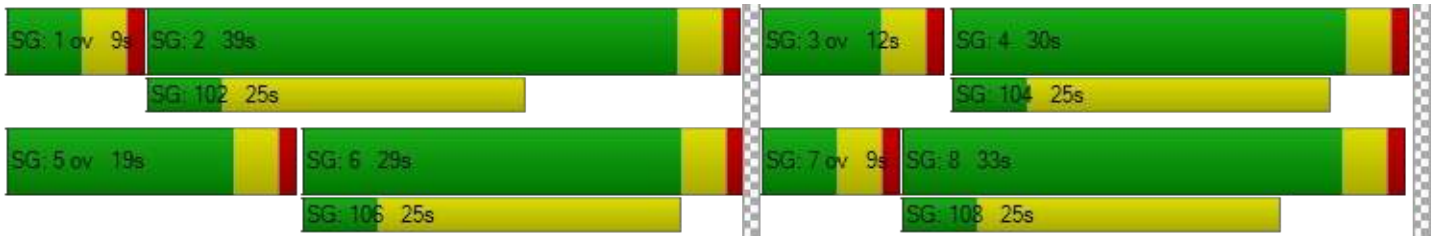
d_M, Delay for Movement [s/veh]	42.80	17.28	9.97	34.26	10.57	5.57	44.76	32.11	26.26	44.24	37.29	31.37
Movement LOS	D	B	A	C	B	A	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	18.44			12.99			38.07			33.57		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	21.52											
Intersection LOS	C											
Intersection V/C	0.352											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.832	2.968	2.732	2.719
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	778	644	578
d_b, Bicycle Delay [s]	23.47	16.81	20.67	22.76
l_b,int, Bicycle LOS Score for Intersection	2.257	2.636	1.926	1.996
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	6.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.296

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	14	717	3	122	641	8	1	0	4	3	1	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	717	3	122	641	8	1	0	4	3	1	136
Peak Hour Factor	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	193	1	33	173	2	0	0	1	1	0	37
Total Analysis Volume [veh/h]	15	773	3	131	691	9	1	0	4	3	1	147
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	72	72	72	72	72	72	10	10	10	10
g / C, Green / Cycle	0.80	0.80	0.80	0.80	0.80	0.80	0.11	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.02	0.20	0.20	0.19	0.18	0.18	0.00	0.00	0.00	0.09
s, saturation flow rate [veh/h]	758	1900	1897	706	1900	1891	1259	1615	1435	1617
c, Capacity [veh/h]	622	1513	1511	581	1513	1507	97	185	219	185
d1, Uniform Delay [s]	3.71	2.34	2.34	4.68	2.28	2.28	43.81	35.37	36.76	38.84
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.41	0.41	0.90	0.36	0.36	0.04	0.05	0.02	7.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.26	0.26	0.23	0.23	0.23	0.01	0.02	0.01	0.80
d, Delay for Lane Group [s/veh]	3.78	2.75	2.75	5.58	2.64	2.64	43.86	35.41	36.78	46.54
Lane Group LOS	A	A	A	A	A	A	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.08	1.23	1.23	0.85	1.09	1.08	0.02	0.08	0.06	3.54
50th-Percentile Queue Length [ft/ln]	1.91	30.84	30.81	21.19	27.16	27.06	0.57	1.99	1.52	88.42
95th-Percentile Queue Length [veh/ln]	0.14	2.22	2.22	1.53	1.96	1.95	0.04	0.14	0.11	6.37
95th-Percentile Queue Length [ft/ln]	3.45	55.51	55.45	38.14	48.89	48.70	1.03	3.59	2.73	159.16

Movement, Approach, & Intersection Results

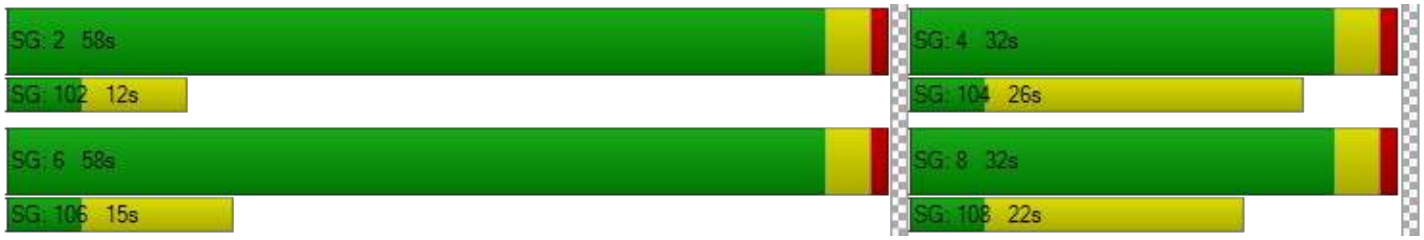
d_M, Delay for Movement [s/veh]	3.78	2.75	2.75	5.58	2.64	2.64	43.86	35.41	35.41	36.78	46.54	46.54
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	2.77			3.11			37.10			46.34		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.72											
Intersection LOS	A											
Intersection V/C	0.296											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.596	2.740	1.973	2.221
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1200	622	622
d_b, Bicycle Delay [s]	7.20	7.20	21.36	21.36
l_b,int, Bicycle LOS Score for Intersection	2.212	2.245	1.568	1.809
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	197	584	68	53	546	56	115	264	154	60	322	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	197	584	68	53	546	56	115	264	154	60	322	39
Peak Hour Factor	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	159	18	14	149	15	31	72	42	16	88	11
Total Analysis Volume [veh/h]	214	635	74	58	594	61	125	287	168	65	350	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	33	0	9	32	0	11	39	0	9	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	51	51	4	49	49	7	15	15	4	12	12
g / C, Green / Cycle	0.07	0.57	0.57	0.04	0.54	0.54	0.08	0.17	0.17	0.05	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.19	0.02	0.17	0.18	0.07	0.13	0.13	0.04	0.10	0.11
s, saturation flow rate [veh/h]	3514	1900	1831	3514	1900	1839	1810	1900	1670	1810	1900	1830
c, Capacity [veh/h]	234	1076	1037	150	1030	997	141	317	279	84	258	248
d1, Uniform Delay [s]	41.74	10.46	10.46	41.93	11.43	11.44	41.11	35.75	35.85	42.44	37.55	37.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.11	0.84	0.87	1.62	0.83	0.86	16.52	3.69	4.52	13.83	4.85	5.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.34	0.34	0.39	0.32	0.32	0.89	0.76	0.77	0.77	0.77	0.78
d, Delay for Lane Group [s/veh]	54.85	11.30	11.34	43.55	12.27	12.30	57.63	39.43	40.37	56.26	42.40	42.84
Lane Group LOS	D	B	B	D	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.76	3.79	3.66	0.65	3.68	3.58	3.35	5.26	4.79	1.74	4.51	4.41
50th-Percentile Queue Length [ft/ln]	68.91	94.73	91.54	16.36	91.96	89.44	83.86	131.44	119.64	43.40	112.67	110.37
95th-Percentile Queue Length [veh/ln]	4.96	6.82	6.59	1.18	6.62	6.44	6.04	9.02	8.37	3.12	7.99	7.86
95th-Percentile Queue Length [ft/ln]	124.04	170.52	164.78	29.45	165.54	160.99	150.95	225.45	209.33	78.12	199.72	196.52

Movement, Approach, & Intersection Results

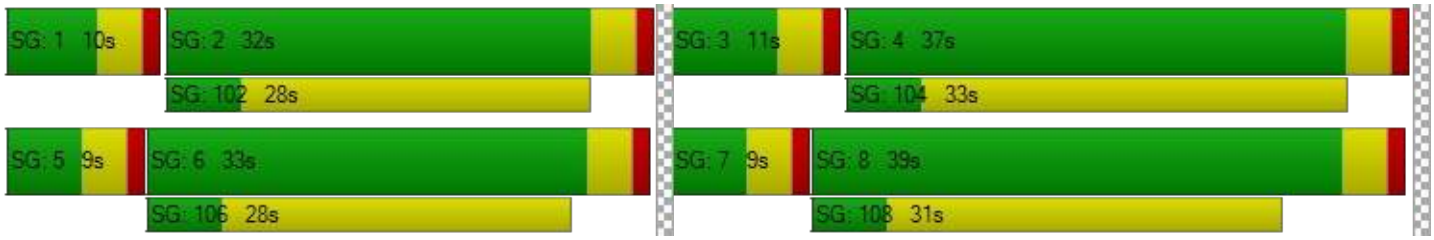
d_M, Delay for Movement [s/veh]	54.85	11.32	11.34	43.55	12.28	12.30	57.63	39.58	40.37	56.26	42.59	42.84
Movement LOS	D	B	B	D	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	21.41			14.83			43.70			44.56		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	28.45											
Intersection LOS	C											
Intersection V/C	0.411											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.739	2.701	2.536	2.472
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	622	778	733
d_b, Bicycle Delay [s]	20.67	21.36	16.81	18.05
l_b,int, Bicycle LOS Score for Intersection	2.321	2.148	2.038	1.937
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	6.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.119

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	8	285	0	0	233	52	40	0	20	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	285	0	0	233	52	40	0	20	0	0	0
Peak Hour Factor	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	80	0	0	65	15	11	0	6	0	0	0
Total Analysis Volume [veh/h]	9	319	0	0	261	58	45	0	22	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	5	0	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	9	61	0	0	52	0	29	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	7	0	0	10	0	17	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No		No					
Maximum Recall	No	No			No		No					
Pedestrian Recall	No	No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	L	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	1	78	73	73	4	4	
g / C, Green / Cycle	0.01	0.87	0.81	0.81	0.05	0.05	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.09	0.08	0.09	0.02	0.01	
s, saturation flow rate [veh/h]	1810	3618	1900	1785	1810	1615	
c, Capacity [veh/h]	21	3126	1536	1443	85	76	
d1, Uniform Delay [s]	44.19	0.91	1.81	1.82	41.91	41.44	
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	13.40	0.07	0.14	0.15	5.03	2.08	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.43	0.10	0.10	0.11	0.53	0.29	
d, Delay for Lane Group [s/veh]	57.59	0.98	1.94	1.97	46.94	43.52	
Lane Group LOS	E	A	A	A	D	D	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.28	0.11	0.39	0.39	1.09	0.51	
50th-Percentile Queue Length [ft/ln]	6.88	2.85	9.65	9.81	27.16	12.79	
95th-Percentile Queue Length [veh/ln]	0.50	0.21	0.69	0.71	1.96	0.92	
95th-Percentile Queue Length [ft/ln]	12.39	5.13	17.37	17.65	48.88	23.01	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.59	0.98	0.00	0.00	1.96	1.97	46.94	0.00	43.52	0.00	0.00	0.00
Movement LOS	E	A			A	A	D		D			
d_A, Approach Delay [s/veh]	2.53			1.96			45.82			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	6.34											
Intersection LOS	A											
Intersection V/C	0.119											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.421	2.299	1.985	1.425
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1267	1067	556	0
d_b, Bicycle Delay [s]	6.05	9.80	23.47	45.00
l_b,int, Bicycle LOS Score for Intersection	1.830	1.823	1.560	4.132
Bicycle LOS	A	A	A	D

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.284

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	134	61	74	93	47	26	402	31	20	436	126
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	41	134	61	74	93	47	26	402	31	20	436	126
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	35	16	19	24	12	7	105	8	5	113	33
Total Analysis Volume [veh/h]	43	139	63	77	97	49	27	418	32	21	454	131
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	9	52	0	9	52	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	58	58	58	58	58	2	18	18	2	17	17
g / C, Green / Cycle	0.65	0.65	0.65	0.65	0.65	0.03	0.20	0.20	0.02	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.04	0.08	0.06	0.03	0.01	0.12	0.12	0.01	0.16	0.16
s, saturation flow rate [veh/h]	1686	1615	918	1729	1615	1810	1900	1853	1810	1900	1756
c, Capacity [veh/h]	1137	1042	672	1115	1042	50	377	368	42	369	341
d1, Uniform Delay [s]	6.28	5.90	12.31	6.01	5.85	43.18	32.83	32.86	43.44	34.76	34.83
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	0.11	0.35	0.15	0.09	8.68	1.55	1.61	8.91	4.56	5.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.06	0.11	0.09	0.05	0.54	0.60	0.61	0.50	0.82	0.83
d, Delay for Lane Group [s/veh]	6.59	6.02	12.66	6.17	5.94	51.87	34.37	34.47	52.35	39.32	40.02
Lane Group LOS	A	A	B	A	A	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.30	0.42	0.87	0.66	0.33	0.71	4.59	4.52	0.56	6.68	6.31
50th-Percentile Queue Length [ft/ln]	32.40	10.58	21.65	16.52	8.15	17.71	114.78	112.90	14.04	167.10	157.82
95th-Percentile Queue Length [veh/ln]	2.33	0.76	1.56	1.19	0.59	1.27	8.11	8.00	1.01	10.92	10.43
95th-Percentile Queue Length [ft/ln]	58.32	19.05	38.97	29.73	14.68	31.87	202.63	200.03	25.27	273.09	260.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.59	6.59	6.02	12.66	6.17	5.94	51.87	34.42	34.47	52.35	39.55	40.02
Movement LOS	A	A	A	B	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	6.44			8.36			35.41			40.10		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	28.77											
Intersection LOS	C											
Intersection V/C	0.284											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.229	2.403	2.562	2.638
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1067
d_b, Bicycle Delay [s]	23.47	23.47	9.80	9.80
l_b,int, Bicycle LOS Score for Intersection	1.964	1.744	1.953	2.060
Bicycle LOS	A	A	A	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Miro Way and Ayala Drive Warehouse

Vistro File: \...\Miro Way_PM.vistro
Report File: \...\1. EX PM.pdf

Scenario 1 EX PM
5/16/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	WB Left	0.723	29.7	C
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	SB Left	0.728	29.3	C
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.494	26.1	C
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.578	30.8	C
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.605	25.3	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.421	6.9	A
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.509	29.8	C
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.222	8.2	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.474	28.7	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	475	298	0	0	292	376	0	0	0	295	4	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	475	298	0	0	292	376	0	0	0	295	4	123
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	130	82	0	0	80	103	0	0	0	81	1	34
Total Analysis Volume [veh/h]	522	327	0	0	321	413	0	0	0	324	4	135
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	53	67	0	0	14	0	0	0	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	28	64	32	32		18	18
g / C, Green / Cycle	0.31	0.71	0.35	0.35		0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.29	0.09	0.17	0.26		0.18	0.09
s, saturation flow rate [veh/h]	1810	3618	1900	1615		1810	1622
c, Capacity [veh/h]	570	2575	669	569		361	323
d1, Uniform Delay [s]	29.65	4.11	22.73	25.38		35.15	31.56
k, delay calibration	0.12	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	6.66	0.10	2.46	7.89		8.30	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.13	0.48	0.73		0.90	0.43
d, Delay for Lane Group [s/veh]	36.31	4.21	25.18	33.27		43.45	32.46
Lane Group LOS	D	A	C	C		D	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	11.51	0.81	5.59	8.63		7.59	2.69
50th-Percentile Queue Length [ft/ln]	287.63	20.31	139.85	215.67		189.86	67.16
95th-Percentile Queue Length [veh/ln]	17.07	1.46	9.47	13.44		12.11	4.84
95th-Percentile Queue Length [ft/ln]	426.70	36.56	236.82	336.10		302.85	120.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.31	4.21	0.00	0.00	25.18	33.27	0.00	0.00	0.00	43.45	32.46	32.46
Movement LOS	D	A			C	C				D	C	C
d_A, Approach Delay [s/veh]	23.95			29.73			0.00			40.15		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	29.69											
Intersection LOS	C											
Intersection V/C	0.723											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.340	1.942
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	222	0	422
d_b, Bicycle Delay [s]	4.05	35.56	45.00	28.01
l_b,int, Bicycle LOS Score for Intersection	2.260	2.165	4.132	2.324
Bicycle LOS	B	B	D	B

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.728

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	565	420	155	430	0	203	4	502	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	565	420	155	430	0	203	4	502	0	0	0
Peak Hour Factor	1.0000	0.9550	0.9550	0.9550	0.9550	1.0000	0.9550	0.9550	0.9550	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	148	110	41	113	0	53	1	131	0	0	0
Total Analysis Volume [veh/h]	0	592	440	162	450	0	213	4	526	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	36	0	13	49	0	0	41	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	37	37	9	50	32	32	
g / C, Green / Cycle	0.42	0.42	0.10	0.56	0.35	0.35	
(v / s)_i Volume / Saturation Flow Rate	0.27	0.31	0.09	0.12	0.12	0.33	
s, saturation flow rate [veh/h]	1900	1651	1810	3618	1811	1615	
c, Capacity [veh/h]	787	684	181	2021	639	569	
d1, Uniform Delay [s]	21.21	22.47	40.03	10.02	21.43	27.97	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.31	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.24	7.57	14.13	0.26	0.31	15.96	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.66	0.75	0.90	0.22	0.34	0.92	
d, Delay for Lane Group [s/veh]	25.45	30.04	54.17	10.27	21.74	43.93	
Lane Group LOS	C	C	D	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.24	10.25	4.20	2.16	3.34	12.92	
50th-Percentile Queue Length [ft/ln]	231.08	256.21	105.02	54.00	83.52	322.99	
95th-Percentile Queue Length [veh/ln]	14.23	15.50	7.56	3.89	6.01	18.81	
95th-Percentile Queue Length [ft/ln]	355.73	387.46	189.03	97.21	150.34	470.35	

Movement, Approach, & Intersection Results

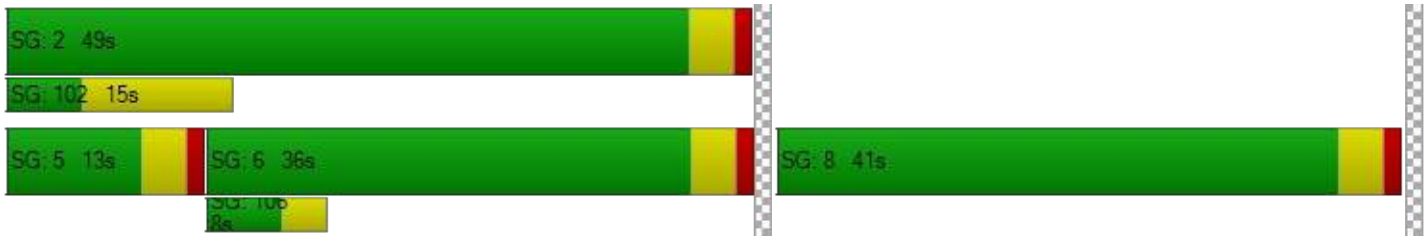
d_M, Delay for Movement [s/veh]	0.00	26.04	30.04	54.17	10.27	0.00	21.74	21.74	43.93	0.00	0.00	0.00
Movement LOS		C	C	D	B		C	C	D			
d_A, Approach Delay [s/veh]	27.75			21.89			37.45			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	29.27											
Intersection LOS	C											
Intersection V/C	0.728											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.079	2.016
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	1000	822	0
d_b, Bicycle Delay [s]	18.69	11.25	15.61	45.00
l_b,int, Bicycle LOS Score for Intersection	2.411	2.065	2.786	4.132
Bicycle LOS	B	B	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	26.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.494

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	51	659	34	183	603	138	95	269	67	20	172	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	659	34	183	603	138	95	269	67	20	172	221
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	172	9	48	157	36	25	70	17	5	45	58
Total Analysis Volume [veh/h]	53	686	35	191	628	144	99	280	70	21	179	230
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	19	34	0	12	32	0	9	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	41	41	11	49	49	6	20	20	2	15	15
g / C, Green / Cycle	0.04	0.46	0.46	0.13	0.54	0.54	0.07	0.22	0.22	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.19	0.19	0.11	0.21	0.21	0.05	0.09	0.10	0.01	0.09	0.14
s, saturation flow rate [veh/h]	1810	1900	1868	1810	1900	1779	1810	1900	1772	1810	1900	1615
c, Capacity [veh/h]	76	866	851	228	1026	961	127	412	384	42	323	275
d1, Uniform Delay [s]	42.54	16.47	16.48	38.41	12.05	12.05	41.17	30.47	30.53	43.44	34.22	36.14
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.86	1.49	1.52	7.87	1.11	1.19	9.94	0.72	0.80	8.91	1.48	6.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.42	0.42	0.84	0.39	0.39	0.78	0.44	0.44	0.50	0.55	0.84
d, Delay for Lane Group [s/veh]	53.40	17.97	18.00	46.29	13.16	13.24	51.11	31.19	31.34	52.35	35.70	42.81
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.38	5.17	5.09	4.55	4.65	4.37	2.48	3.39	3.24	0.56	3.66	5.30
50th-Percentile Queue Length [ft/ln]	34.51	129.25	127.32	113.73	116.26	109.35	62.08	84.76	80.95	14.04	91.62	132.55
95th-Percentile Queue Length [veh/ln]	2.48	8.90	8.79	8.05	8.19	7.80	4.47	6.10	5.83	1.01	6.60	9.08
95th-Percentile Queue Length [ft/ln]	62.12	222.48	219.85	201.17	204.68	195.10	111.74	152.57	145.72	25.27	164.92	226.96

Movement, Approach, & Intersection Results

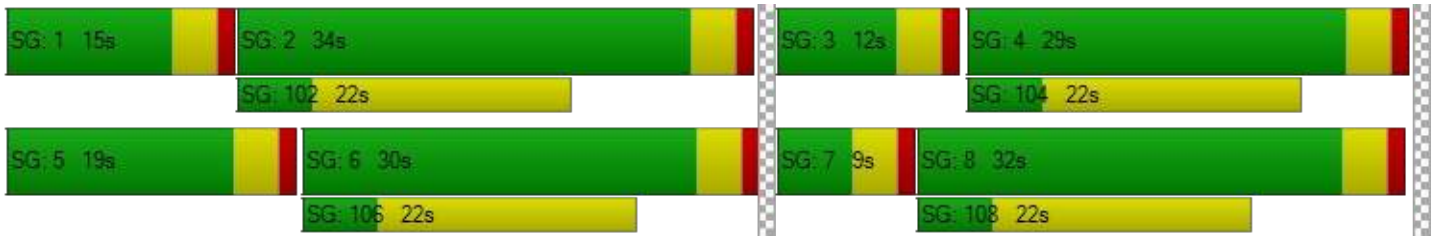
d_M, Delay for Movement [s/veh]	53.40	17.98	18.00	46.29	13.19	13.24	51.11	31.25	31.34	52.35	35.70	42.81
Movement LOS	D	B	B	D	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	20.41			19.76			35.64			40.32		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	26.06											
Intersection LOS	C											
Intersection V/C	0.494											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.592	2.687	2.462	2.484
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	667	622	556
d_b, Bicycle Delay [s]	22.76	20.00	21.36	23.47
l_b,int, Bicycle LOS Score for Intersection	2.198	2.354	1.930	1.914
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.578

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	43	323	44	118	363	123	79	434	63	57	346	87
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	323	44	118	363	123	79	434	63	57	346	87
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	83	11	30	93	32	20	112	16	15	89	22
Total Analysis Volume [veh/h]	44	332	45	121	373	127	81	447	65	59	356	90
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	17	26	0	13	22	22	24	42	0	9	27	27
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	35	8	40	49	6	27	4	25	37
g / C, Green / Cycle	0.04	0.39	0.08	0.44	0.55	0.06	0.30	0.04	0.28	0.41
(v / s)_i Volume / Saturation Flow Rate	0.02	0.20	0.07	0.20	0.08	0.04	0.28	0.03	0.19	0.06
s, saturation flow rate [veh/h]	1810	1861	1810	1900	1615	1810	1858	1810	1900	1615
c, Capacity [veh/h]	70	733	153	836	884	115	559	78	533	661
d1, Uniform Delay [s]	42.62	20.71	40.43	17.57	9.99	41.32	30.38	42.60	28.69	16.64
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.19	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.88	2.57	8.90	1.73	0.34	7.67	10.43	13.84	1.46	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.51	0.79	0.45	0.14	0.71	0.92	0.76	0.67	0.14
d, Delay for Lane Group [s/veh]	51.50	23.28	49.33	19.30	10.33	48.99	40.81	56.44	30.14	16.73
Lane Group LOS	D	C	D	B	B	D	D	E	C	B
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.13	6.32	2.97	5.55	1.25	1.99	11.94	1.58	6.82	1.15
50th-Percentile Queue Length [ft/ln]	28.19	157.92	74.29	138.76	31.13	49.69	298.45	39.57	170.62	28.71
95th-Percentile Queue Length [veh/ln]	2.03	10.44	5.35	9.41	2.24	3.58	17.60	2.85	11.11	2.07
95th-Percentile Queue Length [ft/ln]	50.74	260.97	133.73	235.35	56.03	89.45	440.11	71.23	277.73	51.67

Movement, Approach, & Intersection Results

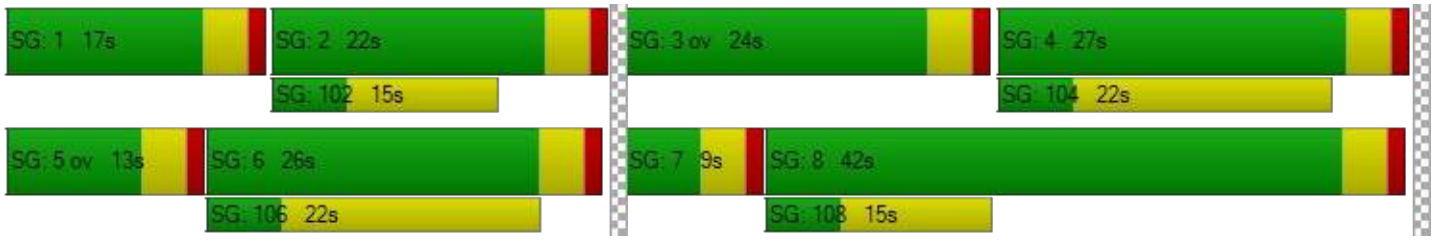
d_M, Delay for Movement [s/veh]	51.50	23.28	23.28	49.33	19.30	10.33	48.99	40.81	40.81	56.44	30.14	16.73
Movement LOS	D	C	C	D	B	B	D	D	D	E	C	B
d_A, Approach Delay [s/veh]	26.23			23.32			41.93			30.83		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	30.82											
Intersection LOS	C											
Intersection V/C	0.578											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.240	2.521	2.306	2.519
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	400	844	511
d_b, Bicycle Delay [s]	25.69	28.80	15.02	24.94
l_b,int, Bicycle LOS Score for Intersection	2.254	2.584	2.538	2.393
Bicycle LOS	B	B	B	B

Sequence

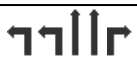
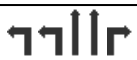
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	106	774	75	342	805	559	379	378	113	61	184	357
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	774	75	342	805	559	379	378	113	61	184	357
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	202	20	89	210	146	99	99	29	16	48	93
Total Analysis Volume [veh/h]	111	808	78	357	840	584	396	395	118	64	192	373
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	15	35	35	17	37	37	9	29	29
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	40	48	11	46	63	13	19	28	4	10	25
g / C, Green / Cycle	0.06	0.44	0.53	0.12	0.51	0.70	0.14	0.22	0.32	0.04	0.12	0.28
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.05	0.10	0.23	0.36	0.11	0.11	0.07	0.02	0.05	0.23
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	195	1593	855	430	1834	1124	508	778	509	156	417	455
d1, Uniform Delay [s]	41.45	18.14	10.47	38.59	14.24	6.52	37.12	31.12	22.77	41.84	37.21	30.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.59	1.16	0.21	4.22	0.83	1.72	2.65	0.51	0.23	1.71	0.80	7.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.51	0.09	0.83	0.46	0.52	0.78	0.51	0.23	0.41	0.46	0.82
d, Delay for Lane Group [s/veh]	44.04	19.30	10.68	42.82	15.07	8.23	39.77	31.64	23.00	43.56	38.00	37.59
Lane Group LOS	D	B	B	D	B	A	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	6.04	0.78	4.04	5.38	4.86	4.32	3.77	1.84	0.72	2.00	8.24
50th-Percentile Queue Length [ft/ln]	31.45	150.88	19.47	100.97	134.40	121.38	107.90	94.13	46.11	18.04	49.90	206.12
95th-Percentile Queue Length [veh/ln]	2.26	10.06	1.40	7.27	9.18	8.47	7.72	6.78	3.32	1.30	3.59	12.95
95th-Percentile Queue Length [ft/ln]	56.62	251.60	35.04	181.75	229.47	211.72	193.08	169.44	83.00	32.48	89.81	323.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.04	19.30	10.68	42.82	15.07	8.23	39.77	31.64	23.00	43.56	38.00	37.59
Movement LOS	D	B	B	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	21.38			18.39			34.06			38.33		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	25.29											
Intersection LOS	C											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.877	3.063	2.846	2.799
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	689	733	556
d_b, Bicycle Delay [s]	23.47	19.34	18.05	23.47
l_b,int, Bicycle LOS Score for Intersection	2.382	3.029	2.310	2.079
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	6.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.421

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	810	8	209	851	1	0	0	5	1	3	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	810	8	209	851	1	0	0	5	1	3	151
Peak Hour Factor	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	208	2	54	219	0	0	0	1	0	1	39
Total Analysis Volume [veh/h]	8	832	8	215	875	1	0	0	5	1	3	155
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	55	0	0	55	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	71	71	11	11	11	11
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.01	0.22	0.22	0.32	0.23	0.23	0.00	0.00	0.00	0.10
s, saturation flow rate [veh/h]	643	1900	1894	665	1900	1899	1248	1615	1434	1620
c, Capacity [veh/h]	524	1501	1496	541	1501	1500	99	196	228	196
d1, Uniform Delay [s]	4.39	2.55	2.55	6.26	2.58	2.58	0.00	34.87	36.20	38.52
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.47	0.47	2.18	0.49	0.49	0.00	0.05	0.01	7.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.28	0.28	0.40	0.29	0.29	0.00	0.03	0.00	0.81
d, Delay for Lane Group [s/veh]	4.44	3.02	3.02	8.43	3.07	3.07	0.00	34.92	36.21	46.07
Lane Group LOS	A	A	A	A	A	A	A	C	D	D
Critical Lane Group	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.05	1.46	1.45	1.84	1.54	1.54	0.00	0.10	0.02	3.76
50th-Percentile Queue Length [ft/ln]	1.18	36.46	36.36	45.96	38.44	38.43	0.00	2.47	0.50	93.95
95th-Percentile Queue Length [veh/ln]	0.08	2.63	2.62	3.31	2.77	2.77	0.00	0.18	0.04	6.76
95th-Percentile Queue Length [ft/ln]	2.12	65.63	65.45	82.73	69.20	69.18	0.00	4.44	0.90	169.11

Movement, Approach, & Intersection Results

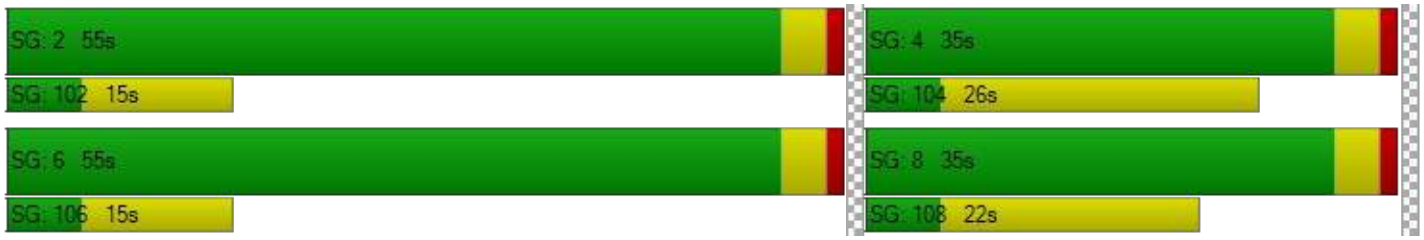
d_M, Delay for Movement [s/veh]	4.44	3.02	3.02	8.43	3.07	3.07	0.00	34.92	34.92	36.21	46.07	46.07
Movement LOS	A	A	A	A	A	A	A	C	C	D	D	D
d_A, Approach Delay [s/veh]	3.03			4.13			34.92			46.00		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	6.93											
Intersection LOS	A											
Intersection V/C	0.421											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.640	2.792	1.959	2.372
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	689	689
d_b, Bicycle Delay [s]	8.45	8.45	19.34	19.34
l_b,int, Bicycle LOS Score for Intersection	2.259	2.460	1.568	1.822
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	142	647	96	139	678	63	135	447	206	89	350	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	647	96	139	678	63	135	447	206	89	350	49
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	175	26	38	183	17	37	121	56	24	95	13
Total Analysis Volume [veh/h]	154	700	104	150	734	68	146	484	223	96	379	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	32	0	9	32	0	12	38	0	11	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	42	42	5	42	42	8	21	21	6	19	19
g / C, Green / Cycle	0.06	0.47	0.47	0.06	0.47	0.47	0.09	0.23	0.23	0.07	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.22	0.04	0.21	0.21	0.08	0.20	0.20	0.05	0.12	0.12
s, saturation flow rate [veh/h]	3514	1900	1815	3514	1900	1844	1810	1900	1700	1810	1900	1820
c, Capacity [veh/h]	195	890	850	195	890	864	161	438	391	123	398	381
d1, Uniform Delay [s]	41.98	16.23	16.23	41.93	16.18	16.18	40.63	33.17	33.18	41.28	31.81	31.84
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.94	1.72	1.80	6.23	1.69	1.74	16.90	4.78	5.36	10.18	1.20	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.46	0.46	0.77	0.46	0.46	0.91	0.85	0.85	0.78	0.55	0.56
d, Delay for Lane Group [s/veh]	48.91	17.95	18.03	48.16	17.88	17.93	57.53	37.95	38.54	51.46	33.00	33.12
Lane Group LOS	D	B	B	D	B	B	E	D	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.86	5.88	5.63	1.79	5.80	5.64	3.91	8.18	7.39	2.42	4.33	4.20
50th-Percentile Queue Length [ft/ln]	46.43	146.89	140.81	44.82	144.93	140.96	97.86	204.47	184.82	60.45	108.29	104.94
95th-Percentile Queue Length [veh/ln]	3.34	9.85	9.52	3.23	9.75	9.53	7.05	12.87	11.85	4.35	7.74	7.56
95th-Percentile Queue Length [ft/ln]	83.57	246.27	238.11	80.68	243.65	238.32	176.15	321.72	296.30	108.81	193.62	188.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.91	17.99	18.03	48.16	17.90	17.93	57.53	38.09	38.54	51.46	33.05	33.12
Movement LOS	D	B	B	D	B	B	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	22.96			22.67			41.53			36.41		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.85											
Intersection LOS	C											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.781	2.755	2.585	2.548
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	622	756	733
d_b, Bicycle Delay [s]	21.36	21.36	17.42	18.05
l_b,int, Bicycle LOS Score for Intersection	2.350	2.345	2.263	1.995
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	8.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.222

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	24	402	0	0	377	71	70	0	35	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	402	0	0	377	71	70	0	35	0	0	0
Peak Hour Factor	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	126	0	0	119	22	22	0	11	0	0	0
Total Analysis Volume [veh/h]	30	506	0	0	474	89	88	0	44	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	5	0	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	9	49	0	0	40	0	41	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	7	0	0	10	0	17	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No		No					
Maximum Recall	No	No			No		No					
Pedestrian Recall	No	No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	L	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	3	76	69	69	6	6	
g / C, Green / Cycle	0.03	0.84	0.77	0.77	0.07	0.07	
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.15	0.16	0.05	0.03	
s, saturation flow rate [veh/h]	1810	3618	1900	1800	1810	1615	
c, Capacity [veh/h]	53	3035	1453	1377	131	117	
d1, Uniform Delay [s]	43.10	1.36	2.92	2.95	40.72	39.83	
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	8.93	0.12	0.30	0.34	5.92	2.01	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.56	0.17	0.19	0.20	0.67	0.38	
d, Delay for Lane Group [s/veh]	52.02	1.48	3.21	3.28	46.64	41.84	
Lane Group LOS	D	A	A	A	D	D	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.78	0.38	1.10	1.12	2.10	0.98	
50th-Percentile Queue Length [ft/ln]	19.62	9.47	27.49	27.94	52.39	24.62	
95th-Percentile Queue Length [veh/ln]	1.41	0.68	1.98	2.01	3.77	1.77	
95th-Percentile Queue Length [ft/ln]	35.31	17.04	49.47	50.28	94.31	44.32	

Movement, Approach, & Intersection Results

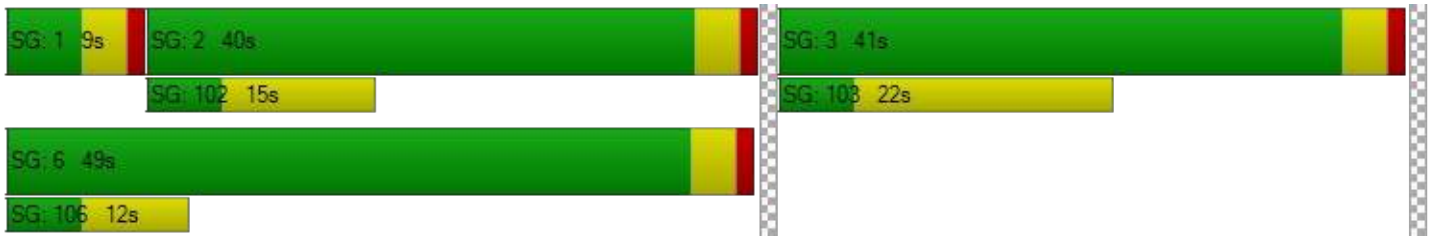
d_M, Delay for Movement [s/veh]	52.02	1.48	0.00	0.00	3.24	3.28	46.64	0.00	41.84	0.00	0.00	0.00
Movement LOS	D	A			A	A	D		D			
d_A, Approach Delay [s/veh]	4.30			3.25			45.04			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	8.19											
Intersection LOS	A											
Intersection V/C	0.222											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.507	2.415	2.023	1.425
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	800	822	0
d_b, Bicycle Delay [s]	11.25	16.20	15.61	45.00
l_b,int, Bicycle LOS Score for Intersection	2.002	2.024	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.474

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	168	45	153	170	95	83	475	27	39	367	169
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	168	45	153	170	95	83	475	27	39	367	169
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	47	13	43	48	27	23	134	8	11	103	48
Total Analysis Volume [veh/h]	20	189	51	172	191	107	93	535	30	44	413	190
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	10	52	0	9	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	54	54	54	6	21	21	3	18	18
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.60	0.07	0.23	0.23	0.04	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.12	0.03	0.25	0.11	0.07	0.05	0.15	0.15	0.02	0.17	0.17
s, saturation flow rate [veh/h]	1793	1615	677	1729	1615	1810	1900	1865	1810	1900	1701
c, Capacity [veh/h]	1118	967	485	1036	967	119	438	429	68	384	343
d1, Uniform Delay [s]	8.13	7.47	22.33	8.13	7.75	41.41	31.36	31.38	42.74	34.39	34.47
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	0.10	2.02	0.39	0.23	10.58	1.64	1.68	10.09	4.51	5.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.05	0.35	0.18	0.11	0.78	0.65	0.65	0.65	0.82	0.83
d, Delay for Lane Group [s/veh]	8.50	7.57	24.35	8.53	7.98	51.99	33.01	33.06	52.83	38.91	39.81
Lane Group LOS	A	A	C	A	A	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.79	0.40	2.97	1.64	0.88	2.36	5.69	5.60	1.14	6.97	6.40
50th-Percentile Queue Length [ft/ln]	44.67	10.07	74.22	41.04	21.95	58.92	142.18	139.97	28.62	174.19	159.97
95th-Percentile Queue Length [veh/ln]	3.22	0.72	5.34	2.96	1.58	4.24	9.60	9.48	2.06	11.30	10.55
95th-Percentile Queue Length [ft/ln]	80.41	18.12	133.60	73.88	39.51	106.05	239.95	236.98	51.51	282.41	263.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.50	8.50	7.57	24.35	8.53	7.98	51.99	33.03	33.06	52.83	39.12	39.81
Movement LOS	A	A	A	C	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	8.32			14.19			35.71			40.25		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	28.69											
Intersection LOS	C											
Intersection V/C	0.474											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.261	2.485	2.563	2.820
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1044
d_b, Bicycle Delay [s]	23.47	23.47	9.80	10.27
l_b,int, Bicycle LOS Score for Intersection	1.989	1.947	2.102	2.093
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



