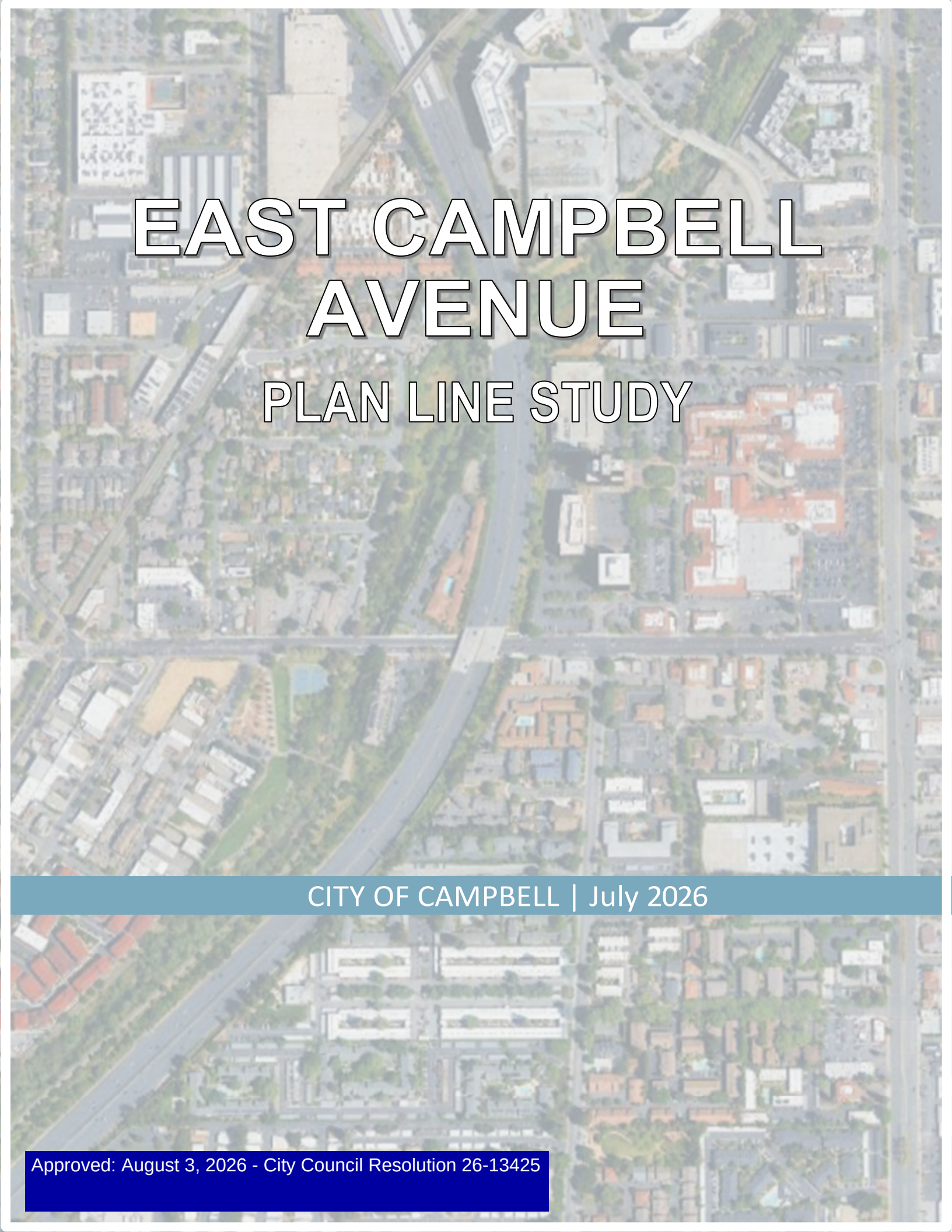


EAST CAMPBELL AVENUE

PLAN LINE STUDY

CITY OF CAMPBELL | July 2026

Approved: August 3, 2026 - City Council Resolution 26-13425

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1.EXECUTIVE SUMMARY

OVERVIEW

East Campbell Avenue currently presents a significant gap in the walking and biking network between Historic Downtown Campbell and The Pruneyard Shopping Center (Pruneyard). Residents and visitors who wish to travel on foot or by bicycle between Civic Center Drive and Railway Avenue to the west, and South Bascom Avenue to the east, face inadequate and often uncomfortable conditions along this corridor. While Downtown Campbell and the Pruneyard are both popular destinations for the community, the existing street infrastructure does not adequately serve those who wish to travel between them by active transportation.

The properties along East Campbell Avenue today are primarily commercial and retail uses that have been designed around vehicle access — with wide driveways, surface parking, and limited accommodation for people on foot or bike. The City envisions transforming this corridor into a vibrant, mixed-use district that prioritizes pedestrians, cyclists, and transit riders, supported by a thoughtfully designed streetscape. The East Campbell Avenue Plan Line Study advances this vision by updating the 2007 East Campbell Avenue Master Plan to establish a roadway configuration that meaningfully improves walking and biking conditions. The result will be a higher level of connectivity consistent with the growth and development anticipated for the area under the City's 2040 General Plan, the 2023–2031 Housing Element, and the adopted Form-Based Zone Map.

The East Campbell Avenue Plan Line Study documents the proposed roadway improvements along the corridor, as well as the land dedications and street-facing (frontage) improvements that future development projects will be required to provide as a condition of development. In this way, the Plan Line ensures that private developments contribute to the broader public goal of a safer and more complete street.

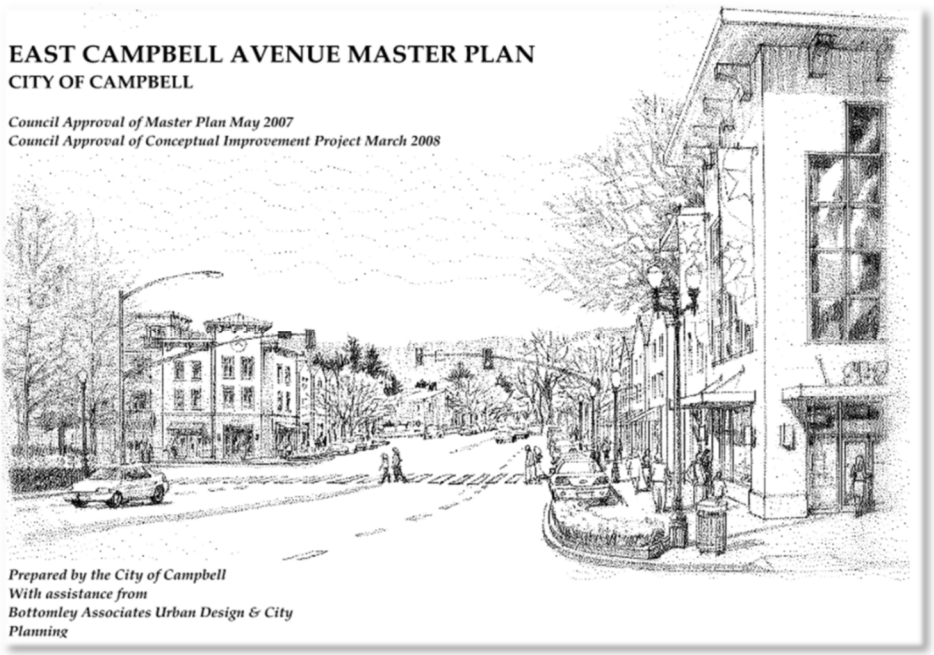


Figure 1.1: East Campbell Avenue Master Plan

EXISTING CONDITIONS

The existing bicycle facilities along East Campbell Avenue fall short of providing a safe, comfortable route between Historic Downtown Campbell and The Pruneyard Shopping Center. While dedicated bike lanes exist on some segments, other portions of the corridor rely on Shared Lane Markings — commonly known as “sharrows” — which are pavement symbols that indicate bicyclists and motor vehicles share the same travel lane. Sharrows provide no physical separation or protected space for cyclists and are generally considered unsuitable for riders who are newer to cycling, less confident in traffic, or traveling with children.

The existing sidewalks within the study area vary considerably in width, ranging from as narrow as five feet to as wide as fifteen feet. A five-foot sidewalk is the minimum required by accessibility standards and offers very little buffer for pedestrians walking alongside high volumes of fast-moving traffic nor space for sidewalk amenities such as street trees, streetlights and furniture which elevate the pedestrian experience. Wider sidewalks are recommended to improve comfort, accessibility, and users of all ages and abilities.

The project corridor passes through two existing structures that present important design constraints. The first is the Los Gatos Creek Bridge, which spans Los Gatos Creek and the Los Gatos Creek Trail. The bridge supports the roadway over the creek and constrains the potential cross section of the Plan Line to the existing bridge width. Widening the bridge to support the Plan Line would involve significant in-creek work which would significantly worsen environmental impacts and increase the cost of the project.

The second structure crossing is the undercrossing at California State Route 17 (Highway 17), where East Campbell Avenue passes under the freeway. The bridge columns and abutments create constraints to the potential East Campbell Avenue roadway configuration. The structure was modified in 2016 as part of the Campbell Portals and Pedestrian Facilities project which added bike lanes and a wide sidewalk through the structure. Modifying the structure, again, to support the Plan Line would involve substantial costs.

Modifications to both structures were reviewed and deemed to be unnecessary to achieve the goals of the project.

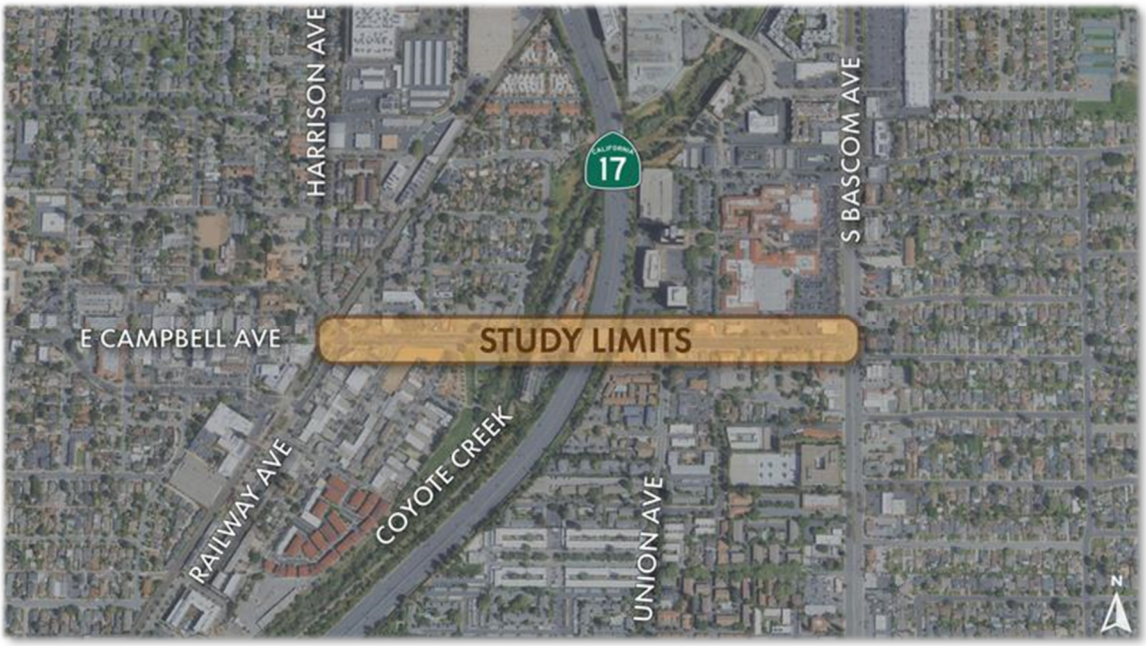


Figure 1.2: East Campbell Avenue Plan Line Study Limits

PUBLIC OUTREACH

Community engagement is a cornerstone of the East Campbell Avenue Plan Line Study. Because the proposed improvements directly affect the daily experience of residents, business owners, cyclists, pedestrians, and drivers who use the corridor, it was essential that the planning process reflect the needs and priorities of the people who know it best. Public outreach was conducted in two rounds, providing the community with meaningful opportunities to review alternatives, ask questions, and share feedback before recommendations were finalized.

Input gathered through these efforts directly shaped key decisions in the Plan Line — most notably, the community's strong preference to retain left-turn lanes along the corridor, which became a defining constraint in evaluating and selecting the preferred alternative.

Outreach efforts were organized in two rounds with three distinct groups:

- City of Campbell's Bicycle and Pedestrian Committee (BPAC)
- Property Owners along the Corridor
- Local Community

The first round of outreach focused on reviewing existing constraints and concerns, while presenting an alternative aligned with the 2007 Master Plan. In this effort, community members were invited to share their input and experiences travelling along the project corridor as well as input on potential Project solutions and impacts.

During these meetings, community members expressed a consistent desire for improved bicycle and pedestrian facilities that prioritize safety, access and comfort for all ages and abilities and expressed concerns regarding traffic operations at key intersections. In this round of outreach, the community also represented a strong desire to maintain the existing left-turn lanes on the existing corridor.

This community input, paired with the established visions and goals for the Plan Line, were used as a basis for developing three distinct alternatives.

The second round of outreach focused on a presentation of the preferred alternative developed by the design team as well as highlighting the deficiencies of the other two alternatives. Each of the three groups were engaged and were overall supportive of the preferred alternative.

PROPOSED ALIGNMENTS

The project considered three alternatives.

Alternative	Configuration	Description
1	Preserve Left-Turn Lanes	Provides continuous bike lanes, some of which are buffered. Left-turn lanes are maintained from the existing condition. Proposed sidewalks are widened, where possible.
2	Remove Left-Turn Lanes	Left-turn lanes are removed to accommodate buffered bike lanes. On-street parking is added where feasible, consistent with the 2007 Master Plan. Proposed sidewalks are widened where possible.
3	Road Diet	Reduce the number of vehicle lanes from four to two, with one direction of travel each way, to accommodate protected bike lanes and wider sidewalks.

Table 1.1: Alternatives Considered

EVALUATION

Alternatives developed were then evaluated to establish the preferred alternative. To inform this recommendation, the project team reviewed the following metrics established from community and City staff input:

- Access and Safety
- Traffic Operations
- Bicycle Level of Traffic Stress
- Parking
- Consistency with Public Input
- Feasibility

RECOMMENDED ALTERNATIVE

After evaluation of the alternatives, the Study recommends **Alternative 1: Preserve Left-Turn Lanes** as the preferred alternative and to be established as the Plan Line for East Campbell Avenue from Railway Avenue to South Bascom Avenue. Alternative 1 performed above its peers with respect to the evaluation criteria established. This alternative provides safe and continuous bicycle lanes through the corridor which separate cyclists and pedestrians from on-street vehicular conflicts, avoids significant impacts to traffic operations, and is the most consistent with public input provided over both rounds of outreach.

2.INTRODUCTION

VISION

The East Campbell Avenue Plan Line Study is guided by a clear vision to create a safe, welcoming, and well-connected corridor that serves all modes and users of all ages and abilities. Through extensive community outreach, the project team heard directly from residents, business owners, and regular corridor users about the barriers and challenges they experience today. It is clear that the existing street configurations create challenges for users on various modes to comfortably navigate the corridor.

PROJECT GOALS

The primary goal of this project is to update and extend the reach of the East Campbell Master Plan, approved in May 2007, and create a complete roadway facility that accommodates all users and encourages active transportation. This type of design approach is often referred to as a "complete street" which balances the needs of all users rather than prioritizing vehicles alone. In addition, the Plan Line documents the land and street-facing improvements that new development projects along the corridor will be required to provide, ensuring private development contributes to the public benefit of a more connected street.

The Plan Line is designed to add bicycle lanes, thoughtfully balance the allocation of street space among all uses (travel lanes, bike lanes, sidewalks, parking, and landscaping), and to lay the groundwork for future development along the corridor. Proposed improvements comply with current federal, state, and local design requirements to ensure a viable and approvable configuration.



Figure 2.1: Vision Concept Illustration from 2007 East Campbell Avenue Master Plan

BACKGROUND

City of Campbell 2040 General Plan

In April 2023, the City of Campbell adopted the 2040 General Plan, also known as *Envision Campbell General Plan Update*. It is a comprehensive planning document that guides the city's growth and development through 2040. It outlines policies for land use, transportation, sustainability, and public services to ensure future development aligns with community priorities and state mandates. The 2040 Plan, in combination with the 2023–2031 Housing Element which was adopted in April 2023, supports higher-density and mixed-use developments near transit corridors to encourage walkable, sustainable neighborhoods. It also promotes environmental sustainability through energy efficiency, water conservation, and greenhouse gas reduction, while enhancing mobility with improved public transit, bike lanes, and pedestrian infrastructure. Developed through extensive community input, the plan reflects the shared vision of Campbell residents.

- **Plan for Regional Growth**: Balance local and regional transportation needs while preserving Campbell's small-town character
- **Support Alternative Transportation**: Promote alternative transportation methods to reduce congestion and improve accessibility.
- **Enhance Multimodal Transportation**: Improve transportation options for all modes, including walking, biking, and public transit, to support community connectivity and sustainability.

Source: City of Campbell 2040 General Plan

Form-Based Zone Map

In April 2023, the City of Campbell adopted the Form-Based Zone Map (FBZM) via Ordinance No. 2293, pursuant to CMC Section 21.07.030. The FBZM established by the CMC applies to all applications for new housing development projects. This map calls for ground-floor commercial along the entire East Campbell Avenue corridor as part of the Ground Floor Non-Residential Requirement, Tier 1. This zoning designation will inform streetscape frontage design at the time of construction.

City of Campbell 2007 East Campbell Avenue Master Plan

In May of 2007, the City of Campbell adopted the East Campbell Avenue Master Plan which served as a guide for the City to achieve its vision of tying the Historic Downtown Campbell to the Pruneyard Shopping Center, creating an inviting, safe, functional and connected corridor between Civic Center Drive/Railway Avenue and Highway 17. This effort focused on infrastructure improvements to improve connectivity along the corridor and several key improvements have now been implemented.

- **Pedestrian & Transit-Oriented Design:** Enhance pedestrian and bicycle access, including safer routes to transit.
- **Connectivity: I**mprove east-west access from Downtown Campbell to The Pruneyard.

Source: East Campbell Avenue Master Plan

The plan revolved around reconfiguring the roadway to better represent a 'Downtown' street which has curbside parking, wider sidewalks, and pedestrian-oriented street lighting, trees, and amenities. Improvements include, but are not limited to, updating the roadway configuration to support multi-modal transportation opportunities and adding design character and streetscape improvements to the corridor consistent with the Downtown theme.

3.EXISTING CONDITIONS

LAND USE

East Campbell Avenue within the study area runs next to several significant land use destinations.

The Pruneyard Shopping Center, at the east end of the corridor, is an iconic shopping and dining destination which draws visitors from within the city limits and the larger region. It is a key commercial and recreational hub in Campbell, with a mix of retail, dining, and entertainment options.

Historic Downtown Campbell is located just west of the project study area. It is a destination that combines historical charm with modern attractions, offering a variety of locally owned businesses, cultural events, and community spaces. Its walkability, proximity to parks and trails, and excellent transit connectivity make it an important center for both residents and visitors.

Since the implementation of the 2007 Master Plan, the density of development in the study area has only increased, in part due to the passing of California Senate Bill 79 and buildout of the City's 2040 General Plan. And additional high-density housing opportunities have been identified along the corridor which further supports the need to implement complete street improvements to improve connectivity from new development to key destinations.

EXISTING PEDESTRIAN FACILITIES

The existing sidewalks within the study area vary considerably in width, ranging from as narrow as five feet to as wide as fifteen feet. A five-foot sidewalk is the minimum required by accessibility standards and offers very little buffer for pedestrians walking alongside high volumes of fast-moving traffic nor space for sidewalk amenities such as street trees, streetlights and furniture which elevate the pedestrian experience. Wider sidewalks are recommended to improve comfort, accessibility, and users of all ages and abilities.

EXISTING BICYCLE FACILITIES

The California Department of Transportation (Caltrans) defines bicycle classifications throughout the state. Facilities on roadways are defined into four classifications shown in Table 3.1.