APPENDIX D-2

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2024

Miro Way and Ayala Drive Warehouse

Vistro File: \...\Miro Way_AM.vistro
Report File: \...\2. OY AM.pdf

Scenario 2 OY 2024 AM
5/16/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	NB Left	0.557	32.2	C
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	SB Left	0.717	25.2	C
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	WB Left	0.537	27.4	C
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.669	36.1	D
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	EB Left	0.362	21.7	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.302	6.8	A
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.419	28.8	C
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.122	6.3	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.291	28.7	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	396	343	0	0	17	12	0	0	0	431	5	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	404	350	0	0	17	12	0	0	0	440	5	160
Peak Hour Factor	0.8530	0.8530	1.0000	1.0000	0.8530	0.8530	1.0000	1.0000	1.0000	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	118	103	0	0	5	4	0	0	0	129	1	47
Total Analysis Volume [veh/h]	474	410	0	0	20	14	0	0	0	516	6	188
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	38	52	0	0	14	0	0	0	0	0	38	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	26	54	24	24		28	28
g / C, Green / Cycle	0.29	0.60	0.27	0.27		0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.26	0.11	0.01	0.01		0.29	0.12
s, saturation flow rate [veh/h]	1810	3618	1900	1659		1810	1623
c, Capacity [veh/h]	518	2169	511	446		564	506
d1, Uniform Delay [s]	31.07	8.14	24.27	24.30		29.83	24.22
k, delay calibration	0.23	0.50	0.50	0.50		0.27	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	12.91	0.19	0.12	0.16		13.89	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.19	0.03	0.04		0.92	0.38
d, Delay for Lane Group [s/veh]	43.98	8.33	24.39	24.46		43.72	24.70
Lane Group LOS	D	A	C	C		D	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	11.47	1.71	0.28	0.28		12.52	3.22
50th-Percentile Queue Length [ft/ln]	286.76	42.63	7.03	7.10		312.97	80.62
95th-Percentile Queue Length [veh/ln]	17.02	3.07	0.51	0.51		18.32	5.80
95th-Percentile Queue Length [ft/ln]	425.62	76.74	12.65	12.78		458.04	145.11

Movement, Approach, & Intersection Results

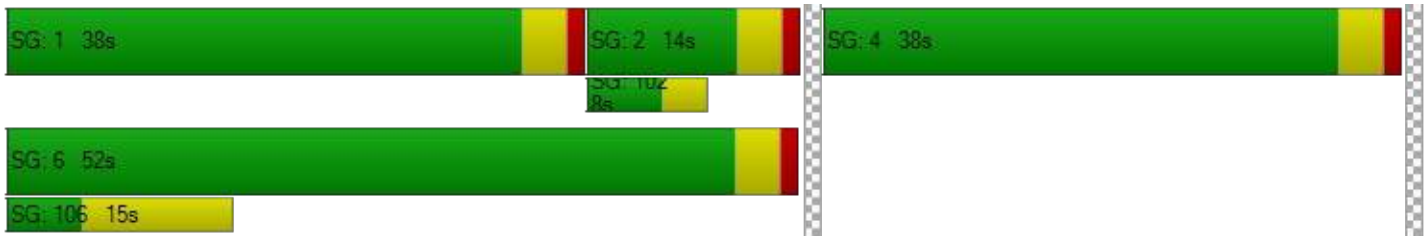
d_M, Delay for Movement [s/veh]	43.98	8.33	0.00	0.00	24.40	24.46	0.00	0.00	0.00	43.72	24.70	24.70
Movement LOS	D	A			C	C				D	C	C
d_A, Approach Delay [s/veh]	27.45			24.42			0.00			38.52		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	32.22											
Intersection LOS	C											
Intersection V/C	0.557											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	1.907	2.062
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	222	0	756
d_b, Bicycle Delay [s]	9.80	35.56	45.00	17.42
l_b,int, Bicycle LOS Score for Intersection	2.289	1.588	4.132	2.731
Bicycle LOS	B	A	D	B

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.717

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	486	333	6	421	0	298	3	616	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	496	340	6	429	0	304	3	628	0	0	0
Peak Hour Factor	1.0000	0.8980	0.8980	0.8980	0.8980	1.0000	0.8980	0.8980	0.8980	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	138	95	2	119	0	85	1	175	0	0	0
Total Analysis Volume [veh/h]	0	552	379	7	478	0	339	3	699	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	14	0	9	23	0	0	67	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	35	35	1	40	42	42	
g / C, Green / Cycle	0.39	0.39	0.01	0.45	0.47	0.47	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.28	0.00	0.13	0.19	0.43	
s, saturation flow rate [veh/h]	1900	1661	1810	3618	1810	1615	
c, Capacity [veh/h]	741	648	19	1610	844	753	
d1, Uniform Delay [s]	22.16	23.25	44.24	15.97	15.82	22.62	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.19	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.00	6.72	11.82	0.47	0.31	9.03	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.63	0.72	0.37	0.30	0.41	0.93	
d, Delay for Lane Group [s/veh]	26.16	29.96	56.06	16.44	16.13	31.65	
Lane Group LOS	C	C	E	B	B	C	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.43	9.19	0.22	3.13	4.49	14.78	
50th-Percentile Queue Length [ft/ln]	210.84	229.78	5.38	78.30	112.14	369.59	
95th-Percentile Queue Length [veh/ln]	13.20	14.16	0.39	5.64	7.96	21.09	
95th-Percentile Queue Length [ft/ln]	329.91	354.09	9.69	140.94	198.98	527.23	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	26.76	29.96	56.06	16.44	0.00	16.13	16.13	31.65	0.00	0.00	0.00
Movement LOS		C	C	E	B		B	B	C			
d_A, Approach Delay [s/veh]	28.06			17.01			26.55			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	25.24											
Intersection LOS	C											
Intersection V/C	0.717											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.224	1.804
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	222	422	1400	0
d_b, Bicycle Delay [s]	35.56	28.01	4.05	45.00
l_b,int, Bicycle LOS Score for Intersection	2.328	1.960	3.277	4.132
Bicycle LOS	B	A	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	27.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.537

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	127	567	15	155	775	78	97	158	80	26	140	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	578	15	158	791	80	99	161	82	27	143	203
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	160	4	44	219	22	27	45	23	7	40	56
Total Analysis Volume [veh/h]	144	639	17	175	875	88	110	178	91	30	158	225
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	35	0	17	37	0	12	26	0	12	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	42	42	10	43	43	7	19	19	3	15	15
g / C, Green / Cycle	0.10	0.46	0.46	0.12	0.48	0.48	0.08	0.21	0.21	0.03	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.17	0.17	0.10	0.26	0.26	0.06	0.07	0.08	0.02	0.08	0.14
s, saturation flow rate [veh/h]	1810	1900	1883	1810	1900	1840	1810	1900	1690	1810	1900	1615
c, Capacity [veh/h]	178	878	870	211	913	884	140	403	358	56	315	268
d1, Uniform Delay [s]	39.73	15.74	15.74	38.86	16.35	16.36	40.81	30.16	30.26	42.95	34.14	36.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.35	1.22	1.24	8.01	2.25	2.33	9.43	0.51	0.61	7.56	1.23	6.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.38	0.38	0.83	0.54	0.54	0.79	0.35	0.36	0.53	0.50	0.84
d, Delay for Lane Group [s/veh]	48.08	16.97	16.98	46.87	18.60	18.68	50.24	30.67	30.88	50.51	35.37	43.28
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.49	4.50	4.46	4.19	7.21	7.00	2.73	2.59	2.42	0.77	3.21	5.22
50th-Percentile Queue Length [ft/ln]	87.23	112.43	111.51	104.76	180.16	175.12	68.26	64.73	60.45	19.25	80.16	130.39
95th-Percentile Queue Length [veh/ln]	6.28	7.98	7.92	7.54	11.61	11.35	4.91	4.66	4.35	1.39	5.77	8.96
95th-Percentile Queue Length [ft/ln]	157.02	199.38	198.11	188.57	290.22	283.63	122.87	116.51	108.81	34.65	144.29	224.02

Movement, Approach, & Intersection Results

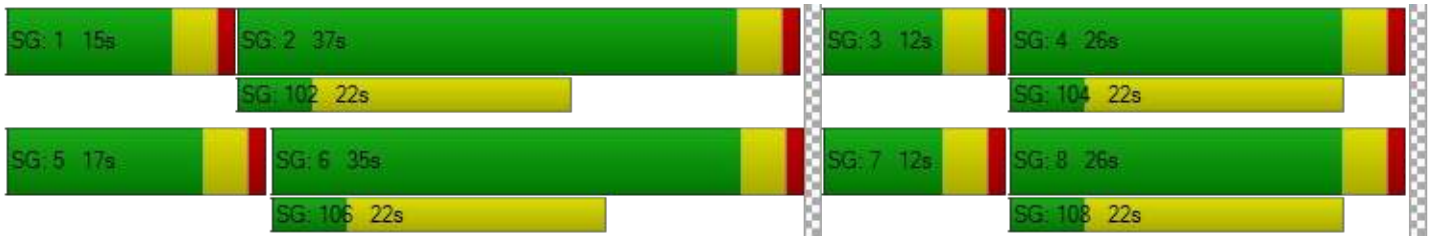
d_M, Delay for Movement [s/veh]	48.08	16.97	16.98	46.87	18.64	18.68	50.24	30.72	30.88	50.51	35.37	43.28
Movement LOS	D	B	B	D	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	22.57			22.98			36.42			40.78		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	27.42											
Intersection LOS	C											
Intersection V/C	0.537											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.652	2.713	2.451	2.454
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	733	489	489
d_b, Bicycle Delay [s]	19.34	18.05	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.220	2.498	1.872	1.900
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.669

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	157	301	100	63	345	138	96	373	74	41	472	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	307	102	64	352	141	98	380	75	42	481	131
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	88	29	18	101	41	28	109	22	12	138	38
Total Analysis Volume [veh/h]	184	353	117	74	405	162	113	437	86	48	554	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	19	29	0	15	25	25	11	37	0	9	35	35
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	11	32	6	28	39	7	32	4	28	39
g / C, Green / Cycle	0.12	0.36	0.07	0.31	0.43	0.08	0.35	0.04	0.31	0.43
(v / s)_i Volume / Saturation Flow Rate	0.10	0.26	0.04	0.21	0.10	0.06	0.28	0.03	0.29	0.09
s, saturation flow rate [veh/h]	1810	1820	1810	1900	1615	1810	1846	1810	1900	1615
c, Capacity [veh/h]	222	655	129	585	695	141	650	71	596	693
d1, Uniform Delay [s]	38.55	24.87	40.48	27.38	16.23	40.82	26.36	42.66	29.93	16.17
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.26	0.11	0.34	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.68	6.65	4.00	6.59	0.79	10.10	5.67	10.54	17.48	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.72	0.57	0.69	0.23	0.80	0.80	0.67	0.93	0.22
d, Delay for Lane Group [s/veh]	46.23	31.52	44.49	33.97	17.02	50.93	32.03	53.21	47.40	16.33
Lane Group LOS	D	C	D	C	B	D	C	D	D	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.38	9.52	1.71	8.48	2.19	2.83	10.74	1.25	14.06	1.93
50th-Percentile Queue Length [ft/ln]	109.44	237.88	42.83	212.11	54.86	70.66	268.42	31.27	351.45	48.23
95th-Percentile Queue Length [veh/ln]	7.81	14.57	3.08	13.26	3.95	5.09	16.11	2.25	20.21	3.47
95th-Percentile Queue Length [ft/ln]	195.23	364.35	77.10	331.53	98.75	127.18	402.76	56.29	505.18	86.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.23	31.52	31.52	44.49	33.97	17.02	50.93	32.03	32.03	53.21	47.40	16.33
Movement LOS	D	C	C	D	C	B	D	C	C	D	D	B
d_A, Approach Delay [s/veh]	35.66			30.90			35.39			41.54		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	36.11											
Intersection LOS	D											
Intersection V/C	0.669											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.329	2.547	2.441	2.571
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	467	733	689
d_b, Bicycle Delay [s]	23.47	26.45	18.05	19.34
l_b,int, Bicycle LOS Score for Intersection	2.639	2.617	2.609	2.802
Bicycle LOS	B	B	B	C

Sequence

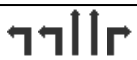
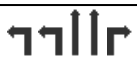
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.362

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	47	716	38	198	698	341	235	106	80	29	122	350
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	730	39	202	712	348	240	108	82	30	124	357
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	193	10	53	188	92	63	28	22	8	33	94
Total Analysis Volume [veh/h]	51	770	41	213	751	367	253	114	86	32	131	377
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	19	39	39	12	33	33	9	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	42	48	14	52	64	8	15	23	3	10	28
g / C, Green / Cycle	0.05	0.46	0.54	0.16	0.58	0.71	0.09	0.17	0.26	0.03	0.11	0.31
(v / s)_i Volume / Saturation Flow Rate	0.01	0.21	0.03	0.06	0.21	0.23	0.07	0.03	0.05	0.01	0.04	0.23
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	161	1674	869	559	2084	1145	312	614	420	108	403	509
d1, Uniform Delay [s]	41.56	16.50	9.86	33.88	10.21	4.92	40.25	32.03	26.02	42.67	36.86	27.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.11	0.91	0.10	0.43	0.49	0.74	5.01	0.14	0.24	1.52	0.46	4.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.46	0.05	0.38	0.36	0.32	0.81	0.19	0.20	0.30	0.32	0.74
d, Delay for Lane Group [s/veh]	42.67	17.41	9.96	34.31	10.70	5.66	45.27	32.18	26.26	44.19	37.33	32.05
Lane Group LOS	D	B	A	C	B	A	D	C	C	D	D	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.57	5.36	0.39	2.09	3.80	2.32	2.93	1.06	1.45	0.37	1.34	7.65
50th-Percentile Queue Length [ft/ln]	14.18	133.98	9.71	52.29	94.90	57.89	73.23	26.61	36.16	9.19	33.50	191.28
95th-Percentile Queue Length [veh/ln]	1.02	9.16	0.70	3.76	6.83	4.17	5.27	1.92	2.60	0.66	2.41	12.19
95th-Percentile Queue Length [ft/ln]	25.53	228.90	17.48	94.12	170.82	104.20	131.82	47.90	65.09	16.54	60.30	304.68

Movement, Approach, & Intersection Results

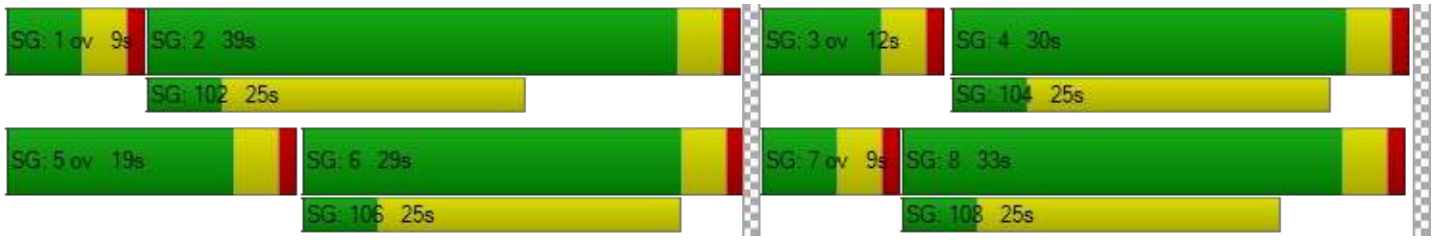
d_M, Delay for Movement [s/veh]	42.67	17.41	9.96	34.31	10.70	5.66	45.27	32.18	26.26	44.19	37.33	32.05
Movement LOS	D	B	A	C	B	A	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	18.55			13.09			38.36			34.05		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	21.71											
Intersection LOS	C											
Intersection V/C	0.362											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.837	2.976	2.735	2.722
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	778	644	578
d_b, Bicycle Delay [s]	23.47	16.81	20.67	22.76
l_b,int, Bicycle LOS Score for Intersection	2.271	2.658	1.933	2.005
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	6.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.302

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	14	717	3	122	641	8	1	0	4	3	1	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	731	3	124	654	8	1	0	4	3	1	139
Peak Hour Factor	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	197	1	33	176	2	0	0	1	1	0	37
Total Analysis Volume [veh/h]	15	788	3	134	705	9	1	0	4	3	1	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	72	72	72	72	72	72	10	10	10	10
g / C, Green / Cycle	0.80	0.80	0.80	0.80	0.80	0.80	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.21	0.19	0.19	0.19	0.00	0.00	0.00	0.09
s, saturation flow rate [veh/h]	748	1900	1897	696	1900	1892	1256	1615	1435	1617
c, Capacity [veh/h]	613	1510	1508	571	1510	1503	97	188	222	188
d1, Uniform Delay [s]	3.80	2.40	2.40	4.83	2.34	2.34	43.83	35.22	36.62	38.75
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.42	0.42	0.96	0.37	0.37	0.04	0.04	0.02	7.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.26	0.26	0.23	0.24	0.24	0.01	0.02	0.01	0.80
d, Delay for Lane Group [s/veh]	3.87	2.82	2.82	5.80	2.71	2.71	43.87	35.26	36.64	46.45
Lane Group LOS	A	A	A	A	A	A	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.08	1.29	1.29	0.89	1.14	1.13	0.02	0.08	0.06	3.61
50th-Percentile Queue Length [ft/ln]	1.95	32.23	32.19	22.29	28.39	28.28	0.57	1.99	1.52	90.14
95th-Percentile Queue Length [veh/ln]	0.14	2.32	2.32	1.60	2.04	2.04	0.04	0.14	0.11	6.49
95th-Percentile Queue Length [ft/ln]	3.51	58.01	57.95	40.12	51.10	50.91	1.03	3.58	2.73	162.26

Movement, Approach, & Intersection Results

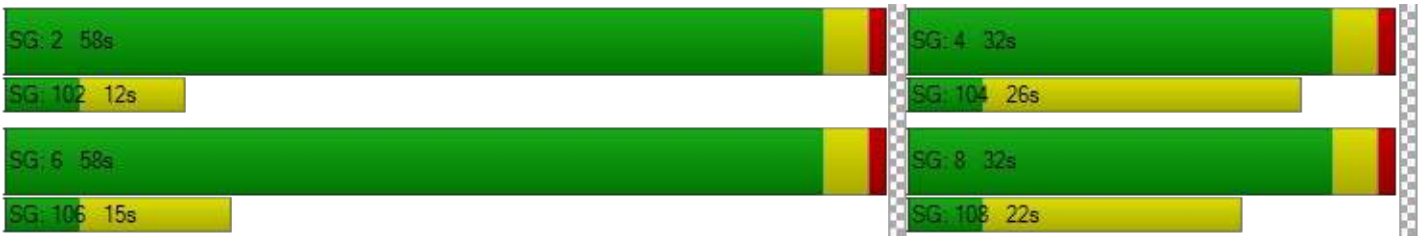
d_M, Delay for Movement [s/veh]	3.87	2.82	2.82	5.80	2.71	2.71	43.87	35.26	35.26	36.64	46.45	46.45
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	2.84			3.20			36.98			46.26		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.79											
Intersection LOS	A											
Intersection V/C	0.302											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.602	2.746	1.973	2.227
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1200	622	622
d_b, Bicycle Delay [s]	7.20	7.20	21.36	21.36
l_b,int, Bicycle LOS Score for Intersection	2.225	2.259	1.568	1.814
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.419

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	197	584	68	53	546	56	115	264	154	60	322	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	201	596	69	54	557	57	117	269	157	61	328	40
Peak Hour Factor	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	162	19	15	152	16	32	73	43	17	89	11
Total Analysis Volume [veh/h]	219	649	75	59	606	62	127	293	171	66	357	44
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	33	0	9	32	0	11	39	0	9	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	51	51	4	49	49	7	15	15	4	12	12
g / C, Green / Cycle	0.07	0.56	0.56	0.04	0.54	0.54	0.08	0.17	0.17	0.05	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.19	0.02	0.18	0.18	0.07	0.13	0.13	0.04	0.11	0.11
s, saturation flow rate [veh/h]	3514	1900	1832	3514	1900	1839	1810	1900	1670	1810	1900	1828
c, Capacity [veh/h]	234	1070	1032	151	1025	992	141	321	282	85	263	253
d1, Uniform Delay [s]	41.81	10.65	10.65	41.91	11.61	11.62	41.16	35.69	35.79	42.40	37.43	37.48
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	15.56	0.88	0.91	1.63	0.87	0.90	18.09	3.78	4.62	13.65	4.86	5.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.34	0.34	0.39	0.33	0.33	0.90	0.76	0.78	0.77	0.77	0.78
d, Delay for Lane Group [s/veh]	57.36	11.53	11.56	43.55	12.48	12.51	59.25	39.48	40.42	56.05	42.29	42.74
Lane Group LOS	E	B	B	D	B	B	E	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.89	3.92	3.79	0.67	3.80	3.69	3.46	5.37	4.88	1.76	4.61	4.51
50th-Percentile Queue Length [ft/ln]	72.35	98.12	94.83	16.64	94.93	92.31	86.56	134.29	122.10	43.95	115.22	112.76
95th-Percentile Queue Length [veh/ln]	5.21	7.06	6.83	1.20	6.83	6.65	6.23	9.17	8.51	3.16	8.13	7.99
95th-Percentile Queue Length [ft/ln]	130.24	176.61	170.70	29.96	170.87	166.15	155.81	229.31	212.72	79.11	203.24	199.83

Movement, Approach, & Intersection Results

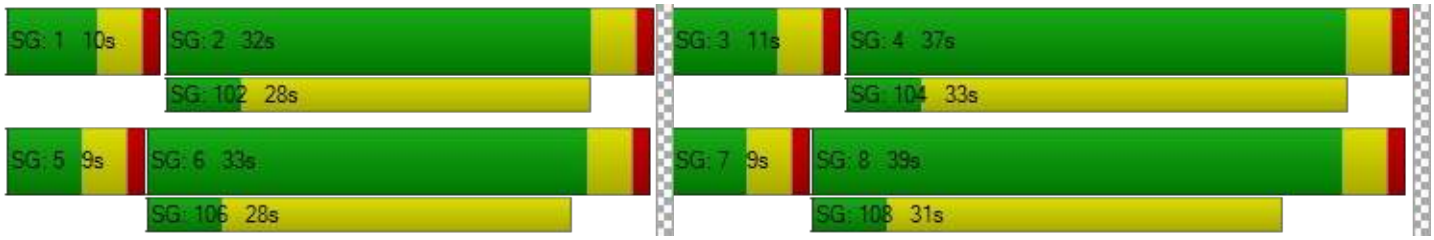
d_M, Delay for Movement [s/veh]	57.36	11.55	11.56	43.55	12.49	12.51	59.25	39.63	40.42	56.05	42.48	42.74
Movement LOS	E	B	B	D	B	B	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	22.19			15.01			44.07			44.42		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	28.82											
Intersection LOS	C											
Intersection V/C	0.419											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.745	2.706	2.541	2.476
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	622	778	733
d_b, Bicycle Delay [s]	20.67	21.36	16.81	18.05
l_b,int, Bicycle LOS Score for Intersection	2.338	2.159	2.047	1.945
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	6.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.122

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	8	285	0	0	233	52	40	0	20	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	291	0	0	238	53	41	0	20	0	0	0
Peak Hour Factor	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	81	0	0	67	15	11	0	6	0	0	0
Total Analysis Volume [veh/h]	9	326	0	0	267	59	46	0	22	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	5	0	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	9	61	0	0	52	0	29	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	7	0	0	10	0	17	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No		No					
Maximum Recall	No	No			No		No					
Pedestrian Recall	No	No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	L	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	1	78	73	73	4	4	
g / C, Green / Cycle	0.01	0.86	0.81	0.81	0.05	0.05	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.09	0.09	0.09	0.03	0.01	
s, saturation flow rate [veh/h]	1810	3618	1900	1786	1810	1615	
c, Capacity [veh/h]	21	3125	1535	1443	85	76	
d1, Uniform Delay [s]	44.19	0.92	1.82	1.83	41.92	41.41	
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	13.40	0.07	0.14	0.16	5.18	2.05	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.43	0.10	0.11	0.11	0.54	0.29	
d, Delay for Lane Group [s/veh]	57.59	0.98	1.96	1.99	47.09	43.47	
Lane Group LOS	E	A	A	A	D	D	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.28	0.12	0.40	0.40	1.11	0.51	
50th-Percentile Queue Length [ft/ln]	6.88	2.95	9.91	10.07	27.80	12.77	
95th-Percentile Queue Length [veh/ln]	0.50	0.21	0.71	0.73	2.00	0.92	
95th-Percentile Queue Length [ft/ln]	12.39	5.31	17.85	18.13	50.05	22.99	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.59	0.98	0.00	0.00	1.97	1.99	47.09	0.00	43.47	0.00	0.00	0.00
Movement LOS	E	A			A	A	D		D			
d_A, Approach Delay [s/veh]	2.50			1.97			45.92			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	6.32											
Intersection LOS	A											
Intersection V/C	0.122											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.423	2.303	1.986	1.425
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1267	1067	556	0
d_b, Bicycle Delay [s]	6.05	9.80	23.47	45.00
l_b,int, Bicycle LOS Score for Intersection	1.836	1.829	1.560	4.132
Bicycle LOS	A	A	A	D

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.291

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	134	61	74	93	47	26	402	31	20	436	126
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	137	62	75	95	48	27	410	32	20	445	129
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	36	16	20	25	12	7	107	8	5	116	34
Total Analysis Volume [veh/h]	44	143	65	78	99	50	28	427	33	21	463	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	9	52	0	9	52	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	58	58	58	58	58	3	18	18	2	18	18
g / C, Green / Cycle	0.64	0.64	0.64	0.64	0.64	0.03	0.20	0.20	0.02	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.11	0.04	0.09	0.06	0.03	0.02	0.12	0.12	0.01	0.16	0.16
s, saturation flow rate [veh/h]	1686	1615	912	1729	1615	1810	1900	1853	1810	1900	1756
c, Capacity [veh/h]	1130	1035	665	1108	1035	51	385	375	42	375	347
d1, Uniform Delay [s]	6.45	6.05	12.51	6.16	5.99	43.15	32.59	32.62	43.44	34.61	34.68
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.32	0.12	0.36	0.16	0.09	8.69	1.52	1.59	8.91	4.56	5.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.06	0.12	0.09	0.05	0.54	0.60	0.61	0.50	0.82	0.83
d, Delay for Lane Group [s/veh]	6.76	6.16	12.87	6.32	6.08	51.84	34.12	34.21	52.35	39.17	39.86
Lane Group LOS	A	A	B	A	A	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.36	0.44	0.89	0.69	0.34	0.73	4.68	4.60	0.56	6.82	6.43
50th-Percentile Queue Length [ft/ln]	33.94	11.11	22.18	17.16	8.46	18.33	116.95	114.98	14.04	170.42	160.77
95th-Percentile Queue Length [veh/ln]	2.44	0.80	1.60	1.24	0.61	1.32	8.23	8.12	1.01	11.10	10.59
95th-Percentile Queue Length [ft/ln]	61.10	20.00	39.92	30.88	15.23	32.99	205.63	202.91	25.27	277.46	264.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.76	6.76	6.16	12.87	6.32	6.08	51.84	34.16	34.21	52.35	39.40	39.86
Movement LOS	A	A	A	B	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	6.61			8.52			35.18			39.94		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	28.67											
Intersection LOS	C											
Intersection V/C	0.291											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.231	2.405	2.568	2.644
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1067
d_b, Bicycle Delay [s]	23.47	23.47	9.80	9.80
l_b,int, Bicycle LOS Score for Intersection	1.975	1.747	1.962	2.069
Bicycle LOS	A	A	A	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Miro Way and Ayala Drive Warehouse

Vistro File: \...\Miro Way_PM.vistro
Report File: \...\2. OY PM.pdf

Scenario 2 OY 2024 PM
5/16/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	WB Left	0.739	30.5	C
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	SB Left	0.741	30.1	C
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.504	26.2	C
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.588	31.1	C
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.616	25.6	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.434	7.0	A
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.519	30.2	C
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.226	8.2	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.489	28.8	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.739

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	475	298	0	0	292	376	0	0	0	295	4	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	485	304	0	0	298	384	0	0	0	301	4	125
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	133	84	0	0	82	105	0	0	0	83	1	34
Total Analysis Volume [veh/h]	533	334	0	0	327	422	0	0	0	331	4	137
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	53	67	0	0	14	0	0	0	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	29	64	31	31		18	18
g / C, Green / Cycle	0.32	0.71	0.34	0.34		0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.29	0.09	0.17	0.26		0.18	0.09
s, saturation flow rate [veh/h]	1810	3618	1900	1615		1810	1622
c, Capacity [veh/h]	581	2563	651	554		367	329
d1, Uniform Delay [s]	29.38	4.21	23.48	26.31		35.02	31.34
k, delay calibration	0.12	0.50	0.50	0.50		0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	7.08	0.11	2.75	9.57		9.04	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.13	0.50	0.76		0.90	0.43
d, Delay for Lane Group [s/veh]	36.47	4.32	26.23	35.88		44.07	32.23
Lane Group LOS	D	A	C	D		D	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	11.79	0.85	5.84	9.20		7.83	2.71
50th-Percentile Queue Length [ft/ln]	294.77	21.18	146.11	230.10		195.73	67.86
95th-Percentile Queue Length [veh/ln]	17.42	1.52	9.81	14.18		12.42	4.89
95th-Percentile Queue Length [ft/ln]	435.56	38.12	245.23	354.49		310.45	122.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.47	4.32	0.00	0.00	26.23	35.88	0.00	0.00	0.00	44.07	32.23	32.23
Movement LOS	D	A			C	D				D	C	C
d_A, Approach Delay [s/veh]	24.08			31.67			0.00			40.53		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	30.52											
Intersection LOS	C											
Intersection V/C	0.739											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.360	1.946
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	222	0	422
d_b, Bicycle Delay [s]	4.05	35.56	45.00	28.01
l_b,int, Bicycle LOS Score for Intersection	2.275	2.178	4.132	2.338
Bicycle LOS	B	B	D	B

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.741

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	565	420	155	430	0	203	4	502	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	576	428	158	439	0	207	4	512	0	0	0
Peak Hour Factor	1.0000	0.9550	0.9550	0.9550	0.9550	1.0000	0.9550	0.9550	0.9550	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	151	112	41	115	0	54	1	134	0	0	0
Total Analysis Volume [veh/h]	0	603	448	165	460	0	217	4	536	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	36	0	13	49	0	0	41	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	37	37	9	50	32	32	
g / C, Green / Cycle	0.41	0.41	0.10	0.55	0.36	0.36	
(v / s)_i Volume / Saturation Flow Rate	0.28	0.32	0.09	0.13	0.12	0.33	
s, saturation flow rate [veh/h]	1900	1652	1810	3618	1811	1615	
c, Capacity [veh/h]	776	675	181	2001	649	578	
d1, Uniform Delay [s]	21.76	23.09	40.11	10.30	21.12	27.75	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.32	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	4.71	8.64	15.88	0.27	0.31	16.59	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.68	0.78	0.91	0.23	0.34	0.93	
d, Delay for Lane Group [s/veh]	26.46	31.73	55.98	10.57	21.43	44.34	
Lane Group LOS	C	C	E	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.64	10.78	4.36	2.25	3.37	13.24	
50th-Percentile Queue Length [ft/ln]	241.11	269.39	108.98	56.34	84.37	331.08	
95th-Percentile Queue Length [veh/ln]	14.74	16.16	7.78	4.06	6.07	19.21	
95th-Percentile Queue Length [ft/ln]	368.44	403.98	194.59	101.40	151.86	480.29	

Movement, Approach, & Intersection Results

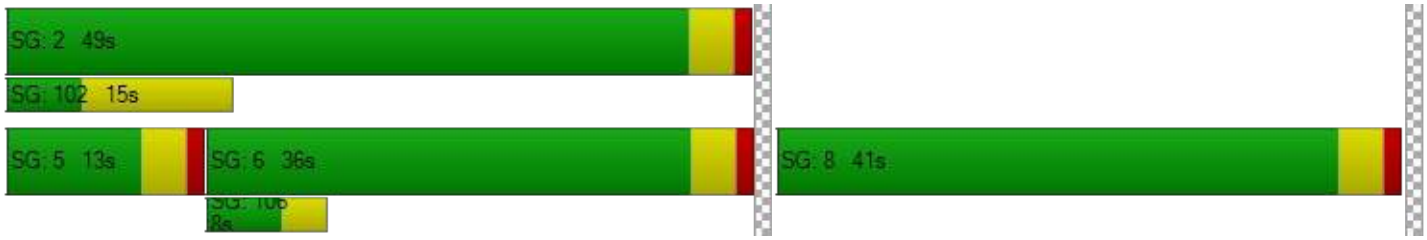
d_M, Delay for Movement [s/veh]	0.00	27.14	31.73	55.98	10.57	0.00	21.43	21.43	44.34	0.00	0.00	0.00
Movement LOS		C	C	E	B		C	C	D			
d_A, Approach Delay [s/veh]	29.10			22.56			37.65			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	30.08											
Intersection LOS	C											
Intersection V/C	0.741											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.085	2.026
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	1000	822	0
d_b, Bicycle Delay [s]	18.69	11.25	15.61	45.00
l_b,int, Bicycle LOS Score for Intersection	2.427	2.075	2.809	4.132
Bicycle LOS	B	B	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.504

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	51	659	34	183	603	138	95	269	67	20	172	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	672	35	187	615	141	97	274	68	20	175	225
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	175	9	49	160	37	25	71	18	5	46	59
Total Analysis Volume [veh/h]	54	700	36	195	641	147	101	285	71	21	182	234
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	19	34	0	12	32	0	9	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	41	41	12	48	48	6	20	20	2	16	16
g / C, Green / Cycle	0.04	0.45	0.45	0.13	0.54	0.54	0.07	0.22	0.22	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.20	0.20	0.11	0.21	0.21	0.06	0.10	0.10	0.01	0.10	0.14
s, saturation flow rate [veh/h]	1810	1900	1867	1810	1900	1779	1810	1900	1772	1810	1900	1615
c, Capacity [veh/h]	77	855	840	232	1018	953	129	419	391	42	328	279
d1, Uniform Delay [s]	42.53	16.92	16.92	38.32	12.33	12.33	41.10	30.23	30.30	43.44	34.07	36.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.10	1.60	1.63	7.89	1.17	1.25	9.85	0.71	0.79	8.91	1.47	6.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.43	0.43	0.84	0.40	0.40	0.78	0.44	0.44	0.50	0.56	0.84
d, Delay for Lane Group [s/veh]	53.63	18.52	18.56	46.20	13.51	13.59	50.95	30.95	31.09	52.35	35.54	42.72
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.41	5.39	5.30	4.64	4.83	4.55	2.53	3.44	3.28	0.56	3.72	5.39
50th-Percentile Queue Length [ft/ln]	35.24	134.64	132.60	116.05	120.82	113.65	63.21	85.88	81.98	14.04	92.96	134.78
95th-Percentile Queue Length [veh/ln]	2.54	9.19	9.08	8.18	8.44	8.04	4.55	6.18	5.90	1.01	6.69	9.20
95th-Percentile Queue Length [ft/ln]	63.43	229.78	227.02	204.38	210.96	201.07	113.78	154.58	147.56	25.27	167.33	229.98

Movement, Approach, & Intersection Results

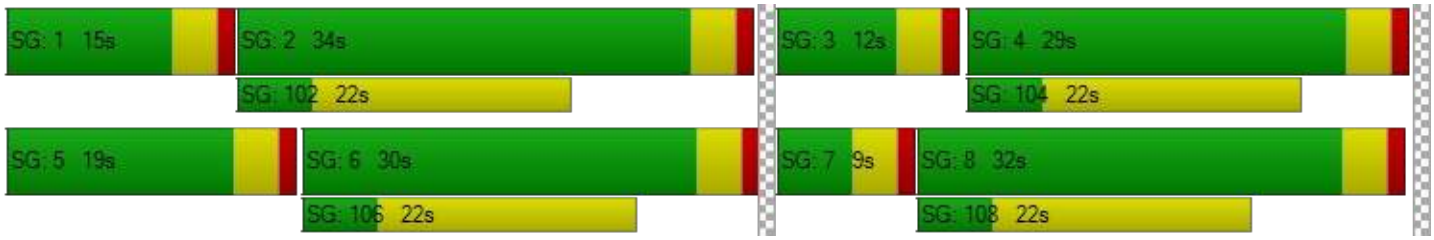
d_M, Delay for Movement [s/veh]	53.63	18.54	18.56	46.20	13.54	13.59	50.95	31.00	31.09	52.35	35.54	42.72
Movement LOS	D	B	B	D	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	20.94			20.02			35.42			40.19		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	26.24											
Intersection LOS	C											
Intersection V/C	0.504											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.598	2.695	2.465	2.487
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	667	622	556
d_b, Bicycle Delay [s]	22.76	20.00	21.36	23.47
l_b,int, Bicycle LOS Score for Intersection	2.211	2.371	1.937	1.920
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.588

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	43	323	44	118	363	123	79	434	63	57	346	87
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	329	45	120	370	125	81	443	64	58	353	89
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	85	12	31	95	32	21	114	16	15	91	23
Total Analysis Volume [veh/h]	45	338	46	123	381	129	83	456	66	60	363	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	17	26	0	13	22	22	24	42	0	9	27	27
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	35	8	39	49	6	28	4	26	37
g / C, Green / Cycle	0.04	0.39	0.09	0.43	0.54	0.06	0.31	0.04	0.29	0.42
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.07	0.20	0.08	0.05	0.28	0.03	0.19	0.06
s, saturation flow rate [veh/h]	1810	1861	1810	1900	1615	1810	1859	1810	1900	1615
c, Capacity [veh/h]	71	721	155	824	877	117	569	78	540	669
d1, Uniform Delay [s]	42.60	21.28	40.37	18.05	10.21	41.24	30.14	42.60	28.48	16.36
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.20	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.03	2.81	8.87	1.86	0.35	7.56	10.87	14.21	1.46	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.53	0.79	0.46	0.15	0.71	0.92	0.76	0.67	0.14
d, Delay for Lane Group [s/veh]	51.63	24.09	49.25	19.91	10.56	48.80	41.01	56.81	29.94	16.46
Lane Group LOS	D	C	D	B	B	D	D	E	C	B
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.15	6.57	3.02	5.79	1.28	2.03	12.22	1.62	6.94	1.16
50th-Percentile Queue Length [ft/ln]	28.85	164.36	75.45	144.67	32.09	50.79	305.48	40.38	173.56	29.05
95th-Percentile Queue Length [veh/ln]	2.08	10.78	5.43	9.73	2.31	3.66	17.95	2.91	11.26	2.09
95th-Percentile Queue Length [ft/ln]	51.94	269.49	135.81	243.30	57.76	91.42	448.80	72.68	281.58	52.29

Movement, Approach, & Intersection Results

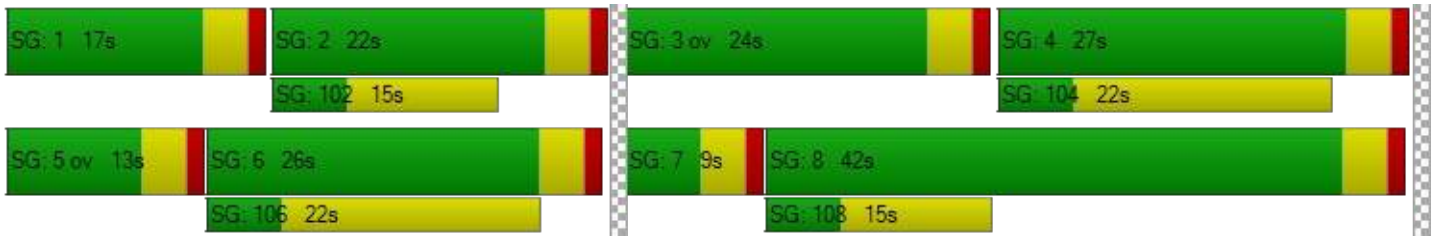
d_M, Delay for Movement [s/veh]	51.63	24.09	24.09	49.25	19.91	10.56	48.80	41.01	41.01	56.81	29.94	16.46
Movement LOS	D	C	C	D	B	B	D	D	D	E	C	B
d_A, Approach Delay [s/veh]	26.98			23.71			42.08			30.66		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	31.09											
Intersection LOS	C											
Intersection V/C	0.588											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.246	2.525	2.313	2.524
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	400	844	511
d_b, Bicycle Delay [s]	25.69	28.80	15.02	24.94
l_b,int, Bicycle LOS Score for Intersection	2.267	2.604	2.558	2.409
Bicycle LOS	B	B	B	B

Sequence

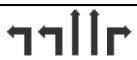
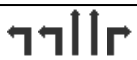
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.616