Classification	Terminology	Description
Class I	Shared Use Paths	A completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized.
Class II	Bike Lanes	A restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and crossflows by pedestrians and motorists permitted.
Class III	Bike Routes	A right-of-way on-street or off-street, designated by signs or permanent markings and shared with pedestrians and motorists.
Class IV	Separated Bikeways	A right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are separated from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Table 3.1: Bicycle Facility Classifications

The existing bicycle facilities along East Campbell Avenue fall short of providing a safe, comfortable route between Historic Downtown Campbell and The Pruneyard Shopping Center. While dedicated bike lanes exist on some segments, other portions of the corridor rely on Shared Lane Markings — commonly known as "sharrows" — which are pavement symbols that indicate bicyclists and motor vehicles share the same travel lane. Sharrows provide no physical separation or protected space for cyclists and are generally considered unsuitable for riders who are newer to cycling, less confident in traffic, or traveling with children.

Location	Direction	Description
Civic Center Drive & Railway Avenue to Foote Avenue	Eastbound	Class III sharrows
	Westbound	5-foot wide Class II green-painted bike lanes with bike boxes
Foote Avenue to Poplar Avenue	Eastbound	Class III sharrows
	Westbound	Class III sharrows
Poplar Avenue to Barbano Avenue	Eastbound	5-foot wide Class II bike lanes, with some green-painted areas near the Union Avenue intersection
	Westbound	5-foot Class II bike lanes
Barbano Avenue to South Bascom Avenue	Eastbound	n/a
	Westbound	n/a

Table 3.2: Existing Bicycle Facilities

Class II bike lanes designate an exclusive lane for cyclists, clearly striped and separated from vehicle travel lanes. Class III bikeways, by contrast, provide no dedicated space for cyclists at all and riders must share lanes with moving vehicles. This creates a condition that reduces comfort and increases stress levels for both cyclists and drivers. At the posted speed limit of 30 miles per hour along East Campbell Avenue, sharing a lane with vehicle traffic can be particularly daunting for less experienced riders or those who commute regularly along the corridor. This constraint discourages a significant portion of potential cyclists from using the route.

According to the Valley Transportation Authority's (VTA) Santa Clara Countywide Bicycle Plan, most of the project corridor is rated as Level of Traffic Stress 3 (LTS 3). This four-point scale measures how comfortable and safe a given street feels for cyclists, with LTS 1 being suitable for all ages and abilities, and LTS 4 being appropriate only for the most experienced riders. An LTS 3 rating indicates conditions comfortable only for "enthused and confident" cyclists who are experienced enough to ride comfortably alongside moving traffic. The project corridor is also designated as a Cross-County Bicycle Corridor, underscoring its regional significance and the importance of improving its bicycle infrastructure.

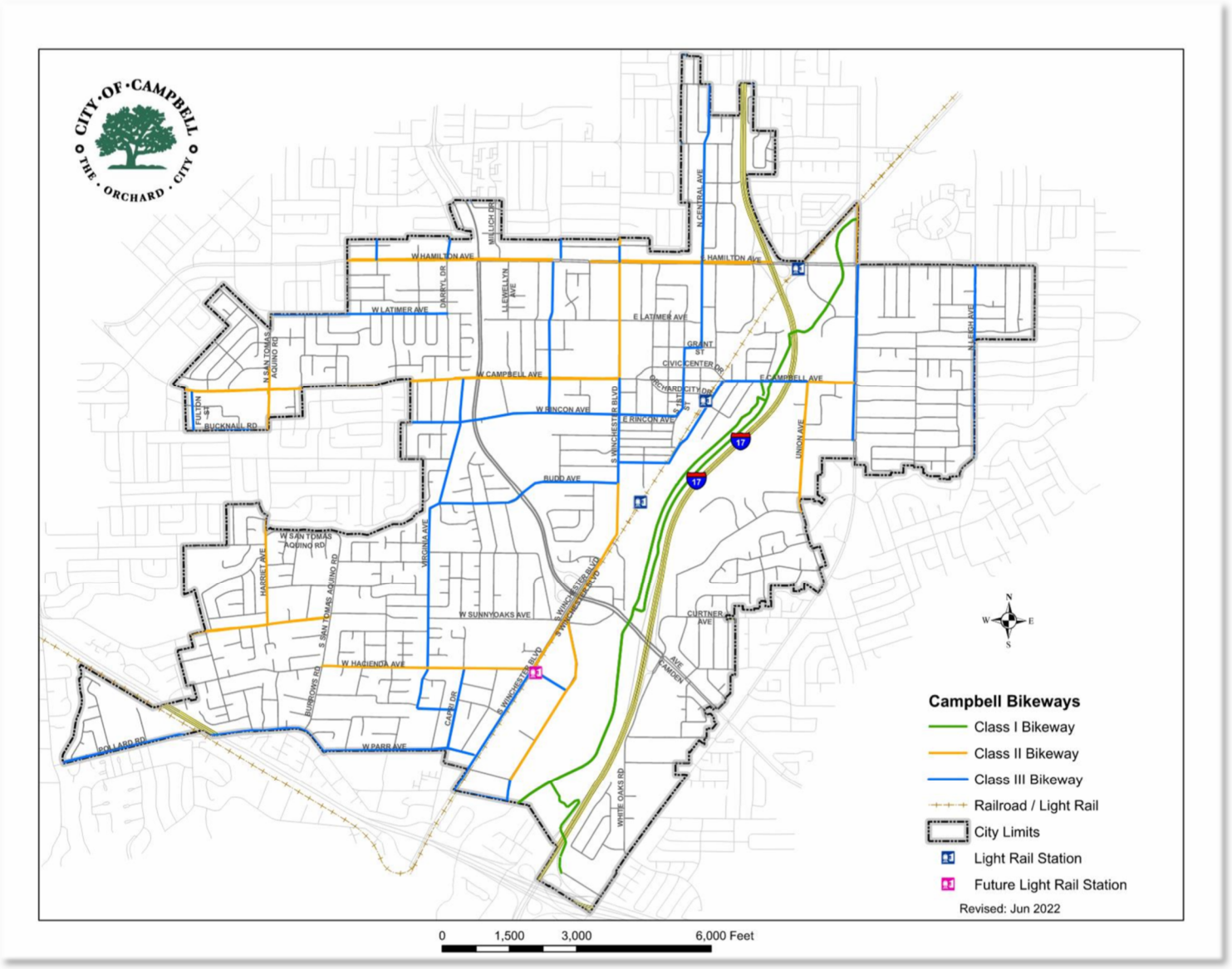


Figure 3.1: Campbell Bikeways Network Map

EXISTING & MASTER PLAN ALIGNMENTS

The Master Plan proposed cross section improvements for the East Campbell Avenue corridor, which can be compared to the proposed cross sections described in later sections of this report. Figure 5.1 shows the plan location associated with each 'segment' shown below.

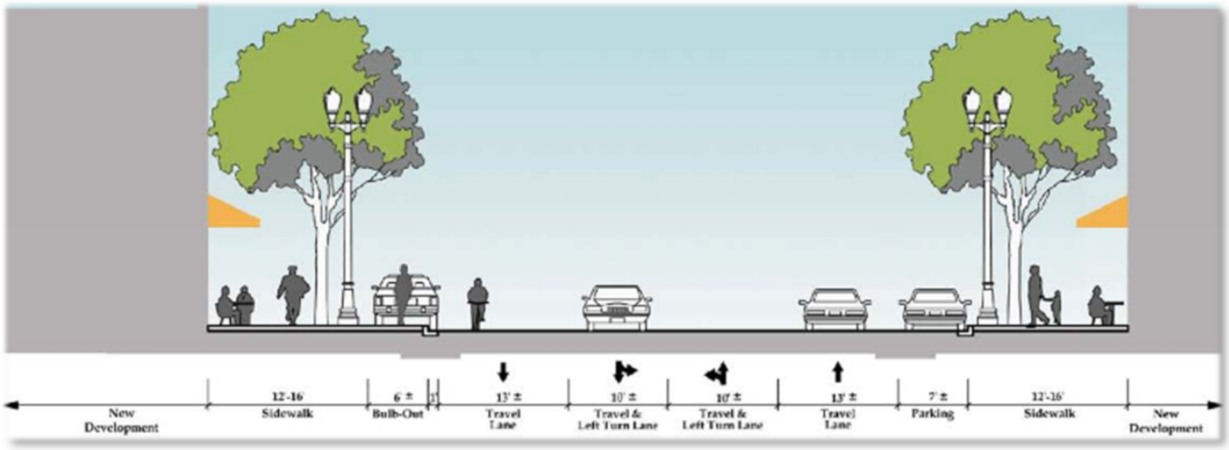


Figure 3.2: 2007 Master Plan – Segment 1 Typical Section (Railway Ave to Poplar Ave)

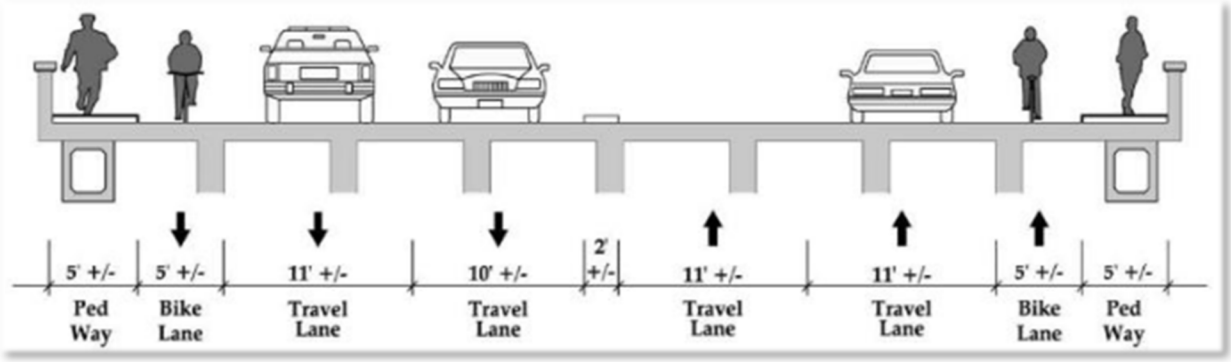


Figure 3.3: 2007 Master Plan – Segment 2 Typical Section (Poplar Ave to Union Ave)