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	106	774	75	342	805	559	379	378	113	61	184	357
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	789	77	349	821	570	387	386	115	62	188	364
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	206	20	91	214	149	101	101	30	16	49	95
Total Analysis Volume [veh/h]	113	824	80	364	857	595	404	403	120	65	196	380
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	15	35	35	17	37	37	9	29	29
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	39	47	11	45	62	13	20	29	4	11	26
g / C, Green / Cycle	0.06	0.44	0.53	0.12	0.50	0.69	0.14	0.22	0.32	0.04	0.12	0.28
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.05	0.10	0.24	0.37	0.11	0.11	0.07	0.02	0.05	0.24
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	195	1586	852	430	1827	1121	508	784	511	158	424	458
d1, Uniform Delay [s]	41.47	18.38	10.56	38.68	14.45	6.67	37.22	31.07	22.70	41.82	37.08	30.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.70	1.22	0.22	4.71	0.87	1.80	2.90	0.52	0.23	1.71	0.79	8.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.52	0.09	0.85	0.47	0.53	0.80	0.51	0.23	0.41	0.46	0.83
d, Delay for Lane Group [s/veh]	44.17	19.60	10.78	43.39	15.31	8.48	40.11	31.60	22.93	43.53	37.87	38.27
Lane Group LOS	D	B	B	D	B	A	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.28	6.23	0.80	4.15	5.56	5.07	4.43	3.84	1.87	0.73	2.03	8.49
50th-Percentile Queue Length [ft/ln]	32.08	155.73	20.11	103.77	138.94	126.68	110.69	95.98	46.78	18.32	50.82	212.14
95th-Percentile Queue Length [veh/ln]	2.31	10.32	1.45	7.47	9.42	8.76	7.88	6.91	3.37	1.32	3.66	13.26
95th-Percentile Queue Length [ft/ln]	57.74	258.06	36.19	186.78	235.59	218.97	196.97	172.77	84.20	32.97	91.47	331.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.17	19.60	10.78	43.39	15.31	8.48	40.11	31.60	22.93	43.53	37.87	38.27
Movement LOS	D	B	B	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	21.64			18.70			34.19			38.68		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	25.55											
Intersection LOS	C											
Intersection V/C	0.616											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.882	3.072	2.850	2.803
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	689	733	556
d_b, Bicycle Delay [s]	23.47	19.34	18.05	23.47
l_b,int, Bicycle LOS Score for Intersection	2.399	3.058	2.324	2.088
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	7.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.434

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	810	8	209	851	1	0	0	5	1	3	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	826	8	213	868	1	0	0	5	1	3	154
Peak Hour Factor	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	212	2	55	223	0	0	0	1	0	1	40
Total Analysis Volume [veh/h]	8	849	8	219	892	1	0	0	5	1	3	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	55	0	0	55	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	71	71	11	11	11	11
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.01	0.23	0.23	0.33	0.24	0.24	0.00	0.00	0.00	0.10
s, saturation flow rate [veh/h]	633	1900	1894	655	1900	1899	1245	1615	1434	1620
c, Capacity [veh/h]	514	1497	1492	531	1497	1497	99	199	231	199
d1, Uniform Delay [s]	4.50	2.61	2.61	6.52	2.64	2.64	0.00	34.71	36.06	38.43
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.48	0.48	2.36	0.51	0.51	0.00	0.05	0.01	7.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.29	0.29	0.41	0.30	0.30	0.00	0.03	0.00	0.81
d, Delay for Lane Group [s/veh]	4.55	3.09	3.10	8.88	3.15	3.15	0.00	34.76	36.07	45.97
Lane Group LOS	A	A	A	A	A	A	A	C	D	D
Critical Lane Group	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.05	1.52	1.52	1.95	1.61	1.61	0.00	0.10	0.02	3.83
50th-Percentile Queue Length [ft/ln]	1.20	38.12	38.02	48.63	40.17	40.15	0.00	2.46	0.50	95.65
95th-Percentile Queue Length [veh/ln]	0.09	2.74	2.74	3.50	2.89	2.89	0.00	0.18	0.04	6.89
95th-Percentile Queue Length [ft/ln]	2.16	68.62	68.43	87.54	72.30	72.28	0.00	4.43	0.90	172.17

Movement, Approach, & Intersection Results

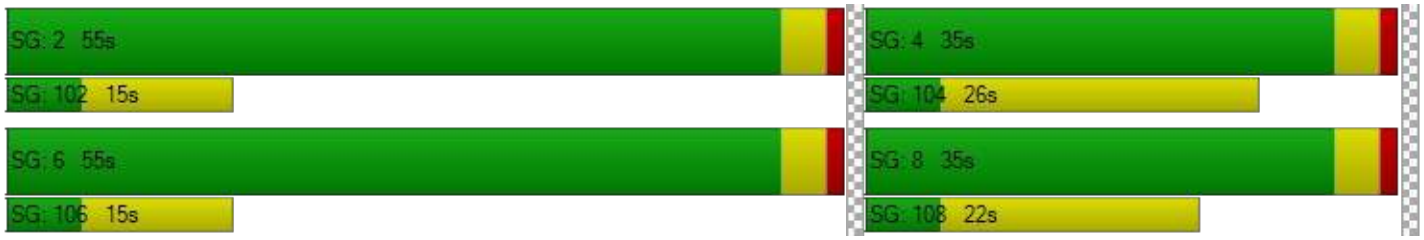
d_M, Delay for Movement [s/veh]	4.55	3.09	3.10	8.88	3.15	3.15	0.00	34.76	34.76	36.07	45.97	45.97
Movement LOS	A	A	A	A	A	A	A	C	C	D	D	D
d_A, Approach Delay [s/veh]	3.11			4.28			34.76			45.91		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	7.02											
Intersection LOS	A											
Intersection V/C	0.434											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.647	2.799	1.959	2.380
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	689	689
d_b, Bicycle Delay [s]	8.45	8.45	19.34	19.34
l_b,int, Bicycle LOS Score for Intersection	2.273	2.477	1.568	1.827
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	30.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	142	647	96	139	678	63	135	447	206	89	350	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	145	660	98	142	692	64	138	456	210	91	357	50
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	179	27	38	187	17	37	123	57	25	97	14
Total Analysis Volume [veh/h]	157	714	106	154	749	69	149	494	227	98	386	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	32	0	9	32	0	12	38	0	11	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	42	42	5	42	42	8	21	21	6	19	19
g / C, Green / Cycle	0.06	0.46	0.46	0.06	0.46	0.46	0.09	0.23	0.23	0.07	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.22	0.04	0.22	0.22	0.08	0.20	0.20	0.05	0.12	0.12
s, saturation flow rate [veh/h]	3514	1900	1815	3514	1900	1844	1810	1900	1700	1810	1900	1820
c, Capacity [veh/h]	195	880	841	195	880	854	161	445	398	125	408	390
d1, Uniform Delay [s]	42.02	16.63	16.63	41.98	16.59	16.59	40.71	33.00	33.01	41.22	31.47	31.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.54	1.85	1.93	6.94	1.81	1.87	19.24	4.80	5.36	10.10	1.16	1.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.48	0.48	0.79	0.47	0.47	0.93	0.85	0.86	0.78	0.55	0.55
d, Delay for Lane Group [s/veh]	49.55	18.48	18.57	48.91	18.40	18.45	59.95	37.80	38.37	51.31	32.63	32.74
Lane Group LOS	D	B	B	D	B	B	E	D	D	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.91	6.11	5.86	1.86	6.03	5.86	4.09	8.33	7.53	2.46	4.39	4.25
50th-Percentile Queue Length [ft/ln]	47.69	152.73	146.42	46.43	150.68	146.58	102.24	208.33	188.22	61.59	109.65	106.21
95th-Percentile Queue Length [veh/ln]	3.43	10.16	9.83	3.34	10.05	9.83	7.36	13.07	12.03	4.43	7.82	7.63
95th-Percentile Queue Length [ft/ln]	85.84	254.07	245.64	83.57	251.33	245.86	184.04	326.69	300.72	110.87	195.52	190.71

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.55	18.52	18.57	48.91	18.42	18.45	59.95	37.93	38.37	51.31	32.67	32.74
Movement LOS	D	B	B	D	B	B	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	23.51			23.26			41.81			36.08		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.19											
Intersection LOS	C											
Intersection V/C	0.519											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.788	2.761	2.590	2.553
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	622	756	733
d_b, Bicycle Delay [s]	21.36	21.36	17.42	18.05
l_b,int, Bicycle LOS Score for Intersection	2.366	2.362	2.277	2.003
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	8.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.226

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	24	402	0	0	377	71	70	0	35	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	410	0	0	385	72	71	0	36	0	0	0
Peak Hour Factor	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	129	0	0	121	23	22	0	11	0	0	0
Total Analysis Volume [veh/h]	30	516	0	0	484	91	89	0	45	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	5	0	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	9	49	0	0	40	0	41	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	7	0	0	10	0	17	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No		No					
Maximum Recall	No	No			No		No					
Pedestrian Recall	No	No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	L	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	3	76	69	69	6	6	
g / C, Green / Cycle	0.03	0.84	0.77	0.77	0.07	0.07	
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.15	0.16	0.05	0.03	
s, saturation flow rate [veh/h]	1810	3618	1900	1799	1810	1615	
c, Capacity [veh/h]	53	3033	1452	1375	132	118	
d1, Uniform Delay [s]	43.10	1.37	2.95	2.98	40.68	39.79	
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	8.93	0.12	0.31	0.35	5.90	2.03	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.56	0.17	0.20	0.21	0.68	0.38	
d, Delay for Lane Group [s/veh]	52.02	1.49	3.25	3.32	46.58	41.83	
Lane Group LOS	D	A	A	A	D	D	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.78	0.39	1.13	1.15	2.12	1.01	
50th-Percentile Queue Length [ft/ln]	19.62	9.82	28.33	28.80	52.95	25.18	
95th-Percentile Queue Length [veh/ln]	1.41	0.71	2.04	2.07	3.81	1.81	
95th-Percentile Queue Length [ft/ln]	35.31	17.67	50.99	51.84	95.30	45.32	

Movement, Approach, & Intersection Results

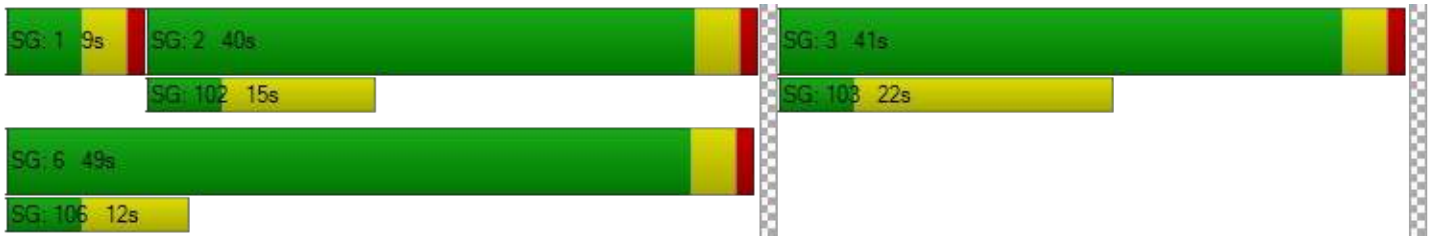
d_M, Delay for Movement [s/veh]	52.02	1.49	0.00	0.00	3.28	3.32	46.58	0.00	41.83	0.00	0.00	0.00
Movement LOS	D	A			A	A	D		D			
d_A, Approach Delay [s/veh]	4.27			3.29			44.98			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	8.17											
Intersection LOS	A											
Intersection V/C	0.226											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.511	2.420	2.025	1.425
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	800	822	0
d_b, Bicycle Delay [s]	11.25	16.20	15.61	45.00
l_b,int, Bicycle LOS Score for Intersection	2.010	2.034	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	168	45	153	170	95	83	475	27	39	367	169
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	171	46	156	173	97	85	485	28	40	374	172
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	48	13	44	49	27	24	137	8	11	105	48
Total Analysis Volume [veh/h]	20	193	52	176	195	109	96	546	32	45	421	194
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	10	52	0	9	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	54	54	54	6	21	21	3	18	18
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.60	0.07	0.23	0.23	0.04	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.12	0.03	0.26	0.11	0.07	0.05	0.15	0.15	0.02	0.17	0.17
s, saturation flow rate [veh/h]	1796	1615	667	1729	1615	1810	1900	1863	1810	1900	1701
c, Capacity [veh/h]	1112	960	477	1028	960	121	445	436	68	390	349
d1, Uniform Delay [s]	8.33	7.64	22.85	8.33	7.93	41.40	31.18	31.19	42.72	34.24	34.32
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.38	0.11	2.19	0.41	0.24	11.20	1.64	1.69	10.25	4.53	5.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.05	0.37	0.19	0.11	0.80	0.66	0.66	0.66	0.83	0.84
d, Delay for Lane Group [s/veh]	8.71	7.74	25.05	8.74	8.17	52.59	32.82	32.87	52.98	38.76	39.64
Lane Group LOS	A	A	C	A	A	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.85	0.42	3.09	1.71	0.91	2.45	5.81	5.71	1.17	7.10	6.51
50th-Percentile Queue Length [ft/ln]	46.32	10.43	77.35	42.65	22.73	61.21	145.23	142.84	29.30	177.58	162.85
95th-Percentile Queue Length [veh/ln]	3.33	0.75	5.57	3.07	1.64	4.41	9.76	9.63	2.11	11.47	10.70
95th-Percentile Queue Length [ft/ln]	83.37	18.77	139.23	76.76	40.91	110.18	244.05	240.85	52.74	286.85	267.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.71	8.71	7.74	25.05	8.74	8.17	52.59	32.85	32.87	52.98	38.97	39.64
Movement LOS	A	A	A	C	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	8.52			14.59			35.66			40.12		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	28.75											
Intersection LOS	C											
Intersection V/C	0.489											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.263	2.489	2.568	2.831
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1044
d_b, Bicycle Delay [s]	23.47	23.47	9.80	10.27
l_b,int, Bicycle LOS Score for Intersection	1.997	1.956	2.116	2.104
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-3

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2024 PLUS PROJECT

Miro Way and Ayala Drive Warehouse

Vistro File: K:\...\Miro Way_AM.vistro
Report File: K:\...\3. OY WP AM.pdf

Scenario 3 OY 2024 WP AM
2/11/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	WB Left	0.583	33.0	C
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	SB Left	0.744	26.7	C
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	WB Left	0.555	27.5	C
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.692	37.2	D
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	EB Left	0.364	21.6	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.306	6.7	A
7	Ayala Dr at Miro Wy	Two-way stop	HCM 7th Edition	EB Left	0.118	27.6	D
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.440	32.1	C
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.125	7.4	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.313	29.1	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.583

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	396	343	0	0	17	12	0	0	0	431	5	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	0	0	0	0	31	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	413	350	0	0	17	12	0	0	0	471	5	160
Peak Hour Factor	0.8530	0.8530	1.0000	1.0000	0.8530	0.8530	1.0000	1.0000	1.0000	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	121	103	0	0	5	4	0	0	0	138	1	47
Total Analysis Volume [veh/h]	484	410	0	0	20	14	0	0	0	552	6	188
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	38	52	0	0	14	0	0	0	0	0	38	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	26	52	22	22		30	30
g / C, Green / Cycle	0.29	0.58	0.25	0.25		0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.27	0.11	0.01	0.01		0.31	0.12
s, saturation flow rate [veh/h]	1810	3618	1900	1659		1810	1623
c, Capacity [veh/h]	529	2102	465	406		597	535
d1, Uniform Delay [s]	30.79	8.91	25.91	25.95		29.07	22.94
k, delay calibration	0.24	0.50	0.50	0.50		0.31	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	13.19	0.21	0.15	0.19		15.80	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.20	0.04	0.04		0.92	0.36
d, Delay for Lane Group [s/veh]	43.98	9.11	26.06	26.14		44.87	23.36
Lane Group LOS	D	A	C	C		D	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	11.74	1.81	0.29	0.30		13.64	3.12
50th-Percentile Queue Length [ft/ln]	293.40	45.33	7.33	7.41		341.00	77.95
95th-Percentile Queue Length [veh/ln]	17.35	3.26	0.53	0.53		19.70	5.61
95th-Percentile Queue Length [ft/ln]	433.85	81.59	13.19	13.33		492.43	140.32

Movement, Approach, & Intersection Results

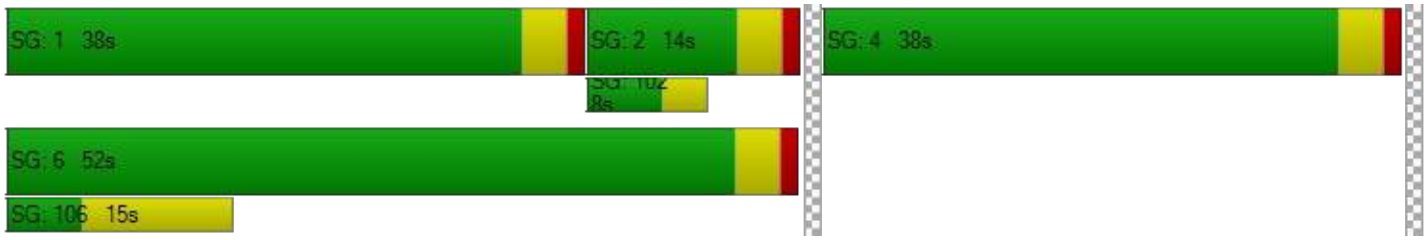
d_M, Delay for Movement [s/veh]	43.98	9.11	0.00	0.00	26.07	26.14	0.00	0.00	0.00	44.87	23.36	23.36
Movement LOS	D	A			C	C				D	C	C
d_A, Approach Delay [s/veh]	27.99			26.10			0.00			39.27		
Approach LOS	C			C			A			D		
d_I, Intersection Delay [s/veh]	32.98											
Intersection LOS	C											
Intersection V/C	0.583											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	1.916	2.080
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1067	222	0	756
d_b, Bicycle Delay [s]	9.80	35.56	45.00	17.42
l_b,int, Bicycle LOS Score for Intersection	2.297	1.588	4.132	2.791
Bicycle LOS	B	A	D	C

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	486	333	6	421	0	298	3	616	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	9	0	31	0	0	0	30	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	505	349	6	460	0	304	3	658	0	0	0
Peak Hour Factor	1.0000	0.8980	0.8980	0.8980	0.8980	1.0000	0.8980	0.8980	0.8980	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	141	97	2	128	0	85	1	183	0	0	0
Total Analysis Volume [veh/h]	0	562	389	7	512	0	339	3	733	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	14	0	9	23	0	0	67	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	33	33	1	38	44	44	
g / C, Green / Cycle	0.37	0.37	0.01	0.42	0.49	0.49	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.29	0.00	0.14	0.19	0.45	
s, saturation flow rate [veh/h]	1900	1660	1810	3618	1810	1615	
c, Capacity [veh/h]	702	614	19	1535	881	786	
d1, Uniform Delay [s]	23.86	25.07	44.24	17.37	14.62	21.71	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.21	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.19	9.26	11.82	0.59	0.28	9.94	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.68	0.78	0.37	0.33	0.39	0.93	
d, Delay for Lane Group [s/veh]	29.05	34.32	56.06	17.96	14.89	31.65	
Lane Group LOS	C	C	E	B	B	C	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.17	10.15	0.22	3.56	4.26	15.52	
50th-Percentile Queue Length [ft/ln]	229.21	253.66	5.38	88.91	106.57	388.04	
95th-Percentile Queue Length [veh/ln]	14.13	15.37	0.39	6.40	7.65	21.98	
95th-Percentile Queue Length [ft/ln]	353.36	384.26	9.69	160.03	191.22	549.56	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	29.86	34.32	56.06	17.96	0.00	14.89	14.89	31.65	0.00	0.00	0.00
Movement LOS		C	C	E	B		B	B	C			
d_A, Approach Delay [s/veh]	31.69			18.47			26.32			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	26.72											
Intersection LOS	C											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.240	1.814
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	222	422	1400	0
d_b, Bicycle Delay [s]	35.56	28.01	4.05	45.00
l_b,int, Bicycle LOS Score for Intersection	2.344	1.988	3.333	4.132
Bicycle LOS	B	A	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	27.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.555

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	127	567	15	155	775	78	97	158	80	26	140	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	0	0	61	0	0	2	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	596	15	158	852	80	99	163	82	27	144	203
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	165	4	44	236	22	27	45	23	7	40	56
Total Analysis Volume [veh/h]	144	659	17	175	942	88	110	180	91	30	159	225
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	35	0	17	37	0	12	26	0	12	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	42	42	10	43	43	7	19	19	3	15	15
g / C, Green / Cycle	0.10	0.46	0.46	0.12	0.48	0.48	0.08	0.21	0.21	0.03	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.18	0.18	0.10	0.27	0.28	0.06	0.07	0.08	0.02	0.08	0.14
s, saturation flow rate [veh/h]	1810	1900	1883	1810	1900	1844	1810	1900	1692	1810	1900	1615
c, Capacity [veh/h]	178	878	870	211	913	886	140	403	359	56	315	268
d1, Uniform Delay [s]	39.73	15.84	15.84	38.86	16.75	16.76	40.81	30.18	30.28	42.95	34.16	36.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.35	1.29	1.30	8.01	2.60	2.69	9.43	0.52	0.62	7.56	1.25	6.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.39	0.39	0.83	0.57	0.57	0.79	0.35	0.36	0.53	0.50	0.84
d, Delay for Lane Group [s/veh]	48.08	17.13	17.14	46.87	19.35	19.45	50.24	30.69	30.90	50.51	35.40	43.28
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.49	4.67	4.63	4.19	7.92	7.72	2.73	2.61	2.44	0.77	3.23	5.22
50th-Percentile Queue Length [ft/ln]	87.23	116.69	115.76	104.76	197.96	193.04	68.26	65.24	60.95	19.25	80.73	130.38
95th-Percentile Queue Length [veh/ln]	6.28	8.21	8.16	7.54	12.53	12.28	4.91	4.70	4.39	1.39	5.81	8.96
95th-Percentile Queue Length [ft/ln]	157.02	205.26	203.98	188.57	313.34	306.98	122.87	117.43	109.70	34.65	145.31	224.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.08	17.14	17.14	46.87	19.39	19.45	50.24	30.74	30.90	50.51	35.40	43.28
Movement LOS	D	B	B	D	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	22.57			23.39			36.41			40.78		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	27.46											
Intersection LOS	C											
Intersection V/C	0.555											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.669	2.730	2.452	2.455
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	733	489	489
d_b, Bicycle Delay [s]	19.34	18.05	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.236	2.554	1.874	1.901
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.692

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	157	301	100	63	345	138	96	373	74	41	472	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	61	0	0	0	3	0	0	1	18
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	307	102	125	352	141	98	383	75	42	482	149
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	88	29	36	101	41	28	110	22	12	139	43
Total Analysis Volume [veh/h]	184	353	117	144	405	162	113	441	86	48	555	171
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	19	29	0	15	25	25	11	37	0	9	35	35
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	11	30	9	28	39	7	32	4	28	41
g / C, Green / Cycle	0.12	0.33	0.10	0.31	0.43	0.08	0.35	0.04	0.31	0.46
(v / s)_i Volume / Saturation Flow Rate	0.10	0.26	0.08	0.21	0.10	0.06	0.29	0.03	0.29	0.11
s, saturation flow rate [veh/h]	1810	1820	1810	1900	1615	1810	1847	1810	1900	1615
c, Capacity [veh/h]	222	601	181	584	694	141	651	71	597	741
d1, Uniform Delay [s]	38.55	27.20	39.62	27.43	16.27	40.82	26.38	42.66	29.89	14.76
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.27	0.11	0.34	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.68	9.75	7.81	6.65	0.79	10.10	5.89	10.54	17.45	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.78	0.80	0.69	0.23	0.80	0.81	0.67	0.93	0.23
d, Delay for Lane Group [s/veh]	46.23	36.95	47.44	34.08	17.06	50.93	32.27	53.21	47.34	14.91
Lane Group LOS	D	D	D	C	B	D	C	D	D	B
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.38	10.40	3.46	8.50	2.20	2.83	10.87	1.25	14.07	2.07
50th-Percentile Queue Length [ft/ln]	109.44	260.07	86.57	212.50	54.95	70.66	271.72	31.27	351.86	51.78
95th-Percentile Queue Length [veh/ln]	7.81	15.69	6.23	13.28	3.96	5.09	16.28	2.25	20.23	3.73
95th-Percentile Queue Length [ft/ln]	195.23	392.31	155.82	332.04	98.91	127.18	406.89	56.29	505.68	93.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.23	36.95	36.95	47.44	34.08	17.06	50.93	32.27	32.27	53.21	47.34	14.91
Movement LOS	D	D	D	D	C	B	D	C	C	D	D	B
d_A, Approach Delay [s/veh]	39.56			32.91			35.57			40.54		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	37.21											
Intersection LOS	D											
Intersection V/C	0.692											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.329	2.564	2.443	2.589
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	467	733	689
d_b, Bicycle Delay [s]	23.47	26.45	18.05	19.34
l_b,int, Bicycle LOS Score for Intersection	2.639	2.733	2.616	2.837
Bicycle LOS	B	B	B	C

Sequence

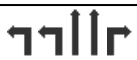
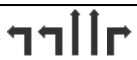
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.364

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	47	726	38	198	711	328	225	106	80	29	122	350
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	3	1	0	17	0	0	0	2	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	744	40	202	742	335	230	108	84	32	124	357
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	196	11	53	196	88	61	28	22	8	33	94
Total Analysis Volume [veh/h]	52	785	42	213	783	353	243	114	89	34	131	377
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	19	39	39	12	33	33	9	30	30
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	42	49	14	52	64	8	15	23	3	10	28
g / C, Green / Cycle	0.05	0.46	0.54	0.16	0.57	0.71	0.09	0.17	0.26	0.03	0.11	0.31
(v / s)_i Volume / Saturation Flow Rate	0.01	0.22	0.03	0.06	0.22	0.22	0.07	0.03	0.06	0.01	0.04	0.23
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	167	1674	871	559	2078	1143	312	610	421	112	403	509
d1, Uniform Delay [s]	41.44	16.58	9.81	33.88	10.40	4.92	40.13	32.13	26.05	42.59	36.86	27.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.05	0.95	0.10	0.43	0.52	0.70	4.19	0.15	0.25	1.51	0.46	4.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.47	0.05	0.38	0.38	0.31	0.78	0.19	0.21	0.30	0.32	0.74
d, Delay for Lane Group [s/veh]	42.49	17.53	9.92	34.31	10.93	5.62	44.32	32.27	26.30	44.10	37.33	32.05
Lane Group LOS	D	B	A	C	B	A	D	C	C	D	D	C
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.58	5.50	0.40	2.09	4.02	2.22	2.78	1.07	1.50	0.39	1.34	7.65
50th-Percentile Queue Length [ft/ln]	14.42	137.38	9.92	52.29	100.61	55.48	69.46	26.66	37.48	9.74	33.50	191.28
95th-Percentile Queue Length [veh/ln]	1.04	9.34	0.71	3.76	7.24	3.99	5.00	1.92	2.70	0.70	2.41	12.19
95th-Percentile Queue Length [ft/ln]	25.95	233.49	17.86	94.12	181.09	99.86	125.02	47.99	67.46	17.52	60.30	304.68

Movement, Approach, & Intersection Results

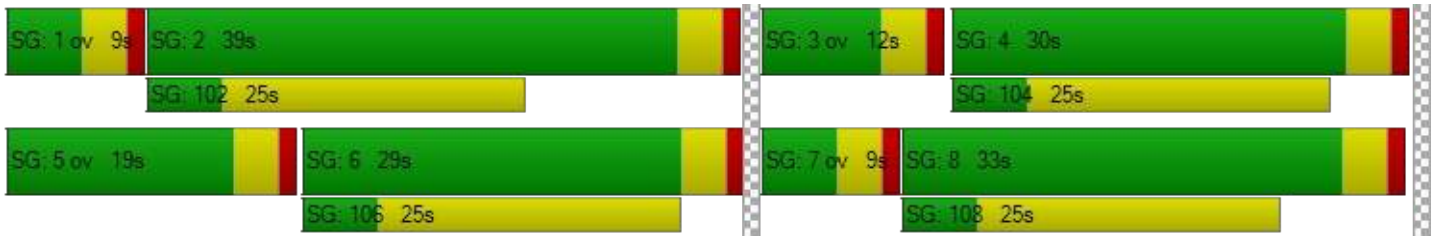
d_M, Delay for Movement [s/veh]	42.49	17.53	9.92	34.31	10.93	5.62	44.32	32.27	26.30	44.10	37.33	32.05
Movement LOS	D	B	A	C	B	A	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	18.64			13.23			37.64			34.08		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	21.61											
Intersection LOS	C											
Intersection V/C	0.364											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.844	2.979	2.732	2.722
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	778	644	578
d_b, Bicycle Delay [s]	23.47	16.81	20.67	22.76
l_b,int, Bicycle LOS Score for Intersection	2.285	2.673	1.928	2.007
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	6.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.306

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	14	727	3	122	654	8	1	0	4	3	1	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	21	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	747	3	124	688	8	1	0	4	3	1	139
Peak Hour Factor	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280	0.9280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	201	1	33	185	2	0	0	1	1	0	37
Total Analysis Volume [veh/h]	15	805	3	134	741	9	1	0	4	3	1	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	72	72	72	72	72	72	10	10	10	10
g / C, Green / Cycle	0.80	0.80	0.80	0.80	0.80	0.80	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.21	0.20	0.20	0.20	0.00	0.00	0.00	0.09
s, saturation flow rate [veh/h]	723	1900	1898	685	1900	1892	1256	1615	1435	1617
c, Capacity [veh/h]	593	1510	1508	562	1510	1503	97	188	222	188
d1, Uniform Delay [s]	3.89	2.41	2.41	4.90	2.37	2.37	43.83	35.22	36.62	38.75
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.44	0.44	1.00	0.39	0.40	0.04	0.04	0.02	7.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.27	0.27	0.24	0.25	0.25	0.01	0.02	0.01	0.80
d, Delay for Lane Group [s/veh]	3.96	2.85	2.85	5.90	2.76	2.76	43.87	35.26	36.64	46.45
Lane Group LOS	A	A	A	A	A	A	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.08	1.32	1.32	0.90	1.21	1.20	0.02	0.08	0.06	3.61
50th-Percentile Queue Length [ft/ln]	1.99	33.12	33.08	22.61	30.18	30.08	0.57	1.99	1.52	90.14
95th-Percentile Queue Length [veh/ln]	0.14	2.38	2.38	1.63	2.17	2.17	0.04	0.14	0.11	6.49
95th-Percentile Queue Length [ft/ln]	3.59	59.61	59.55	40.69	54.33	54.14	1.03	3.58	2.73	162.26

Movement, Approach, & Intersection Results

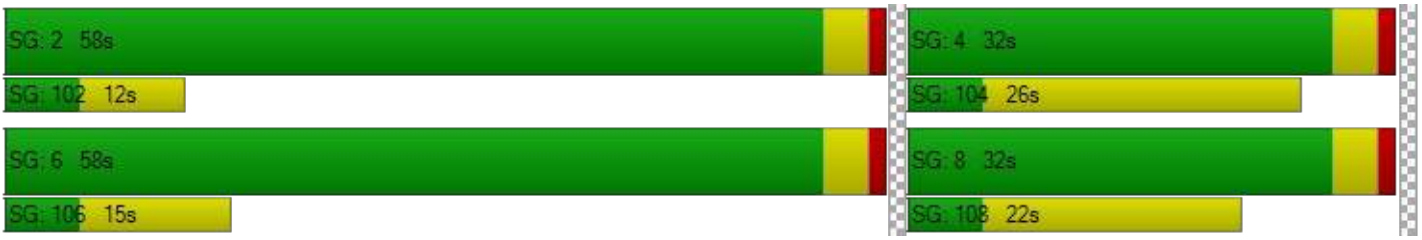
d_M, Delay for Movement [s/veh]	3.96	2.85	2.85	5.90	2.76	2.76	43.87	35.26	35.26	36.64	46.45	46.45
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	2.87			3.24			36.98			46.26		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.71											
Intersection LOS	A											
Intersection V/C	0.306											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.612	2.755	1.973	2.227
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1200	622	622
d_b, Bicycle Delay [s]	7.20	7.20	21.36	21.36
l_b,int, Bicycle LOS Score for Intersection	2.239	2.289	1.568	1.814
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 7: Ayala Dr at Miro Wy

Control Type:	Two-way stop	Delay (sec / veh):	27.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.118

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	0	729	646	15	15	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	33	0	0	21	5	10
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	744	659	36	20	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	196	173	9	5	3
Total Analysis Volume [veh/h]	35	783	694	38	21	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.12	0.02
d_M, Delay for Movement [s/veh]	9.12	0.00	0.00	0.00	27.57	13.02
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.06	0.03	0.00	0.00	0.46	0.46
95th-Percentile Queue Length [ft/ln]	1.49	0.74	0.00	0.00	11.51	11.51
d_A, Approach Delay [s/veh]	0.39		0.00		22.57	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.66					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	32.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.440

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	197	584	68	53	546	54	110	264	154	60	322	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	1	0	9	30	0	2	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	206	596	69	55	557	64	142	269	159	61	328	43
Peak Hour Factor	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	162	19	15	152	17	39	73	43	17	89	12
Total Analysis Volume [veh/h]	224	649	75	60	606	70	155	293	173	66	357	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	33	0	9	32	0	11	39	0	9	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	51	51	4	49	49	7	15	15	4	12	12
g / C, Green / Cycle	0.07	0.56	0.56	0.04	0.54	0.54	0.08	0.17	0.17	0.05	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.19	0.02	0.18	0.18	0.09	0.13	0.13	0.04	0.11	0.11
s, saturation flow rate [veh/h]	3514	1900	1832	3514	1900	1832	1810	1900	1668	1810	1900	1824
c, Capacity [veh/h]	234	1068	1029	152	1023	987	141	322	283	85	264	254
d1, Uniform Delay [s]	41.87	10.71	10.71	41.90	11.69	11.70	41.50	35.64	35.73	42.40	37.38	37.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.62	0.89	0.92	1.65	0.89	0.92	66.26	3.77	4.56	13.65	4.85	5.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.96	0.35	0.35	0.39	0.34	0.34	1.10	0.76	0.78	0.77	0.78	0.78
d, Delay for Lane Group [s/veh]	60.49	11.60	11.63	43.55	12.58	12.62	107.76	39.41	40.28	56.05	42.23	42.71
Lane Group LOS	E	B	B	D	B	B	F	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.05	3.94	3.81	0.68	3.87	3.75	5.67	5.40	4.89	1.76	4.65	4.54
50th-Percentile Queue Length [ft/ln]	76.30	98.51	95.21	16.92	96.83	93.84	141.72	135.01	122.17	43.95	116.13	113.48
95th-Percentile Queue Length [veh/ln]	5.49	7.09	6.86	1.22	6.97	6.76	9.88	9.21	8.51	3.16	8.18	8.03
95th-Percentile Queue Length [ft/ln]	137.35	177.32	171.38	30.46	174.30	168.90	246.90	230.29	212.81	79.11	204.50	200.83

Movement, Approach, & Intersection Results

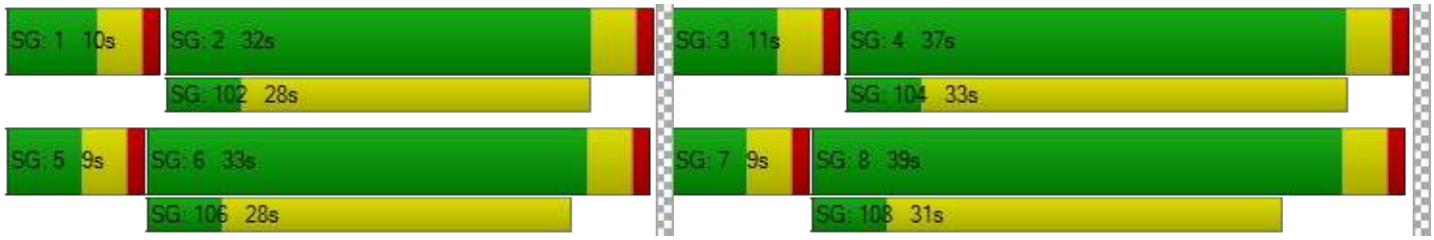
d_M, Delay for Movement [s/veh]	60.49	11.61	11.63	43.55	12.60	12.62	107.76	39.55	40.28	56.05	42.44	42.71
Movement LOS	E	B	B	D	B	B	F	D	D	E	D	D
d_A, Approach Delay [s/veh]	23.16			15.12			56.78			44.37		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	32.15											
Intersection LOS	C											
Intersection V/C	0.440											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.746	2.712	2.549	2.476
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	622	778	733
d_b, Bicycle Delay [s]	20.67	21.36	16.81	18.05
l_b,int, Bicycle LOS Score for Intersection	2.342	2.167	2.072	1.947
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	7.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	6	285	0	0	233	39	30	15	15	0	15	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	39	2	0	0	0	0	0	12	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	291	39	2	238	40	31	15	15	12	15	1
Peak Hour Factor	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	81	11	1	67	11	9	4	4	3	4	0
Total Analysis Volume [veh/h]	7	326	44	2	267	45	35	17	17	13	17	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	64	0	0	48	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	10	0	0	17	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	74	74	69	69	8	8	8
g / C, Green / Cycle	0.01	0.82	0.82	0.77	0.77	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.00	0.10	0.10	0.09	0.09	0.02	0.02	0.02
s, saturation flow rate [veh/h]	1810	1900	1822	1896	1641	1417	1746	1568
c, Capacity [veh/h]	18	1555	1492	1490	1254	151	162	202
d1, Uniform Delay [s]	44.29	1.64	1.65	2.74	2.75	38.05	37.80	37.68
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.31	0.16	0.17	0.15	0.19	0.77	0.64	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.12	0.12	0.11	0.12	0.23	0.21	0.15
d, Delay for Lane Group [s/veh]	57.60	1.80	1.81	2.89	2.94	38.82	38.44	38.03
Lane Group LOS	E	A	A	A	A	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.22	0.41	0.40	0.61	0.55	0.74	0.72	0.64
50th-Percentile Queue Length [ft/ln]	5.50	10.22	10.04	15.19	13.74	18.61	17.90	16.10
95th-Percentile Queue Length [veh/ln]	0.40	0.74	0.72	1.09	0.99	1.34	1.29	1.16
95th-Percentile Queue Length [ft/ln]	9.90	18.39	18.07	27.34	24.73	33.50	32.22	28.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.60	1.81	1.81	2.89	2.91	2.94	38.82	38.44	38.44	38.03	38.03	38.03
Movement LOS	E	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	2.84			2.91			38.63			38.03		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	7.37											
Intersection LOS	A											
Intersection V/C	0.125											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.451	2.347	1.987	1.765
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	978	489	489
d_b, Bicycle Delay [s]	5.00	11.76	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	1.871	1.819	1.673	1.611
Bicycle LOS	A	A	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.313

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	134	61	69	93	47	26	402	31	20	436	124
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	10	34	30	0	0	9	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	137	62	72	95	58	61	440	32	20	454	131
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	36	16	19	25	15	16	114	8	5	118	34
Total Analysis Volume [veh/h]	44	143	65	75	99	60	63	458	33	21	472	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	9	52	0	9	52	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	56	56	56	4	20	20	2	18	18
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.62	0.05	0.22	0.22	0.02	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.11	0.04	0.08	0.06	0.04	0.03	0.13	0.13	0.01	0.17	0.17
s, saturation flow rate [veh/h]	1684	1615	910	1729	1615	1810	1900	1856	1810	1900	1756
c, Capacity [veh/h]	1095	1003	645	1074	1003	82	422	413	42	381	352
d1, Uniform Delay [s]	7.17	6.73	13.28	6.85	6.71	42.51	31.30	31.32	43.44	34.47	34.54
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	0.12	0.37	0.17	0.11	14.20	1.30	1.34	8.91	4.57	5.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.06	0.12	0.09	0.06	0.77	0.59	0.59	0.50	0.83	0.83
d, Delay for Lane Group [s/veh]	7.51	6.85	13.64	7.02	6.82	56.72	32.59	32.66	52.35	39.04	39.71
Lane Group LOS	A	A	B	A	A	E	C	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.46	0.48	0.89	0.74	0.44	1.69	4.88	4.79	0.56	6.94	6.54
50th-Percentile Queue Length [ft/ln]	36.62	11.98	22.13	18.51	11.02	42.30	121.92	119.77	14.04	173.44	163.52
95th-Percentile Queue Length [veh/ln]	2.64	0.86	1.59	1.33	0.79	3.05	8.50	8.38	1.01	11.26	10.73
95th-Percentile Queue Length [ft/ln]	65.91	21.57	39.83	33.31	19.84	76.14	212.46	209.51	25.27	281.43	268.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.51	7.51	6.85	13.64	7.02	6.82	56.72	32.62	32.66	52.35	39.27	39.71
Movement LOS	A	A	A	B	A	A	E	C	C	D	D	D
d_A, Approach Delay [s/veh]	7.34			9.09			35.37			39.80		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	29.12											
Intersection LOS	C											
Intersection V/C	0.313											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.231	2.414	2.584	2.647
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1067
d_b, Bicycle Delay [s]	23.47	23.47	9.80	9.80
l_b,int, Bicycle LOS Score for Intersection	1.975	1.753	2.017	2.079
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Miro Way and Ayala Drive Warehouse

Vistro File: K:\...\Miro Way_PM.vistro
Report File: K:\...\3. OY WP PM.pdf

Scenario 3 OY 2024 WP PM
2/11/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	WB Left	0.764	32.5	C
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	SB Left	0.769	31.9	C
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.521	26.2	C
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.602	31.1	C
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.612	25.5	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.447	7.0	A
7	Ayala Dr at Miro Wy	Two-way stop	HCM 7th Edition	EB Left	0.397	47.9	E
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.528	30.5	C
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.248	10.4	B
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.497	29.1	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.764

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	475	298	0	0	292	376	0	0	0	295	4	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	0	0	0	0	0	0	0	0	11	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	515	304	0	0	298	384	0	0	0	312	4	125
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	141	84	0	0	82	105	0	0	0	86	1	34
Total Analysis Volume [veh/h]	566	334	0	0	327	422	0	0	0	343	4	137
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	53	67	0	0	14	0	0	0	0	0	23	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	31	63	29	29		19	19
g / C, Green / Cycle	0.34	0.70	0.32	0.32		0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.31	0.09	0.17	0.26		0.19	0.09
s, saturation flow rate [veh/h]	1810	3618	1900	1615		1810	1622
c, Capacity [veh/h]	616	2543	605	514		377	338
d1, Uniform Delay [s]	28.50	4.37	25.26	28.31		34.81	30.90
k, delay calibration	0.15	0.50	0.50	0.50		0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	8.10	0.11	3.45	13.73		10.37	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.13	0.54	0.82		0.91	0.42
d, Delay for Lane Group [s/veh]	36.60	4.48	28.71	42.04		45.18	31.72
Lane Group LOS	D	A	C	D		D	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	12.61	0.87	6.16	10.04		8.24	2.69
50th-Percentile Queue Length [ft/ln]	315.29	21.83	154.08	250.92		206.07	67.22
95th-Percentile Queue Length [veh/ln]	18.44	1.57	10.23	15.23		12.95	4.84
95th-Percentile Queue Length [ft/ln]	460.90	39.30	255.86	380.81		323.78	121.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.60	4.48	0.00	0.00	28.71	42.04	0.00	0.00	0.00	45.18	31.72	31.72
Movement LOS	D	A			C	D				D	C	C
d_A, Approach Delay [s/veh]	24.68			36.22			0.00			41.26		
Approach LOS	C			D			A			D		
d_I, Intersection Delay [s/veh]	32.50											
Intersection LOS	C											
Intersection V/C	0.764											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.392	1.952
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	222	0	422
d_b, Bicycle Delay [s]	4.05	35.56	45.00	28.01
l_b,int, Bicycle LOS Score for Intersection	2.302	2.178	4.132	2.358
Bicycle LOS	B	B	D	B

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	565	420	155	430	0	203	4	502	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	30	31	0	11	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	606	459	158	450	0	207	4	524	0	0	0
Peak Hour Factor	1.0000	0.9550	0.9550	0.9550	0.9550	1.0000	0.9550	0.9550	0.9550	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	159	120	41	118	0	54	1	137	0	0	0
Total Analysis Volume [veh/h]	0	635	481	165	471	0	217	4	549	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	36	0	13	49	0	0	41	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	36	36	9	49	33	33	
g / C, Green / Cycle	0.40	0.40	0.10	0.55	0.36	0.36	
(v / s)_i Volume / Saturation Flow Rate	0.29	0.34	0.09	0.13	0.12	0.34	
s, saturation flow rate [veh/h]	1900	1649	1810	3618	1811	1615	
c, Capacity [veh/h]	763	662	181	1975	661	590	
d1, Uniform Delay [s]	22.82	24.36	40.11	10.66	20.66	27.48	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.33	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.11	12.39	15.88	0.29	0.29	17.46	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.73	0.84	0.91	0.24	0.33	0.93	
d, Delay for Lane Group [s/veh]	28.93	36.75	55.98	10.95	20.95	44.94	
Lane Group LOS	C	D	E	B	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	10.82	12.45	4.36	2.37	3.33	13.68	
50th-Percentile Queue Length [ft/ln]	270.56	311.21	108.98	59.14	83.20	341.95	
95th-Percentile Queue Length [veh/ln]	16.22	18.23	7.78	4.26	5.99	19.74	
95th-Percentile Queue Length [ft/ln]	405.44	455.87	194.59	106.44	149.76	493.58	

Movement, Approach, & Intersection Results

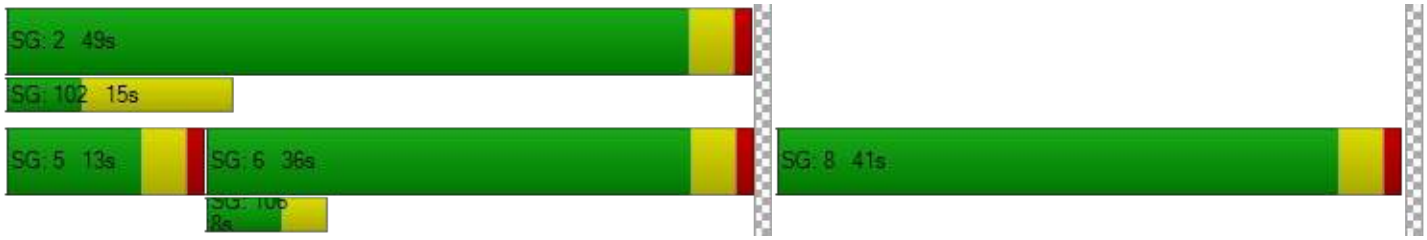
d_M, Delay for Movement [s/veh]	0.00	29.88	36.75	55.98	10.95	0.00	20.95	20.95	44.94	0.00	0.00	0.00
Movement LOS		C	D	E	B		C	C	D			
d_A, Approach Delay [s/veh]	32.84			22.63			38.06			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	31.86											
Intersection LOS	C											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.092	2.059
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	1000	822	0
d_b, Bicycle Delay [s]	18.69	11.25	15.61	45.00
l_b,int, Bicycle LOS Score for Intersection	2.480	2.084	2.830	4.132
Bicycle LOS	B	B	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	51	659	34	183	603	138	95	269	67	20	172	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	61	0	0	23	0	0	1	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	733	35	187	638	141	97	275	68	20	177	225
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	191	9	49	166	37	25	72	18	5	46	59
Total Analysis Volume [veh/h]	54	764	36	195	665	147	101	286	71	21	184	234
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	19	34	0	12	32	0	9	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	41	41	12	48	48	6	20	20	2	16	16
g / C, Green / Cycle	0.04	0.45	0.45	0.13	0.54	0.54	0.07	0.22	0.22	0.02	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.21	0.21	0.11	0.22	0.22	0.06	0.10	0.10	0.01	0.10	0.14
s, saturation flow rate [veh/h]	1810	1900	1870	1810	1900	1782	1810	1900	1772	1810	1900	1615
c, Capacity [veh/h]	77	855	841	232	1018	955	129	419	391	42	328	279
d1, Uniform Delay [s]	42.53	17.28	17.29	38.32	12.44	12.44	41.10	30.24	30.30	43.44	34.11	36.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.10	1.86	1.90	7.89	1.23	1.31	9.85	0.72	0.79	8.91	1.50	6.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.47	0.47	0.84	0.41	0.41	0.78	0.44	0.44	0.50	0.56	0.84
d, Delay for Lane Group [s/veh]	53.63	19.15	19.18	46.20	13.67	13.75	50.95	30.96	31.09	52.35	35.61	42.70
Lane Group LOS	D	B	B	D	B	B	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.41	6.00	5.91	4.64	5.02	4.73	2.53	3.45	3.29	0.56	3.77	5.39
50th-Percentile Queue Length [ft/ln]	35.24	149.92	147.77	116.05	125.50	118.28	63.21	86.14	82.23	14.04	94.13	134.76
95th-Percentile Queue Length [veh/ln]	2.54	10.01	9.90	8.18	8.69	8.30	4.55	6.20	5.92	1.01	6.78	9.20
95th-Percentile Queue Length [ft/ln]	63.43	250.32	247.45	204.38	217.37	207.46	113.78	155.05	148.01	25.27	169.43	229.95

Movement, Approach, & Intersection Results

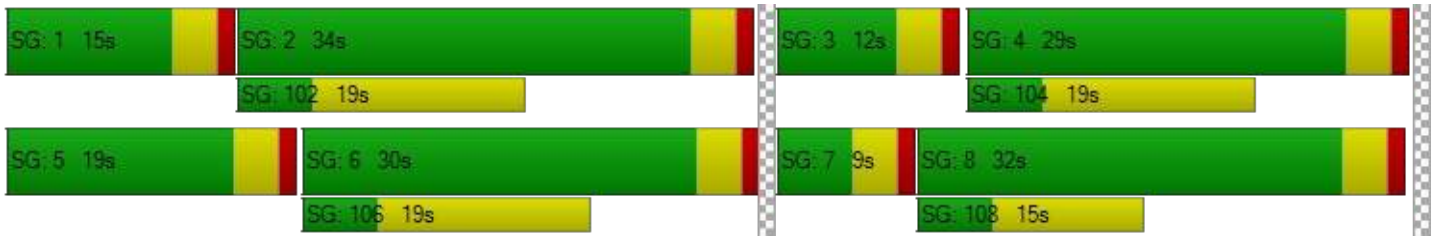
d_M, Delay for Movement [s/veh]	53.63	19.16	19.18	46.20	13.70	13.75	50.95	31.01	31.09	52.35	35.61	42.70
Movement LOS	D	B	B	D	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	21.34			20.00			35.42			40.19		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	26.19											
Intersection LOS	C											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.616	2.712	2.466	2.488
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	667	622	556
d_b, Bicycle Delay [s]	22.76	20.00	21.36	23.47
l_b,int, Bicycle LOS Score for Intersection	2.264	2.390	1.937	1.922
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.602

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	43	323	44	118	363	123	79	434	63	57	346	87
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	23	0	0	0	1	0	0	3	61
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	329	45	143	370	125	81	444	64	58	356	150
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	85	12	37	95	32	21	114	16	15	92	39
Total Analysis Volume [veh/h]	45	338	46	147	381	129	83	457	66	60	366	154
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	17	26	0	13	22	22	24	42	0	9	27	27
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	3	34	9	39	49	6	28	4	26	39
g / C, Green / Cycle	0.04	0.37	0.10	0.43	0.54	0.06	0.31	0.04	0.29	0.43
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.08	0.20	0.08	0.05	0.28	0.03	0.19	0.10
s, saturation flow rate [veh/h]	1810	1861	1810	1900	1615	1810	1859	1810	1900	1615
c, Capacity [veh/h]	71	694	180	823	876	117	570	78	541	692
d1, Uniform Delay [s]	42.60	22.28	39.74	18.08	10.23	41.24	30.12	42.60	28.50	16.24
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.20	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.03	3.16	8.80	1.87	0.35	7.56	10.91	14.21	1.48	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.55	0.82	0.46	0.15	0.71	0.92	0.76	0.68	0.22
d, Delay for Lane Group [s/veh]	51.63	25.44	48.53	19.95	10.59	48.80	41.03	56.81	29.98	16.40
Lane Group LOS	D	C	D	B	B	D	D	E	C	B
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.15	6.79	3.58	5.79	1.29	2.03	12.25	1.62	7.01	1.97
50th-Percentile Queue Length [ft/ln]	28.85	169.87	89.51	144.85	32.14	50.79	306.17	40.38	175.24	49.19
95th-Percentile Queue Length [veh/ln]	2.08	11.07	6.44	9.74	2.31	3.66	17.99	2.91	11.35	3.54
95th-Percentile Queue Length [ft/ln]	51.94	276.74	161.11	243.54	57.85	91.42	449.65	72.68	283.79	88.54

Movement, Approach, & Intersection Results

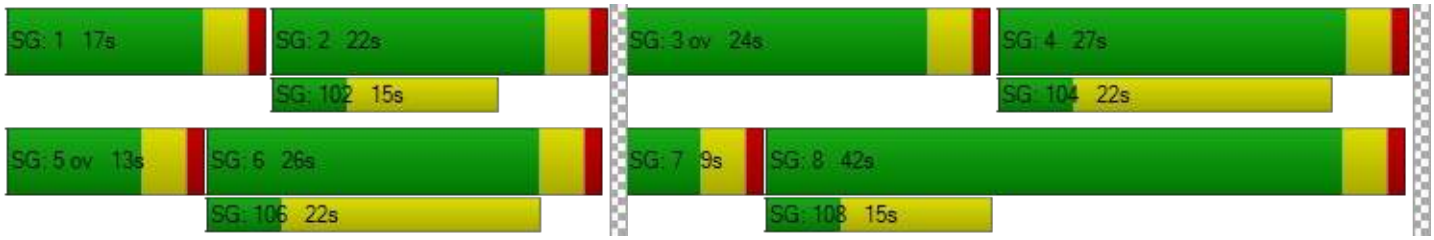
d_M, Delay for Movement [s/veh]	51.63	25.44	25.44	48.53	19.95	10.59	48.80	41.03	41.03	56.81	29.98	16.40
Movement LOS	D	C	C	D	B	B	D	D	D	E	C	B
d_A, Approach Delay [s/veh]	28.19			24.51			42.09			29.15		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	31.08											
Intersection LOS	C											
Intersection V/C	0.602											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.246	2.542	2.314	2.541
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	400	844	511
d_b, Bicycle Delay [s]	25.69	28.80	15.02	24.94
l_b,int, Bicycle LOS Score for Intersection	2.267	2.644	2.560	2.517
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.612

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	106	792	75	342	823	541	361	378	113	61	184	357
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	17	2	0	6	0	0	0	1	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	825	79	349	845	552	368	386	116	63	188	364
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	215	21	91	221	144	96	101	30	16	49	95
Total Analysis Volume [veh/h]	115	861	82	364	882	576	384	403	121	66	196	380
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	15	35	35	17	37	37	9	29	29
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	39	47	11	45	62	13	20	29	4	11	26
g / C, Green / Cycle	0.06	0.44	0.53	0.12	0.50	0.69	0.14	0.22	0.32	0.05	0.12	0.28
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.05	0.10	0.24	0.36	0.11	0.11	0.07	0.02	0.05	0.24
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	195	1586	853	430	1827	1121	508	783	511	159	424	458
d1, Uniform Delay [s]	41.50	18.63	10.56	38.68	14.58	6.55	36.98	31.09	22.73	41.81	37.08	30.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.81	1.34	0.22	4.71	0.92	1.69	2.33	0.53	0.24	1.73	0.79	8.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.54	0.10	0.85	0.48	0.51	0.76	0.51	0.24	0.42	0.46	0.83
d, Delay for Lane Group [s/veh]	44.31	19.97	10.78	43.39	15.49	8.24	39.31	31.62	22.97	43.53	37.87	38.27
Lane Group LOS	D	B	B	D	B	A	D	C	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.31	6.61	0.82	4.15	5.78	4.81	4.15	3.84	1.89	0.74	2.03	8.49
50th-Percentile Queue Length [ft/ln]	32.71	165.17	20.62	103.77	144.39	120.17	103.83	96.02	47.23	18.60	50.82	212.14
95th-Percentile Queue Length [veh/ln]	2.36	10.82	1.48	7.47	9.72	8.40	7.48	6.91	3.40	1.34	3.66	13.26
95th-Percentile Queue Length [ft/ln]	58.88	270.55	37.12	186.78	242.93	210.07	186.89	172.84	85.01	33.48	91.47	331.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.31	19.97	10.78	43.39	15.49	8.24	39.31	31.62	22.97	43.53	37.87	38.27
Movement LOS	D	B	B	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	21.90			18.77			33.72			38.69		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	25.47											
Intersection LOS	C											
Intersection V/C	0.612											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.892	3.076	2.845	2.803
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	689	733	556
d_b, Bicycle Delay [s]	23.47	19.34	18.05	23.47
l_b,int, Bicycle LOS Score for Intersection	2.432	3.063	2.309	2.089
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	7.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.447

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	828	8	209	869	1	0	0	5	1	3	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	21	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	866	8	213	894	1	0	0	5	1	3	154
Peak Hour Factor	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730	0.9730
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	223	2	55	230	0	0	0	1	0	1	40
Total Analysis Volume [veh/h]	8	890	8	219	919	1	0	0	5	1	3	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	55	0	0	55	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	71	71	11	11	11	11
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.01	0.24	0.24	0.35	0.24	0.24	0.00	0.00	0.00	0.10
s, saturation flow rate [veh/h]	617	1900	1894	630	1900	1899	1245	1615	1434	1620
c, Capacity [veh/h]	501	1497	1493	512	1497	1497	99	199	231	199
d1, Uniform Delay [s]	4.58	2.65	2.65	6.84	2.67	2.67	0.00	34.71	36.06	38.43
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.52	0.52	2.61	0.53	0.53	0.00	0.05	0.01	7.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.30	0.30	0.43	0.31	0.31	0.00	0.03	0.00	0.81
d, Delay for Lane Group [s/veh]	4.64	3.16	3.17	9.44	3.20	3.20	0.00	34.76	36.07	45.97
Lane Group LOS	A	A	A	A	A	A	A	C	D	D
Critical Lane Group	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.05	1.62	1.62	2.04	1.67	1.67	0.00	0.10	0.02	3.83
50th-Percentile Queue Length [ft/ln]	1.22	40.54	40.43	50.89	41.79	41.78	0.00	2.46	0.50	95.65
95th-Percentile Queue Length [veh/ln]	0.09	2.92	2.91	3.66	3.01	3.01	0.00	0.18	0.04	6.89
95th-Percentile Queue Length [ft/ln]	2.19	72.97	72.77	91.60	75.22	75.20	0.00	4.43	0.90	172.17

Movement, Approach, & Intersection Results

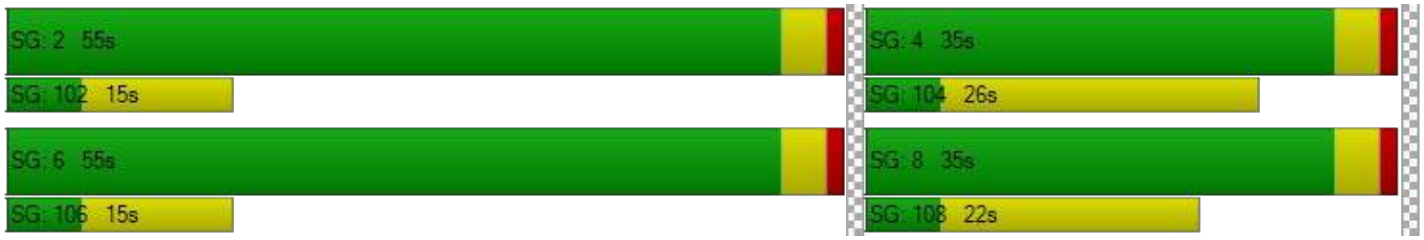
d_M, Delay for Movement [s/veh]	4.64	3.16	3.17	9.44	3.20	3.20	0.00	34.76	34.76	36.07	45.97	45.97
Movement LOS	A	A	A	A	A	A	A	C	C	D	D	D
d_A, Approach Delay [s/veh]	3.18			4.40			34.76			45.91		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	7.01											
Intersection LOS	A											
Intersection V/C	0.447											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.660	2.810	1.959	2.380
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	689	689
d_b, Bicycle Delay [s]	8.45	8.45	19.34	19.34
l_b,int, Bicycle LOS Score for Intersection	2.307	2.499	1.568	1.827
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 7: Ayala Dr at Miro Wy

Control Type:	Two-way stop	Delay (sec / veh):	47.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	0	817	851	24	27	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	0	8	21	33
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	833	868	32	49	33
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	219	228	8	13	9
Total Analysis Volume [veh/h]	14	877	914	34	52	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.40	0.06
d_M, Delay for Movement [s/veh]	9.93	0.00	0.00	0.00	47.93	27.06
Movement LOS	A	A	A	A	E	D
95th-Percentile Queue Length [veh/ln]	0.02	0.01	0.00	0.00	2.19	2.19
95th-Percentile Queue Length [ft/ln]	0.59	0.29	0.00	0.00	54.87	54.87
d_A, Approach Delay [s/veh]	0.16		0.00		39.54	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.86					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.528

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	142	647	96	139	678	57	126	447	206	89	350	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	3	0	30	12	0	5	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	147	660	98	145	692	88	141	456	215	91	357	51
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	179	27	39	187	24	38	123	58	25	97	14
Total Analysis Volume [veh/h]	159	714	106	157	749	95	153	494	233	98	386	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	32	0	9	32	0	12	38	0	11	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	42	42	5	42	42	8	21	21	6	19	19
g / C, Green / Cycle	0.06	0.46	0.46	0.06	0.46	0.46	0.09	0.24	0.24	0.07	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.22	0.04	0.23	0.23	0.08	0.20	0.20	0.05	0.12	0.12
s, saturation flow rate [veh/h]	3514	1900	1815	3514	1900	1826	1810	1900	1697	1810	1900	1819
c, Capacity [veh/h]	195	877	838	195	877	843	161	448	400	125	411	393
d1, Uniform Delay [s]	42.04	16.75	16.75	42.02	16.88	16.88	40.81	32.92	32.92	41.22	31.33	31.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.98	1.87	1.95	7.54	1.96	2.04	23.02	4.80	5.37	10.10	1.13	1.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.48	0.48	0.80	0.49	0.49	0.95	0.86	0.86	0.78	0.55	0.55
d, Delay for Lane Group [s/veh]	50.02	18.62	18.70	49.55	18.84	18.92	63.82	37.72	38.29	51.31	32.46	32.57
Lane Group LOS	D	B	B	D	B	B	E	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.94	6.14	5.88	1.91	6.35	6.13	4.35	8.41	7.58	2.46	4.38	4.24
50th-Percentile Queue Length [ft/ln]	48.56	153.45	147.11	47.69	158.86	153.14	108.83	210.18	189.47	61.59	109.62	106.11
95th-Percentile Queue Length [veh/ln]	3.50	10.20	9.86	3.43	10.49	10.18	7.77	13.16	12.09	4.43	7.82	7.62
95th-Percentile Queue Length [ft/ln]	87.40	255.03	246.57	85.84	262.21	254.61	194.37	329.05	302.35	110.87	195.47	190.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.02	18.65	18.70	49.55	18.87	18.92	63.82	37.85	38.29	51.31	32.51	32.57
Movement LOS	D	B	B	D	B	B	E	D	D	D	C	C
d_A, Approach Delay [s/veh]	23.75			23.69			42.48			35.94		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.52											
Intersection LOS	C											
Intersection V/C	0.528											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.789	2.767	2.598	2.554
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	622	756	733
d_b, Bicycle Delay [s]	21.36	21.36	17.42	18.05
l_b,int, Bicycle LOS Score for Intersection	2.367	2.385	2.286	2.004
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.248

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	18	402	0	0	377	53	52	27	26	0	24	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	14	1	0	0	0	0	0	39	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	410	14	1	385	54	53	28	27	39	24	2
Peak Hour Factor	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	129	4	0	121	17	17	9	8	12	8	1
Total Analysis Volume [veh/h]	23	516	18	1	484	68	67	35	34	49	30	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	41	0	0	31	0	0	49	0	0	49	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	10	0	0	17	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	72	72	66	66	10	10	10
g / C, Green / Cycle	0.02	0.80	0.80	0.73	0.73	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.01	0.14	0.14	0.16	0.16	0.05	0.04	0.08
s, saturation flow rate [veh/h]	1810	1900	1878	1899	1652	1398	1748	1038
c, Capacity [veh/h]	44	1524	1506	1433	1212	106	190	177
d1, Uniform Delay [s]	43.38	2.05	2.05	3.79	3.80	38.42	37.20	39.64
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.12	0.25	0.26	0.32	0.40	6.15	1.16	1.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.18	0.18	0.21	0.21	0.63	0.36	0.46
d, Delay for Lane Group [s/veh]	52.50	2.30	2.31	4.11	4.20	44.57	38.35	41.52
Lane Group LOS	D	A	A	A	A	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.61	0.74	0.74	1.44	1.29	1.58	1.46	1.85
50th-Percentile Queue Length [ft/ln]	15.33	18.62	18.48	36.03	32.20	39.47	36.39	46.25
95th-Percentile Queue Length [veh/ln]	1.10	1.34	1.33	2.59	2.32	2.84	2.62	3.33
95th-Percentile Queue Length [ft/ln]	27.59	33.52	33.26	64.86	57.96	71.05	65.50	83.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.50	2.30	2.31	4.11	4.15	4.20	44.57	38.35	38.35	41.52	41.52	41.52
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.38			4.15			41.42			41.52		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.37											
Intersection LOS	B											
Intersection V/C	0.248											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.590	2.506	2.025	1.784
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	822	600	1000	1000
d_b, Bicycle Delay [s]	15.61	22.05	11.25	11.25
l_b,int, Bicycle LOS Score for Intersection	2.019	2.016	1.784	1.695
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	168	45	144	170	95	83	475	27	39	367	163
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	0	34	12	12	0	0	30	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	171	46	152	173	131	97	497	28	40	404	168
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	48	13	43	49	37	27	140	8	11	114	47
Total Analysis Volume [veh/h]	20	193	52	171	195	148	109	560	32	45	455	189
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	10	52	0	9	51	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	53	53	53	53	53	6	22	22	3	19	19
g / C, Green / Cycle	0.59	0.59	0.59	0.59	0.59	0.07	0.24	0.24	0.04	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.12	0.03	0.26	0.11	0.09	0.06	0.16	0.16	0.02	0.18	0.18
s, saturation flow rate [veh/h]	1791	1615	664	1729	1615	1810	1900	1864	1810	1900	1714
c, Capacity [veh/h]	1095	948	470	1015	948	121	459	450	68	404	365
d1, Uniform Delay [s]	8.64	7.92	23.13	8.64	8.44	41.71	30.71	30.72	42.72	33.91	33.97
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.40	0.11	2.17	0.42	0.35	20.51	1.56	1.60	10.25	4.56	5.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.05	0.36	0.19	0.16	0.90	0.65	0.65	0.66	0.83	0.84
d, Delay for Lane Group [s/veh]	9.03	8.03	25.30	9.06	8.79	62.22	32.27	32.31	52.98	38.47	39.24
Lane Group LOS	A	A	C	A	A	E	C	C	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.90	0.43	3.02	1.75	1.30	3.06	5.90	5.80	1.17	7.41	6.82
50th-Percentile Queue Length [ft/ln]	47.50	10.69	75.55	43.73	32.52	76.48	147.47	145.05	29.30	185.17	170.39
95th-Percentile Queue Length [veh/ln]	3.42	0.77	5.44	3.15	2.34	5.51	9.88	9.75	2.11	11.87	11.10
95th-Percentile Queue Length [ft/ln]	85.50	19.24	136.00	78.71	58.54	137.66	247.05	243.80	52.74	296.75	277.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.03	9.03	8.03	25.30	9.06	8.79	62.22	32.29	32.31	52.98	38.67	39.24
Movement LOS	A	A	A	C	A	A	E	C	C	D	D	D
d_A, Approach Delay [s/veh]	8.84			14.39			36.94			39.76		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	29.06											
Intersection LOS	C											
Intersection V/C	0.497											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.263	2.497	2.588	2.832
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1044
d_b, Bicycle Delay [s]	23.47	23.47	9.80	10.27
l_b,int, Bicycle LOS Score for Intersection	1.997	1.984	2.138	2.128
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-4

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2024 CUMULATIVE

Miro Way and Ayala Drive Warehouse

Vistro File: \...\Miro Way_AM.vistro
Report File: \...\4. OY CUM AM.pdf

Scenario 4 OY 2024 Cum AM
5/16/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	WB Left	1.039	94.7	F
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	EB Right	1.210	135.6	F
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	WB Right	0.952	86.6	F
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.773	48.7	D
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	EB Left	0.406	22.7	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.342	6.6	A
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	NB Left	0.512	36.3	D
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.133	5.9	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.324	29.1	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	94.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.039

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	396	343	0	0	17	12	0	0	0	431	5	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	210	292	0	0	291	89	0	0	0	339	0	89
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	614	642	0	0	308	101	0	0	0	779	5	249
Peak Hour Factor	0.8530	0.8530	1.0000	1.0000	0.8530	0.8530	1.0000	1.0000	1.0000	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	180	188	0	0	90	30	0	0	0	228	1	73
Total Analysis Volume [veh/h]	720	753	0	0	361	118	0	0	0	913	6	292
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	34	49	0	0	15	0	0	0	0	0	41	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	30	45	11	11		37	37
g / C, Green / Cycle	0.33	0.50	0.12	0.12		0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.40	0.21	0.13	0.14		0.50	0.18
s, saturation flow rate [veh/h]	1810	3618	1900	1748		1810	1620
c, Capacity [veh/h]	603	1809	232	214		744	666
d1, Uniform Delay [s]	30.00	14.21	39.50	39.50		26.50	19.12
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	102.76	0.71	67.44	97.88		114.00	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.19	0.42	1.03	1.12		1.23	0.45
d, Delay for Lane Group [s/veh]	132.76	14.92	106.94	137.38		140.50	19.60
Lane Group LOS	F	B	F	F		F	B
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	29.69	4.75	9.39	10.45		38.51	4.41
50th-Percentile Queue Length [ft/ln]	742.17	118.75	234.82	261.20		962.81	110.26
95th-Percentile Queue Length [veh/ln]	43.11	8.32	14.61	16.51		55.78	7.85
95th-Percentile Queue Length [ft/ln]	1077.63	208.10	365.30	412.68		1394.46	196.36

Movement, Approach, & Intersection Results

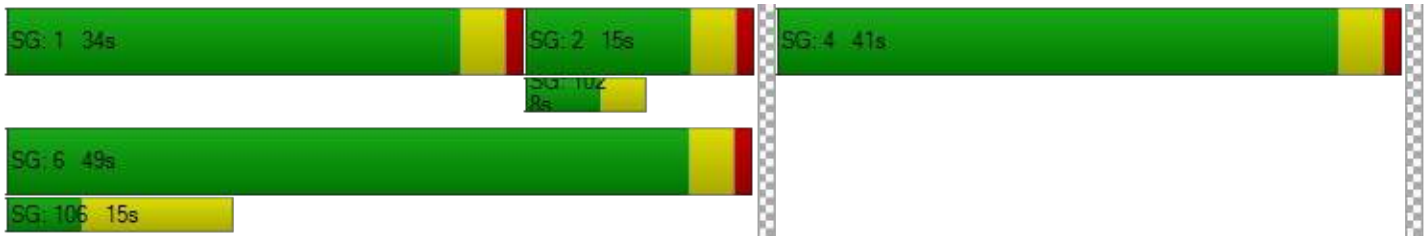
d_M, Delay for Movement [s/veh]	132.76	14.92	0.00	0.00	117.19	137.38	0.00	0.00	0.00	140.50	19.60	19.60
Movement LOS	F	B			F	F				F	B	B
d_A, Approach Delay [s/veh]	72.52			122.16			0.00			110.75		
Approach LOS	E			F			A			F		
d_I, Intersection Delay [s/veh]	94.67											
Intersection LOS	F											
Intersection V/C	1.039											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.248	2.307
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	244	0	822
d_b, Bicycle Delay [s]	11.25	34.67	45.00	15.61
l_b,int, Bicycle LOS Score for Intersection	2.775	1.955	4.132	3.558
Bicycle LOS	C	A	D	D

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	135.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.210

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	486	333	6	421	0	298	3	616	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	413	210	89	542	0	89	0	339	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	909	550	95	971	0	393	3	967	0	0	0
Peak Hour Factor	1.0000	0.8980	0.8980	0.8980	0.8980	1.0000	0.8980	0.8980	0.8980	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	253	153	26	270	0	109	1	269	0	0	0
Total Analysis Volume [veh/h]	0	1012	612	106	1081	0	438	3	1077	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	9	44	0	0	46	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	31	31	5	40	42	42	
g / C, Green / Cycle	0.34	0.34	0.06	0.44	0.47	0.47	
(v / s)_i Volume / Saturation Flow Rate	0.43	0.48	0.06	0.30	0.24	0.67	
s, saturation flow rate [veh/h]	1900	1677	1810	3618	1810	1615	
c, Capacity [veh/h]	654	578	101	1608	845	754	
d1, Uniform Delay [s]	29.50	29.50	42.50	19.81	16.92	24.00	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	121.02	192.82	56.80	2.26	0.50	200.71	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	1.24	1.41	1.05	0.67	0.52	1.43	
d, Delay for Lane Group [s/veh]	150.52	222.32	99.30	22.07	17.42	224.71	
Lane Group LOS	F	F	F	C	B	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	35.48	42.84	3.79	8.99	6.21	56.78	
50th-Percentile Queue Length [ft/ln]	887.07	1070.93	94.81	224.70	155.25	1419.61	
95th-Percentile Queue Length [veh/ln]	51.70	64.89	6.83	13.90	10.30	86.33	
95th-Percentile Queue Length [ft/ln]	1292.42	1622.20	170.66	347.62	257.42	2158.19	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	164.71	222.32	99.30	22.07	0.00	17.42	17.42	224.71	0.00	0.00	0.00
Movement LOS		F	F	F	C		B	B	F			
d_A, Approach Delay [s/veh]	186.42			28.97			164.49			0.00		
Approach LOS	F			C			F			A		
d_I, Intersection Delay [s/veh]	135.56											
Intersection LOS	F											
Intersection V/C	1.210											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.456	2.128
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	889	933	0
d_b, Bicycle Delay [s]	19.34	13.89	12.80	45.00
l_b,int, Bicycle LOS Score for Intersection	2.899	2.539	4.064	4.132
Bicycle LOS	C	B	D	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	86.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.952

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	127	567	15	155	775	78	97	158	80	26	140	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	1	370	0	331	533	18	18	70	3	0	74	235
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	948	15	489	1324	98	117	231	85	27	217	438
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	262	4	135	366	27	32	64	24	7	60	121
Total Analysis Volume [veh/h]	145	1049	17	541	1465	108	129	256	94	30	240	485
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	26	0	27	42	0	10	26	0	11	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	22	22	23	38	38	6	26	26	3	23	23
g / C, Green / Cycle	0.08	0.24	0.24	0.26	0.42	0.42	0.07	0.29	0.29	0.03	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.08	0.28	0.28	0.30	0.41	0.42	0.07	0.10	0.10	0.02	0.13	0.30
s, saturation flow rate [veh/h]	1810	1900	1889	1810	1900	1855	1810	1900	1730	1810	1900	1615
c, Capacity [veh/h]	141	464	462	462	802	783	121	554	504	56	486	413
d1, Uniform Delay [s]	41.50	34.00	34.00	33.50	25.63	26.00	42.00	24.98	25.04	42.98	28.54	33.50
k, delay calibration	0.11	0.50	0.50	0.38	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.38
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	43.24	90.07	90.32	92.99	27.36	33.17	57.97	0.34	0.39	7.82	0.78	96.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.15	1.15	1.17	0.98	1.00	1.07	0.33	0.33	0.54	0.49	1.18
d, Delay for Lane Group [s/veh]	84.74	124.07	124.32	126.49	52.99	59.17	99.97	25.32	25.43	50.80	29.32	130.32
Lane Group LOS	F	F	F	F	D	F	F	C	C	D	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.77	21.46	21.37	21.71	21.61	22.89	4.59	3.02	2.83	0.77	4.43	19.82
50th-Percentile Queue Length [ft/ln]	119.22	536.46	534.24	542.86	540.28	572.22	114.64	75.46	70.64	19.32	110.63	495.48
95th-Percentile Queue Length [veh/ln]	8.43	31.42	31.32	32.05	29.24	30.83	8.25	5.43	5.09	1.39	7.88	29.64
95th-Percentile Queue Length [ft/ln]	210.80	785.61	782.88	801.27	730.88	770.79	206.35	135.84	127.16	34.78	196.88	741.07

Movement, Approach, & Intersection Results

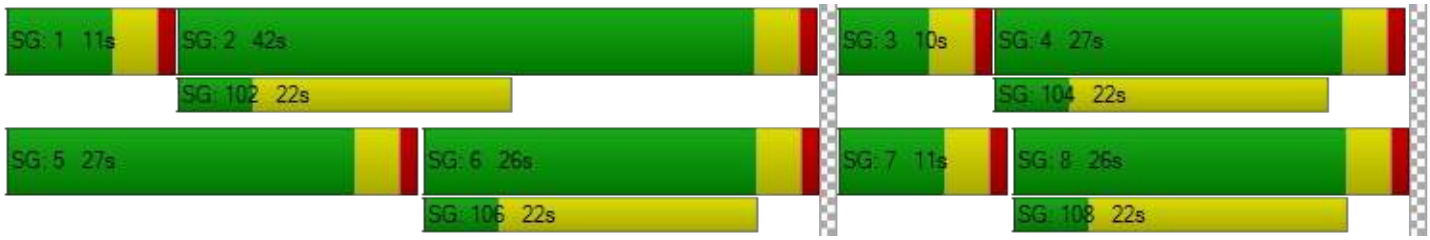
d_M, Delay for Movement [s/veh]	84.74	124.19	124.32	126.49	55.86	59.17	99.97	25.35	25.43	50.80	29.32	130.32
Movement LOS	F	F	F	F	E	E	F	C	C	D	C	F
d_A, Approach Delay [s/veh]	119.47			74.10			45.46			95.06		
Approach LOS	F			E			D			F		
d_I, Intersection Delay [s/veh]	86.61											
Intersection LOS	F											
Intersection V/C	0.952											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.847	3.038	2.491	2.607
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	844	489	511
d_b, Bicycle Delay [s]	25.69	15.02	25.69	24.94
l_b,int, Bicycle LOS Score for Intersection	2.559	3.304	1.955	2.182
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	48.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.773

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	157	301	100	63	345	138	96	373	74	41	472	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	13	20	0	108	18	60	29	32	5	0	35	39
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	327	102	172	370	201	127	412	80	42	516	170
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	94	29	49	106	58	37	119	23	12	148	49
Total Analysis Volume [veh/h]	199	376	117	198	426	231	146	474	92	48	594	196
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	21	29	0	19	27	27	10	33	0	9	32	32
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	28	12	28	38	6	30	4	28	44
g / C, Green / Cycle	0.13	0.31	0.13	0.31	0.42	0.07	0.34	0.04	0.31	0.49
(v / s)_i Volume / Saturation Flow Rate	0.11	0.27	0.11	0.22	0.14	0.08	0.31	0.03	0.31	0.12
s, saturation flow rate [veh/h]	1810	1824	1810	1900	1615	1810	1847	1810	1900	1615
c, Capacity [veh/h]	239	568	240	594	684	121	625	71	591	789
d1, Uniform Delay [s]	38.10	29.22	38.01	27.41	17.44	42.00	28.40	42.66	31.00	13.41
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.38	0.11	0.41	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.44	16.26	6.99	7.27	1.33	110.51	15.49	10.54	34.53	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.87	0.82	0.72	0.34	1.21	0.91	0.67	1.00	0.25
d, Delay for Lane Group [s/veh]	45.55	45.47	45.00	34.69	18.78	152.51	43.89	53.21	65.53	13.57
Lane Group LOS	D	D	D	C	B	F	D	D	F	B
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.70	12.24	4.65	9.05	3.36	6.35	13.83	1.25	17.97	2.25
50th-Percentile Queue Length [ft/ln]	117.60	305.97	116.18	226.15	83.91	158.65	345.71	31.27	449.32	56.20
95th-Percentile Queue Length [veh/ln]	8.26	17.98	8.18	13.98	6.04	11.08	19.93	2.25	25.01	4.05
95th-Percentile Queue Length [ft/ln]	206.53	449.41	204.57	349.46	151.04	277.00	498.17	56.29	625.14	101.16

Movement, Approach, & Intersection Results

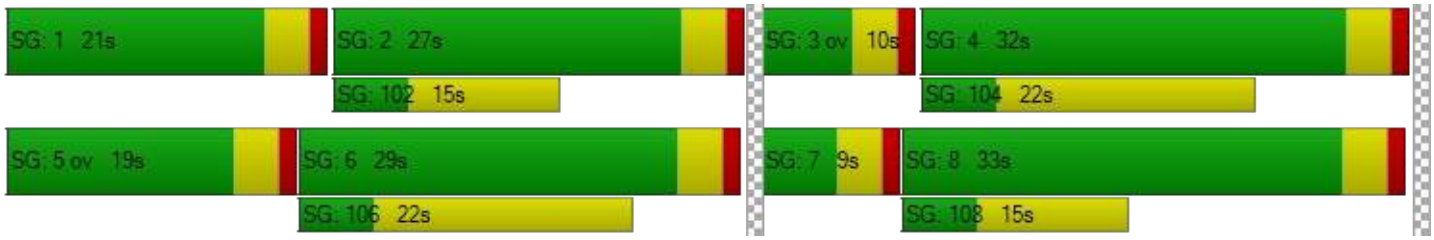
d_M, Delay for Movement [s/veh]	45.55	45.47	45.47	45.00	34.69	18.78	152.51	43.89	43.89	53.21	65.53	13.57
Movement LOS	D	D	D	D	C	B	F	D	D	D	F	B
d_A, Approach Delay [s/veh]	45.49			32.77			66.16			52.67		
Approach LOS	D			C			E			D		
d_I, Intersection Delay [s/veh]	48.68											
Intersection LOS	D											
Intersection V/C	0.773											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.351	2.608	2.506	2.619
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	511	644	622
d_b, Bicycle Delay [s]	23.47	24.94	20.67	21.36
l_b,int, Bicycle LOS Score for Intersection	2.701	2.970	2.734	2.942
Bicycle LOS	B	C	B	C

Sequence

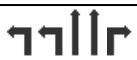
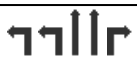
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.406