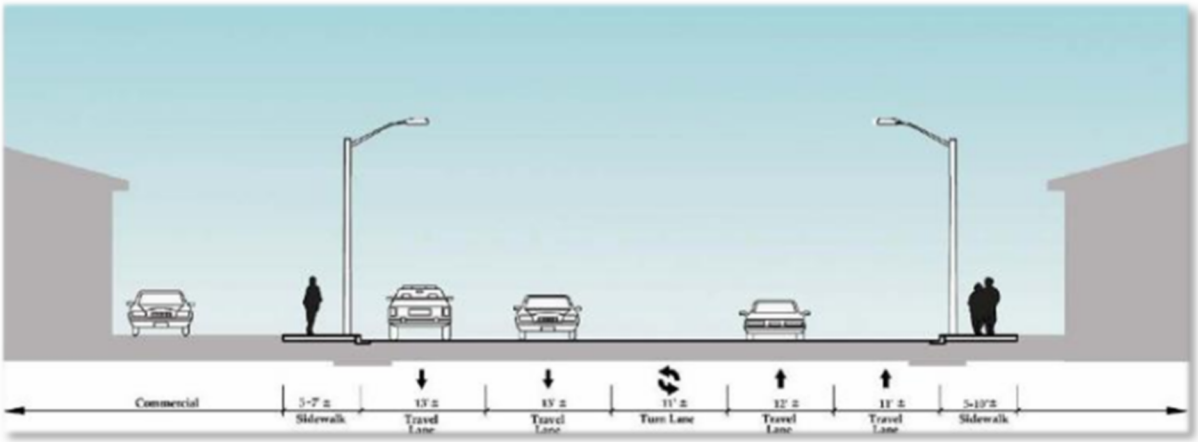


Figure 3.4: 2007 Master Plan – Segment 3 Typical Section (Union Ave to S Bascom Ave)

EXISTING INFRASTRUCTURE CONSTRAINTS

The project corridor passes through two existing structures that present important design constraints. The first is the Los Gatos Creek Bridge, which spans Los Gatos Creek and the Los Gatos Creek Trail. The bridge supports the roadway over the creek and constrains the potential cross section of the Plan Line to the existing bridge width. Widening the bridge to support the Plan Line would involve significant in-creek work which would significantly worsen environmental impacts and increase the cost of the project.

The second structure crossing is the undercrossing at California State Route 17 (Highway 17), where East Campbell Avenue passes under the freeway. The bridge columns and abutments create constraints to the potential East Campbell Avenue roadway configuration. The Highway 17 underpass was significantly improved in 2016 through the Campbell Portals and Pedestrian Facilities project. That effort created dedicated, separated pedestrian walkways, and widened the bicycle lanes through the underpass. To achieve this, portions of the original concrete retaining walls (known as wing walls) flanking the structure were removed, and new tie-back retaining walls were constructed to open the space beneath the freeway. The completed project also incorporated artistic treatments, improved lighting, and decorative features at the walkway entrances, transforming this underpass into a distinctive and welcoming gateway into the corridor.

Modifications to both structures were reviewed and deemed to be unnecessary to achieve the goals of the project.



Figure 3.5: 2016 Campbell Portals and Pedestrian Facilities Project

OTHER MAJOR CONSTRAINTS

East Campbell Avenue presents several distinctive physical and operational characteristics that shape what improvements are feasible and how the Plan Line has been designed. The following subsections describe the key constraints considered in developing the alternatives.

Available Right of Way

The City has been mindful of the impacts to neighboring agencies and adjacent property owners throughout this process. The public right-of-way required is a critical factor in determining what improvements are reasonable and achievable. Each alternative was carefully evaluated for its effect on existing private property and the degree to which additional land would need to be dedicated by a future developer. The proposed street cross sections were designed to accommodate vehicular travel lanes, bike lanes, sidewalks, parking zones, and streetscape features. While there are a limited number of properties where additional right-of-way is requested, the majority of the Plan Line can be implemented within the existing public right-of-way.

Overall, the alternatives analysis demonstrates the City's commitment to evaluating improvements in a way that minimizes disturbance to partner facilities and preserves long-term accessibility, safety, and operational needs within the right-of-way.

Utilities

At this stage, the alternatives did not evaluate utility impacts. As the project advances, a comprehensive utility analysis will be needed with the goal to minimize disturbance to existing utility infrastructure to maintain reliable service to the surrounding community. Typical utilities within the project area are likely to include:

- Pacific Gas and Electric - Electric
- Pacific Gas and Electric - Gas
- San Jose Water Company - Water
- West Valley Sanitation District - Sewer
- Comcast - Communications
- AT&T - Communications
- Verizon - Communications

Agencies & Stakeholders

The City is sensitive to the needs of partner agencies. Early and continued engagement with utility owners and other partner agencies will be needed to support on-going project development and to minimize impacts on existing utilities.

Throughout design and construction of the project, careful consideration shall be taken to protect these existing utilities and preserve agency's rights to accessibility and maintenance.

4.PUBLIC OUTREACH

OUTREACH PLAN & STRATEGIES

As part of this study, the City committed to providing regular and meaningful community engagement, developing multiple formats for community dialogue and interaction. The primary purpose of these efforts was to listen to and understand current concerns and desires for the proposed project and to solicit feedback and concurrence on the preferred alternative. The City sought to learn how and why people might use this route, important destinations and connections, barriers to using this segment, and amenities the community would like to see. Stakeholders associated with the project include the Campbell Bicycle and Pedestrian Advisory Committee (BPAC), local businesses, and Campbell residents.

To reach as many community members as possible, the project and outreach events were publicized through A-frames posted within the project area, flyers, the City's mailing lists, and online channels. The City also shared information about the events through social media on Instagram and Facebook, announced the events at BPAC meetings, and reached out directly to businesses along the corridor.

OUTREACH EVENTS

Campbell Bicycle & Pedestrian Advisory Committee (BPAC) – Thursday, November 20, 2025

Early in the Project Study, the team engaged the BPAC meeting and discussed the following key objectives:

- Intent to update the East Campbell Avenue Master Plan dated May 2007
- Incorporation of Class II or Class IV bike lanes
- Optimization of right-of-way to accommodate additional elements such as on-street parking and wider sidewalks
- Potential to remove left-turn lanes from the corridor
- Incorporation of a new signal at the Page Street & Gilman Avenue offset intersection
- Incorporate future frontage development along the corridor frontage

The BPAC provided feedback which favored the additional bicycle facilities, strongly encouraged the project to keep the left-turn lanes, and expressed concerns on potential adverse effects to traffic and queuing distances.

Property Owners Meeting – Tuesday, December 9, 2025

The City hosted a field meeting with property owners and businesses along the corridor to discuss concerns about existing conditions and to provide an informational review of the 2007 Master Plan and the Plan Line project concepts.

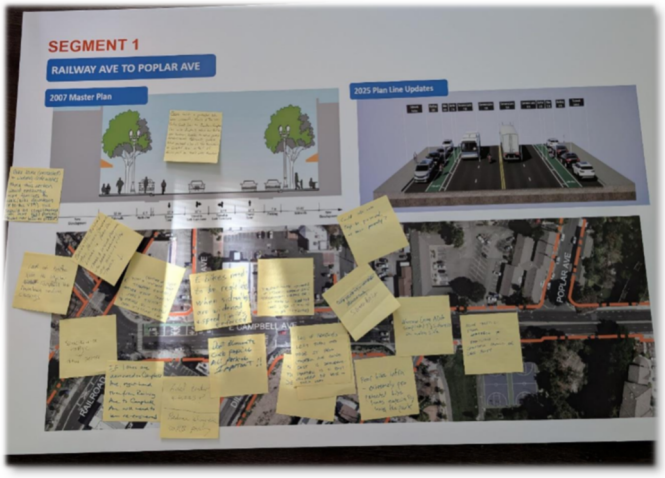
Public Outreach Meeting – Wednesday, December 10, 2025

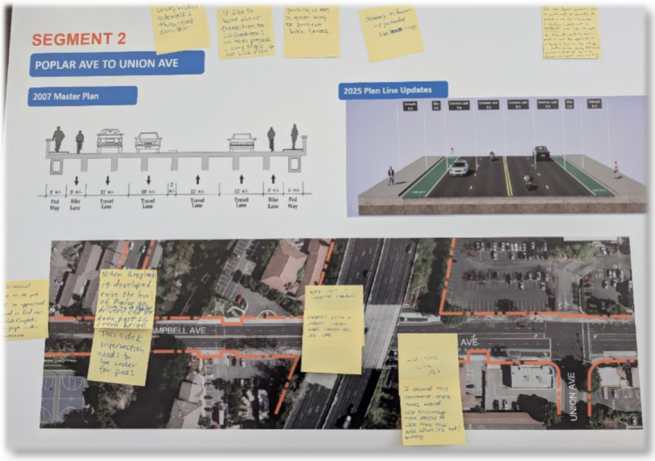
The City hosted a public outreach meeting to engage community members during the initial stages of the study. The meeting provided an overview of the project - including potential improvements to bicycle and pedestrian mobility along the project corridor - and gathered community input on concerns related to bicyclists and pedestrians, parking use, and traffic.

City staff and project team members delivered a formal presentation reviewing existing conditions, design constraints, and the same key objectives presented to the BPAC. Participants were then invited to an interactive workshop with stations organized by geographic segment of the corridor. These visuals helped residents better understand the range of features and options that could enhance safety and connectivity for bicyclists and pedestrians along the corridor. Meeting participants were encouraged to share their comments and concerns . Refer to Figure 4.1 for the comments provided.

In general, feedback consisted of:

- Support for protected and continuous bike lanes throughout the corridor
- Concerns about traffic operations with the removal of left-turn lanes
- Desire for wider, safe, and better-lit sidewalks
- Mixed views about on-street parking
- Request for consideration of a road diet
- Request for streetscape enhancements







Figures 4.1 - 4.3: Photos of public comments at public engagement stations

Campbell Bicycle & Pedestrian Advisory Committee – Thursday, March 19, 2026

During this regularly scheduled BPAC meeting, the design team presented the three alternatives analyzed, emphasizing the preferred alternative, which included continuous bike lanes and maintained the existing left-turn lanes.