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	47	716	38	198	698	341	235	106	80	29	122	350
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	14	149	19	19	152	0	0	7	7	17	4	16
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	879	58	221	864	348	240	115	89	47	128	373
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	232	15	58	228	92	63	30	23	12	34	98
Total Analysis Volume [veh/h]	65	927	61	233	911	367	253	121	94	50	135	393
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	15	35	35	12	37	37	9	34	34
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	44	52	11	50	62	8	15	24	4	11	26
g / C, Green / Cycle	0.05	0.49	0.57	0.12	0.56	0.69	0.09	0.17	0.27	0.04	0.12	0.29
(v / s)_i Volume / Saturation Flow Rate	0.02	0.26	0.04	0.07	0.25	0.23	0.07	0.03	0.06	0.01	0.04	0.24
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	187	1771	927	430	2021	1118	312	616	433	141	439	465
d1, Uniform Delay [s]	41.10	15.76	8.48	37.13	11.71	5.52	40.25	32.06	25.61	42.06	36.08	30.14
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.11	1.11	0.14	1.07	0.73	0.79	5.01	0.15	0.25	1.51	0.39	9.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.52	0.07	0.54	0.45	0.33	0.81	0.20	0.22	0.35	0.31	0.84
d, Delay for Lane Group [s/veh]	42.21	16.87	8.61	38.20	12.44	6.31	45.27	32.21	25.86	43.57	36.47	39.51
Lane Group LOS	D	B	A	D	B	A	D	C	C	D	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.72	6.44	0.53	2.44	5.18	2.54	2.93	1.13	1.57	0.57	1.36	8.95
50th-Percentile Queue Length [ft/ln]	17.91	160.88	13.21	61.05	129.53	63.57	73.23	28.25	39.15	14.13	34.02	223.74
95th-Percentile Queue Length [veh/ln]	1.29	10.60	0.95	4.40	8.91	4.58	5.27	2.03	2.82	1.02	2.45	13.86
95th-Percentile Queue Length [ft/ln]	32.25	264.88	23.78	109.89	222.86	114.43	131.82	50.85	70.46	25.43	61.24	346.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.21	16.87	8.61	38.20	12.44	6.31	45.27	32.21	25.86	43.57	36.47	39.51
Movement LOS	D	B	A	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	17.95			14.92			37.99			39.15		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	22.68											
Intersection LOS	C											
Intersection V/C	0.406											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.889	3.025	2.740	2.734
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	689	733	667
d_b, Bicycle Delay [s]	23.47	19.34	18.05	20.00
l_b,int, Bicycle LOS Score for Intersection	2.428	2.806	1.946	2.036
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	6.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.342

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	14	717	3	122	641	8	1	0	4	3	1	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	107	0	19	146	0	0	0	0	0	0	3
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	838	3	143	800	8	1	0	4	3	1	142
Peak Hour Factor	0.9500	0.9280	0.9500	0.9280	0.9280	0.9280	0.9280	0.9500	0.9500	0.9500	0.9500	0.9280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	226	1	39	216	2	0	0	1	1	0	38
Total Analysis Volume [veh/h]	15	903	3	154	862	9	1	0	4	3	1	153
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	71	71	11	11	11	11
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.24	0.24	0.25	0.23	0.23	0.00	0.00	0.00	0.10
s, saturation flow rate [veh/h]	646	1900	1898	625	1900	1893	1252	1615	1435	1617
c, Capacity [veh/h]	529	1506	1504	513	1506	1501	97	191	224	191
d1, Uniform Delay [s]	4.27	2.54	2.54	5.66	2.51	2.51	43.84	35.06	36.48	38.66
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.51	0.51	1.50	0.49	0.49	0.04	0.04	0.02	7.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.30	0.30	0.30	0.29	0.29	0.01	0.02	0.01	0.80
d, Delay for Lane Group [s/veh]	4.37	3.05	3.05	7.16	3.00	3.00	43.88	35.11	36.50	46.36
Lane Group LOS	A	A	A	A	A	A	D	D	D	D
Critical Lane Group	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.09	1.57	1.57	1.19	1.49	1.49	0.02	0.08	0.06	3.67
50th-Percentile Queue Length [ft/ln]	2.17	39.20	39.16	29.79	37.28	37.16	0.57	1.98	1.51	91.86
95th-Percentile Queue Length [veh/ln]	0.16	2.82	2.82	2.14	2.68	2.68	0.04	0.14	0.11	6.61
95th-Percentile Queue Length [ft/ln]	3.90	70.57	70.50	53.62	67.10	66.89	1.03	3.56	2.72	165.34

Movement, Approach, & Intersection Results

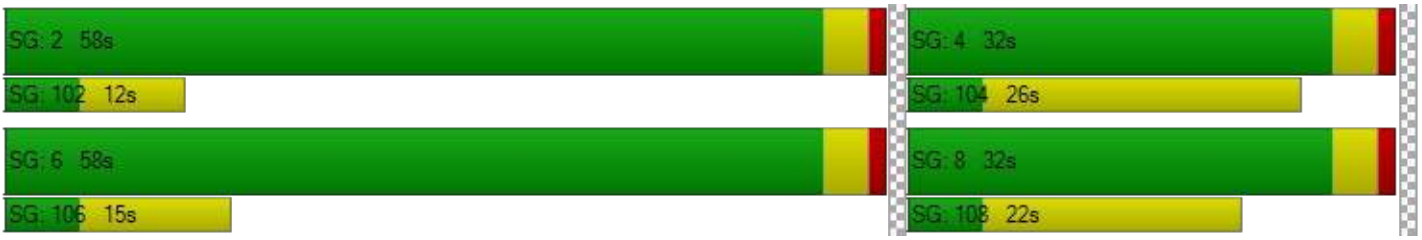
d_M, Delay for Movement [s/veh]	4.37	3.05	3.05	7.16	3.00	3.00	43.88	35.11	35.11	36.50	46.36	46.36
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	3.07			3.62			36.86			46.17		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.63											
Intersection LOS	A											
Intersection V/C	0.342											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.655	2.794	1.973	2.263
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1200	622	622
d_b, Bicycle Delay [s]	7.20	7.20	21.36	21.36
l_b,int, Bicycle LOS Score for Intersection	2.319	2.405	1.568	1.819
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.512

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	197	584	68	53	546	56	115	264	154	60	322	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	42	91	24	18	103	12	22	117	33	21	53	8
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	687	93	72	660	69	139	386	190	82	381	48
Peak Hour Factor	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	187	25	20	180	19	38	105	52	22	104	13
Total Analysis Volume [veh/h]	264	748	101	78	718	75	151	420	207	89	415	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	33	0	9	32	0	11	36	0	12	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	45	45	4	44	44	7	19	19	6	17	17
g / C, Green / Cycle	0.07	0.50	0.50	0.05	0.49	0.49	0.08	0.21	0.21	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.23	0.02	0.21	0.21	0.08	0.17	0.17	0.05	0.12	0.13
s, saturation flow rate [veh/h]	3514	1900	1822	3514	1900	1838	1810	1900	1691	1810	1900	1827
c, Capacity [veh/h]	234	957	918	168	921	891	141	394	350	115	367	353
d1, Uniform Delay [s]	42.00	14.36	14.36	41.73	15.16	15.16	41.50	34.25	34.28	41.50	33.49	33.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	69.26	1.55	1.61	1.99	1.51	1.56	56.44	4.88	5.58	10.50	1.92	2.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.13	0.45	0.45	0.46	0.44	0.44	1.07	0.84	0.84	0.77	0.65	0.65
d, Delay for Lane Group [s/veh]	111.26	15.91	15.98	43.72	16.67	16.73	97.94	39.13	39.86	52.00	35.41	35.56
Lane Group LOS	F	B	B	D	B	B	F	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.82	5.75	5.53	0.88	5.49	5.33	5.28	7.33	6.62	2.26	4.89	4.75
50th-Percentile Queue Length [ft/ln]	120.50	143.70	138.37	22.03	137.36	133.22	132.12	183.15	165.54	56.43	122.16	118.67
95th-Percentile Queue Length [veh/ln]	8.68	9.68	9.39	1.59	9.34	9.11	9.26	11.76	10.84	4.06	8.51	8.32
95th-Percentile Queue Length [ft/ln]	216.89	242.00	234.83	39.65	233.46	227.87	231.59	294.12	271.04	101.57	212.79	207.99

Movement, Approach, & Intersection Results

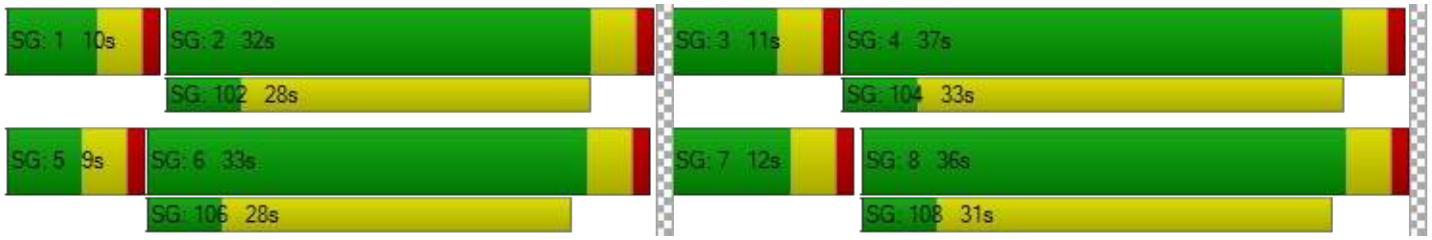
d_M, Delay for Movement [s/veh]	111.26	15.94	15.98	43.72	16.70	16.73	97.94	39.28	39.86	52.00	35.47	35.56
Movement LOS	F	B	B	D	B	B	F	D	D	D	D	D
d_A, Approach Delay [s/veh]	38.55			19.12			50.82			38.13		
Approach LOS	D			B			D			D		
d_I, Intersection Delay [s/veh]	36.26											
Intersection LOS	D											
Intersection V/C	0.512											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.800	2.750	2.600	2.527
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	622	711	733
d_b, Bicycle Delay [s]	20.67	21.36	18.69	18.05
l_b,int, Bicycle LOS Score for Intersection	2.478	2.278	2.201	2.018
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	5.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.133

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	8	285	0	0	233	52	40	0	20	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	17	0	0	40	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	308	0	0	278	53	41	0	20	0	0	0
Peak Hour Factor	0.9500	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.9500	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	86	0	0	78	15	11	0	5	0	0	0
Total Analysis Volume [veh/h]	8	345	0	0	311	59	46	0	21	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	5	0	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	9	61	0	0	52	0	29	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	7	0	0	10	0	17	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No		No					
Maximum Recall	No	No			No		No					
Pedestrian Recall	No	No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	L	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	1	78	73	73	4	4	
g / C, Green / Cycle	0.01	0.87	0.81	0.81	0.05	0.05	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.10	0.10	0.10	0.03	0.01	
s, saturation flow rate [veh/h]	1810	3618	1900	1799	1810	1615	
c, Capacity [veh/h]	19	3126	1538	1456	85	76	
d1, Uniform Delay [s]	44.26	0.92	1.81	1.82	41.94	41.41	
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	14.38	0.07	0.16	0.18	5.26	1.95	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.42	0.11	0.12	0.13	0.54	0.28	
d, Delay for Lane Group [s/veh]	58.64	0.99	1.97	2.00	47.20	43.36	
Lane Group LOS	E	A	A	A	D	D	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.25	0.12	0.45	0.46	1.11	0.49	
50th-Percentile Queue Length [ft/ln]	6.28	3.11	11.22	11.39	27.85	12.18	
95th-Percentile Queue Length [veh/ln]	0.45	0.22	0.81	0.82	2.00	0.88	
95th-Percentile Queue Length [ft/ln]	11.30	5.60	20.20	20.50	50.12	21.92	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.64	0.99	0.00	0.00	1.99	2.00	47.20	0.00	43.36	0.00	0.00	0.00
Movement LOS	E	A			A	A	D		D			
d_A, Approach Delay [s/veh]	2.30			1.99			46.00			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	5.86											
Intersection LOS	A											
Intersection V/C	0.133											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.435	2.318	1.985	1.425
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1267	1067	556	0
d_b, Bicycle Delay [s]	6.05	9.80	23.47	45.00
l_b,int, Bicycle LOS Score for Intersection	1.851	1.865	1.560	4.132
Bicycle LOS	A	A	A	D

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.324

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	134	61	74	93	47	26	402	31	20	436	126
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	33	0	7	4	127	0	0	57	13
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	137	62	108	95	55	31	537	32	20	502	142
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	36	16	28	25	14	8	140	8	5	131	37
Total Analysis Volume [veh/h]	44	143	65	112	99	57	32	559	33	21	522	148
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	9	52	0	9	52	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	56	56	56	3	20	20	2	20	20
g / C, Green / Cycle	0.62	0.62	0.62	0.62	0.62	0.03	0.22	0.22	0.02	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.11	0.04	0.12	0.06	0.04	0.02	0.16	0.16	0.01	0.18	0.18
s, saturation flow rate [veh/h]	1686	1615	911	1729	1615	1810	1900	1863	1810	1900	1758
c, Capacity [veh/h]	1091	998	643	1068	998	56	428	420	42	414	383
d1, Uniform Delay [s]	7.29	6.84	13.85	6.97	6.81	43.02	32.02	32.04	43.44	33.69	33.74
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	0.13	0.59	0.17	0.11	8.82	2.05	2.11	8.91	4.59	5.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.07	0.17	0.09	0.06	0.57	0.70	0.70	0.50	0.84	0.84
d, Delay for Lane Group [s/veh]	7.63	6.97	14.44	7.14	6.92	51.84	34.08	34.15	52.35	38.28	38.86
Lane Group LOS	A	A	B	A	A	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.48	0.48	1.38	0.75	0.42	0.83	6.09	5.99	0.56	7.61	7.15
50th-Percentile Queue Length [ft/ln]	37.05	12.12	34.45	18.72	10.57	20.82	152.15	149.78	14.04	190.30	178.73
95th-Percentile Queue Length [veh/ln]	2.67	0.87	2.48	1.35	0.76	1.50	10.13	10.01	1.01	12.14	11.53
95th-Percentile Queue Length [ft/ln]	66.68	21.82	62.01	33.70	19.03	37.47	253.30	250.14	25.27	303.42	288.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.63	7.63	6.97	14.44	7.14	6.92	51.84	34.11	34.15	52.35	38.48	38.86
Movement LOS	A	A	A	B	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	7.46			10.14			35.02			38.98		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	29.09											
Intersection LOS	C											
Intersection V/C	0.324											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.231	2.417	2.607	2.739
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1067
d_b, Bicycle Delay [s]	23.47	23.47	9.80	9.80
l_b,int, Bicycle LOS Score for Intersection	1.975	1.781	2.074	2.130
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Miro Way and Ayala Drive Warehouse

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Report File: \...\4. OY CUM PM.pdf

Scenario 4 OY 2024 Cum PM
5/16/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	WB Left	1.139	130.1	F
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	NB Right	1.177	131.7	F
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	EB Left	0.961	82.9	F
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.661	33.7	C
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.673	26.1	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.512	7.4	A
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	NB Left	0.632	37.4	D
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.232	7.4	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.570	29.0	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	130.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.139

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	475	298	0	0	292	376	0	0	0	295	4	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	317	255	0	0	255	91	0	0	0	204	0	88
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	802	559	0	0	553	475	0	0	0	505	4	213
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	220	154	0	0	152	130	0	0	0	139	1	59
Total Analysis Volume [veh/h]	881	614	0	0	608	522	0	0	0	555	4	234
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	37	65	0	0	28	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	33	61	24	24		21	21
g / C, Green / Cycle	0.37	0.68	0.27	0.27		0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.49	0.17	0.30	0.35		0.31	0.15
s, saturation flow rate [veh/h]	1810	3618	1900	1634		1810	1619
c, Capacity [veh/h]	663	2452	507	436		422	378
d1, Uniform Delay [s]	28.50	5.63	33.00	33.00		34.50	31.01
k, delay calibration	0.50	0.50	0.50	0.50		0.39	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	157.79	0.25	75.44	149.73		154.33	1.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.33	0.25	1.12	1.30		1.31	0.63
d, Delay for Lane Group [s/veh]	186.29	5.87	108.44	182.73		188.83	32.74
Lane Group LOS	F	A	F	F		F	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	42.65	2.00	21.29	27.30		27.07	4.73
50th-Percentile Queue Length [ft/ln]	1066.19	49.89	532.29	682.41		676.70	118.13
95th-Percentile Queue Length [veh/ln]	63.31	3.59	30.77	41.20		40.88	8.29
95th-Percentile Queue Length [ft/ln]	1582.72	89.80	769.29	1030.11		1022.05	207.25

Movement, Approach, & Intersection Results

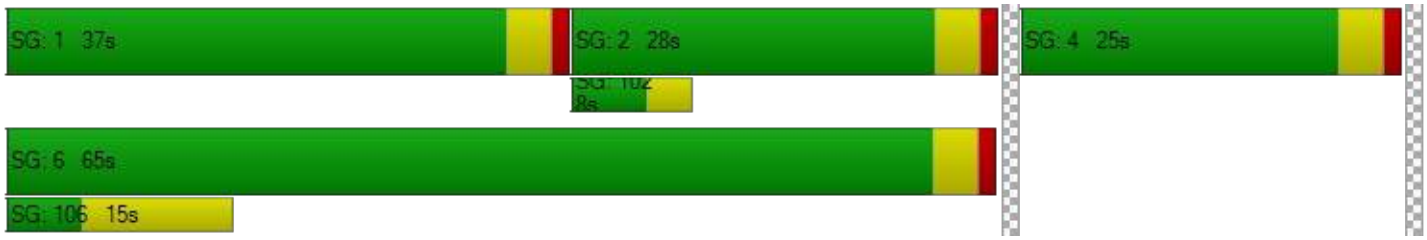
d_M, Delay for Movement [s/veh]	186.29	5.87	0.00	0.00	113.69	182.73	0.00	0.00	0.00	188.83	32.74	32.74
Movement LOS	F	A			F	F				F	C	C
d_A, Approach Delay [s/veh]	112.19			145.58			0.00			141.99		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	130.15											
Intersection LOS	F											
Intersection V/C	1.139											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.797	2.103
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1356	533	0	467
d_b, Bicycle Delay [s]	4.67	24.20	45.00	26.45
l_b,int, Bicycle LOS Score for Intersection	2.793	2.492	4.132	2.868
Bicycle LOS	C	B	D	C

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	131.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.177

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	565	420	155	430	0	203	4	502	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	483	316	89	369	0	88	0	205	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1059	744	247	808	0	295	4	717	0	0	0
Peak Hour Factor	1.0000	0.9550	0.9550	0.9550	0.9550	1.0000	0.9550	0.9550	0.9550	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	277	195	65	212	0	77	1	188	0	0	0
Total Analysis Volume [veh/h]	0	1109	779	259	846	0	309	4	751	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	14	55	0	0	35	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	37	37	10	51	31	31	
g / C, Green / Cycle	0.41	0.41	0.11	0.57	0.34	0.34	
(v / s)_i Volume / Saturation Flow Rate	0.50	0.57	0.14	0.23	0.17	0.47	
s, saturation flow rate [veh/h]	1900	1658	1810	3618	1811	1615	
c, Capacity [veh/h]	781	682	201	2050	624	556	
d1, Uniform Delay [s]	26.50	26.50	40.00	11.03	23.38	29.50	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	105.70	182.07	137.82	0.62	0.63	169.14	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	1.21	1.38	1.29	0.41	0.50	1.35	
d, Delay for Lane Group [s/veh]	132.20	208.57	177.82	11.64	24.01	198.64	
Lane Group LOS	F	F	F	B	C	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	38.64	48.19	12.07	4.56	5.22	37.60	
50th-Percentile Queue Length [ft/ln]	965.90	1204.74	301.78	114.10	130.47	939.89	
95th-Percentile Queue Length [veh/ln]	55.47	72.60	19.50	8.07	8.97	56.65	
95th-Percentile Queue Length [ft/ln]	1386.72	1815.06	487.48	201.69	224.14	1416.19	

Movement, Approach, & Intersection Results

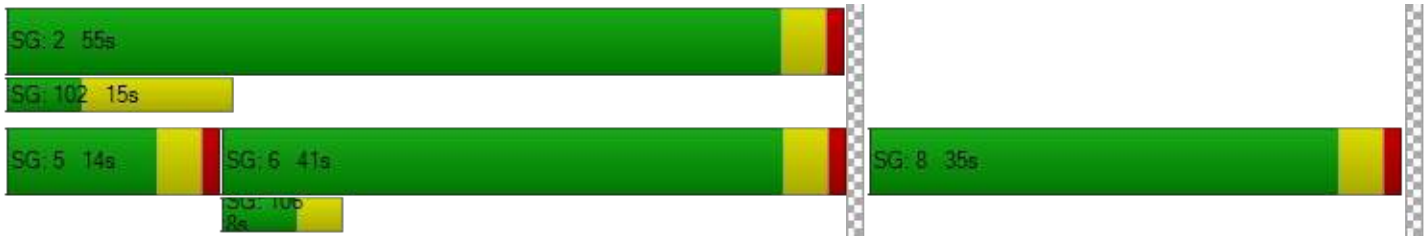
d_M, Delay for Movement [s/veh]	0.00	143.56	208.57	177.82	11.64	0.00	24.01	24.01	198.64	0.00	0.00	0.00
Movement LOS		F	F	F	B		C	C	F			
d_A, Approach Delay [s/veh]	170.38			50.59			147.27			0.00		
Approach LOS	F			D			F			A		
d_I, Intersection Delay [s/veh]	131.70											
Intersection LOS	F											
Intersection V/C	1.177											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.235	2.441
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	822	1133	689	0
d_b, Bicycle Delay [s]	15.61	8.45	19.34	45.00
l_b,int, Bicycle LOS Score for Intersection	3.117	2.471	3.315	4.132
Bicycle LOS	C	B	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	82.9
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.961

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	51	659	34	183	603	138	95	269	67	20	172	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	3	485	0	214	346	15	15	65	1	0	64	297
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	1157	35	401	961	156	112	339	69	20	239	522
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	301	9	104	250	41	29	88	18	5	62	136
Total Analysis Volume [veh/h]	57	1205	36	418	1001	163	117	353	72	21	249	544
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	29	0	22	30	0	9	30	0	9	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	25	25	18	39	39	5	29	29	2	26	26
g / C, Green / Cycle	0.04	0.28	0.28	0.20	0.44	0.44	0.06	0.32	0.32	0.02	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.33	0.33	0.23	0.31	0.32	0.06	0.11	0.12	0.01	0.13	0.34
s, saturation flow rate [veh/h]	1810	1900	1881	1810	1900	1809	1810	1900	1790	1810	1900	1615
c, Capacity [veh/h]	78	528	522	362	825	786	101	611	576	42	549	467
d1, Uniform Delay [s]	42.52	32.50	32.50	36.00	20.89	21.07	42.50	23.40	23.43	43.46	26.19	32.00
k, delay calibration	0.11	0.50	0.50	0.23	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.46
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.02	99.65	100.34	83.68	5.27	5.89	95.05	0.35	0.38	9.20	0.59	94.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	1.18	1.18	1.16	0.72	0.73	1.16	0.36	0.36	0.51	0.45	1.17
d, Delay for Lane Group [s/veh]	54.54	132.15	132.84	119.68	26.16	26.96	137.55	23.75	23.81	52.66	26.77	126.38
Lane Group LOS	D	F	F	F	C	C	F	C	C	D	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.50	25.70	25.53	16.15	10.85	10.72	4.86	3.52	3.36	0.56	4.36	22.00
50th-Percentile Queue Length [ft/ln]	37.51	642.41	638.36	403.87	271.13	267.94	121.51	87.97	84.06	14.10	108.93	550.06
95th-Percentile Queue Length [veh/ln]	2.70	37.47	37.28	24.46	16.25	16.09	8.75	6.33	6.05	1.02	7.78	32.48
95th-Percentile Queue Length [ft/ln]	67.52	936.64	931.92	611.42	406.15	402.16	218.72	158.34	151.30	25.38	194.52	812.08

Movement, Approach, & Intersection Results

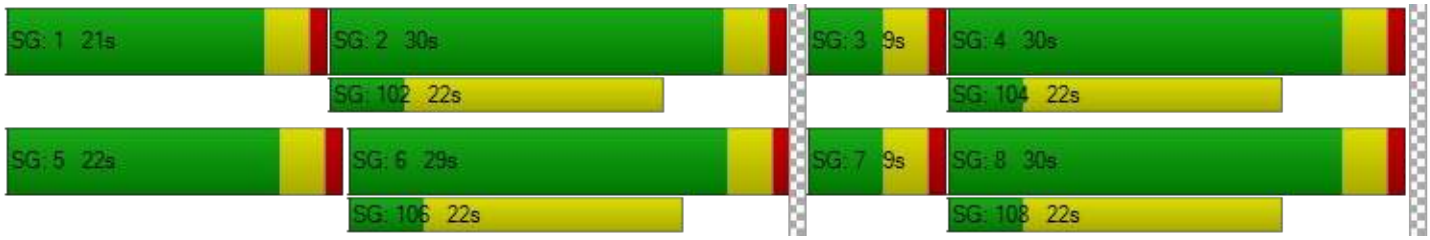
d_M, Delay for Movement [s/veh]	54.54	132.48	132.84	119.68	26.49	26.96	137.55	23.77	23.81	52.66	26.77	126.38
Movement LOS	D	F	F	F	C	C	F	C	C	D	C	F
d_A, Approach Delay [s/veh]	129.07			51.16			48.34			94.01		
Approach LOS	F			D			D			F		
d_I, Intersection Delay [s/veh]	82.91											
Intersection LOS	F											
Intersection V/C	0.961											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.768	2.974	2.499	2.617
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	578	578	578
d_b, Bicycle Delay [s]	23.47	22.76	22.76	22.76
l_b,int, Bicycle LOS Score for Intersection	2.630	2.865	2.007	2.231
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	33.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.661

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	43	323	44	118	363	123	79	434	63	57	346	87
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	5	18	0	46	17	30	61	52	13	0	50	113
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	347	45	166	387	155	142	495	77	58	403	202
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	89	12	43	100	40	37	127	20	15	104	52
Total Analysis Volume [veh/h]	50	357	46	171	398	159	146	509	79	60	415	208
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	16	26	0	14	24	24	15	41	0	9	35	35
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	29	10	36	49	9	31	4	26	40
g / C, Green / Cycle	0.04	0.33	0.11	0.40	0.54	0.10	0.34	0.04	0.28	0.44
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.09	0.21	0.10	0.08	0.32	0.03	0.22	0.13
s, saturation flow rate [veh/h]	1810	1862	1810	1900	1615	1810	1856	1810	1900	1615
c, Capacity [veh/h]	74	609	201	755	876	182	632	78	538	709
d1, Uniform Delay [s]	42.55	25.99	39.27	20.68	10.46	39.60	28.64	42.60	29.57	16.26
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.27	0.11	0.16	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.04	5.56	9.63	2.63	0.46	7.97	14.29	14.21	3.42	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.66	0.85	0.53	0.18	0.80	0.93	0.76	0.77	0.29
d, Delay for Lane Group [s/veh]	52.59	31.56	48.89	23.31	10.92	47.58	42.94	56.81	32.99	16.49
Lane Group LOS	D	C	D	C	B	D	D	E	C	B
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.29	8.11	4.19	6.68	1.62	3.52	14.22	1.62	8.49	2.71
50th-Percentile Queue Length [ft/ln]	32.32	202.68	104.74	166.88	40.44	87.91	355.42	40.38	212.33	67.63
95th-Percentile Queue Length [veh/ln]	2.33	12.78	7.54	10.91	2.91	6.33	20.40	2.91	13.27	4.87
95th-Percentile Queue Length [ft/ln]	58.18	319.42	188.53	272.82	72.78	158.24	510.01	72.68	331.82	121.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.59	31.56	31.56	48.89	23.31	10.92	47.58	42.94	42.94	56.81	32.99	16.49
Movement LOS	D	C	C	D	C	B	D	D	D	E	C	B
d_A, Approach Delay [s/veh]	33.88			26.61			43.86			30.06		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	33.66											
Intersection LOS	C											
Intersection V/C	0.661											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.263	2.582	2.383	2.576
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	444	822	689
d_b, Bicycle Delay [s]	25.69	27.22	15.61	19.34
l_b,int, Bicycle LOS Score for Intersection	2.307	2.761	2.771	2.687
Bicycle LOS	B	C	C	B

Sequence

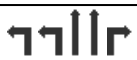
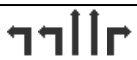
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	26.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	106	774	75	342	805	559	379	378	113	61	184	357
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	11	183	24	23	166	0	0	6	14	18	8	16
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	119	972	101	372	987	570	387	392	129	80	196	380
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	254	26	97	258	149	101	102	34	21	51	99
Total Analysis Volume [veh/h]	124	1015	105	388	1030	595	404	409	135	84	205	397
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	16	36	36	16	36	36	9	29	29
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	39	47	12	46	62	12	19	28	4	11	27
g / C, Green / Cycle	0.06	0.43	0.53	0.13	0.51	0.69	0.13	0.21	0.31	0.05	0.12	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.28	0.07	0.11	0.28	0.37	0.11	0.11	0.08	0.02	0.06	0.25
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	195	1568	852	469	1849	1113	469	745	494	174	442	484
d1, Uniform Delay [s]	41.61	20.08	10.75	38.00	15.03	6.89	38.19	31.99	23.65	41.65	36.76	29.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.26
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.40	2.08	0.30	3.81	1.22	1.84	4.82	0.63	0.30	2.06	0.76	7.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.65	0.12	0.83	0.56	0.53	0.86	0.55	0.27	0.48	0.46	0.82
d, Delay for Lane Group [s/veh]	45.00	22.16	11.05	41.81	16.25	8.74	43.01	32.62	23.95	43.71	37.52	37.17
Lane Group LOS	D	C	B	D	B	A	D	C	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.42	8.41	1.07	4.34	7.03	5.18	4.60	3.98	2.17	0.95	2.12	8.76
50th-Percentile Queue Length [ft/ln]	35.61	210.24	26.85	108.60	175.83	129.42	115.01	99.39	54.27	23.72	52.95	219.07
95th-Percentile Queue Length [veh/ln]	2.56	13.17	1.93	7.76	11.38	8.91	8.12	7.16	3.91	1.71	3.81	13.62
95th-Percentile Queue Length [ft/ln]	64.09	329.14	48.34	194.05	284.57	222.70	202.96	178.91	97.68	42.69	95.31	340.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.00	22.16	11.05	41.81	16.25	8.74	43.01	32.62	23.95	43.71	37.52	37.17
Movement LOS	D	C	B	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	23.50			18.96			35.81			38.08		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	26.06											
Intersection LOS	C											
Intersection V/C	0.673											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.943	3.129	2.856	2.817
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	711	711	556
d_b, Bicycle Delay [s]	23.47	18.69	18.69	23.47
l_b,int, Bicycle LOS Score for Intersection	2.586	3.220	2.342	2.126
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.512

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	810	8	209	851	1	0	0	5	1	3	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	168	0	7	125	0	0	0	0	0	0	9
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	994	8	220	993	1	0	0	5	1	3	163
Peak Hour Factor	0.9500	0.9730	0.9500	0.9730	0.9730	0.9730	0.9730	0.9500	0.9500	0.9500	0.9500	0.9730
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	255	2	57	255	0	0	0	1	0	1	42
Total Analysis Volume [veh/h]	8	1022	8	226	1021	1	0	0	5	1	3	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	55	0	0	55	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	70	70	70	70	12	12	12	12
g / C, Green / Cycle	0.78	0.78	0.78	0.78	0.78	0.78	0.13	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.01	0.27	0.27	0.41	0.27	0.27	0.00	0.00	0.00	0.11
s, saturation flow rate [veh/h]	561	1900	1895	556	1900	1899	1233	1615	1434	1619
c, Capacity [veh/h]	452	1485	1481	449	1485	1485	99	209	240	210
d1, Uniform Delay [s]	5.16	2.95	2.95	8.61	2.94	2.94	0.00	34.21	35.57	38.13
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.64	0.65	4.00	0.63	0.63	0.00	0.05	0.01	7.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.35	0.35	0.50	0.34	0.34	0.00	0.02	0.00	0.82
d, Delay for Lane Group [s/veh]	5.23	3.59	3.59	12.61	3.57	3.57	0.00	34.25	35.57	45.64
Lane Group LOS	A	A	A	B	A	A	A	C	D	D
Critical Lane Group	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.05	2.07	2.07	2.60	2.05	2.05	0.00	0.10	0.02	4.05
50th-Percentile Queue Length [ft/ln]	1.34	51.80	51.68	65.00	51.16	51.14	0.00	2.44	0.50	101.29
95th-Percentile Queue Length [veh/ln]	0.10	3.73	3.72	4.68	3.68	3.68	0.00	0.18	0.04	7.29
95th-Percentile Queue Length [ft/ln]	2.41	93.24	93.02	117.00	92.08	92.06	0.00	4.39	0.89	182.32

Movement, Approach, & Intersection Results

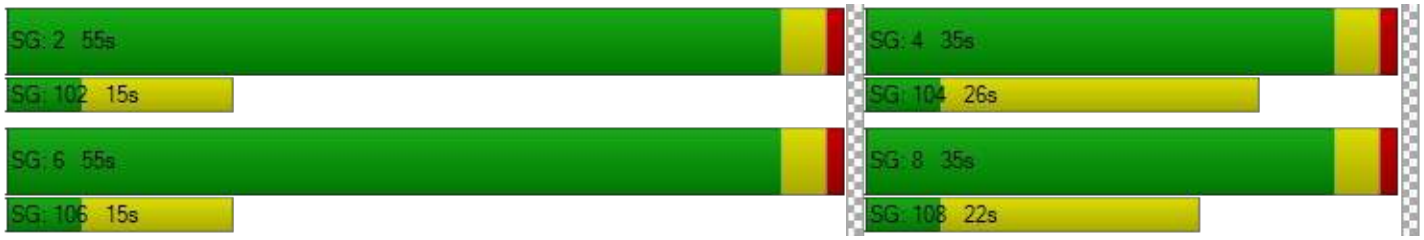
d_M, Delay for Movement [s/veh]	5.23	3.59	3.59	12.61	3.57	3.57	0.00	34.25	34.25	35.57	45.64	45.64
Movement LOS	A	A	A	B	A	A	A	C	C	D	D	D
d_A, Approach Delay [s/veh]	3.60			5.21			34.25			45.58		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	7.41											
Intersection LOS	A											
Intersection V/C	0.512											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.705	2.851	1.959	2.395
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	689	689
d_b, Bicycle Delay [s]	8.45	8.45	19.34	19.34
l_b,int, Bicycle LOS Score for Intersection	2.416	2.589	1.568	1.843
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	142	647	96	139	678	63	135	447	206	89	350	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	51	114	35	10	108	19	15	65	56	39	125	27
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	196	774	133	152	800	83	153	521	266	130	482	77
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	209	36	41	216	22	41	141	72	35	130	21
Total Analysis Volume [veh/h]	212	838	144	165	866	90	166	564	288	141	522	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	32	0	9	32	0	12	37	0	12	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	37	37	5	37	37	8	24	24	8	24	24
g / C, Green / Cycle	0.06	0.41	0.41	0.06	0.41	0.41	0.09	0.27	0.27	0.09	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.27	0.05	0.26	0.26	0.09	0.24	0.24	0.08	0.16	0.16
s, saturation flow rate [veh/h]	3514	1900	1804	3514	1900	1838	1810	1900	1686	1810	1900	1810
c, Capacity [veh/h]	195	772	733	195	772	747	161	516	458	161	516	492
d1, Uniform Delay [s]	42.50	21.58	21.60	42.12	21.32	21.32	41.00	31.32	31.32	40.51	28.52	28.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.19	0.20	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	56.03	4.25	4.50	9.56	3.87	4.01	41.49	8.28	9.22	13.77	1.12	1.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.09	0.65	0.65	0.85	0.63	0.63	1.03	0.87	0.87	0.88	0.60	0.60
d, Delay for Lane Group [s/veh]	98.53	25.83	26.10	51.68	25.19	25.33	82.49	39.60	40.54	54.28	29.65	29.72
Lane Group LOS	F	C	C	D	C	C	F	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.66	9.08	8.70	2.05	8.62	8.37	5.37	10.27	9.24	3.66	5.83	5.58
50th-Percentile Queue Length [ft/ln]	91.54	226.95	217.48	51.34	215.48	209.34	134.14	256.87	231.00	91.43	145.87	139.62
95th-Percentile Queue Length [veh/ln]	6.59	14.02	13.54	3.70	13.43	13.12	9.27	15.53	14.23	6.58	9.80	9.46
95th-Percentile Queue Length [ft/ln]	164.77	350.48	338.41	92.41	335.85	327.98	231.64	388.30	355.63	164.57	244.91	236.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	98.53	25.94	26.10	51.68	25.25	25.33	82.49	39.79	40.54	54.28	29.68	29.72
Movement LOS	F	C	C	D	C	C	F	D	D	D	C	C
d_A, Approach Delay [s/veh]	38.85			29.15			46.96			34.33		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	37.38											
Intersection LOS	D											
Intersection V/C	0.632											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.859	2.813	2.661	2.617
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	622	733	733
d_b, Bicycle Delay [s]	21.36	21.36	18.05	18.05
l_b,int, Bicycle LOS Score for Intersection	2.545	2.484	2.399	2.175
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	7.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.232

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	24	402	0	0	377	71	70	0	35	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	44	0	0	28	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	454	0	0	413	72	71	0	36	0	0	0
Peak Hour Factor	0.9500	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.9500	0.7950	0.7950	0.7950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	143	0	0	130	23	22	0	9	0	0	0
Total Analysis Volume [veh/h]	25	571	0	0	519	91	89	0	38	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	3	0	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	5	0	0	0	0	0
Maximum Green [s]	30	30	0	0	30	0	30	0	0	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Split [s]	9	49	0	0	40	0	41	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	5	0	0	0	0	0
Pedestrian Clearance [s]	0	7	0	0	10	0	17	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No		No					
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall	No	No			No		No					
Maximum Recall	No	No			No		No					
Pedestrian Recall	No	No			No		No					
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	L	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	2	76	69	69	6	6	
g / C, Green / Cycle	0.03	0.84	0.77	0.77	0.07	0.07	
(v / s)_i Volume / Saturation Flow Rate	0.01	0.16	0.16	0.17	0.05	0.02	
s, saturation flow rate [veh/h]	1810	3618	1900	1805	1810	1615	
c, Capacity [veh/h]	47	3035	1460	1387	131	117	
d1, Uniform Delay [s]	43.28	1.39	2.87	2.90	40.74	39.67	
k, delay calibration	0.11	0.50	0.50	0.50	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	8.94	0.14	0.33	0.37	6.11	1.60	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.53	0.19	0.21	0.22	0.68	0.33	
d, Delay for Lane Group [s/veh]	52.22	1.52	3.20	3.27	46.85	41.28	
Lane Group LOS	D	A	A	A	D	D	
Critical Lane Group	Yes	No	No	Yes	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.66	0.44	1.18	1.20	2.13	0.84	
50th-Percentile Queue Length [ft/ln]	16.53	10.92	29.44	29.92	53.13	21.08	
95th-Percentile Queue Length [veh/ln]	1.19	0.79	2.12	2.15	3.83	1.52	
95th-Percentile Queue Length [ft/ln]	29.76	19.66	52.98	53.86	95.63	37.95	