Feedback from the BPAC primarily consisted of clarifying questions about the function of left-turn lanes, the capacity of existing intersections, and the newly proposed signal at Page Street, alongside overall support for the preferred alternative.

Property Owners Meetings – April 2026

The City held one-on-one discussions with individual property owners along the corridor as a follow-up to the initial contact. These meetings reviewed how the preferred alternative would affect each owner's frontage and explained why that alternative was chosen. For some owners, impacts included the potential loss of street parking, street improvements, and sidewalk widening.

While property owners were generally supportive of the preferred alternative, some expressed concerns about maintaining access to their properties and businesses. And although most property owners would have preferred the potential for more street parking, they understood why some spaces had to be eliminated. Based on feedback from one owner in particular, the design team conducted an additional study to evaluate an alternative street alignment that could preserve existing on-street parking. This study is discussed in Section 5, Alternative 1.

Public Outreach Meeting – Thursday, April 23, 2026

The second community meeting also focused on the three alternatives with an emphasis on the preferred alternative. It included a detailed look at the proposed design for each geographic segment of the corridor and an open question-and-answer session, which allowed attendees to seek clarification, raise concerns, and share their perspectives.

The meeting drew overwhelming support for the preferred alternative, consistent with feedback the community had provided in the first public outreach

meeting. This included support for the proposed continuous bike lanes and for signalizing the Page Street and Gilman Street offset intersection. The public also asked clarifying questions about signal timing and function and offered feedback on how the corridor functions today. Attendees additionally raised questions about the future and timeline of major development projects along the corridor, which will use the proposed Plan Line to help define their frontage improvements.

FEEDBACK DURING EVENTS

Feedback received from all stakeholders fell into several "themes" as follows:

Safety

- Protected and continuous bike lanes throughout the project limits.
- Wider, safer, and better-lit sidewalks, with improved accessibility and pedestrian comfort.

Ease of Use

- Concerns about traffic operations at key intersections, signal coordination with Railway Avenue, and use of the corridor when Downtown Campbell is closed for Farmer's Market on Sundays.

Connectivity

- Better connections to nearby amenities such as Campbell Park, the Historic Downtown, the Pruneyard, and Los Gatos Creek Trail.
- Streetscape enhancements, such as adding more trees.

Access

- Mixed views about on-street parking. Some support converting parking to bike lanes and streetscape improvements, while others want to preserve the parking.

These represent the most common concerns voiced by residents; a more comprehensive list of community comments is provided in Appendix C.

SUMMARY

Respondents broadly emphasized the need for safer bike and pedestrian infrastructure, with many calling for clearer separation from vehicle traffic. They also highlighted the importance of improving connections between existing routes and key destinations, while noting that changes should avoid worsening traffic congestion. Overall, respondents were supportive of the improvements proposed in the preferred alternative.

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5.ALTERNATIVES ANALYSIS

Based on the 2007 East Campbell Avenue Master Plan, stakeholder feedback, and best design practices, the project team developed three alternatives. All three alternatives add bicycle infrastructure to the roadway and include the new signal at the Page Street and Gilman Avenue offset intersection as proposed by the 2007 Master Plan. In the following sections, each alternative is analyzed against the evaluation criteria listed in the introduction.

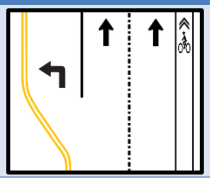
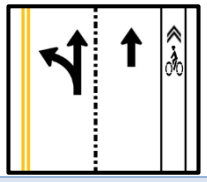
Alternative	Description
 **1. Preserve Left-Turn Lanes**	**PREFERRED ALTERNATIVE** Provides continuous Class II bike lanes, some of which are buffered. Left-turn lanes are maintained from the existing condition. Proposed sidewalks are widened where possible.
 **2. Remove Left-Turn Lanes**	Left-turn lanes are removed to accommodate Class II buffered bike lanes. On-street parking is added where feasible, consistent with the 2007 Master Plan. Proposed sidewalks are widened where possible.
3. Road Diet	Reduce the number of vehicle lanes from four to two, with one direction of travel each way, to accommodate Class IV bike lanes and wider sidewalks.

Table 5.1: Analyzed Alternatives

The project is divided into three roadway segments, each representing different contexts, needs, and potential design interventions. Segment 1 runs from Railway Avenue to Poplar Avenue. Segment 2 continues from Poplar Avenue to Union Avenue and includes the existing Los Gatos Creek Bridge and Highway 17 underpass. And Segment 3 extends from Union Avenue to South Bascom Avenue.

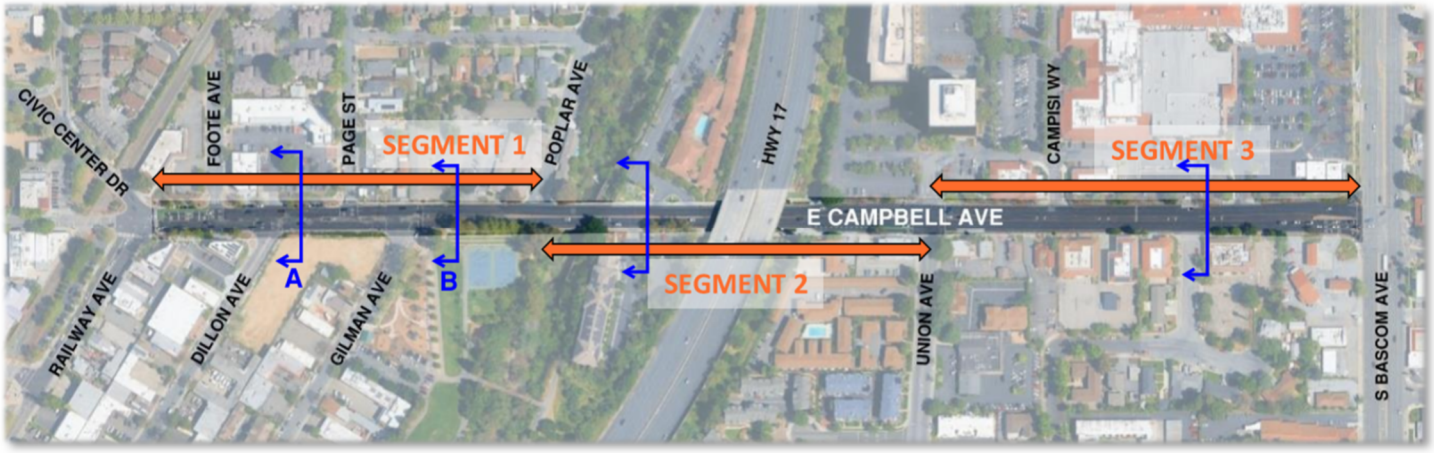


Figure 5.1: Project Segments

ALTERNATIVE 1: PRESERVE LEFT-TURN LANES - PREFERRED

Alternative 1 retains the existing left-turn lanes to preserve traffic operations at intersecting streets. The alignment is shown in detail in Appendix A and described below. Alternative 1 would also signalize the intersection of East Campbell Avenue and Page Street, operating it under a single controller with the Gilman Avenue intersection.

Segment 1

Segment 1 carries the most extensive cross-section changes in the corridor. Between Railway Avenue and Foote Avenue, the overall lane configuration will be maintained with some elements narrowed to accommodate an added bike lane on the south side of the road. Both the north and south on-street parking areas will be narrowed to 7 feet, and the No. 1 lane on the eastbound side of the road will be narrowed to 10 feet. All other through-lanes in this area will be 11 feet wide.

Between Foote Avenue and Page Street, 8 westbound parking spaces will be eliminated to accommodate a 5-foot wide bike lane. In response to public outreach, the desire to maintain existing left-turn lanes and add bicycle infrastructure requires the trade-off of removing some on-street parking*. However, additional parking is added on the opposite side of the street, as described below. Refer to sub-section "*Segment 1 – Alternative Parking Alignment Consideration" for additional detail on the removal of on-street parking.

Additionally, the concrete curb extension at the northwest corner of Page Street will need to be removed to accommodate the bike lane. Although removing the curb extension lengthens the crossing distance, the removal would coincide with installation of the new traffic signal. The new pedestrian crossing signal phase will mitigate the lengthened crossing distance.

Between Dillon Avenue and Gilman Avenue on the eastbound side, the proposed configuration is consistent with the planned Cresleigh development frontage, accommodating both a widened sidewalk and 7 new on-street parking spaces; this is shown in Section 1A below and on the plan sheets provided in Appendix A.

The Page Street and Gilman Avenue offset intersection would be operated under a single controller. Notably, during the protected left-turn phase from East Campbell Avenue onto both Page Street and Gilman Avenue, pedestrians would not be permitted to cross either street; these protected left-turn phases minimize vehicle-pedestrian conflicts. Signal design, traffic impacts, and a detailed analysis of this alternative are provided in Appendix D: Traffic Operations Analysis.

Between Page Street and Poplar Avenue on the westbound side, the final Plan Line alignment requires the existing curb to be pushed northward by 2 feet to accommodate 5-foot bike lanes in each direction. Additionally, the future sidewalk should be expanded to 15 feet to align with the 2007 Master Plan's goal of widening the East Campbell Avenue right-of-way; this will require approximately 12 feet of right-of-way dedication from the Greylands property. These curb and sidewalk improvements will need to be studied in detail during design due to many existing utilities and transformer vaults within the northern sidewalk. Coordination with utility companies, including PG&E and AT&T, will be required during design. These modifications to the curb, gutter and sidewalk should be implemented during future development of the Greylands properties. The Plan Line proposes to maintain the southern curb, gutter and ten-foot sidewalk, due to the existing large-canopy trees along the Campbell Park frontage. These trees provide valuable shade to park and sidewalk users and would have too great an impact if removed. This also preserves the recently relocated bus stop at the northwest corner of Campbell Park. These changes are shown in Section 1B below.