Movement, Approach, & Intersection Results

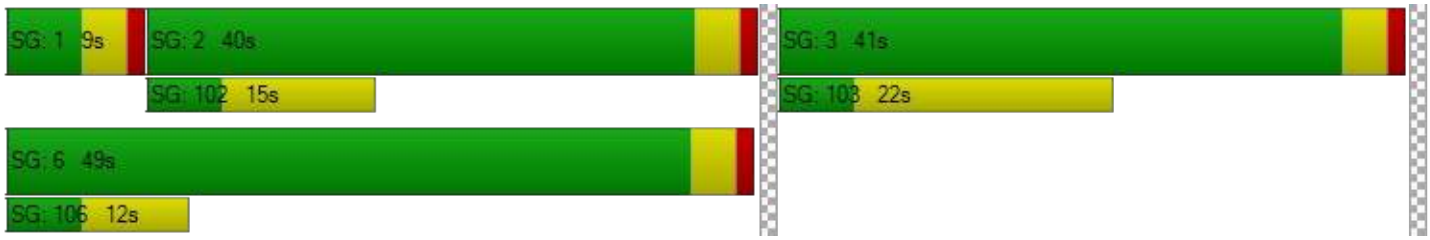
d_M, Delay for Movement [s/veh]	52.22	1.52	0.00	0.00	3.23	3.27	46.85	0.00	41.28	0.00	0.00	0.00
Movement LOS	D	A			A	A	D		D			
d_A, Approach Delay [s/veh]	3.65			3.23			45.18			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	7.42											
Intersection LOS	A											
Intersection V/C	0.232											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.526	2.442	2.021	1.425
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	800	822	0
d_b, Bicycle Delay [s]	11.25	16.20	15.61	45.00
l_b,int, Bicycle LOS Score for Intersection	2.051	2.063	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	168	45	153	170	95	83	475	27	39	367	169
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	17	0	11	8	82	0	0	143	36
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	171	46	173	173	108	93	567	28	40	517	208
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	48	13	49	49	30	26	160	8	11	146	59
Total Analysis Volume [veh/h]	20	193	52	195	195	122	105	639	32	45	582	234
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	40	0	0	40	0	13	40	0	10	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	48	48	48	48	48	7	27	27	3	23	23
g / C, Green / Cycle	0.53	0.53	0.53	0.53	0.53	0.07	0.30	0.30	0.04	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.12	0.03	0.29	0.11	0.08	0.06	0.18	0.18	0.02	0.23	0.23
s, saturation flow rate [veh/h]	1805	1615	682	1729	1615	1810	1900	1868	1810	1900	1717
c, Capacity [veh/h]	1005	860	443	921	860	135	562	553	70	493	446
d1, Uniform Delay [s]	11.08	10.16	25.42	11.09	10.64	40.92	27.15	27.16	42.67	31.84	31.85
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.14	0.14
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	0.13	3.15	0.52	0.35	9.32	1.04	1.06	9.67	6.23	6.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.06	0.44	0.21	0.14	0.78	0.60	0.60	0.65	0.87	0.87
d, Delay for Lane Group [s/veh]	11.56	10.30	28.57	11.61	10.98	50.24	28.19	28.22	52.34	38.07	38.76
Lane Group LOS	B	B	C	B	B	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.24	0.50	3.73	2.07	1.24	2.61	6.22	6.13	1.16	9.50	8.68
50th-Percentile Queue Length [ft/ln]	56.05	12.61	93.16	51.63	31.05	65.18	155.56	153.16	29.09	237.49	217.05
95th-Percentile Queue Length [veh/ln]	4.04	0.91	6.71	3.72	2.24	4.69	10.31	10.19	2.09	14.55	13.51
95th-Percentile Queue Length [ft/ln]	100.89	22.69	167.69	92.93	55.89	117.33	257.83	254.65	52.36	363.85	337.86

Movement, Approach, & Intersection Results

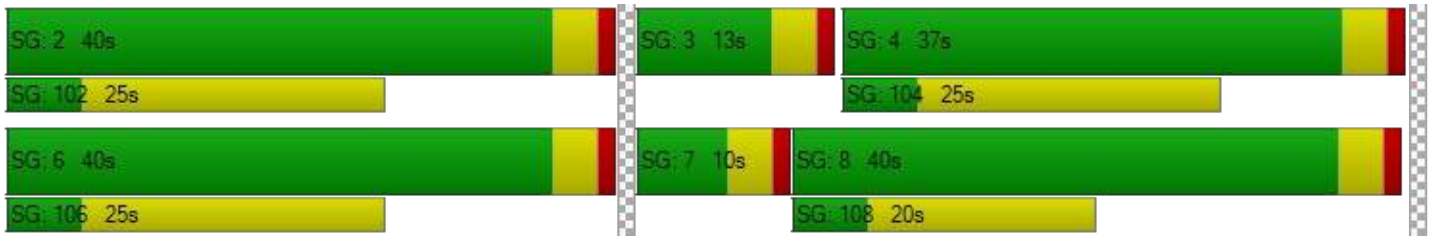
d_M, Delay for Movement [s/veh]	11.56	11.56	10.30	28.57	11.61	10.98	50.24	28.20	28.22	52.34	38.25	38.76
Movement LOS	B	B	B	C	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	11.31			17.92			31.19			39.12		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	29.02											
Intersection LOS	C											
Intersection V/C	0.570											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.263	2.505	2.622	2.919
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	800	733
d_b, Bicycle Delay [s]	16.20	16.20	16.20	18.05
l_b,int, Bicycle LOS Score for Intersection	1.997	1.982	2.200	2.270
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-5

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2024 CUMULATIVE PLUS
PROJECT

Miro Way and Ayala Drive Warehouse

Vistro File: K:\...\Miro Way_AM.vistro
Report File: K:\...\5. OY CUM WP AM.pdf

Scenario 5 OY 2024 Cum WP AM
2/11/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	WB Left	1.065	103.0	F
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	EB Right	1.236	143.2	F
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Right	0.957	92.1	F
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.812	51.7	D
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	EB Left	0.407	22.6	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.346	6.6	A
7	Ayala Dr at Miro Wy	Two-way stop	HCM 7th Edition	EB Left	0.163	37.5	E
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.517	41.7	D
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.155	8.5	A
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	EB Left	0.345	29.3	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	103.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.065

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	396	343	0	0	17	12	0	0	0	431	5	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	210	292	0	0	291	89	0	0	0	339	0	89
Site-Generated Trips [veh/h]	9	0	0	0	0	0	0	0	0	31	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	623	642	0	0	308	101	0	0	0	810	5	249
Peak Hour Factor	0.8530	0.8530	1.0000	1.0000	0.8530	0.8530	1.0000	1.0000	1.0000	0.8530	0.8530	0.8530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	183	188	0	0	90	30	0	0	0	237	1	73
Total Analysis Volume [veh/h]	730	753	0	0	361	118	0	0	0	950	6	292
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	34	49	0	0	15	0	0	0	0	0	41	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	30	45	11	11		37	37
g / C, Green / Cycle	0.33	0.50	0.12	0.12		0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.40	0.21	0.13	0.14		0.53	0.18
s, saturation flow rate [veh/h]	1810	3618	1900	1748		1810	1620
c, Capacity [veh/h]	603	1809	232	214		744	666
d1, Uniform Delay [s]	30.00	14.21	39.50	39.50		26.50	19.12
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	109.47	0.71	67.44	97.88		134.96	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.21	0.42	1.03	1.12		1.28	0.45
d, Delay for Lane Group [s/veh]	139.47	14.92	106.94	137.38		161.46	19.60
Lane Group LOS	F	B	F	F		F	B
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	30.81	4.75	9.39	10.45		42.84	4.41
50th-Percentile Queue Length [ft/ln]	770.27	118.75	234.82	261.20		1071.10	110.26
95th-Percentile Queue Length [veh/ln]	44.89	8.32	14.61	16.51		62.76	7.85
95th-Percentile Queue Length [ft/ln]	1122.18	208.10	365.30	412.68		1569.04	196.36

Movement, Approach, & Intersection Results

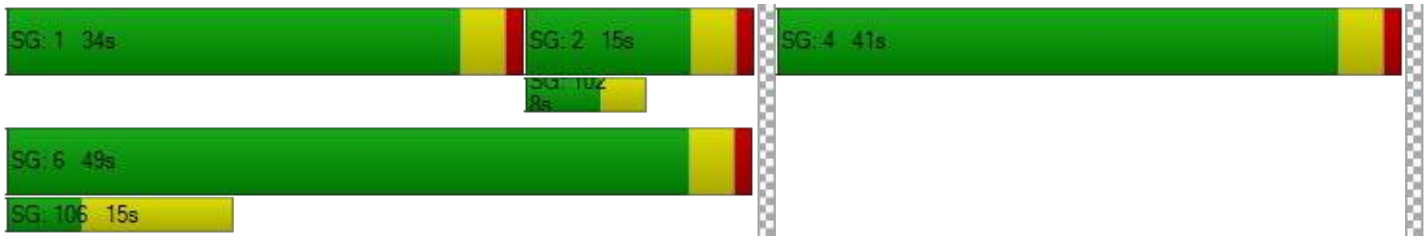
d_M, Delay for Movement [s/veh]	139.47	14.92	0.00	0.00	117.19	137.38	0.00	0.00	0.00	161.46	19.60	19.60
Movement LOS	F	B			F	F				F	B	B
d_A, Approach Delay [s/veh]	76.22			122.16			0.00			127.59		
Approach LOS	E			F			A			F		
d_I, Intersection Delay [s/veh]	103.05											
Intersection LOS	F											
Intersection V/C	1.065											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.258	2.325
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	244	0	822
d_b, Bicycle Delay [s]	11.25	34.67	45.00	15.61
l_b,int, Bicycle LOS Score for Intersection	2.783	1.955	4.132	3.619
Bicycle LOS	C	A	D	D

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	143.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.236

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	486	333	6	421	0	298	3	616	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	413	210	89	542	0	89	0	339	0	0	0
Site-Generated Trips [veh/h]	0	9	9	0	31	0	0	0	30	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	918	559	95	1002	0	393	3	997	0	0	0
Peak Hour Factor	1.0000	0.8980	0.8980	0.8980	0.8980	1.0000	0.8980	0.8980	0.8980	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	256	156	26	279	0	109	1	278	0	0	0
Total Analysis Volume [veh/h]	0	1022	622	106	1116	0	438	3	1110	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	9	44	0	0	46	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	31	31	5	40	42	42	
g / C, Green / Cycle	0.34	0.34	0.06	0.44	0.47	0.47	
(v / s)_i Volume / Saturation Flow Rate	0.43	0.49	0.06	0.31	0.24	0.69	
s, saturation flow rate [veh/h]	1900	1676	1810	3618	1810	1615	
c, Capacity [veh/h]	654	577	101	1608	845	754	
d1, Uniform Delay [s]	29.50	29.50	42.50	20.08	16.92	24.00	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	127.41	200.64	56.80	2.50	0.50	219.96	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	1.26	1.42	1.05	0.69	0.52	1.47	
d, Delay for Lane Group [s/veh]	156.91	230.14	99.30	22.58	17.42	243.96	
Lane Group LOS	F	F	F	C	B	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	36.64	44.07	3.79	9.44	6.21	60.81	
50th-Percentile Queue Length [ft/ln]	916.11	1101.79	94.81	235.93	155.25	1520.35	
95th-Percentile Queue Length [veh/ln]	53.55	66.93	6.83	14.48	10.30	93.14	
95th-Percentile Queue Length [ft/ln]	1338.79	1673.26	170.66	361.88	257.42	2328.59	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	171.24	230.14	99.30	22.58	0.00	17.42	17.42	243.96	0.00	0.00	0.00
Movement LOS		F	F	F	C		B	B	F			
d_A, Approach Delay [s/veh]	193.53			29.24			179.55			0.00		
Approach LOS	F			C			F			A		
d_I, Intersection Delay [s/veh]	143.17											
Intersection LOS	F											
Intersection V/C	1.236											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.472	2.138
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	889	933	0
d_b, Bicycle Delay [s]	19.34	13.89	12.80	45.00
l_b,int, Bicycle LOS Score for Intersection	2.916	2.568	4.119	4.132
Bicycle LOS	C	B	D	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	92.1
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.957

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	127	567	15	155	775	78	97	158	80	26	140	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	1	370	0	331	533	18	18	70	3	0	74	235
Site-Generated Trips [veh/h]	0	18	0	0	61	0	0	2	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	966	15	489	1385	98	117	233	85	27	218	438
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	267	4	135	383	27	32	64	24	7	60	121
Total Analysis Volume [veh/h]	145	1069	17	541	1532	108	129	258	94	30	241	485
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	26	0	27	42	0	10	26	0	11	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	22	22	23	38	38	6	26	26	3	23	23
g / C, Green / Cycle	0.08	0.24	0.24	0.26	0.42	0.42	0.07	0.29	0.29	0.03	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.29	0.30	0.43	0.44	0.07	0.10	0.10	0.02	0.13	0.30
s, saturation flow rate [veh/h]	1810	1900	1890	1810	1900	1857	1810	1900	1731	1810	1900	1615
c, Capacity [veh/h]	141	464	462	462	802	784	121	554	504	56	486	413
d1, Uniform Delay [s]	41.50	34.00	34.00	33.50	26.00	26.00	42.00	24.99	25.05	42.98	28.56	33.50
k, delay calibration	0.11	0.50	0.50	0.38	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.38
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	43.24	98.27	98.54	92.99	37.50	44.79	57.97	0.34	0.39	7.82	0.79	96.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.17	1.17	1.17	1.02	1.05	1.07	0.33	0.34	0.54	0.50	1.18
d, Delay for Lane Group [s/veh]	84.74	132.27	132.54	126.49	63.50	70.79	99.97	25.34	25.44	50.80	29.35	130.32
Lane Group LOS	F	F	F	F	F	F	F	C	C	D	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.77	22.52	22.43	21.71	24.41	25.44	4.59	3.04	2.84	0.77	4.45	19.82
50th-Percentile Queue Length [ft/ln]	119.22	562.89	560.66	542.86	610.17	636.01	114.64	75.94	71.10	19.32	111.17	495.48
95th-Percentile Queue Length [veh/ln]	8.43	33.08	32.97	32.05	33.05	34.85	8.25	5.47	5.12	1.39	7.91	29.64
95th-Percentile Queue Length [ft/ln]	210.80	827.03	824.29	801.27	826.17	871.18	206.35	136.68	127.97	34.78	197.63	741.07

Movement, Approach, & Intersection Results

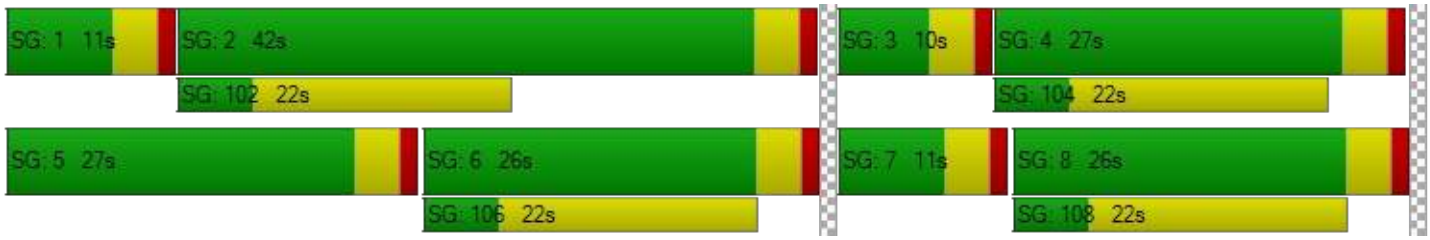
d_M, Delay for Movement [s/veh]	84.74	132.40	132.54	126.49	66.89	70.79	99.97	25.37	25.44	50.80	29.35	130.32
Movement LOS	F	F	F	F	E	E	F	C	C	D	C	F
d_A, Approach Delay [s/veh]	126.79			81.86			45.39			94.98		
Approach LOS	F			F			D			F		
d_I, Intersection Delay [s/veh]	92.12											
Intersection LOS	F											
Intersection V/C	0.957											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.864	3.055	2.491	2.608
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	844	489	511
d_b, Bicycle Delay [s]	25.69	15.02	25.69	24.94
l_b,int, Bicycle LOS Score for Intersection	2.575	3.359	1.956	2.183
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	51.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.812

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	157	301	100	63	345	138	96	373	74	41	472	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	13	20	0	108	18	60	29	32	5	0	35	39
Site-Generated Trips [veh/h]	0	0	0	61	0	0	0	3	0	0	1	18
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	173	327	102	233	370	201	127	415	80	42	517	188
Peak Hour Factor	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690	0.8690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	94	29	67	106	58	37	119	23	12	149	54
Total Analysis Volume [veh/h]	199	376	117	268	426	231	146	478	92	48	595	216
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	21	29	0	19	27	27	10	33	0	9	32	32
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	25	15	28	38	6	30	4	28	47
g / C, Green / Cycle	0.13	0.28	0.17	0.31	0.42	0.07	0.34	0.04	0.31	0.52
(v / s)_i Volume / Saturation Flow Rate	0.11	0.27	0.15	0.22	0.14	0.08	0.31	0.03	0.31	0.13
s, saturation flow rate [veh/h]	1810	1824	1810	1900	1615	1810	1847	1810	1900	1615
c, Capacity [veh/h]	239	507	302	594	684	121	625	71	591	843
d1, Uniform Delay [s]	38.10	32.17	36.68	27.41	17.44	42.00	28.48	42.66	31.00	11.86
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.39	0.11	0.41	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.44	33.88	8.76	7.27	1.33	110.51	16.33	10.54	35.00	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.97	0.89	0.72	0.34	1.21	0.91	0.67	1.01	0.26
d, Delay for Lane Group [s/veh]	45.55	66.05	45.44	34.69	18.78	152.51	44.82	53.21	66.00	12.02
Lane Group LOS	D	E	D	C	B	F	D	D	F	B
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.70	15.02	6.38	9.05	3.36	6.35	14.09	1.25	18.05	2.30
50th-Percentile Queue Length [ft/ln]	117.60	375.46	159.51	226.15	83.91	158.65	352.19	31.27	451.25	57.41
95th-Percentile Queue Length [veh/ln]	8.26	21.37	10.52	13.98	6.04	11.08	20.24	2.25	25.13	4.13
95th-Percentile Queue Length [ft/ln]	206.53	534.34	263.07	349.46	151.04	277.00	506.08	56.29	628.15	103.34

Movement, Approach, & Intersection Results

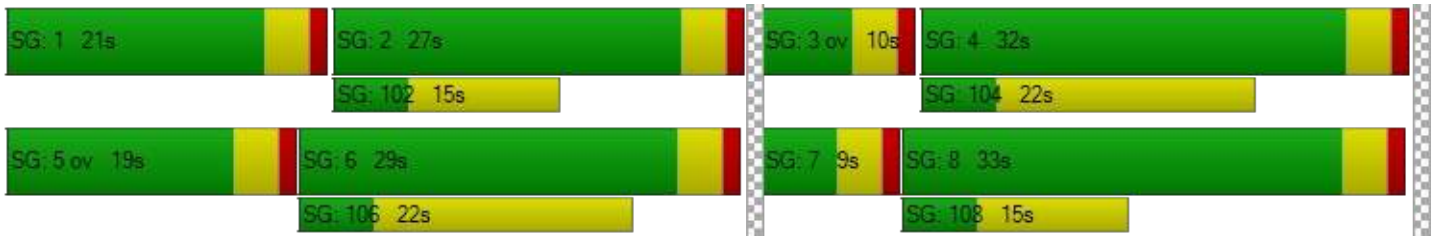
d_M, Delay for Movement [s/veh]	45.55	66.05	66.05	45.44	34.69	18.78	152.51	44.82	44.82	53.21	66.00	12.02
Movement LOS	D	E	E	D	C	B	F	D	D	D	F	B
d_A, Approach Delay [s/veh]	60.15			33.83			66.78			51.71		
Approach LOS	E			C			E			D		
d_I, Intersection Delay [s/veh]	51.74											
Intersection LOS	D											
Intersection V/C	0.812											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.351	2.626	2.508	2.637
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	511	644	622
d_b, Bicycle Delay [s]	23.47	24.94	20.67	21.36
l_b,int, Bicycle LOS Score for Intersection	2.701	3.086	2.741	2.977
Bicycle LOS	B	C	B	C

Sequence

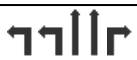
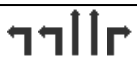
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	22.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.407

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	47	726	38	198	711	328	225	106	80	29	122	350
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	14	149	19	19	152	0	0	7	7	17	4	16
Site-Generated Trips [veh/h]	1	3	1	0	17	0	0	0	2	2	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	893	59	221	894	335	230	115	91	49	128	373
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	235	16	58	236	88	61	30	24	13	34	98
Total Analysis Volume [veh/h]	66	942	62	233	943	353	243	121	96	52	135	393
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	15	35	35	12	37	37	9	34	34
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	44	52	11	50	62	8	15	24	4	11	26
g / C, Green / Cycle	0.05	0.49	0.57	0.12	0.56	0.69	0.09	0.17	0.27	0.04	0.12	0.29
(v / s)_i Volume / Saturation Flow Rate	0.02	0.26	0.04	0.07	0.26	0.22	0.07	0.03	0.06	0.01	0.04	0.24
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	191	1771	929	430	2017	1116	312	613	433	144	439	465
d1, Uniform Delay [s]	41.02	15.85	8.45	37.13	11.91	5.50	40.13	32.12	25.63	42.02	36.08	30.14
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.08	1.15	0.14	1.07	0.78	0.74	4.19	0.16	0.26	1.53	0.39	9.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.53	0.07	0.54	0.47	0.32	0.78	0.20	0.22	0.36	0.31	0.84
d, Delay for Lane Group [s/veh]	42.10	16.99	8.59	38.20	12.69	6.24	44.32	32.27	25.88	43.54	36.47	39.51
Lane Group LOS	D	B	A	D	B	A	D	C	C	D	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.73	6.58	0.54	2.44	5.45	2.43	2.78	1.13	1.60	0.59	1.36	8.95
50th-Percentile Queue Length [ft/ln]	18.16	164.48	13.40	61.05	136.24	60.75	69.46	28.28	40.01	14.68	34.02	223.74
95th-Percentile Queue Length [veh/ln]	1.31	10.79	0.97	4.40	9.28	4.37	5.00	2.04	2.88	1.06	2.45	13.86
95th-Percentile Queue Length [ft/ln]	32.68	269.64	24.13	109.89	231.95	109.36	125.02	50.90	72.02	26.43	61.24	346.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.10	16.99	8.59	38.20	12.69	6.24	44.32	32.27	25.88	43.54	36.47	39.51
Movement LOS	D	B	A	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	18.06			15.09			37.30			39.16		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	22.61											
Intersection LOS	C											
Intersection V/C	0.407											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.896	3.028	2.737	2.734
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	689	733	667
d_b, Bicycle Delay [s]	23.47	19.34	18.05	20.00
l_b,int, Bicycle LOS Score for Intersection	2.442	2.821	1.939	2.038
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	6.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.346

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	14	727	3	122	654	8	1	0	4	3	1	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	107	0	19	146	0	0	0	0	0	0	3
Site-Generated Trips [veh/h]	0	5	0	0	21	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	854	3	143	834	8	1	0	4	3	1	142
Peak Hour Factor	0.9500	0.9280	0.9500	0.9280	0.9280	0.9280	0.9280	0.9500	0.9500	0.9500	0.9500	0.9280
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	230	1	39	225	2	0	0	1	1	0	38
Total Analysis Volume [veh/h]	15	920	3	154	899	9	1	0	4	3	1	153
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	58	0	0	58	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	71	71	11	11	11	11
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.12	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.02	0.24	0.24	0.25	0.24	0.24	0.00	0.00	0.00	0.10
s, saturation flow rate [veh/h]	624	1900	1898	615	1900	1893	1252	1615	1435	1617
c, Capacity [veh/h]	512	1506	1504	505	1506	1501	97	191	224	191
d1, Uniform Delay [s]	4.38	2.55	2.55	5.75	2.54	2.54	43.84	35.06	36.48	38.66
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	0.53	0.53	1.56	0.52	0.52	0.04	0.04	0.02	7.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.31	0.31	0.31	0.30	0.30	0.01	0.02	0.01	0.80
d, Delay for Lane Group [s/veh]	4.48	3.08	3.08	7.31	3.06	3.06	43.88	35.11	36.50	46.36
Lane Group LOS	A	A	A	A	A	A	D	D	D	D
Critical Lane Group	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.09	1.61	1.61	1.21	1.58	1.57	0.02	0.08	0.06	3.67
50th-Percentile Queue Length [ft/ln]	2.22	40.19	40.15	30.26	39.38	39.26	0.57	1.98	1.51	91.86
95th-Percentile Queue Length [veh/ln]	0.16	2.89	2.89	2.18	2.84	2.83	0.04	0.14	0.11	6.61
95th-Percentile Queue Length [ft/ln]	3.99	72.34	72.27	54.47	70.88	70.67	1.03	3.56	2.72	165.34

Movement, Approach, & Intersection Results

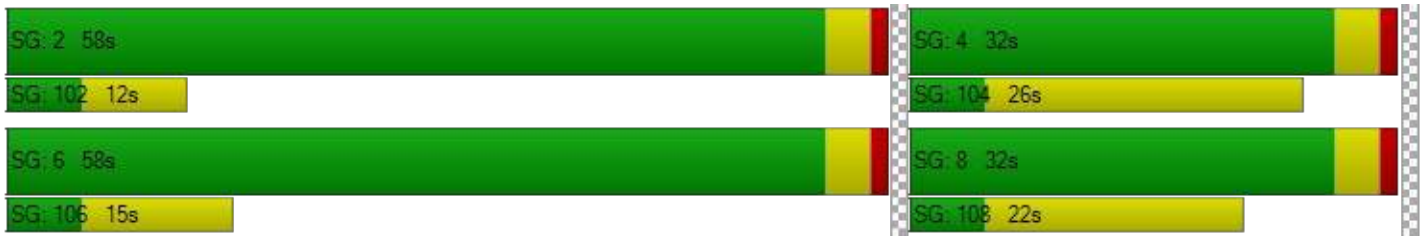
d_M, Delay for Movement [s/veh]	4.48	3.08	3.08	7.31	3.06	3.06	43.88	35.11	35.11	36.50	46.36	46.36
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	3.10			3.67			36.86			46.17		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	6.59											
Intersection LOS	A											
Intersection V/C	0.346											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.665	2.803	1.973	2.263
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1200	622	622
d_b, Bicycle Delay [s]	7.20	7.20	21.36	21.36
l_b,int, Bicycle LOS Score for Intersection	2.333	2.436	1.568	1.819
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 7: Ayala Dr at Miro Wy

Control Type:	Two-way stop	Delay (sec / veh):	37.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.163

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	0	729	646	15	15	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	107	146	0	0	0
Site-Generated Trips [veh/h]	33	0	0	21	5	10
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	851	805	36	20	10
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	224	212	9	5	3
Total Analysis Volume [veh/h]	35	896	847	38	21	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.01	0.01	0.00	0.16	0.02
d_M, Delay for Movement [s/veh]	9.70	0.00	0.00	0.00	37.48	15.86
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.06	0.03	0.00	0.00	0.65	0.65
95th-Percentile Queue Length [ft/ln]	1.49	0.74	0.00	0.00	16.15	16.15
d_A, Approach Delay [s/veh]	0.36		0.00		30.05	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.70					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	41.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	197	584	68	53	546	54	110	264	154	60	322	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	42	91	24	18	103	12	22	117	33	21	53	8
Site-Generated Trips [veh/h]	5	0	0	1	0	9	30	0	2	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	248	687	93	73	660	76	164	386	192	82	381	51
Peak Hour Factor	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190	0.9190
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	187	25	20	180	21	45	105	52	22	104	14
Total Analysis Volume [veh/h]	270	748	101	79	718	83	178	420	209	89	415	55
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	33	0	9	32	0	11	36	0	12	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	45	45	4	44	44	7	19	19	6	17	17
g / C, Green / Cycle	0.07	0.50	0.50	0.05	0.48	0.48	0.08	0.21	0.21	0.06	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.23	0.02	0.21	0.21	0.10	0.17	0.18	0.05	0.13	0.13
s, saturation flow rate [veh/h]	3514	1900	1822	3514	1900	1832	1810	1900	1690	1810	1900	1823
c, Capacity [veh/h]	234	956	916	169	920	887	141	395	351	115	368	353
d1, Uniform Delay [s]	42.00	14.40	14.41	41.72	15.24	15.24	41.50	34.23	34.26	41.50	33.48	33.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	79.46	1.55	1.62	2.02	1.55	1.61	131.13	4.91	5.58	10.50	1.94	2.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.15	0.45	0.45	0.47	0.44	0.44	1.26	0.84	0.84	0.77	0.65	0.65
d, Delay for Lane Group [s/veh]	121.46	15.95	16.03	43.74	16.79	16.85	172.63	39.14	39.84	52.00	35.42	35.57
Lane Group LOS	F	B	B	D	B	B	F	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.15	5.76	5.55	0.89	5.59	5.40	8.20	7.36	6.63	2.26	4.92	4.78
50th-Percentile Queue Length [ft/ln]	128.80	143.98	138.65	22.31	139.65	135.05	205.12	183.98	165.86	56.43	123.11	119.40
95th-Percentile Queue Length [veh/ln]	9.25	9.69	9.41	1.61	9.46	9.21	13.88	11.81	10.86	4.06	8.56	8.36
95th-Percentile Queue Length [ft/ln]	231.22	242.37	235.21	40.16	236.56	230.34	347.08	295.21	271.47	101.57	214.09	209.00

Movement, Approach, & Intersection Results

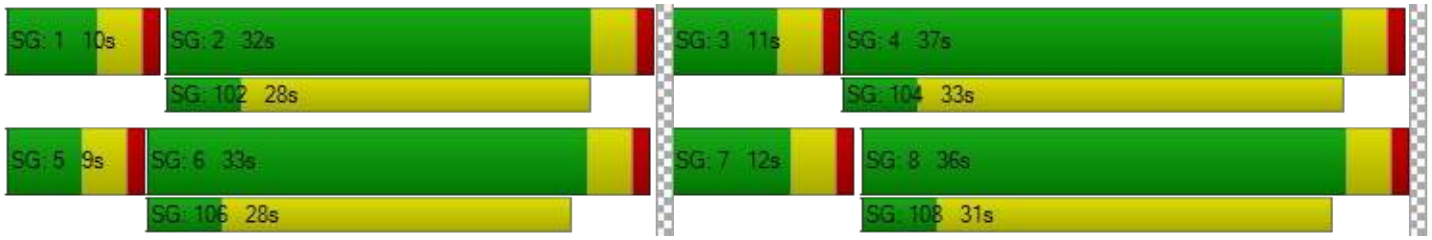
d_M, Delay for Movement [s/veh]	121.46	15.99	16.03	43.74	16.82	16.85	172.63	39.29	39.84	52.00	35.48	35.57
Movement LOS	F	B	B	D	B	B	F	D	D	D	D	D
d_A, Approach Delay [s/veh]	41.44			19.24			68.84			38.12		
Approach LOS	D			B			E			D		
d_I, Intersection Delay [s/veh]	41.65											
Intersection LOS	D											
Intersection V/C	0.517											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.801	2.757	2.608	2.527
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	622	711	733
d_b, Bicycle Delay [s]	20.67	21.36	18.69	18.05
l_b,int, Bicycle LOS Score for Intersection	2.483	2.286	2.225	2.021
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	8.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.155

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	6	285	0	0	233	39	30	15	15	0	15	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	17	0	12	40	0	0	0	0	0	0	37
Site-Generated Trips [veh/h]	0	0	39	2	0	0	0	0	0	12	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	308	39	14	278	40	31	15	15	12	15	38
Peak Hour Factor	0.9500	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930	0.9500	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	86	11	4	78	11	9	4	4	3	4	11
Total Analysis Volume [veh/h]	6	345	44	16	311	45	35	17	16	13	17	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	64	0	0	48	0	0	26	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	10	0	0	17	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	1	74	74	69	69	8	8	8
g / C, Green / Cycle	0.01	0.82	0.82	0.76	0.76	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.00	0.10	0.11	0.11	0.11	0.03	0.02	0.04
s, saturation flow rate [veh/h]	1810	1900	1826	1802	1655	1364	1750	1663
c, Capacity [veh/h]	16	1552	1491	1419	1264	130	165	204
d1, Uniform Delay [s]	44.37	1.69	1.69	2.80	2.82	38.27	37.62	38.54
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.38	0.17	0.18	0.20	0.23	1.10	0.59	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.13	0.13	0.14	0.14	0.27	0.20	0.36
d, Delay for Lane Group [s/veh]	58.75	1.85	1.87	3.00	3.05	39.37	38.20	39.60
Lane Group LOS	E	A	A	A	A	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.19	0.44	0.43	0.73	0.68	0.76	0.69	1.57
50th-Percentile Queue Length [ft/ln]	4.87	11.06	10.87	18.21	16.98	18.93	17.30	39.18
95th-Percentile Queue Length [veh/ln]	0.35	0.80	0.78	1.31	1.22	1.36	1.25	2.82
95th-Percentile Queue Length [ft/ln]	8.77	19.91	19.57	32.77	30.56	34.07	31.14	70.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.75	1.86	1.87	3.00	3.02	3.05	39.37	38.20	38.20	39.60	39.60	39.60
Movement LOS	E	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	2.73			3.03			38.80			39.60		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	8.51											
Intersection LOS	A											
Intersection V/C	0.155											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.463	2.376	1.986	1.812
Crosswalk LOS	B	B	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	978	489	489
d_b, Bicycle Delay [s]	5.00	11.76	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	1.885	1.867	1.672	1.680
Bicycle LOS	A	A	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.345

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	134	61	69	93	47	26	402	31	20	436	124
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	33	0	7	4	127	0	0	57	13
Site-Generated Trips [veh/h]	0	0	0	2	0	10	34	30	0	0	9	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	137	62	105	95	65	65	567	32	20	511	144
Peak Hour Factor	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	36	16	27	25	17	17	148	8	5	133	37
Total Analysis Volume [veh/h]	44	143	65	109	99	68	68	590	33	21	532	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	29	0	0	29	0	9	52	0	9	52	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	54	54	54	54	54	4	22	22	2	20	20
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.60	0.05	0.25	0.25	0.02	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.11	0.04	0.12	0.06	0.04	0.04	0.17	0.17	0.01	0.19	0.19
s, saturation flow rate [veh/h]	1684	1615	909	1729	1615	1810	1900	1865	1810	1900	1758
c, Capacity [veh/h]	1055	964	622	1032	964	88	468	460	42	420	389
d1, Uniform Delay [s]	8.11	7.62	14.72	7.75	7.63	42.32	30.61	30.62	43.44	33.54	33.58
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	0.13	0.61	0.18	0.14	13.31	1.67	1.71	8.91	4.60	5.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.07	0.18	0.10	0.07	0.77	0.67	0.67	0.50	0.84	0.85
d, Delay for Lane Group [s/veh]	8.48	7.75	15.33	7.94	7.77	55.64	32.29	32.34	52.35	38.14	38.70
Lane Group LOS	A	A	B	A	A	E	C	C	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.60	0.52	1.39	0.81	0.55	1.80	6.23	6.13	0.56	7.74	7.27
50th-Percentile Queue Length [ft/ln]	39.89	13.05	34.82	20.16	13.68	45.05	155.67	153.19	14.04	193.54	181.68
95th-Percentile Queue Length [veh/ln]	2.87	0.94	2.51	1.45	0.98	3.24	10.32	10.19	1.01	12.30	11.69
95th-Percentile Queue Length [ft/ln]	71.80	23.49	62.68	36.29	24.62	81.10	257.98	254.68	25.27	307.61	292.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.48	8.48	7.75	15.33	7.94	7.77	55.64	32.31	32.34	52.35	38.33	38.70
Movement LOS	A	A	A	B	A	A	E	C	C	D	D	D
d_A, Approach Delay [s/veh]	8.29			10.82			34.61			38.82		
Approach LOS	A			B			C			D		
d_I, Intersection Delay [s/veh]	29.28											
Intersection LOS	C											
Intersection V/C	0.345											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.231	2.426	2.624	2.742
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	556	1067	1067
d_b, Bicycle Delay [s]	23.47	23.47	9.80	9.80
l_b,int, Bicycle LOS Score for Intersection	1.975	1.787	2.130	2.140
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Miro Way and Ayala Drive Warehouse

Vistro File: K:\...\Miro Way_PM.vistro
Report File: K:\...\5. OY CUM WP PM.pdf

Scenario 5 OY 2024 Cum WP PM
2/11/2025

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Alder Ave at SR-210 WB Ramps	Signalized	HCM 7th Edition	NB Left	1.164	138.6	F
2	Alder Ave at SR-210 EB Ramps	Signalized	HCM 7th Edition	SB Left	1.205	136.3	F
3	Alder Ave at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Right	0.978	90.8	F
4	Alder Ave at Base Line Rd	Signalized	HCM 7th Edition	SB Left	0.674	34.5	C
5	Ayala Dr at Renaissance Pkwy	Signalized	HCM 7th Edition	NB Left	0.677	26.0	C
6	Ayala Dr at Fitzgerald Ave	Signalized	HCM 6th Edition	WB Right	0.528	7.5	A
7	Ayala Dr at Miro Wy	Two-way stop	HCM 7th Edition	EB Left	0.557	79.7	F
8	Ayala Dr at Base Line Rd	Signalized	HCM 7th Edition	NB Left	0.642	38.1	D
9	Linden Ave at Miro Wy	Signalized	HCM 7th Edition	NB Left	0.294	10.2	B
10	Linden Ave at Base Line Rd	Signalized	HCM 7th Edition	WB Left	0.579	29.1	C

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

Intersection Level Of Service Report
Intersection 1: Alder Ave at SR-210 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	138.6
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.164

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	475	298	0	0	292	376	0	0	0	295	4	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0000	1.0000	1.0200	1.0200	1.0000	1.0000	1.0000	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	317	255	0	0	255	91	0	0	0	204	0	88
Site-Generated Trips [veh/h]	30	0	0	0	0	0	0	0	0	11	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	832	559	0	0	553	475	0	0	0	516	4	213
Peak Hour Factor	0.9100	0.9100	1.0000	1.0000	0.9100	0.9100	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	229	154	0	0	152	130	0	0	0	142	1	59
Total Analysis Volume [veh/h]	914	614	0	0	608	522	0	0	0	567	4	234
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	37	65	0	0	28	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C		L	C
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	33	61	24	24		21	21
g / C, Green / Cycle	0.37	0.68	0.27	0.27		0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.51	0.17	0.30	0.35		0.31	0.15
s, saturation flow rate [veh/h]	1810	3618	1900	1634		1810	1619
c, Capacity [veh/h]	663	2452	507	436		422	378
d1, Uniform Delay [s]	28.50	5.63	33.00	33.00		34.50	31.01
k, delay calibration	0.50	0.50	0.50	0.50		0.41	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	179.28	0.25	75.44	149.73		166.87	1.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.38	0.25	1.12	1.30		1.34	0.63
d, Delay for Lane Group [s/veh]	207.78	5.87	108.44	182.73		201.37	32.74
Lane Group LOS	F	A	F	F		F	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	46.61	2.00	21.29	27.30		28.54	4.73
50th-Percentile Queue Length [ft/ln]	1165.20	49.89	532.29	682.41		713.45	118.13
95th-Percentile Queue Length [veh/ln]	69.79	3.59	30.77	41.20		43.22	8.29
95th-Percentile Queue Length [ft/ln]	1744.78	89.80	769.29	1030.11		1080.48	207.25

Movement, Approach, & Intersection Results

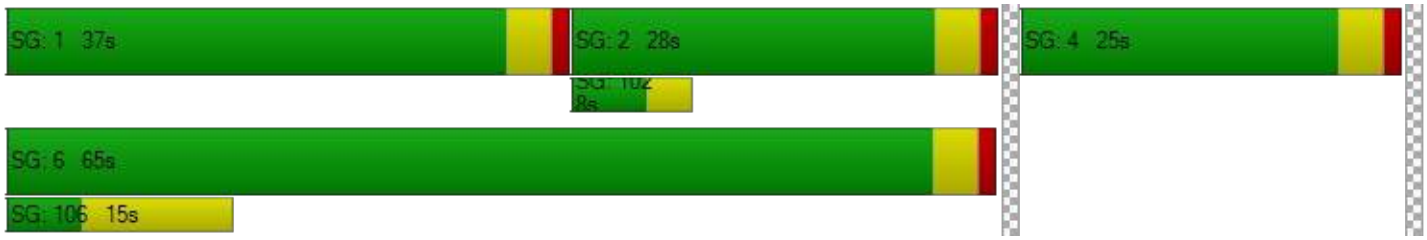
d_M, Delay for Movement [s/veh]	207.78	5.87	0.00	0.00	113.69	182.73	0.00	0.00	0.00	201.37	32.74	32.74
Movement LOS	F	A			F	F				F	C	C
d_A, Approach Delay [s/veh]	126.65			145.58			0.00			151.51		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	138.61											
Intersection LOS	F											
Intersection V/C	1.164											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.829	2.109
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1356	533	0	467
d_b, Bicycle Delay [s]	4.67	24.20	45.00	26.45
l_b,int, Bicycle LOS Score for Intersection	2.820	2.492	4.132	2.888
Bicycle LOS	C	B	D	C

Sequence

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



Intersection Level Of Service Report
Intersection 2: Alder Ave at SR-210 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	136.3
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.205

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	0	565	420	155	430	0	203	4	502	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0200	1.0200	1.0200	1.0200	1.0000	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	483	316	89	369	0	88	0	205	0	0	0
Site-Generated Trips [veh/h]	0	30	31	0	11	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1089	775	247	819	0	295	4	729	0	0	0
Peak Hour Factor	1.0000	0.9550	0.9550	0.9550	0.9550	1.0000	0.9550	0.9550	0.9550	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	285	203	65	214	0	77	1	191	0	0	0
Total Analysis Volume [veh/h]	0	1140	812	259	858	0	309	4	763	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	10	60	0	0	30	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	46	46	6	56	26	26	
g / C, Green / Cycle	0.51	0.51	0.07	0.62	0.29	0.29	
(v / s)_i Volume / Saturation Flow Rate	0.51	0.59	0.14	0.24	0.17	0.47	
s, saturation flow rate [veh/h]	1900	1657	1810	3618	1811	1615	
c, Capacity [veh/h]	971	847	121	2251	523	467	
d1, Uniform Delay [s]	22.00	22.00	42.00	8.42	27.51	32.00	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	30.11	82.10	522.10	0.49	1.10	295.53	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	1.01	1.15	2.15	0.38	0.60	1.64	
d, Delay for Lane Group [s/veh]	52.11	104.10	564.10	8.91	28.61	327.53	
Lane Group LOS	F	F	F	A	C	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	26.67	35.48	20.14	3.84	5.80	48.07	
50th-Percentile Queue Length [ft/ln]	666.76	887.11	503.47	96.08	144.90	1201.81	
95th-Percentile Queue Length [veh/ln]	35.28	50.31	32.50	6.92	9.74	74.95	
95th-Percentile Queue Length [ft/ln]	882.12	1257.67	812.60	172.94	243.61	1873.83	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	59.59	104.10	564.10	8.91	0.00	28.61	28.61	327.53	0.00	0.00	0.00
Movement LOS		E	F	F	A		C	C	F			
d_A, Approach Delay [s/veh]	78.10			137.64			240.58			0.00		
Approach LOS	E			F			F			A		
d_I, Intersection Delay [s/veh]	136.32											
Intersection LOS	F											
Intersection V/C	1.205											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.241	2.473
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1022	1244	578	0
d_b, Bicycle Delay [s]	10.76	6.42	22.76	45.00
l_b,int, Bicycle LOS Score for Intersection	3.170	2.481	3.335	4.132
Bicycle LOS	C	B	C	D

Sequence

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



Intersection Level Of Service Report
Intersection 3: Alder Ave at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	90.8
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.978

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	51	659	34	183	603	138	95	269	67	20	172	221
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	3	485	0	214	346	15	15	65	1	0	64	297
Site-Generated Trips [veh/h]	0	61	0	0	23	0	0	1	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	1218	35	401	984	156	112	340	69	20	241	522
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	317	9	104	256	41	29	89	18	5	63	136
Total Analysis Volume [veh/h]	57	1269	36	418	1025	163	117	354	72	21	251	544
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	29	0	22	30	0	9	30	0	9	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	25	25	18	39	39	5	29	29	2	26	26
g / C, Green / Cycle	0.04	0.28	0.28	0.20	0.44	0.44	0.06	0.32	0.32	0.02	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.34	0.35	0.23	0.32	0.32	0.06	0.11	0.12	0.01	0.13	0.34
s, saturation flow rate [veh/h]	1810	1900	1882	1810	1900	1811	1810	1900	1791	1810	1900	1615
c, Capacity [veh/h]	78	528	523	362	825	787	101	611	576	42	549	467
d1, Uniform Delay [s]	42.52	32.50	32.50	36.00	21.07	21.27	42.50	23.40	23.44	43.46	26.22	32.00
k, delay calibration	0.11	0.50	0.50	0.23	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.46
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.02	123.98	124.91	83.68	5.63	6.32	95.05	0.35	0.38	9.20	0.60	94.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	1.24	1.24	1.16	0.73	0.74	1.16	0.36	0.36	0.51	0.46	1.17
d, Delay for Lane Group [s/veh]	54.54	156.48	157.41	119.68	26.70	27.59	137.55	23.76	23.82	52.66	26.81	126.38
Lane Group LOS	D	F	F	F	C	C	F	C	C	D	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.50	29.26	29.11	16.15	11.20	11.11	4.86	3.53	3.37	0.56	4.40	22.00
50th-Percentile Queue Length [ft/ln]	37.51	731.59	727.86	403.87	280.06	277.78	121.51	88.20	84.28	14.10	109.95	550.06
95th-Percentile Queue Length [veh/ln]	2.70	43.10	42.93	24.46	16.69	16.58	8.75	6.35	6.07	1.02	7.84	32.48
95th-Percentile Queue Length [ft/ln]	67.52	1077.40	1073.24	611.42	417.28	414.44	218.72	158.76	151.71	25.38	195.94	812.08

Movement, Approach, & Intersection Results

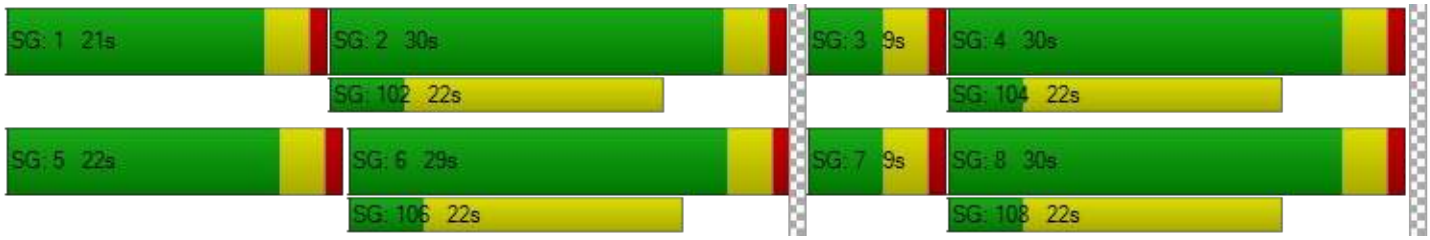
d_M, Delay for Movement [s/veh]	54.54	156.93	157.41	119.68	27.07	27.59	137.55	23.78	23.82	52.66	26.81	126.38
Movement LOS	D	F	F	F	C	C	F	C	C	D	C	F
d_A, Approach Delay [s/veh]	152.66			51.22			48.30			93.85		
Approach LOS	F			D			D			F		
d_I, Intersection Delay [s/veh]	90.82											
Intersection LOS	F											
Intersection V/C	0.978											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.785	2.991	2.499	2.618
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	578	578	578
d_b, Bicycle Delay [s]	23.47	22.76	22.76	22.76
l_b,int, Bicycle LOS Score for Intersection	2.683	2.885	2.008	2.233
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Alder Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	34.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	43	323	44	118	363	123	79	434	63	57	346	87
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	5	18	0	46	17	30	61	52	13	0	50	113
Site-Generated Trips [veh/h]	0	0	0	23	0	0	0	1	0	0	3	61
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	347	45	189	387	155	142	496	77	58	406	263
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	89	12	49	100	40	37	128	20	15	104	68
Total Analysis Volume [veh/h]	50	357	46	194	398	159	146	510	79	60	418	271
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap
Signal Group	1	6	0	5	2	2	3	8	0	7	4	4
Auxiliary Signal Groups						2,3						4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	10	5	10	0	5	10	10
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	16	26	0	14	24	24	15	41	0	9	35	35
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	17	0	0	10	10	0	10	0	0	17	17
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	No	No		No	No	No	No	No		No	No	No
Maximum Recall	No	No		No	No	No	No	No		No	No	No
Pedestrian Recall	No	No		No	No	No	No	No		No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	29	10	36	49	9	31	4	26	40
g / C, Green / Cycle	0.04	0.33	0.11	0.40	0.54	0.10	0.34	0.04	0.28	0.44
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.11	0.21	0.10	0.08	0.32	0.03	0.22	0.17
s, saturation flow rate [veh/h]	1810	1862	1810	1900	1615	1810	1856	1810	1900	1615
c, Capacity [veh/h]	74	608	201	754	875	182	633	78	539	710
d1, Uniform Delay [s]	42.55	26.03	39.83	20.72	10.48	39.60	28.62	42.60	29.59	16.99
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.27	0.11	0.16	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.04	5.60	22.14	2.64	0.46	7.97	14.33	14.21	3.56	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.66	0.96	0.53	0.18	0.80	0.93	0.76	0.77	0.38
d, Delay for Lane Group [s/veh]	52.59	31.63	61.96	23.36	10.94	47.58	42.96	56.81	33.15	17.33
Lane Group LOS	D	C	E	C	B	D	D	E	C	B
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.29	8.12	5.44	6.68	1.62	3.52	14.25	1.62	8.58	3.69
50th-Percentile Queue Length [ft/ln]	32.32	202.94	135.96	167.08	40.49	87.91	356.14	40.38	214.56	92.28
95th-Percentile Queue Length [veh/ln]	2.33	12.79	9.26	10.92	2.92	6.33	20.44	2.91	13.39	6.64
95th-Percentile Queue Length [ft/ln]	58.18	319.76	231.58	273.07	72.89	158.24	510.89	72.68	334.67	166.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.59	31.63	31.63	61.96	23.36	10.94	47.58	42.96	42.96	56.81	33.15	17.33
Movement LOS	D	C	C	E	C	B	D	D	D	E	C	B
d_A, Approach Delay [s/veh]	33.94			30.70			43.87			29.32		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	34.46											
Intersection LOS	C											
Intersection V/C	0.674											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.263	2.599	2.384	2.594
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	444	822	689
d_b, Bicycle Delay [s]	25.69	27.22	15.61	19.34
l_b,int, Bicycle LOS Score for Intersection	2.307	2.799	2.772	2.795
Bicycle LOS	B	C	C	C

Sequence

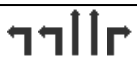
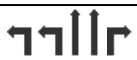
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Ayala Dr at Renaissance Pkwy

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	106	792	75	342	823	541	361	378	113	61	184	357
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	11	183	24	23	166	0	0	6	14	18	8	16
Site-Generated Trips [veh/h]	2	17	2	0	6	0	0	0	1	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	121	1008	103	372	1011	552	368	392	130	81	196	380
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	263	27	97	264	144	96	102	34	21	51	99
Total Analysis Volume [veh/h]	126	1052	108	388	1055	576	384	409	136	85	205	397
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	1	6	6	5	2	2	3	8	8	7	4	4
Auxiliary Signal Groups			6,7			2,3			1,8			4,5
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	10	5	10	10	5	10	10	5	10	10
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Split [s]	9	29	29	16	36	36	16	36	36	9	29	29
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	5	0	5	5
Pedestrian Clearance [s]	0	20	20	0	20	20	0	20	20	0	20	20
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
l2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	39	47	12	46	62	12	19	28	4	11	27
g / C, Green / Cycle	0.06	0.43	0.53	0.13	0.51	0.69	0.13	0.21	0.31	0.05	0.12	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.29	0.07	0.11	0.29	0.36	0.11	0.11	0.08	0.02	0.06	0.25
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	3618	1615	3514	3618	1615
c, Capacity [veh/h]	195	1568	853	469	1849	1113	469	743	493	177	442	484
d1, Uniform Delay [s]	41.63	20.37	10.74	38.00	15.18	6.77	37.95	32.05	23.72	41.60	36.76	29.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.26
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.55	2.31	0.31	3.81	1.28	1.72	3.61	0.64	0.30	2.02	0.76	7.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.67	0.13	0.83	0.57	0.52	0.82	0.55	0.28	0.48	0.46	0.82
d, Delay for Lane Group [s/veh]	45.18	22.68	11.05	41.81	16.47	8.49	41.56	32.69	24.02	43.62	37.52	37.17
Lane Group LOS	D	C	B	D	B	A	D	C	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.45	8.87	1.11	4.34	7.28	4.91	4.28	3.98	2.19	0.96	2.12	8.76
50th-Percentile Queue Length [ft/ln]	36.26	221.69	27.63	108.60	182.03	122.77	107.09	99.50	54.77	23.97	52.95	219.07
95th-Percentile Queue Length [veh/ln]	2.61	13.75	1.99	7.76	11.71	8.55	7.68	7.16	3.94	1.73	3.81	13.62
95th-Percentile Queue Length [ft/ln]	65.27	343.78	49.73	194.05	292.66	213.63	191.94	179.10	98.59	43.14	95.31	340.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.18	22.68	11.05	41.81	16.47	8.49	41.56	32.69	24.02	43.62	37.52	37.17
Movement LOS	D	C	B	D	B	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	23.91			19.06			35.08			38.07		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	26.01											
Intersection LOS	C											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.952	3.132	2.851	2.817
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	711	711	556
d_b, Bicycle Delay [s]	23.47	18.69	18.69	23.47
l_b,int, Bicycle LOS Score for Intersection	2.621	3.225	2.326	2.126
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Ayala Dr at Fitzgerald Ave

Control Type:	Signalized	Delay (sec / veh):	7.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.528

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	8	828	8	209	869	1	0	0	5	1	3	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	168	0	7	125	0	0	0	0	0	0	9
Site-Generated Trips [veh/h]	0	21	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	1034	8	220	1019	1	0	0	5	1	3	163
Peak Hour Factor	0.9500	0.9730	0.9500	0.9730	0.9730	0.9730	0.9730	0.9500	0.9500	0.9500	0.9500	0.9730
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	266	2	57	262	0	0	0	1	0	1	42
Total Analysis Volume [veh/h]	8	1063	8	226	1047	1	0	0	5	1	3	168
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	18	0	0	18	0	0	34	0	0	34	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	55	0	0	55	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	70	70	70	70	70	70	12	12	12	12
g / C, Green / Cycle	0.78	0.78	0.78	0.78	0.78	0.78	0.13	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.01	0.28	0.28	0.42	0.28	0.28	0.00	0.00	0.00	0.11
s, saturation flow rate [veh/h]	547	1900	1895	535	1900	1899	1233	1615	1434	1619
c, Capacity [veh/h]	441	1485	1481	432	1485	1485	99	209	240	210
d1, Uniform Delay [s]	5.25	2.99	2.99	9.11	2.96	2.96	0.00	34.21	35.57	38.13
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.68	0.69	4.47	0.66	0.66	0.00	0.05	0.01	7.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.36	0.36	0.52	0.35	0.35	0.00	0.02	0.00	0.82
d, Delay for Lane Group [s/veh]	5.33	3.67	3.68	13.59	3.62	3.62	0.00	34.25	35.57	45.64
Lane Group LOS	A	A	A	B	A	A	A	C	D	D
Critical Lane Group	No	No	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.05	2.19	2.18	2.74	2.12	2.12	0.00	0.10	0.02	4.05
50th-Percentile Queue Length [ft/ln]	1.36	54.71	54.59	68.61	52.98	52.97	0.00	2.44	0.50	101.29
95th-Percentile Queue Length [veh/ln]	0.10	3.94	3.93	4.94	3.81	3.81	0.00	0.18	0.04	7.29
95th-Percentile Queue Length [ft/ln]	2.45	98.48	98.26	123.50	95.36	95.34	0.00	4.39	0.89	182.32

Movement, Approach, & Intersection Results

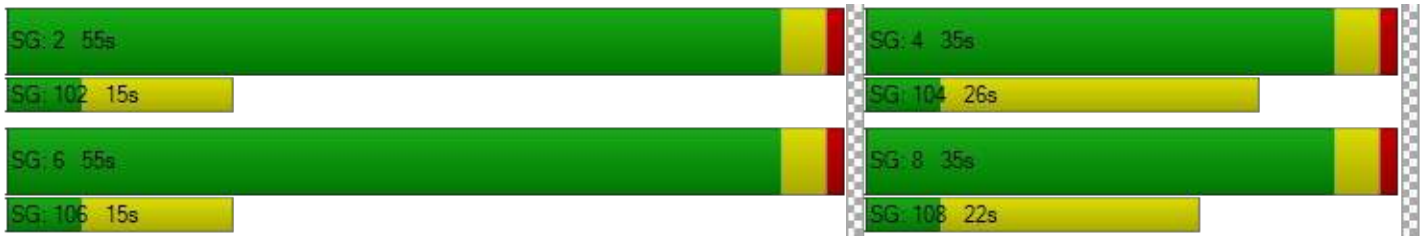
d_M, Delay for Movement [s/veh]	5.33	3.67	3.68	13.59	3.62	3.62	0.00	34.25	34.25	35.57	45.64	45.64
Movement LOS	A	A	A	B	A	A	A	C	C	D	D	D
d_A, Approach Delay [s/veh]	3.69			5.39			34.25			45.58		
Approach LOS	A			A			C			D		
d_I, Intersection Delay [s/veh]	7.45											
Intersection LOS	A											
Intersection V/C	0.528											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.719	2.861	1.959	2.395
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1133	1133	689	689
d_b, Bicycle Delay [s]	8.45	8.45	19.34	19.34
l_b,int, Bicycle LOS Score for Intersection	2.450	2.611	1.568	1.843
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 7: Ayala Dr at Miro Wy

Control Type:	Two-way stop	Delay (sec / veh):	79.7
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.557

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	0	817	851	24	27	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	168	125	0	0	0
Site-Generated Trips [veh/h]	13	0	0	8	21	33
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	1001	993	32	49	33
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	263	261	8	13	9
Total Analysis Volume [veh/h]	14	1054	1045	34	52	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.56	0.07
d_M, Delay for Movement [s/veh]	10.52	0.00	0.00	0.00	79.74	48.49
Movement LOS	B	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.02	0.01	0.00	0.00	3.34	3.34
95th-Percentile Queue Length [ft/ln]	0.59	0.29	0.00	0.00	83.49	83.49
d_A, Approach Delay [s/veh]	0.14		0.00		67.17	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	2.68					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 8: Ayala Dr at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	38.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.642

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	142	647	96	139	678	57	126	447	206	89	350	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	51	114	35	10	108	19	15	65	56	39	125	27
Site-Generated Trips [veh/h]	2	0	0	3	0	30	12	0	5	0	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	198	774	133	155	800	107	156	521	271	130	482	78
Peak Hour Factor	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240	0.9240
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	209	36	42	216	29	42	141	73	35	130	21
Total Analysis Volume [veh/h]	214	838	144	168	866	116	169	564	293	141	522	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	32	0	9	32	0	12	37	0	12	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	37	37	5	37	37	8	24	24	8	24	24
g / C, Green / Cycle	0.06	0.41	0.41	0.06	0.41	0.41	0.09	0.27	0.27	0.09	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.27	0.05	0.26	0.26	0.09	0.24	0.24	0.08	0.16	0.16
s, saturation flow rate [veh/h]	3514	1900	1804	3514	1900	1822	1810	1900	1684	1810	1900	1809
c, Capacity [veh/h]	195	769	730	195	769	738	161	519	460	161	519	494
d1, Uniform Delay [s]	42.50	21.69	21.71	42.15	21.66	21.67	41.00	31.25	31.26	40.51	28.42	28.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.20	0.20	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	59.72	4.31	4.56	10.53	4.26	4.45	47.09	8.41	9.38	13.77	1.11	1.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.65	0.66	0.86	0.65	0.65	1.05	0.88	0.88	0.88	0.60	0.60
d, Delay for Lane Group [s/veh]	102.22	26.00	26.27	52.68	25.91	26.12	88.09	39.66	40.63	54.28	29.52	29.60
Lane Group LOS	F	C	C	D	C	C	F	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.76	9.11	8.73	2.11	9.05	8.74	5.62	10.35	9.30	3.66	5.83	5.58
50th-Percentile Queue Length [ft/ln]	94.04	227.82	218.34	52.85	226.37	218.47	140.40	258.85	232.58	91.43	145.81	139.48
95th-Percentile Queue Length [veh/ln]	6.77	14.06	13.58	3.81	13.99	13.59	9.67	15.63	14.31	6.58	9.79	9.45
95th-Percentile Queue Length [ft/ln]	169.27	351.59	339.51	95.13	349.74	339.68	241.67	390.78	357.64	164.57	244.82	236.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	102.22	26.11	26.27	52.68	26.00	26.12	88.09	39.85	40.63	54.28	29.55	29.60
Movement LOS	F	C	C	D	C	C	F	D	D	D	C	C
d_A, Approach Delay [s/veh]	39.75			29.91			48.02			34.23		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	38.06											
Intersection LOS	D											
Intersection V/C	0.642											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.860	2.819	2.668	2.618
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	622	733	733
d_b, Bicycle Delay [s]	21.36	21.36	18.05	18.05
l_b,int, Bicycle LOS Score for Intersection	2.546	2.508	2.406	2.176
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Linden Ave at Miro Wy

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.294

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	18	402	0	0	377	53	52	27	26	0	24	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	44	0	37	28	0	0	0	0	0	0	16
Site-Generated Trips [veh/h]	0	0	14	1	0	0	0	0	0	39	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	454	14	38	413	54	53	28	27	39	24	18
Peak Hour Factor	0.9500	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.7950	0.9500	0.7950	0.7950	0.7950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	143	4	12	130	17	17	9	7	12	8	6
Total Analysis Volume [veh/h]	19	571	18	48	519	68	67	35	28	49	30	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	46	0	0	37	0	0	44	0	0	44	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	7	0	0	10	0	0	17	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	72	72	66	66	10	10	10
g / C, Green / Cycle	0.02	0.80	0.80	0.74	0.74	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.01	0.16	0.16	0.19	0.19	0.05	0.04	0.09
s, saturation flow rate [veh/h]	1810	1900	1880	1640	1666	1373	1762	1139
c, Capacity [veh/h]	38	1526	1509	1255	1229	97	190	182
d1, Uniform Delay [s]	43.57	2.07	2.07	3.73	3.83	38.93	37.12	39.91
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.62	0.28	0.29	0.49	0.51	8.45	1.01	2.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.19	0.19	0.25	0.26	0.69	0.33	0.56
d, Delay for Lane Group [s/veh]	53.20	2.35	2.36	4.21	4.34	47.38	38.13	42.58
Lane Group LOS	D	A	A	A	A	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.52	0.84	0.83	1.58	1.62	1.64	1.32	2.33
50th-Percentile Queue Length [ft/ln]	12.92	21.00	20.85	39.44	40.53	41.03	33.02	58.29
95th-Percentile Queue Length [veh/ln]	0.93	1.51	1.50	2.84	2.92	2.95	2.38	4.20
95th-Percentile Queue Length [ft/ln]	23.26	37.80	37.52	70.99	72.95	73.85	59.43	104.92

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.20	2.35	2.36	4.21	4.27	4.34	47.38	38.13	38.13	42.58	42.58	42.58
Movement LOS	D	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	3.94			4.28			42.89			42.58		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.19											
Intersection LOS	B											
Intersection V/C	0.294											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.606	2.544	2.022	1.884
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	733	889	889
d_b, Bicycle Delay [s]	12.80	18.05	13.89	13.89
l_b,int, Bicycle LOS Score for Intersection	2.061	2.083	1.774	1.728
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 10: Linden Ave at Base Line Rd

Control Type:	Signalized	Delay (sec / veh):	29.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	18	168	45	144	170	95	83	475	27	39	367	163
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	17	0	11	8	82	0	0	143	36
Site-Generated Trips [veh/h]	0	0	0	5	0	34	12	12	0	0	30	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	171	46	169	173	142	105	579	28	40	547	204
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	48	13	48	49	40	30	163	8	11	154	57
Total Analysis Volume [veh/h]	20	193	52	190	195	160	118	652	32	45	616	230
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	6	0	0	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	40	0	0	40	0	13	40	0	10	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	15	0	0	20	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	C	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	47	47	47	47	47	7	28	28	3	24	24
g / C, Green / Cycle	0.52	0.52	0.52	0.52	0.52	0.08	0.31	0.31	0.04	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.12	0.03	0.28	0.11	0.10	0.07	0.18	0.18	0.02	0.23	0.23
s, saturation flow rate [veh/h]	1803	1615	677	1729	1615	1810	1900	1869	1810	1900	1726
c, Capacity [veh/h]	976	835	430	894	835	149	591	581	70	508	461
d1, Uniform Delay [s]	11.82	10.84	26.11	11.83	11.65	40.53	26.09	26.09	42.67	31.52	31.53
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.17	0.17
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	0.14	3.26	0.56	0.51	9.02	0.92	0.93	9.67	7.22	7.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.06	0.44	0.22	0.19	0.79	0.58	0.58	0.65	0.87	0.87
d, Delay for Lane Group [s/veh]	12.33	10.98	29.37	12.39	12.16	49.55	27.01	27.03	52.34	38.74	39.44
Lane Group LOS	B	B	C	B	B	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.34	0.53	3.69	2.16	1.75	2.91	6.19	6.10	1.16	9.94	9.13
50th-Percentile Queue Length [ft/ln]	58.50	13.15	92.25	53.89	43.69	72.65	154.75	152.38	29.09	248.61	228.25
95th-Percentile Queue Length [veh/ln]	4.21	0.95	6.64	3.88	3.15	5.23	10.27	10.14	2.09	15.12	14.09
95th-Percentile Queue Length [ft/ln]	105.30	23.67	166.05	96.99	78.64	130.77	256.76	253.60	52.36	377.91	352.13

Movement, Approach, & Intersection Results

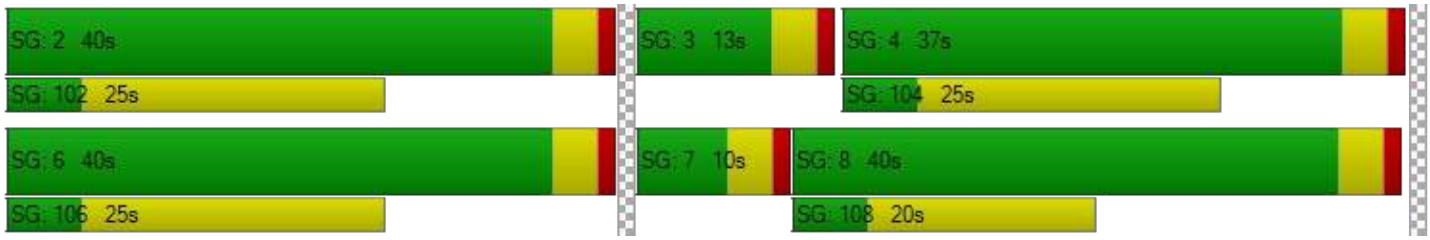
d_M, Delay for Movement [s/veh]	12.33	12.33	10.98	29.37	12.39	12.16	49.55	27.02	27.03	52.34	38.94	39.44
Movement LOS	B	B	B	C	B	B	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	12.07			18.24			30.33			39.74		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	29.12											
Intersection LOS	C											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersectio	2.263	2.513	2.641	2.920
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	800	733
d_b, Bicycle Delay [s]	16.20	16.20	16.20	18.05
l_b,int, Bicycle LOS Score for Intersection	1.997	2.009	2.221	2.295
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX D-6

INTERSECTION ANALYSIS
WORKSHEETS –
OPENING YEAR 2024 CUMULATIVE PLUS
PROJECT – WITH IMPROVEMENTS

Option 1: 2nd NBL Lane

Number	1											
Intersection	Alder Ave at SR-210 WB Ramps											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	396	343	0	0	17	12	0	0	0	431	5	157
Total Analysis Volume [veh/h]	730	753	0	0	361	118	0	0	0	950	6	292

Intersection Settings

Cycle Length [s]	90											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	23	40	0	0	17	0	0	0	0	0	50	0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.21	0.40	0.14	0.14		0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.21	0.21	0.13	0.14		0.53	0.18
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900		1900	1900
Arrival type	3		3		3	3	
s, saturation flow rate [veh/h]	3514	3618	1900	1748		1810	1620
c, Capacity [veh/h]	742	1447	274	252		925	828
X, volume / capacity	0.98	0.52	0.87	0.95		1.03	0.36
d, Delay for Lane Group [s/veh]	47.41	21.80	67.32	82.96		58.36	13.44

Lane Group LOS	D	C	E	F		F	B
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	9.00	6.03	7.33	8.28		27.01	3.47
50th-Percentile Queue Length [ft/ln]	224.99	150.76	183.25	206.92		675.18	86.77
95th-Percentile Queue Length [veh/ln]	13.92	10.06	11.77	12.99		36.30	6.25
95th-Percentile Queue Length [ft/ln]	347.99	251.44	294.25	324.87		907.59	156.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.41	21.80	0.00	0.00	72.58	82.96	0.00	0.00	0.00	58.36	13.44	13.44
Movement LOS	D	C			E	F				F	B	B
Critical Movement	No	No			No	Yes				No	No	No
d_A, Approach Delay [s/veh]	34.40			75.14			0.00			47.64		
Approach LOS	C			E			A			D		
d_I, Intersection Delay [s/veh]	45.63											
Intersection LOS	D											
Intersection V/C	0.870											

Option 1: Add 2nd NBL Lane

Number	1											
Intersection	Alder Ave at SR-210 WB Ramps											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	475	298	0	0	292	376	0	0	0	295	4	123
Total Analysis Volume [veh/h]	914	614	0	0	608	522	0	0	0	567	4	234

Intersection Settings

Cycle Length [s]	90											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	26	59	0	0	33	0	0	0	0	0	31	0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	3	0	0	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.24	0.61	0.32	0.32		0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.26	0.17	0.30	0.35		0.31	0.15
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900		1900	1900
Arrival type	3		3		3	3	
s, saturation flow rate [veh/h]	3514	3618	1900	1634		1810	1619
c, Capacity [veh/h]	859	2211	612	526		543	486
X, volume / capacity	1.06	0.28	0.92	1.07		1.04	0.49
d, Delay for Lane Group [s/veh]	69.00	8.51	51.08	90.86		78.50	26.62

Lane Group LOS	F	A	D	F		F	C
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	13.27	2.62	14.99	19.75		18.42	4.18
50th-Percentile Queue Length [ft/ln]	331.86	65.61	374.74	493.65		460.55	104.54
95th-Percentile Queue Length [veh/ln]	19.93	4.72	21.34	28.29		26.17	7.53
95th-Percentile Queue Length [ft/ln]	498.16	118.10	533.48	707.15		654.32	188.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	69.00	8.51	0.00	0.00	53.89	90.86	0.00	0.00	0.00	78.50	26.62	26.62
Movement LOS	F	A			D	F				F	C	C
Critical Movement	No	No			No	Yes				No	No	No
d_A, Approach Delay [s/veh]	44.70			70.97			0.00			63.16		
Approach LOS	D			E			A			E		
d_I, Intersection Delay [s/veh]	57.56											
Intersection LOS	E											
Intersection V/C	0.919											

Option 1: Add a 2nd SBL Turn Lane and modify EB approach

Number	2											
Intersection	Alder Ave at SR-210 EB Ramps											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	0	486	333	6	421	0	298	3	616	0	0	0
Total Analysis Volume [veh/h]	0	1022	622	106	1116	0	438	3	1110	0	0	0

Intersection Settings

Cycle Length [s]	90											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	9	50	0	0	40	0	0	0	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.41	0.41	0.05	0.51	0.40	0.40	
(v / s)_i Volume / Saturation Flow Rate	0.43	0.49	0.03	0.31	0.45	0.48	
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	
Arrival type	3		3		3		3
s, saturation flow rate [veh/h]	1900	1676	3514	3618	1720	1615	
c, Capacity [veh/h]	787	694	185	1849	688	646	
X, volume / capacity	1.04	1.18	0.57	0.60	1.13	1.20	
d, Delay for Lane Group [s/veh]	70.78	123.56	44.43	17.02	101.82	131.60	

Lane Group LOS	F	F	D	B	F	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	25.48	32.66	1.21	7.91	28.20	31.81	
50th-Percentile Queue Length [ft/ln]	637.10	816.45	30.22	197.82	704.99	795.36	
95th-Percentile Queue Length [veh/ln]	34.87	47.12	2.18	12.53	40.06	46.31	
95th-Percentile Queue Length [ft/ln]	871.71	1177.99	54.40	313.15	1001.62	1157.80	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	81.11	123.56	44.43	17.02	0.00	101.82	101.82	122.63	0.00	0.00	0.00
Movement LOS		F	F	D	B		F	F	F			
Critical Movement		No	Yes	No	No		No	No	No			
d_A, Approach Delay [s/veh]	97.17			19.40			116.71			0.00		
Approach LOS	F			B			F			A		
d_I, Intersection Delay [s/veh]	82.52											
Intersection LOS	F											
Intersection V/C	1.001											

Option 1: Add a 2nd SBL Turn Lane and modify EB approach

Number	2											
Intersection	Alder Ave at SR-210 EB Ramps											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	0	565	420	155	430	0	203	4	502	0	0	0
Total Analysis Volume [veh/h]	0	1140	812	259	858	0	309	4	763	0	0	0

Intersection Settings

Cycle Length [s]	90											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	5	10	0	0	10	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	50	0	10	60	0	0	30	0	0	0	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	10	0	0	10	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.51	0.51	0.07	0.62	0.29	0.29	
(v / s)_i Volume / Saturation Flow Rate	0.51	0.59	0.07	0.24	0.31	0.33	
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	
Arrival type	3		3		3		3
s, saturation flow rate [veh/h]	1900	1657	3514	3618	1723	1615	
c, Capacity [veh/h]	971	847	234	2251	498	467	
X, volume / capacity	1.01	1.15	1.11	0.38	1.08	1.15	
d, Delay for Lane Group [s/veh]	52.11	104.10	103.03	8.91	91.99	121.15	

Lane Group LOS	F	F	F	A	F	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	26.67	35.48	4.55	3.84	18.72	21.32	
50th-Percentile Queue Length [ft/ln]	666.76	887.11	113.80	96.08	468.09	533.12	
95th-Percentile Queue Length [veh/ln]	35.28	50.31	8.19	6.92	27.07	31.42	
95th-Percentile Queue Length [ft/ln]	882.12	1257.67	204.85	172.94	676.77	785.53	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	59.59	104.10	103.03	8.91	0.00	91.99	91.99	112.55	0.00	0.00	0.00
Movement LOS		E	F	F	A		F	F	F			
Critical Movement		No	No	No	No		No	No	Yes			
d_A, Approach Delay [s/veh]	78.10			30.73			106.57			0.00		
Approach LOS	E			C			F			A		
d_I, Intersection Delay [s/veh]	72.73											
Intersection LOS	E											
Intersection V/C	0.996											

Option 1: Add 2nd SBL Turn Laner

Number	3											
Intersection	Alder Ave at Renaissance Pkwy											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	127	567	15	155	775	78	97	158	80	26	140	199
Total Analysis Volume [veh/h]	145	1069	17	541	1532	108	129	258	94	30	241	485

Intersection Settings

Cycle Length [s]	90											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	33	0	18	40	0	10	30	0	9	29	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.08	0.32	0.32	0.16	0.40	0.40	0.07	0.31	0.31	0.03	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.08	0.29	0.29	0.15	0.43	0.44	0.07	0.10	0.10	0.02	0.13	0.30
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1810	1900	1890	3514	1900	1857	1810	1900	1731	1810	1900	1615
c, Capacity [veh/h]	141	612	609	547	760	743	121	596	543	56	528	449
X, volume / capacity	1.03	0.89	0.89	0.99	1.08	1.10	1.07	0.31	0.31	0.54	0.46	1.08
d, Delay for Lane Group [s/veh]	84.74	46.45	46.57	53.56	83.04	92.26	99.97	23.74	23.84	50.69	27.50	93.29

Lane Group LOS	F	D	D	D	F	F	F	C	C	D	C	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.77	13.70	13.65	7.01	27.18	28.46	4.59	2.92	2.73	0.77	4.28	17.00
50th-Percentile Queue Length [ft/ln]	119.22	342.49	341.24	175.36	679.46	711.56	114.64	73.01	68.35	19.30	106.95	424.98
95th-Percentile Queue Length [veh/ln]	8.43	19.77	19.71	11.36	37.71	39.88	8.25	5.26	4.92	1.39	7.67	24.89
95th-Percentile Queue Length [ft/ln]	210.80	494.25	492.71	283.94	942.76	997.03	206.35	131.42	123.03	34.73	191.75	622.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	84.74	46.51	46.57	53.56	87.33	92.26	99.97	23.77	23.84	50.69	27.50	93.29
Movement LOS	F	D	D	D	F	F	F	C	C	D	C	F
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	51.01			79.20			44.22			70.63		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	66.72											
Intersection LOS	E											
Intersection V/C	0.893											

Option 1: Add 2nd SBL Turn Lane

Number	3											
Intersection	Alder Ave at Renaissance Pkwy											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	51	659	34	183	603	138	95	269	67	20	172	221
Total Analysis Volume [veh/h]	57	1269	36	418	1025	163	117	354	72	21	251	544

Intersection Settings

Cycle Length [s]	90											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	33	0	14	32	0	10	34	0	9	33	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.04	0.32	0.32	0.11	0.39	0.39	0.07	0.37	0.37	0.02	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.03	0.34	0.35	0.12	0.32	0.32	0.06	0.11	0.12	0.01	0.13	0.34
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1810	1900	1882	3514	1900	1811	1810	1900	1791	1810	1900	1615
c, Capacity [veh/h]	79	612	606	390	741	706	121	695	655	42	612	520
X, volume / capacity	0.73	1.07	1.07	1.07	0.81	0.83	0.97	0.31	0.32	0.50	0.41	1.05
d, Delay for Lane Group [s/veh]	54.42	87.09	87.80	82.92	34.02	35.62	73.25	20.71	20.76	52.35	24.26	80.67

Lane Group LOS	D	F	F	F	C	D	E	C	C	D	C	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.50	22.32	22.23	6.58	12.85	12.82	3.61	3.24	3.10	0.56	4.14	18.05
50th-Percentile Queue Length [ft/ln]	37.46	558.09	555.70	164.38	321.18	320.60	90.20	81.11	77.50	14.04	103.53	451.20
95th-Percentile Queue Length [veh/ln]	2.70	31.43	31.34	11.06	18.73	18.70	6.49	5.84	5.58	1.01	7.45	25.74
95th-Percentile Queue Length [ft/ln]	67.43	785.78	783.56	276.58	468.13	467.43	162.36	146.00	139.50	25.27	186.36	643.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.42	87.43	87.80	82.92	34.68	35.62	73.25	20.73	20.76	52.35	24.26	80.67
Movement LOS	D	F	F	F	C	D	E	C	C	D	C	F
Critical Movement	No	No	Yes	No	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	86.06			47.33			32.05			62.59		
Approach LOS	F			D			C			E		
d_I, Intersection Delay [s/veh]	60.48											
Intersection LOS	E											
Intersection V/C	0.866											

Option 1: Install Traffic Signal

Number	7					
Intersection	Ayala Dr at Miro Wy					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	0	729	646	15	15	0
Total Analysis Volume [veh/h]	35	896	847	38	21	11

Intersection Settings

Cycle Length [s]	90					
Active Pattern	Pattern 1					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Semi-actuated					
Lost time [s]	0.00					
Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	6	2	0	3	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	10	10	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	77	77	0	13	0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	7	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		No	
Pedestrian Recall		No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.88	0.88	0.88	0.88	0.03
(v / s)_i Volume / Saturation Flow Rate	0.27	0.27	0.23	0.24	0.02
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900
Arrival type	3		3		3
s, saturation flow rate [veh/h]	1722	1729	1900	1872	1738
c, Capacity [veh/h]	1556	1519	1669	1644	57
X, volume / capacity	0.30	0.31	0.27	0.27	0.56
d, Delay for Lane Group [s/veh]	1.37	1.44	1.26	1.27	51.30

Lane Group LOS	A	A	A	A	D	
Critical Lane Group	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	0.29	0.30	0.26	0.26	0.83	
50th-Percentile Queue Length [ft/ln]	7.32	7.59	6.38	6.48	20.70	
95th-Percentile Queue Length [veh/ln]	0.53	0.55	0.46	0.47	1.49	
95th-Percentile Queue Length [ft/ln]	13.18	13.67	11.48	11.67	37.27	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	1.37	1.41	1.27	1.27	51.30	51.30
Movement LOS	A	A	A	A	D	D
Critical Movement	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	1.41		1.27		51.30	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	2.20					
Intersection LOS	A					
Intersection V/C	0.288					

Option 1: Install Traffic Signal

Number	7					
Intersection	Ayala Dr at Miro Wy					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	0	817	851	24	27	0
Total Analysis Volume [veh/h]	14	1054	1045	34	52	35

Intersection Settings

Cycle Length [s]	90					
Active Pattern	Pattern 1					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Semi-actuated					
Lost time [s]	0.00					
Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	0	6	2	0	3	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	0	10	10	0	5	0
Maximum Green [s]	0	30	30	0	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	73	73	0	17	0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	7	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No	No		No	
Maximum Recall		No	No		No	
Pedestrian Recall		No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.85	0.85	0.85	0.85	0.07
(v / s)_i Volume / Saturation Flow Rate	0.30	0.30	0.28	0.29	0.05
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900
Arrival type	3		3		3
s, saturation flow rate [veh/h]	1855	1729	1900	1879	1726
c, Capacity [veh/h]	1608	1461	1605	1587	115
X, volume / capacity	0.34	0.35	0.34	0.34	0.76
d, Delay for Lane Group [s/veh]	2.12	2.22	2.08	2.10	51.11

Lane Group LOS	A	A	A	A	D	
Critical Lane Group	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	1.02	0.98	0.99	0.99	2.19	
50th-Percentile Queue Length [ft/ln]	25.50	24.62	24.63	24.82	54.72	
95th-Percentile Queue Length [veh/ln]	1.84	1.77	1.77	1.79	3.94	
95th-Percentile Queue Length [ft/ln]	45.90	44.32	44.34	44.67	98.49	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.12	2.16	2.09	2.10	51.11	51.11
Movement LOS	A	A	A	A	D	D
Critical Movement	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	2.16		2.09		51.11	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	4.04					
Intersection LOS	A					
Intersection V/C	0.349					

Option 1: Signal Retiming

Number	8											
Intersection	Ayala Dr at Base Line Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	197	584	68	53	546	54	110	264	154	60	322	39
Total Analysis Volume [veh/h]	270	748	101	79	718	83	178	420	209	89	415	55