Because the timeline for redeveloping the Greylands properties on the northern side of East Campbell Avenue between Page Street and Poplar Avenue is unknown, an interim condition must be considered for this portion of the roadway. Appendix A includes the interim condition, which maintains the existing roadway between Gilman Avenue and Poplar Avenue. Shared lane markings (also known as 'sharrows') will be maintained in the outermost lanes, and the vehicular lanes will remain as-is until the northern property can be redeveloped. Bike lanes cannot be accommodated in this section without widening the street.

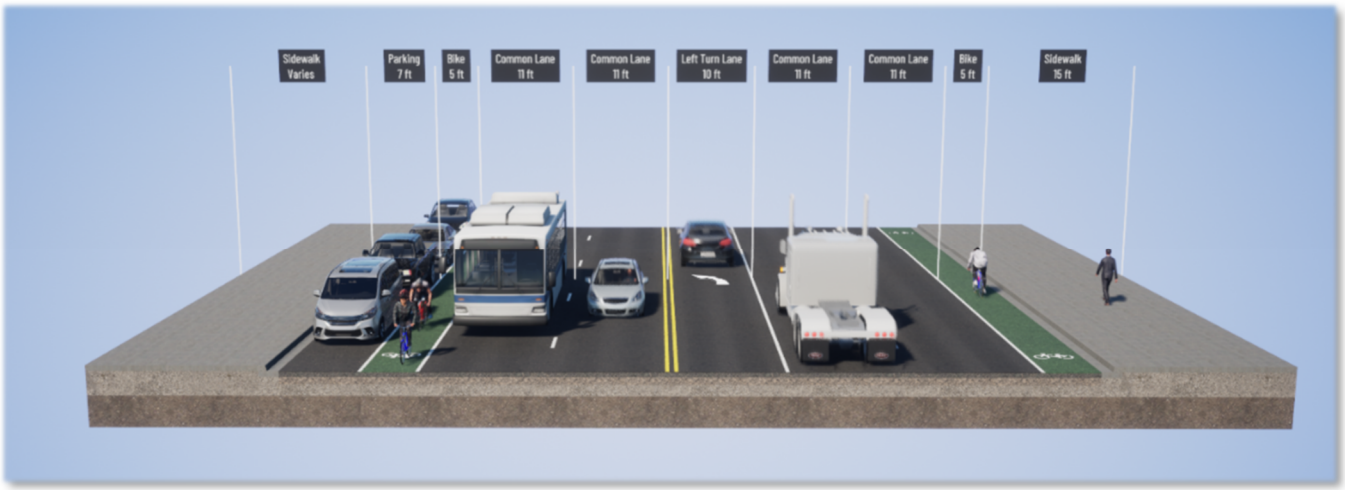


Figure 5.2: Proposed Plan Line Update - Typical Section 1A

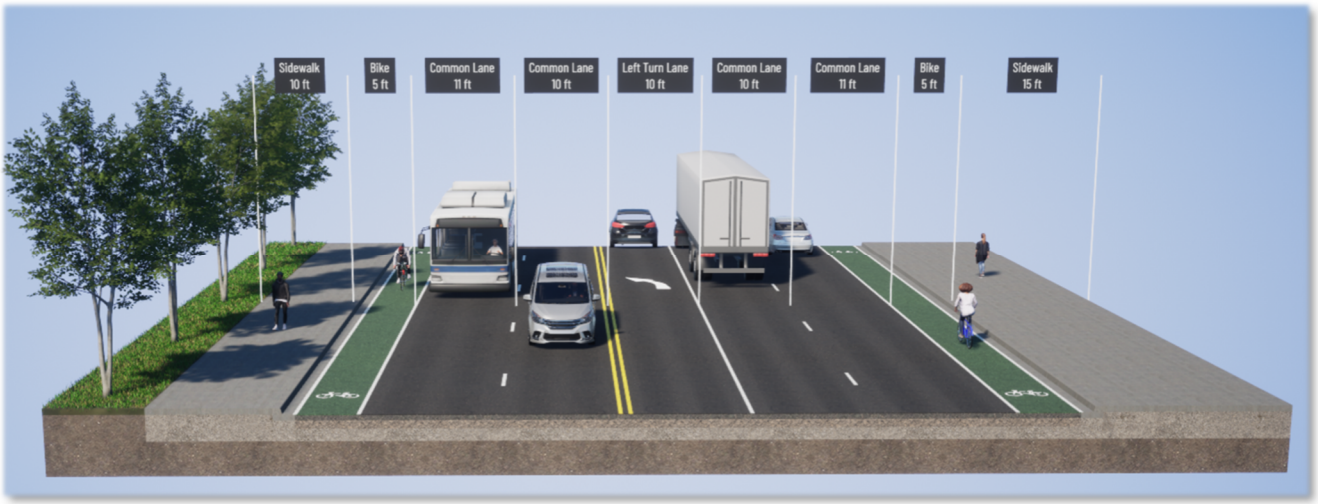


Figure 5.3: Proposed Plan Line Update - Typical Section 1B

*Segment 1 – Alternative Parking Alignment Consideration

During the Public Outreach process for this Plan Line, an existing property owner on the north side of the street between Foote Avenue and Page Street expressed concerns about the removal of the 8 on-street parking spaces, and requested an additional study to consider maintaining that parking, and instead removing proposed parking from the south side in front of the Cresleigh development. The design team studied the impacts of this alternative parking alignment and found that it produced an undesirable roadway geometry. This alternative would shift the vehicular lanes south between Foote Avenue and Gilman Avenue, but the lanes would have to shift back to match the rest of the proposed East Campbell Avenue alignment to the east and west. The resulting lane shifts across intersections are undesirable in standard roadway design, which favor straighter, more consistent lanes. This shift also raises bicyclist-safety concerns because of the larger lane shift across Gilman Avenue. Because of the existing bus stop at the corner of Campbell Park, buses merge with the bike lane to pick up and drop off passengers; while buses could essentially drive straight into that bus stop, bicyclists crossing the intersection would be shifting north to the new bike lane alignment, raising concerns about bicycle visibility and safety in this conflict zone.

Additionally, with the bike lane added on the north side of the street, one of the existing parking spots would still need to be removed to ensure adequate visibility between bicyclists in the bike lane and cars exiting the existing parking lot. This would decrease the number of on-street parking spots to 7, equal to the number of spots proposed in Alternative 1. For these reasons, this configuration was excluded from the final layout of Alternative 1. See Figure 5.4 for a visual representation of this study.

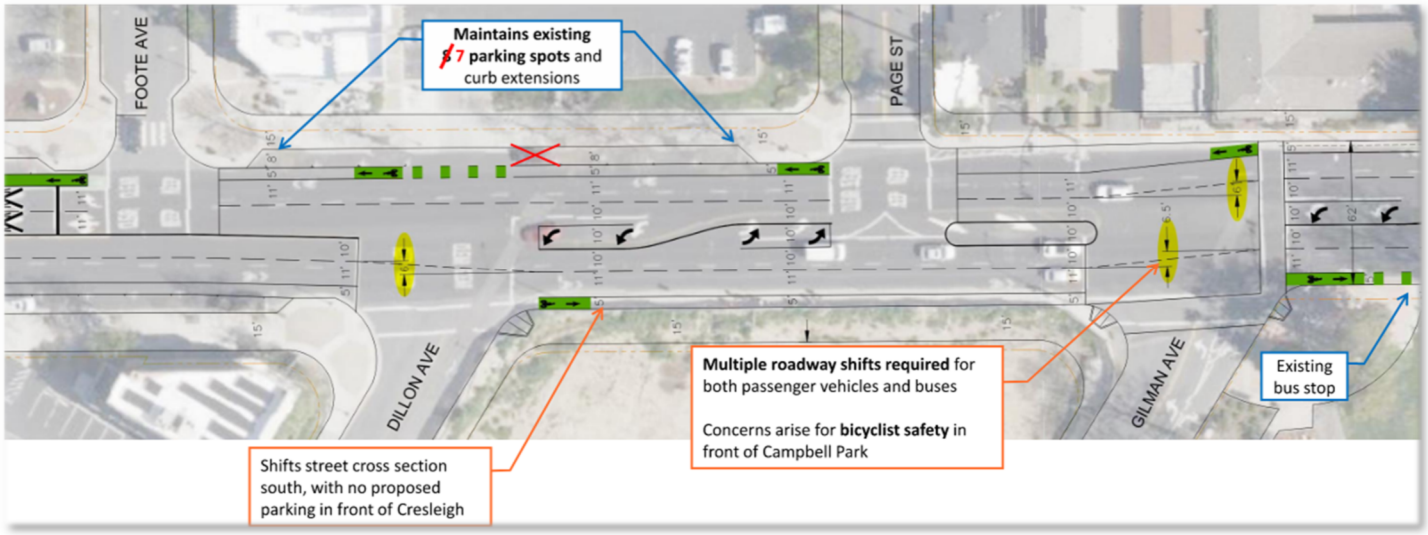


Figure 5.4: Alternative Parking Alignment Study

Segment 2

Segment 2 is the most constrained segment and includes the bridge over Los Gatos Creek and Trail, as well as the Campbell Portals/Highway 17 undercrossing. It already includes Class II bike lanes and 10-foot sidewalks and meets the requirements of this Plan Line update. One minor modification is proposed at the northeast corner of the Poplar Avenue intersection. The proposed Plan Line includes widening the back of walk to provide a 10-foot sidewalk west of the existing Los Gatos Creek Bridge. Widening this sidewalk will depend on redevelopment of the property and on feasibility given the existing grades. During detailed design of this widening, special attention should be paid to the potential impacts on Los Gatos Creek and the environmental permitting implications. No other modifications are proposed for this segment, aside from minor bike-lane striping updates to improve visibility and awareness at bus stop conflicts with the bike lane. Section 2 below shows the existing condition to remain.