Intersection Settings

Cycle Length [s]	100											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	37	0	9	32	0	17	44	0	10	37	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.10	0.53	0.53	0.04	0.47	0.47	0.12	0.21	0.21	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.23	0.02	0.21	0.21	0.10	0.17	0.18	0.05	0.13	0.13
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	3514	1900	1822	3514	1900	1832	1810	1900	1690	1810	1900	1823
c, Capacity [veh/h]	336	998	957	156	900	868	210	400	356	109	293	281
X, volume / capacity	0.80	0.43	0.43	0.51	0.45	0.45	0.85	0.83	0.83	0.82	0.82	0.82
d, Delay for Lane Group [s/veh]	48.78	15.99	16.05	49.21	19.26	19.33	52.32	42.31	42.96	60.37	46.43	46.90

Lane Group LOS	D	B	B	D	B	B	D	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.46	6.15	5.92	1.01	6.49	6.27	4.80	8.19	7.37	2.59	6.09	5.92
50th-Percentile Queue Length [ft/ln]	86.54	153.87	148.12	25.26	162.26	156.87	120.09	204.63	184.20	64.84	152.19	148.03
95th-Percentile Queue Length [veh/ln]	6.23	10.22	9.92	1.82	10.67	10.38	8.40	12.88	11.82	4.67	10.13	9.91
95th-Percentile Queue Length [ft/ln]	155.76	255.59	247.91	45.47	266.71	259.57	209.96	321.94	295.49	116.71	253.35	247.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.78	16.01	16.05	49.21	19.29	19.33	52.32	42.45	42.96	60.37	46.63	46.90
Movement LOS	D	B	B	D	B	B	D	D	D	E	D	D
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	23.92			21.98			44.76			48.85		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.55											
Intersection LOS	C											
Intersection V/C	0.517											

Option 1: Signal Retiming

Number	8											
Intersection	Ayala Dr at Base Line Rd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	142	647	96	139	678	57	126	447	206	89	350	49
Total Analysis Volume [veh/h]	214	838	144	168	866	116	169	564	293	141	522	84

Intersection Settings

Cycle Length [s]	100											
Active Pattern	Pattern 1											
Coordination Type	Time of Day Pattern Coordinated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	36	0	10	35	0	17	41	0	13	37	0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	26	0	0	28	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.07	0.42	0.42	0.06	0.41	0.41	0.11	0.27	0.27	0.09	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.27	0.05	0.26	0.26	0.09	0.24	0.24	0.08	0.16	0.16
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	3514	1900	1804	3514	1900	1822	1810	1900	1684	1810	1900	1809
c, Capacity [veh/h]	246	797	757	211	778	746	203	514	456	163	472	450
X, volume / capacity	0.87	0.63	0.63	0.80	0.64	0.64	0.83	0.88	0.88	0.87	0.66	0.66
d, Delay for Lane Group [s/veh]	55.20	26.71	26.95	53.13	27.77	27.96	52.15	43.88	44.90	57.63	35.28	35.39

Lane Group LOS	E	C	C	D	C	C	D	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.93	9.88	9.46	2.25	10.06	9.71	4.55	11.66	10.47	4.00	6.87	6.58
50th-Percentile Queue Length [ft/ln]	73.18	247.00	236.50	56.16	251.53	242.63	113.75	291.61	261.75	100.00	171.82	164.40
95th-Percentile Queue Length [veh/ln]	5.27	15.03	14.50	4.04	15.26	14.81	8.05	17.27	15.78	7.20	11.17	10.78
95th-Percentile Queue Length [ft/ln]	131.73	375.87	362.61	101.08	381.58	370.36	201.21	431.64	394.41	180.00	279.31	269.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.20	26.81	26.95	53.13	27.85	27.96	52.15	44.08	44.90	57.63	35.33	35.39
Movement LOS	E	C	C	D	C	C	D	D	D	E	D	D
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	31.90			31.56			45.64			39.54		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.61											
Intersection LOS	D											
Intersection V/C	0.642											

APPENDIX E

CUMULATIVE PROJECTS INFORMATION

CUMULATIVE PROJECTS - DISTRIBUTION

TOTAL OF ALL CUMULATIVE PROJECTS

AM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alder Avenue at SR-210 Westbound Ramps	196	144	0	0	144	5	0	0	0	291	0	5
2	Alder Avenue at SR-210 Eastbound Ramps	0	335	196	5	431	0	5	0	291	0	0	0
3	Alder Avenue at Renaissance Parkway	0	314	0	313	410	0	0	56	0	0	56	217
4	Alder Avenue at Baseline Road	13	20	0	9	18	60	29	19	5	0	19	10
5	Ayala Drive at Renaissance Parkway	0	86	10	19	102	0	0	0	0	8	0	16
6	Ayala Drive at Fitzgerald Avenue	0	91	0	0	106	0	0	0	0	0	0	0
7	Ayala Drive at Miro Way	0	91	0	0	106	0	0	0	0	0	0	0
8	Ayala Drive at Baseline Road	37	86	19	0	88	5	18	6	25	19	18	0
9	Linden Avenue at Miro Way	0	5	0	12	18	0	0	0	0	0	0	37
10	Linden Avenue at Baseline Road	0	0	0	18	0	0	0	19	0	0	19	5

PM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alder Avenue at SR-210 Westbound Ramps	266	119	0	0	119	5	0	0	0	186	0	5
2	Alder Avenue at SR-210 Eastbound Ramps	0	379	266	5	299	0	5	0	186	0	0	0
3	Alder Avenue at Renaissance Parkway	0	361	0	199	287	0	0	45	0	0	45	282
4	Alder Avenue at Baseline Road	5	18	0	8	17	30	61	33	13	0	33	9
5	Ayala Drive at Renaissance Parkway	0	117	12	23	101	0	0	0	0	8	0	16
6	Ayala Drive at Fitzgerald Avenue	0	123	0	0	105	0	0	0	0	0	0	0
7	Ayala Drive at Miro Way	0	123	0	0	105	0	0	0	0	0	0	0
8	Ayala Drive at Baseline Road	41	104	33	0	98	19	7	18	51	33	8	0
9	Linden Avenue at Miro Way	0	19	0	37	7	0	0	0	0	0	0	16
10	Linden Avenue at Baseline Road	0	0	0	7	0	0	0	33	0	0	33	19

CUMULATIVE PROJECTS - HAND ENTERED FROM TRAFFIC STUDIES

AM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alder Avenue at SR-210 Westbound Ramps	14	148	0	0	147	84	0	0	0	48	0	84
2	Alder Avenue at SR-210 Eastbound Ramps	0	78	14	84	111	0	84	0	48	0	0	0
3	Alder Avenue at Renaissance Parkway	1	56	0	18	123	18	18	14	3	0	18	18
4	Alder Avenue at Baseline Road	0	0	0	99	0	0	0	13	0	0	16	29
5	Ayala Drive at Renaissance Parkway	14	63	9	0	50	0	0	7	7	9	4	0
6	Ayala Drive at Fitzgerald Avenue	0	16	0	19	40	0	0	0	0	0	0	3
7	Ayala Drive at Miro Way	0	16	0	19	40	0	0	0	0	0	0	3
8	Ayala Drive at Baseline Road	5	5	5	18	15	7	4	111	8	2	35	8
9	Linden Avenue at Miro Way	0	12	0	0	22	0	0	0	0	0	0	0
10	Linden Avenue at Baseline Road	0	0	0	15	0	7	4	108	0	0	38	8

PM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alder Avenue at SR-210 Westbound Ramps	51	136	0	0	136	86	0	0	0	18	0	83
2	Alder Avenue at SR-210 Eastbound Ramps	0	104	50	84	70	0	83	0	19	0	0	0
3	Alder Avenue at Renaissance Parkway	3	124	0	15	59	15	15	20	1	0	19	15
4	Alder Avenue at Baseline Road	0	0	0	38	0	0	0	19	0	0	17	104
5	Ayala Drive at Renaissance Parkway	11	66	12	0	65	0	0	6	14	10	8	0
6	Ayala Drive at Fitzgerald Avenue	0	45	0	7	20	0	0	0	0	0	0	9
7	Ayala Drive at Miro Way	0	45	0	7	20	0	0	0	0	0	0	9
8	Ayala Drive at Baseline Road	10	10	2	10	10	0	8	47	5	6	117	27
9	Linden Avenue at Miro Way	0	25	0	0	21	0	0	0	0	0	0	0
10	Linden Avenue at Baseline Road	0	0	0	10	0	11	8	49	0	0	110	17

TOTAL CUMULATIVE PROJECTS TRAFFIC

AM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alder Avenue at SR-210 Westbound Ramps	210	292	0	0	291	89	0	0	0	339	0	89
2	Alder Avenue at SR-210 Eastbound Ramps	0	413	210	89	542	0	89	0	339	0	0	0
3	Alder Avenue at Renaissance Parkway	1	370	0	331	533	18	18	70	3	0	74	235
4	Alder Avenue at Baseline Road	13	20	0	108	18	60	29	32	5	0	35	39
5	Ayala Drive at Renaissance Parkway	14	149	19	19	152	0	0	7	7	17	4	16
6	Ayala Drive at Fitzgerald Avenue	0	107	0	19	146	0	0	0	0	0	0	3
7	Ayala Drive at Miro Way	0	107	0	19	146	0	0	0	0	0	0	3
8	Ayala Drive at Baseline Road	42	91	24	18	103	12	22	117	33	21	53	8
9	Linden Avenue at Miro Way	0	17	0	12	40	0	0	0	0	0	0	37
10	Linden Avenue at Baseline Road	0	0	0	33	0	7	4	127	0	0	57	13

PM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alder Avenue at SR-210 Westbound Ramps	317	255	0	0	255	91	0	0	0	204	0	88
2	Alder Avenue at SR-210 Eastbound Ramps	0	483	316	89	369	0	88	0	205	0	0	0
3	Alder Avenue at Renaissance Parkway	3	485	0	214	346	15	15	65	1	0	64	297
4	Alder Avenue at Baseline Road	5	18	0	46	17	30	61	52	13	0	50	113
5	Ayala Drive at Renaissance Parkway	11	183	24	23	166	0	0	6	14	18	8	16
6	Ayala Drive at Fitzgerald Avenue	0	168	0	7	125	0	0	0	0	0	0	9
7	Ayala Drive at Miro Way	0	168	0	7	125	0	0	0	0	0	0	9
8	Ayala Drive at Baseline Road	51	114	35	10	108	19	15	65	56	39	125	27
9	Linden Avenue at Miro Way	0	44	0	37	28	0	0	0	0	0	0	16
10	Linden Avenue at Baseline Road	0	0	0	17	0	11	8	82	0	0	143	36

Enter only in blue cells	Yellow cells calculate

Int. #:	1	Alder Avenue at SR-210 Westbound Ramps

Mirror distribution? N Entire Intersection

Mirror distribution?

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	5	0	0	139	0	0	0	0	291	0	5
AM Out		196	139	0	0	5	5	0	0	0	0	0	0
AM Tot		196	144	0	0	144	5	0	0	0	291	0	5
PM In		0	5	0	0	114	0	0	0	0	186	0	5
PM Out		266	114	0	0	5	5	0	0	0	0	0	0
PM Tot		266	119	0	0	119	5	0	0	0	186	0	5

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In										20%		
N	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out	20%											
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
PM Out	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	0	0	0	0	0	41	0	0
AM Out	184	37	0	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	0	0	0	0	0	37	0	0
PM Out	170	34	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	0	0	0	0	0	0	0	0
PM In	438	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In										20%		
N	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out	20%											
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
PM Out	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	0	0	0	0	0	51	0	0
AM Out	93	19	0	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	0	0	0	0	0	22	0	0
PM Out	258	52	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	1	Alder Avenue at SR-210 Westbound Ramps

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In										20%		
N	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out	20%											
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
PM Out	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	0	0	0	0	0	73	0	0
AM Out	124	25	0	0	0	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	0	0	0	0	0	31	0	0
PM Out	365	73	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In										20%		
N	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out	20%											
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
PM Out	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	15	0	0
AM Out	22	4	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	5	0	0
PM Out	78	16	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	0	0	0	0	0	0	0	0
PM In	217	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		20%										20%
N	0%	0%	0%	0%	20%	20%	0%	0%	0%	0%	0%	0%
AM Out					20%	20%						
PM In	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%
PM Out	0%	0%	0%	0%	20%	20%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	5	0	0	0	0	0	0	0	0	0	5
AM Out	24	0	0	0	0	5	5	0	0	0	0	0	0
PM In	26	0	5	0	0	0	0	0	0	0	0	0	5
PM Out	25	0	0	0	0	5	5	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	1	Alder Avenue at SR-210 Westbound Ramps

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	95	0	0	0	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	163	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	93	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					25%					20%		
N	20%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out	20%	25%										
PM In	0%	0%	0%	0%	25%	0%	0%	0%	0%	20%	0%	0%
PM Out	20%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	139	0	0	0	0	111	0	0
AM Out	556	111	139	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	114	0	0	0	0	91	0	0
PM Out	454	91	114	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	2	Alder Avenue at SR-210 Eastbound Ramps

N

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	5	431	0	5	0	291	0	0	0
AM Out		0	335	196	0	0	0	0	0	0	0	0	0
AM Tot		0	335	196	5	431	0	5	0	291	0	0	0
PM In		0	0	0	5	299	0	5	0	186	0	0	0
PM Out		0	379	266	0	0	0	0	0	0	0	0	0
PM Tot		0	379	266	5	299	0	5	0	186	0	0	0

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%				20%			
N	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out		20%	20%									
PM In	0%	0%	0%	0%	20%	0%	0%	0%	20%	0%	0%	0%
PM Out	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	41	0	0	0	41	0	0	0
AM Out	184	0	37	37	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	37	0	0	0	37	0	0	0
PM Out	170	0	34	34	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	0	0	0	0	0	0	0	0
PM In	438	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%				20%			
N	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out		20%	20%									
PM In	0%	0%	0%	0%	20%	0%	0%	0%	20%	0%	0%	0%
PM Out	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	51	0	0	0	51	0	0	0
AM Out	93	0	19	19	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	22	0	0	0	22	0	0	0
PM Out	258	0	52	52	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	2	Alder Avenue at SR-210 Eastbound Ramps

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%				20%			
N	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out		20%	20%									
PM In	0%	0%	0%	0%	20%	0%	0%	0%	20%	0%	0%	0%
PM Out	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	73	0	0	0	73	0	0	0
AM Out	124	0	25	25	0	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	31	0	0	0	31	0	0	0
PM Out	365	0	73	73	0	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%				20%			
N	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out		20%	20%									
PM In	0%	0%	0%	0%	20%	0%	0%	0%	20%	0%	0%	0%
PM Out	0%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	15	0	0	0	15	0	0	0
AM Out	22	0	4	4	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	5	0	0	0	5	0	0	0
PM Out	78	0	16	16	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	0	0	0	0	0	0	0	0
PM In	217	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In				20%			20%					
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	20%	0%	0%	20%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	5	0	0	5	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	5	0	0	5	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	2	Alder Avenue at SR-210 Eastbound Ramps

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	95	0	0	0	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	163	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	93	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					45%				20%			
N	0%	45%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out		45%	20%									
PM In	0%	0%	0%	0%	45%	0%	0%	0%	20%	0%	0%	0%
PM Out	0%	45%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	251	0	0	0	111	0	0	0
AM Out	556	0	250	111	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	204	0	0	0	91	0	0	0
PM Out	454	0	204	91	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
N	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	3	Alder Avenue at Renaissance Parkway

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	313	410	0	0	56	0	0	0	0
AM Out		0	314	0	0	0	0	0	0	0	0	56	217
AM Tot		0	314	0	313	410	0	0	56	0	0	56	217
PM In		0	0	0	199	287	0	0	45	0	0	0	0
PM Out		0	361	0	0	0	0	0	0	0	0	45	282
PM Tot		0	361	0	199	287	0	0	45	0	0	45	282

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					40%							
Y	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	82	0	0	0	0	0	0	0
AM Out	184	0	73	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	74	0	0	0	0	0	0	0
PM Out	170	0	68	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	0	0	0	0	0	0	0	0
PM In	438	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					40%							
Y	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	102	0	0	0	0	0	0	0
AM Out	93	0	37	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	44	0	0	0	0	0	0	0
PM Out	258	0	103	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	3	Alder Avenue at Renaissance Parkway

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In				40%								
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%
AM Out												
PM In	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	146	0	0	0	0	0	0	0	0
AM Out	124	0	0	0	0	0	0	0	0	0	0	0	50
PM In	157	0	0	0	63	0	0	0	0	0	0	0	0
PM Out	365	0	0	0	0	0	0	0	0	0	0	0	146

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					40%							
Y	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	31	0	0	0	0	0	0	0
AM Out	22	0	9	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	10	0	0	0	0	0	0	0
PM Out	78	0	31	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	0	0	0	0	0	0	0	0
PM In	217	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	3	Alder Avenue at Renaissance Parkway

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	95	0	0	0	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	163	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	93	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In				30%	35%			10%				
Y	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	10%	30%
AM Out												
PM In	0%	0%	0%	30%	35%	0%	0%	10%	0%	0%	0%	0%
PM Out	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	10%	30%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	167	195	0	0	56	0	0	0	0
AM Out	556	0	195	0	0	0	0	0	0	0	0	56	167
PM In	454	0	0	0	136	159	0	0	45	0	0	0	0
PM Out	454	0	159	0	0	0	0	0	0	0	0	45	136

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	4	Alder Avenue at Baseline Road

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		13	20	0	0	0	51	10	19	0	0	0	10
AM Out		0	0	0	9	18	9	19	0	5	0	19	0
AM Tot		13	20	0	9	18	60	29	19	5	0	19	10
PM In		5	18	0	0	0	22	9	33	0	0	0	9
PM Out		0	0	0	8	17	8	52	0	13	0	33	0
PM Tot		5	18	0	8	17	30	61	33	13	0	33	9

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		10%					5%					5%
Y	0%	0%	0%	5%	10%	5%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	10%	0%	0%	0%	0%	5%	0%	0%	0%	0%	5%
PM Out	0%	0%	0%	5%	10%	5%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	20	0	0	0	0	10	0	0	0	0	10
AM Out	184	0	0	0	9	18	9	0	0	0	0	0	0
PM In	185	0	18	0	0	0	0	9	0	0	0	0	9
PM Out	170	0	0	0	8	17	8	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	0	0	0	0	0	0	0	0
PM In	438	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	5%					20%						
Y	0%	0%	0%	0%	0%	0%	20%	0%	5%	0%	0%	0%
AM Out												
PM In	5%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	20%	0%	5%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	13	0	0	0	0	51	0	0	0	0	0	0
AM Out	93	0	0	0	0	0	0	19	0	5	0	0	0
PM In	109	5	0	0	0	0	22	0	0	0	0	0	0
PM Out	258	0	0	0	0	0	0	52	0	13	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	4	Alder Avenue at Baseline Road

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	124	0	0	0	0	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	365	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	22	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	78	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	0	0	0	0	0	0	0	0
PM In	217	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	4	Alder Avenue at Baseline Road

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In								20%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	0	0	0	19	0	0	0	0
AM Out	95	0	0	0	0	0	0	0	0	0	0	19	0
PM In	165	0	0	0	0	0	0	0	33	0	0	0	0
PM Out	163	0	0	0	0	0	0	0	0	0	0	33	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	93	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	556	0	0	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	454	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	5	Ayala Drive at Renaissance Parkway

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	62	10	19	37	0	0	0	0	0	0	0
AM Out		0	24	0	0	65	0	0	0	0	8	0	16
AM Tot		0	86	10	19	102	0	0	0	0	8	0	16
PM In		0	65	12	23	40	0	0	0	0	0	0	0
PM Out		0	52	0	0	61	0	0	0	0	8	0	16
PM Tot		0	117	12	23	101	0	0	0	0	8	0	16

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	184	0	0	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	170	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	20	0	0	0	0	0	0	0
PM In	438	0	22	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	93	0	0	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	258	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In			20%	40%								
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	40%
AM Out												
PM In	0%	0%	20%	40%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	40%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	0	10	19	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	0	0	0	0	0	8	0	16
PM In	58	0	0	12	23	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	0	0	0	0	0	8	0	16

Int. #:	5	Ayala Drive at Renaissance Parkway

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	124	0	0	0	0	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	365	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	22	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	78	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		20%										
Y	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	56	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	45	0	0	0	0	0	0	0
PM In	217	0	43	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	49	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	5	Ayala Drive at Renaissance Parkway

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	19	0	0	0	0	0	0	0
AM Out	95	0	19	0	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	33	0	0	0	0	0	0	0
PM Out	163	0	33	0	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	18	0	0	0	0	0	0	0
AM Out	26	0	5	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	7	0	0	0	0	0	0	0
PM Out	93	0	19	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	556	0	0	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	454	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	6	Ayala Drive at Fitzgerald Avenue

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	67	0	0	37	0	0	0	0	0	0	0
AM Out		0	24	0	0	69	0	0	0	0	0	0	0
AM Tot		0	91	0	0	106	0	0	0	0	0	0	0
PM In		0	71	0	0	40	0	0	0	0	0	0	0
PM Out		0	52	0	0	65	0	0	0	0	0	0	0
PM Tot		0	123	0	0	105	0	0	0	0	0	0	0

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	184	0	0	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	170	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	20	0	0	0	0	0	0	0
PM In	438	0	22	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	93	0	0	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	258	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		10%										
Y	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	5	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	4	0	0	0	0	0	0	0
PM In	58	0	6	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	4	0	0	0	0	0	0	0

Int. #:	6	Ayala Drive at Fitzgerald Avenue

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	124	0	0	0	0	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	365	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	22	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	78	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		20%										
Y	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	56	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	45	0	0	0	0	0	0	0
PM In	217	0	43	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	49	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	6	Ayala Drive at Fitzgerald Avenue

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	19	0	0	0	0	0	0	0
AM Out	95	0	19	0	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	33	0	0	0	0	0	0	0
PM Out	163	0	33	0	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	18	0	0	0	0	0	0	0
AM Out	26	0	5	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	7	0	0	0	0	0	0	0
PM Out	93	0	19	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	556	0	0	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	454	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	7	Ayala Drive at Miro Way

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	67	0	0	37	0	0	0	0	0	0	0
AM Out		0	24	0	0	69	0	0	0	0	0	0	0
AM Tot		0	91	0	0	106	0	0	0	0	0	0	0
PM In		0	71	0	0	40	0	0	0	0	0	0	0
PM Out		0	52	0	0	65	0	0	0	0	0	0	0
PM Tot		0	123	0	0	105	0	0	0	0	0	0	0

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	184	0	0	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	170	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	20	0	0	0	0	0	0	0
PM In	438	0	22	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	93	0	0	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	258	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		10%										
Y	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	5	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	4	0	0	0	0	0	0	0
PM In	58	0	6	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	4	0	0	0	0	0	0	0

Int. #:	7	Ayala Drive at Miro Way

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	124	0	0	0	0	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	365	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	22	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	78	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		20%										
Y	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	56	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	45	0	0	0	0	0	0	0
PM In	217	0	43	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	49	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	7	Ayala Drive at Miro Way

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	19	0	0	0	0	0	0	0
AM Out	95	0	19	0	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	33	0	0	0	0	0	0	0
PM Out	163	0	33	0	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	18	0	0	0	0	0	0	0
AM Out	26	0	5	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	7	0	0	0	0	0	0	0
PM Out	93	0	19	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	556	0	0	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	454	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	8	Ayala Drive at Baseline Road

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		18	67	0	0	19	0	18	0	19	19	18	0
AM Out		19	19	19	0	69	5	0	6	6	0	0	0
AM Tot		37	86	19	0	88	5	18	6	25	19	18	0
PM In		8	71	0	0	33	0	7	0	33	33	8	0
PM Out		33	33	33	0	65	19	0	18	18	0	0	0
PM Tot		41	104	33	0	98	19	7	18	51	33	8	0

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	184	0	0	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	170	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	20	0	0	0	0	0	0	0
PM In	438	0	22	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	93	0	0	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	258	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		10%										
Y	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	5	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	4	0	0	0	0	0	0	0
PM In	58	0	6	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	4	0	0	0	0	0	0	0

Int. #:	8	Ayala Drive at Baseline Road

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	5%										5%	
Y	0%	0%	0%	0%	0%	0%	0%	5%	5%	0%	0%	0%
AM Out												
PM In	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	5%	5%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	18	0	0	0	0	0	0	0	0	0	18	0
AM Out	124	0	0	0	0	0	0	0	6	6	0	0	0
PM In	157	8	0	0	0	0	0	0	0	0	0	8	0
PM Out	365	0	0	0	0	0	0	0	18	18	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	22	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	78	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		20%										
Y	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	56	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	45	0	0	0	0	0	0	0
PM In	217	0	43	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	49	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	8	Ayala Drive at Baseline Road

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%				20%	20%		
Y	20%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	20%	20%	0%	0%
PM Out	20%	20%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	19	0	0	0	19	19	0	0
AM Out	95	19	19	19	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	33	0	0	0	33	33	0	0
PM Out	163	33	33	33	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In							20%					
Y	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	0	0	18	0	0	0	0	0
AM Out	26	0	0	0	0	0	5	0	0	0	0	0	0
PM In	34	0	0	0	0	0	0	7	0	0	0	0	0
PM Out	93	0	0	0	0	0	19	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												3%
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	556	0	0	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	454	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	9	Linden Avenue at Miro Way

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	0	18	0	0	0	0	0	0	37
AM Out		0	5	0	12	0	0	0	0	0	0	0	0
AM Tot		0	5	0	12	18	0	0	0	0	0	0	37
PM In		0	0	0	0	7	0	0	0	0	0	0	16
PM Out		0	19	0	37	0	0	0	0	0	0	0	0
PM Tot		0	19	0	37	7	0	0	0	0	0	0	16

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	184	0	0	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	170	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	0	0	0	0	0	0	0	0
PM In	438	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	93	0	0	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	258	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	9	Linden Avenue at Miro Way

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												10%
Y	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%
PM Out	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	0	0	0	0	0	0	0	37
AM Out	124	0	0	0	12	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	0	0	0	0	0	0	0	16
PM Out	365	0	0	0	37	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	22	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	78	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	0	0	0	0	0	0	0	0
PM In	217	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	9	Linden Avenue at Miro Way

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	95	0	0	0	0	0	0	0	0	0	0	0	0
PM In	165	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	163	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	0	18	0	0	0	0	0	0	0
AM Out	26	0	5	0	0	0	0	0	0	0	0	0	0
PM In	34	0	0	0	0	7	0	0	0	0	0	0	0
PM Out	93	0	19	0	0	0	0	0	0	0	0	0	0

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	556	0	0	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	454	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	10	Linden Avenue at Baseline Road

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	18	0	0	0	19	0	0	0	0
AM Out		0	0	0	0	0	0	0	0	0	0	19	5
AM Tot		0	0	0	18	0	0	0	19	0	0	19	5
PM In		0	0	0	7	0	0	0	33	0	0	0	0
PM Out		0	0	0	0	0	0	0	0	0	0	33	19
PM Tot		0	0	0	7	0	0	0	33	0	0	33	19

Zone #	1	Cumulative Project 1

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	205	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	184	0	0	0	0	0	0	0	0	0	0	0	0
PM In	185	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	170	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Cumulative Project 2

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	120	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	407	0	0	0	0	0	0	0	0	0	0	0	0
PM In	438	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	246	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Cumulative Projects 3, 10, 11, 12, 13

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	254	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	93	0	0	0	0	0	0	0	0	0	0	0	0
PM In	109	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	258	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Cumulative Project 4

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	48	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	40	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	39	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	10	Linden Avenue at Baseline Road

Zone #	5	Cumulative Projects 5, 7, 17, 23, 24

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	365	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	124	0	0	0	0	0	0	0	0	0	0	0	0
PM In	157	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	365	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Cumulative Project 6

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	77	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	22	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	78	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Cumulative Projects 8, 9, 15

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	280	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	225	0	0	0	0	0	0	0	0	0	0	0	0
PM In	217	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	244	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Cumulative Project 14

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	25	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	26	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	25	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Cumulative Project 19

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	149	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	45	0	0	0	0	0	0	0	0	0	0	0	0
PM In	58	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	157	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	10	Linden Avenue at Baseline Road

Zone #	10	Cumulative Projects 20, 21

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In								20%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	96	0	0	0	0	0	0	0	19	0	0	0	0
AM Out	95	0	0	0	0	0	0	0	0	0	0	19	0
PM In	165	0	0	0	0	0	0	0	33	0	0	0	0
PM Out	163	0	0	0	0	0	0	0	0	0	0	33	0

Zone #	11	Cumulative Project 22

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In				20%								
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%
AM Out												
PM In	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	88	0	0	0	18	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	5
PM In	34	0	0	0	7	0	0	0	0	0	0	0	0
PM Out	93	0	0	0	0	0	0	0	0	0	0	0	19

Zone #	12	Cumulative Project 25

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	65	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	144	0	0	0	0	0	0	0	0	0	0	0	0
PM In	141	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	107	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	Cumulative Project 18

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	557	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	556	0	0	0	0	0	0	0	0	0	0	0	0
PM In	454	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	454	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Cumulative Project 16

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	277	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	276	0	0	0	0	0	0	0	0	0	0	0	0
PM In	256	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	259	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX F

SIGNAL WARRANT ANALYSIS WORKSHEETS

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Ayala Drive** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Miro Way** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Rialto, CA**

COMMENTS: Signal Warrant Study, Opening Year 2024 Cumulative Plus Project Conditions

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): **Y**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES				→	**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	1,725	30	Y			Y			Y			Y				
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	0	0														
05:00 PM	TO	06:00 PM	2,039	82	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			3,764	112	2	0	**0**	2	1	**1**	2	0	**0**	2	1	**1**	**1**	**1**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

02/12/25
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Ayala Drive** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Miro Way** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Rialto, CA**

COMMENTS: Signal Warrant Study, Opening Year 2024 Existing Plus Growth Plus Project Conditions

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): **Y**

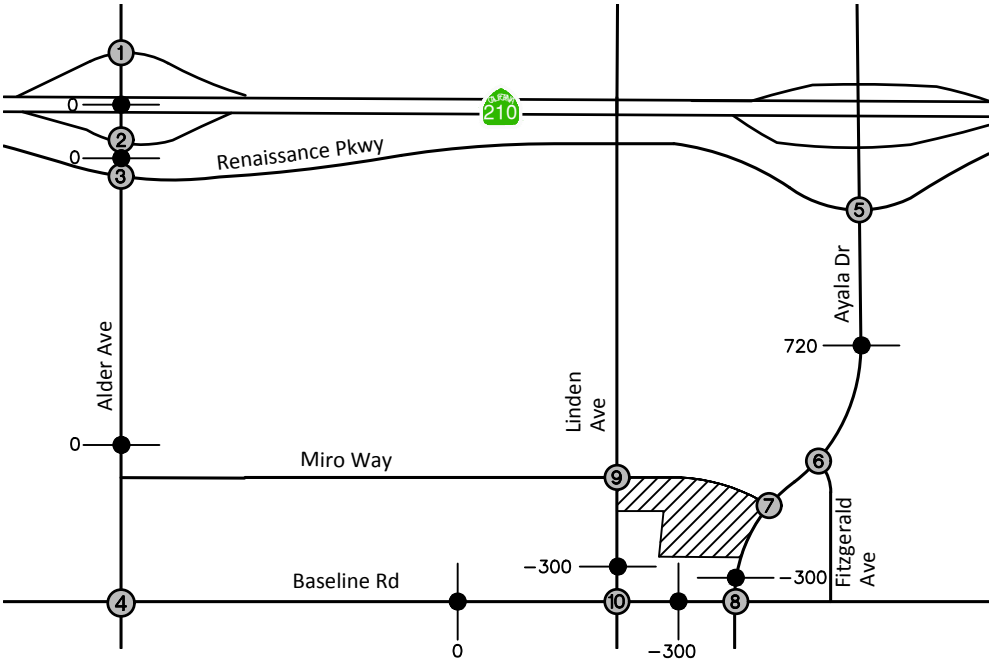
			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES				→	**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	0	0														
08:00 AM	TO	09:00 AM	1,472	30	Y			Y			Y			Y				
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	0	0														
05:00 PM	TO	06:00 PM	1,746	82	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	**Y**
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			3,218	112	2	0	**0**	2	1	**1**	2	0	**0**	2	1	**1**	**1**	**1**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

02/12/25

Kimley-Horn and Associates

APPENDIX G

REROUTED EXISTING VOLUMES FOR PLUS PROJECT SCENARIOS



NOT TO SCALE

1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd

5. Ayala Dr at Renaissance Pkwy	6. Ayala Dr at Fitzgerald Ave	7. Ayala Dr at Miro Way	8. Ayala Dr at Baseline Rd
←−13/−18 ←13/18 −10/−18 → 10/18 ↑	←13/18 10/18 ↑	←15/24 ←−2/−6 15/27 → −5/−9 ↑	←−2/−6 −5/−9 →

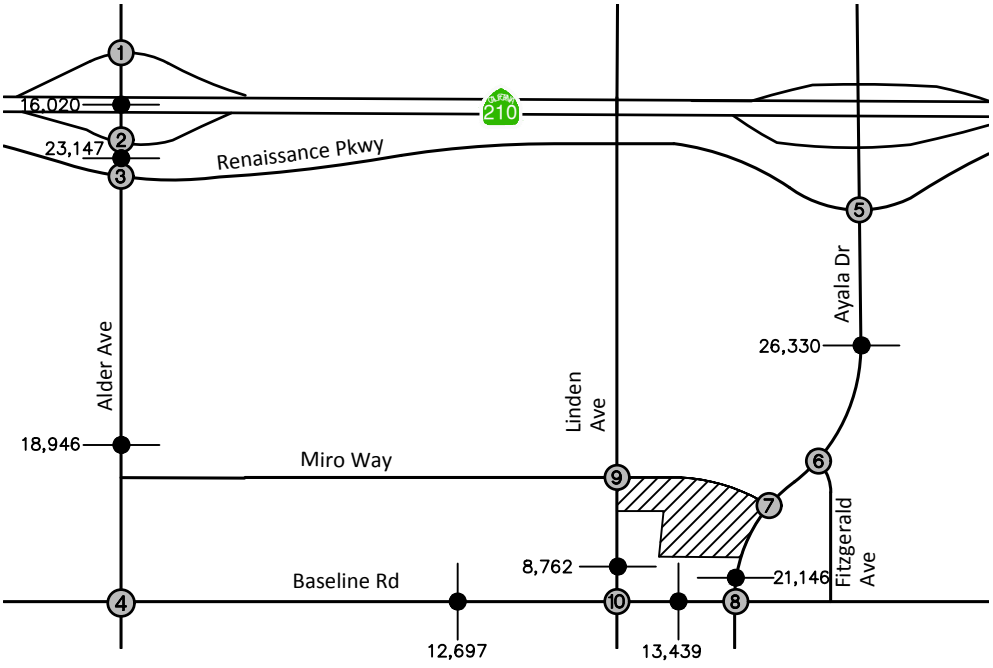
9. Linden Ave at Miro Way	10. Linden Ave at Baseline Rd
←−13/−18 ←15/24 −10/−18 → 15/27 → −5/−9 → −2/−6 ↑	←−5/−9 ←−2/−6

LEGEND:

- = Project Site
- X = Study Intersection
- XX/YY = AM/PM Peak Hour Existing Turning Movement Volumes after Rerouting
- = Roadway Segment + Change in Existing ADT Volumes after Rerouting

APPENDIX G-1
CHANGE IN EXISTING TRAFFIC VOLUMES FOR PLUS PROJECT SCENARIOS

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1. Alder Ave at SR-210 WB Ramps	2. Alder Ave at SR-210 EB Ramps	3. Alder Ave at Renaissance Pkwy	4. Alder Ave at Baseline Rd
12/376 17/292 157/123 5/4 431/295 396/475 343/298	421/430 6/155 298/203 3/4 616/502 486/565 333/420	78/138 775/603 155/183 199/221 140/172 26/20 97/95 158/269 80/67 127/51 567/659 15/34	138/123 345/363 63/118 128/87 472/346 41/57 96/79 373/434 74/63 157/43 301/323 100/44
5. Ayala Dr at Renaissance Pkwy	**6. Ayala Dr at Fitzgerald Ave**	**7. Ayala Dr at Miro Way**	**8. Ayala Dr at Baseline Rd**
328/541 711/823 198/342 350/357 122/184 29/61 225/361 106/378 80/113 47/106 726/792 38/75	8/1 654/869 122/209 136/151 1/3 3/1 1/0 4/5 14/8 727/828 3/8	15/24 646/851 15/27 729/817	54/57 546/678 53/139 39/49 322/350 60/89 110/126 264/447 154/206 197/142 584/647 68/96
9. Linden Ave at Miro Way	**10. Linden Ave at Baseline Rd**		
39/53 233/377 15/24 30/52 15/27 15/26 6/18 285/402	47/95 93/170 69/144 124/163 436/367 20/39 26/83 402/475 31/27 41/18 134/168 61/45		

LEGEND:

- = Project Site
- (X) = Study Intersection
- XX/YY = AM/PM Peak Hour Existing Turning Movement Volumes after Rerouting
- = Roadway Segment + Existing ADT Volumes after Rerouting

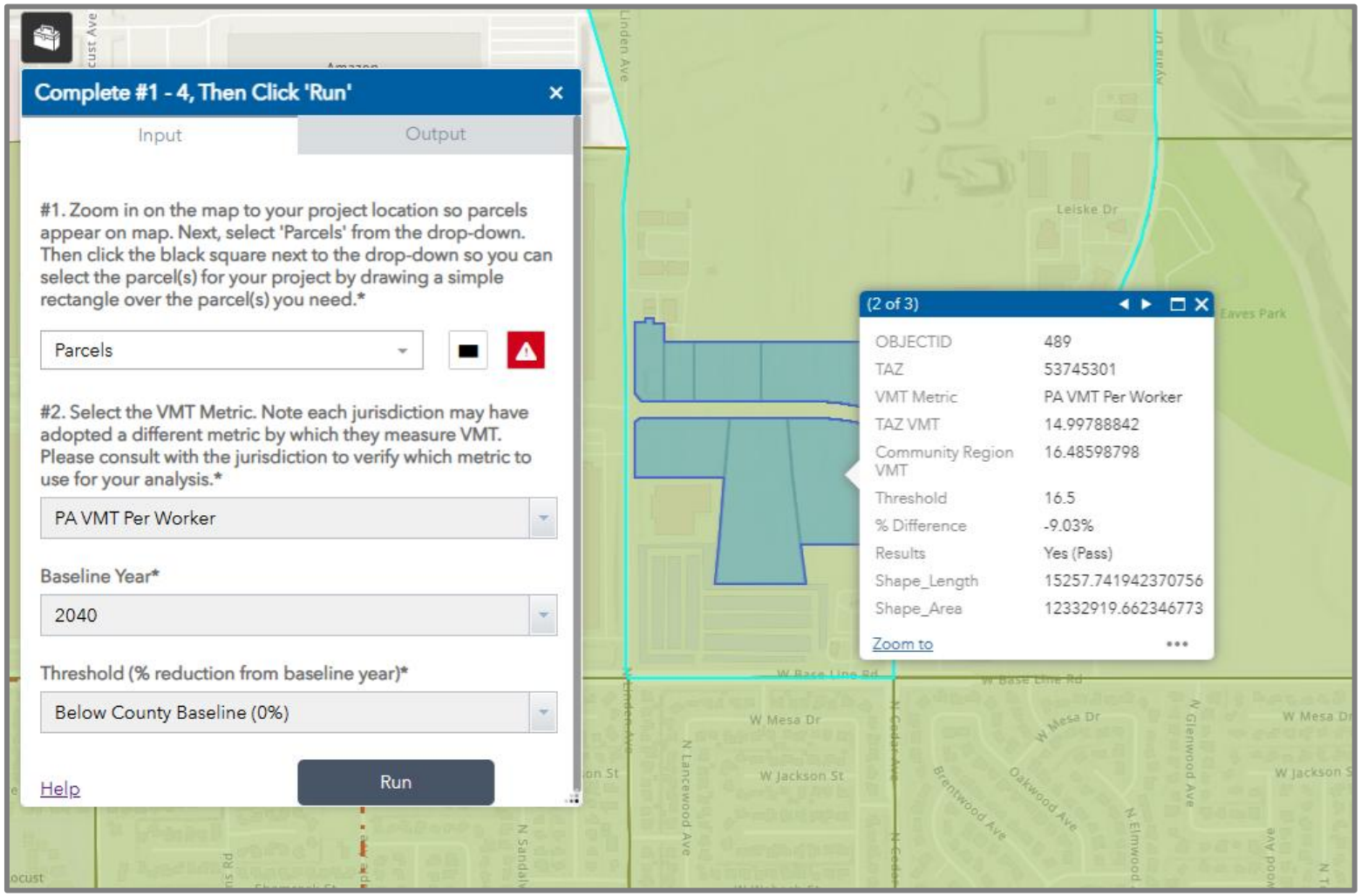
APPENDIX G-2
REROUTED EXISTING TRAFFIC VOLUMES FOR PLUS PROJECT SCENARIOS

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Attachment 3

2040 Horizon Year VMT Screening Tool Results

Attachment 3: 2040 Horizon Year VMT Screening Tool Results



Source: San Bernardino County Transportation Authority, 2025.