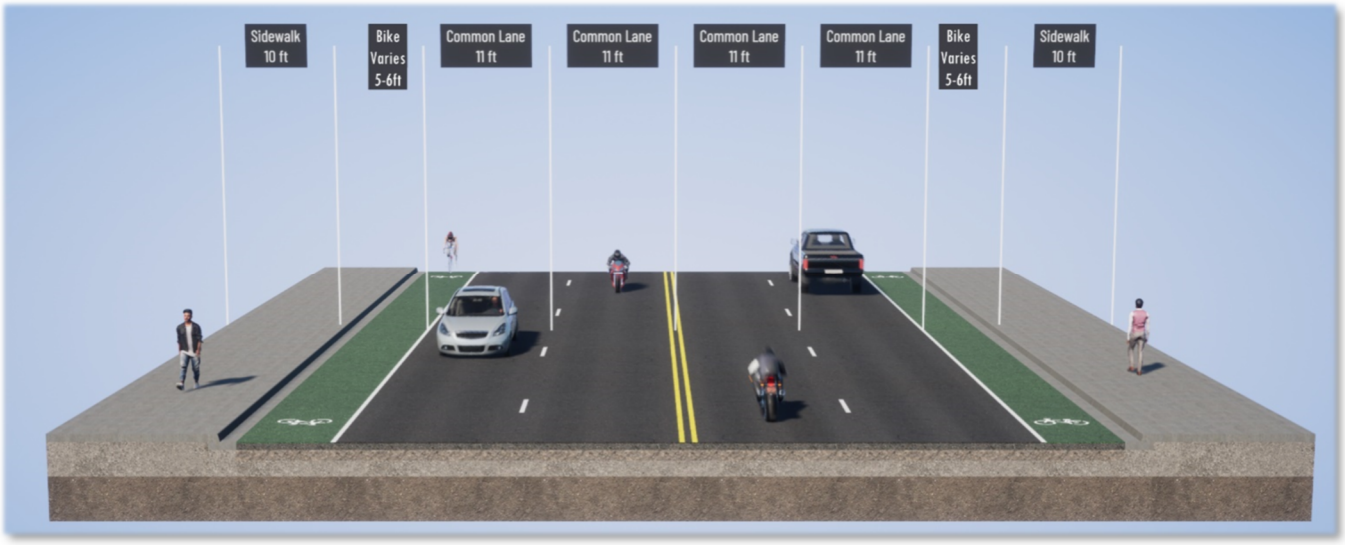


Figure 5.5: Existing Conditions - Typical Section 2

Segment 3

Segment 3 maintains the existing curb-to-curb dimensions of the roadway but incorporates Class II buffered bike lanes from Union Avenue to South Bascom Avenue by narrowing the center turn lane to 10 feet and creating consistent 11-foot lanes throughout the segment. Additional minor improvements include painted green skip-striping at bus stops to increase visibility and awareness between bus drivers and bicyclists.

Between Union Avenue and Barbano Avenue, the Plan Line proposes to widen the southern sidewalk to 10 feet, for consistency with the rest of the corridor.

The proposed Plan Line improvements also include modifications to both the northwest and southwest corners of the East Campbell Avenue and South Bascom Avenue intersection. To protect bicyclists, the right-hand slip lanes will be removed, and a bike box will be added on East Campbell Avenue to accommodate bicyclists making left turns onto South Bascom Avenue. The existing pedestrian curb ramps will need to be converted to directional curb ramps. These curb extensions will also shorten pedestrian crossing distances and eliminate conflicts between pedestrians crossing to the intermediate islands and cars making unrestricted right turns. See Appendix A for the conceptual plans depicting these improvements.

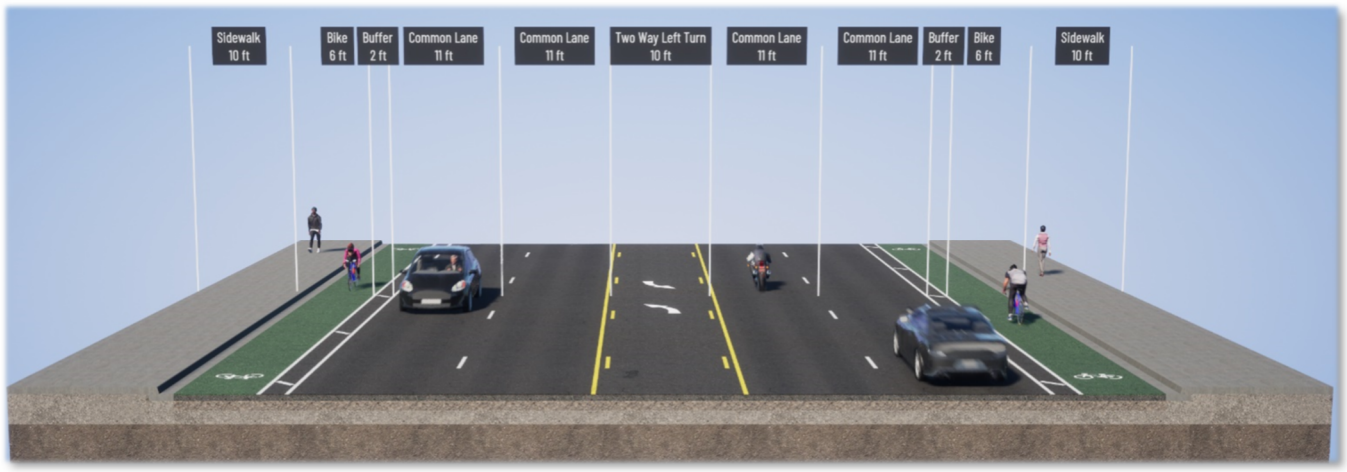


Figure 5.6: Proposed Plan Line Update - Typical Section 3

ALTERNATIVE 2: REMOVAL OF LEFT-TURN LANES

This alternative removes left-turn lanes where needed to accommodate Class II buffered bike lanes throughout the entire East Campbell Avenue corridor and maintains consistency with the 2007 Master Plan's intent to add on-street parking between Railway Avenue and Poplar Avenue where space is available behind the existing curb. Alternative 2 would also signalize the intersection of East Campbell Avenue and Page Street, operating it under a single controller with the Gilman Avenue intersection. Alternative 2 differs from Alternative 1 only in Segment 1. Segments 2 and 3 would be implemented as previously described.

Alternative 2 considered the removal of left-turn lanes at the following intersections. In place of a left-turn lane, drivers would instead make a permissive left turn, waiting in the left/through lane until a gap in oncoming traffic allows the turn.

- East Campbell Avenue / Dillon Avenue
- East Campbell Avenue / Page Street
- East Campbell Avenue / Gilman Avenue

The use of permissive left-turn phasing at all three of these intersections would increase conflicts with pedestrians in the crosswalk crossing Gilman Avenue. According to the FHWA's Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE), one of the most common conflicts at signalized intersections occurs between vehicles making permissive left turns and pedestrians crossing during the concurrent pedestrian signal phase. Drivers making permissive left turns often focus on identifying gaps in oncoming vehicle and bicycle traffic and may not adequately yield to pedestrians in the parallel crosswalk. In addition, at congested intersections, permissive left-turn operations can result in drivers accepting smaller gaps, turning at higher speeds, or entering the intersection during yellow or all-red intervals. As a result, protected left-turn phasing (and, in the case of this project, maintaining the existing left-turn lanes) is more effective at reducing vehicle–pedestrian conflicts than permissive phasing.

In addition, the detailed traffic operations analysis of the removal of left turn lanes found that this alternative would create either unacceptable levels of service or left-turn queueing beyond the available storage during peak hours at the following intersections:

- East Campbell Avenue / Railway Avenue / Civic Center Drive
- East Campbell Avenue / Dillon Avenue
- East Campbell Avenue / Page Street

Refer to Appendix D for further details of the traffic impacts of Alternative 2.

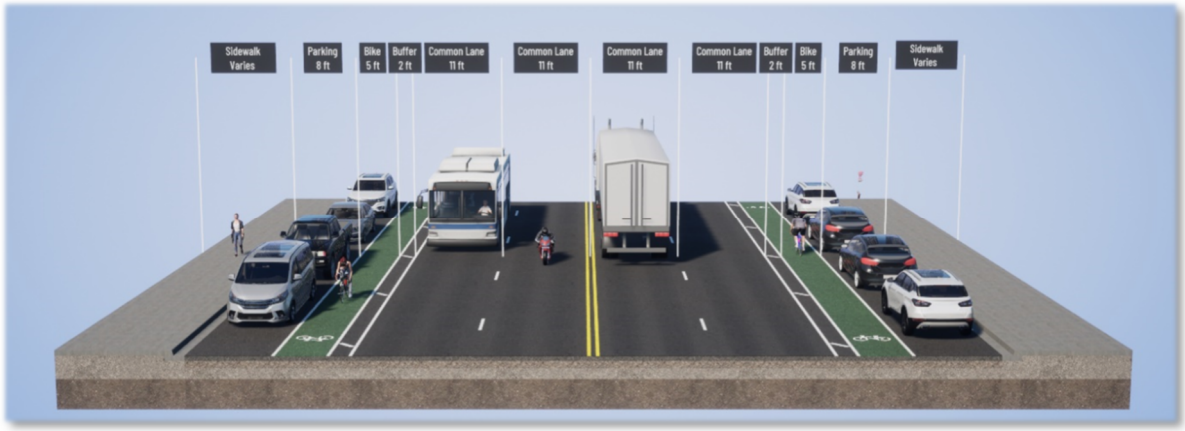


Figure 5.7: Removal of Left Turn Lanes – Segment 1 A & B

ALTERNATIVE 3: ROAD DIET

A road diet alternative would require East Campbell Avenue to reduce the number of vehicle lanes from four to two, one in each direction, to accommodate Class IV bike lanes and wider sidewalks. While a road diet could allow for continuous and better-protected bicycle facilities, existing and future queueing along East Campbell Avenue, particularly at key intersections, would be exacerbated by reduced roadway capacity. Given that East Campbell Avenue is one of only three east–west corridors that cross Highway 17, and the alternative routes of Hamilton Avenue and Camden Avenue are already congested, a road diet on East Campbell Avenue may leave drivers no option but to cut through the adjacent neighborhoods (e.g. Sam Cava Lane to Gilman Avenue). Because of the significant expected impacts to drivers, this alternative was deemed not preferred for the final Plan Line alignment; it was not studied further, and no proposed layout was drawn. Refer to Appendix D for further discussion of traffic impacts.

6.RECOMMENDATION

Alternative 1 is the preferred and proposed alignment for the East Campbell Avenue Plan Line. It integrates continuous bike lanes with minimal right-of-way impacts, avoids significant impacts on traffic operations, and aligns best with the primary stakeholder feedback received during public outreach. Layout drawings for Alternative 1 are provided in Appendix A and document the proposed roadway improvements as well as the right-of-way dedication and frontage improvements that will be required from new development projects along the corridor.

Table 6.1 compares the three alternatives against the defined evaluation criteria and supports the recommendation for Alternative 1. A "high" score indicates a positive outcome for the alternative, while a "low" score indicates a negative result.

Criteria	Alternative 1	Alternative 2	Alternative 3
Safety	**High** Safer corridor design for all users	**Low** Safety concerns at left-hand turns	**High** Similar safety to Alternative 1
Traffic Operations	**High** Minimum impacts to queuing	**Neutral** Impacts to queuing	**Low** Major impacts to traffic operations
Bicycle Level of Traffic Stress	**High** Improves existing condition with continuous bike lanes, some buffered	**High** Buffered bike lanes along entire corridor	**High** Buffered bike lanes along entire corridor
Parking	**Neutral** No net change to existing parking	**High** Adds parking	**High** Adds parking
Consistency with Public Input	**High** Addresses majority of public feedback	**Low** Does not align with desire to keep left-hand turn lanes	**Low** Does not align with desire to maintain traffic operations
Feasibility	**High** Clear path to implementation, minimal right-of-way impacts, public support	**Neutral** Design feasible without right-of-way impacts, but safety concerns prevail	**Low** Overall impacts too great

Table 6.1: Compared Alternatives

Alternative 2, while it aligns most closely with the 2007 Master Plan design, creates notable impacts on pedestrian safety and traffic operations along the East Campbell Avenue corridor, and does not align with primary stakeholder feedback. For these reasons and the evaluation above, this alternative was not chosen.

Alternative 3, while it would allow for considerably wider bike lanes and sidewalks, creates significant impacts on traffic both on the corridor and in the surrounding neighborhood. As noted in the previous section, these impacts make the alternative infeasible.

7. APPENDICES

A. PREFERRED ALTERNATIVE 1 EXHIBIT
B. NON-PREFERRED ALTERNATIVE 2 EXHIBIT
C. PUBLIC OUTREACH MEMOS
D. TRAFFIC OPERATIONS ANALYSIS

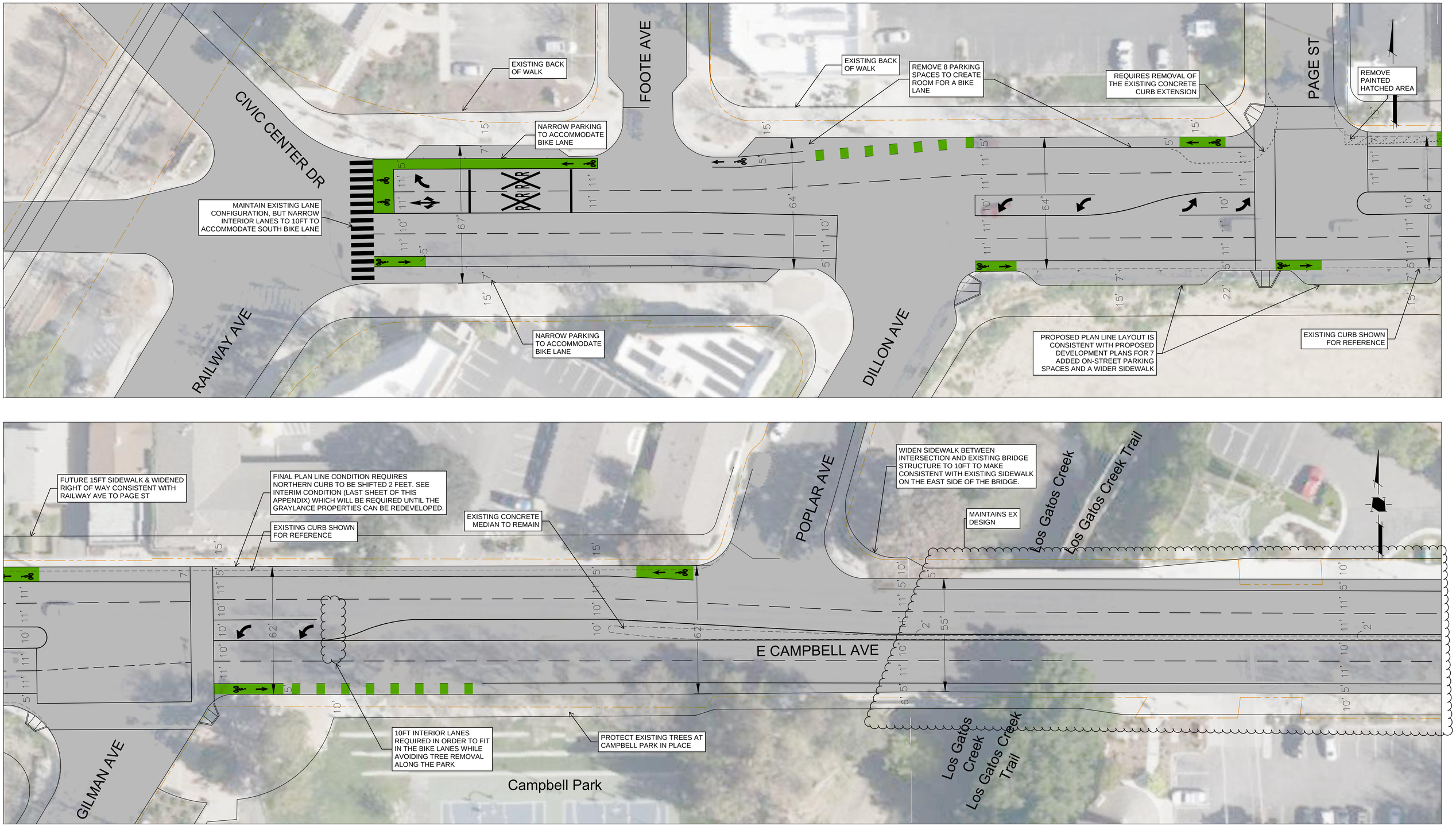
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APPENDIX A

PREFERRED ALTERNATIVE 1: PRESERVE LEFT-TURN LANES – PLAN VIEW EXHIBIT

E. CAMPBELL Ave

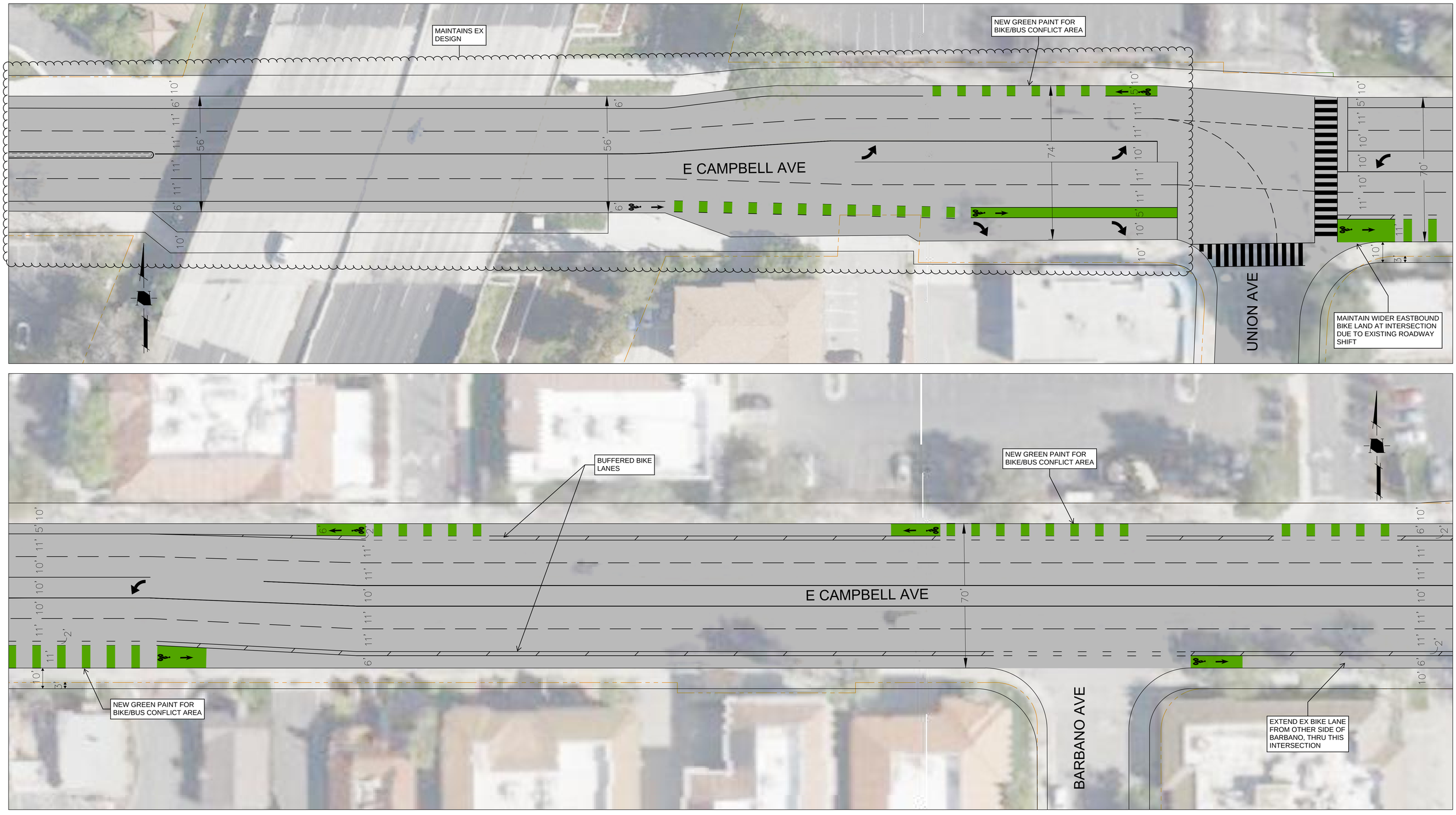
PREFERRED ALTERNATIVE



PUBLIC WORKS

E. CAMPBELL Ave

PREFERRED ALTERNATIVE



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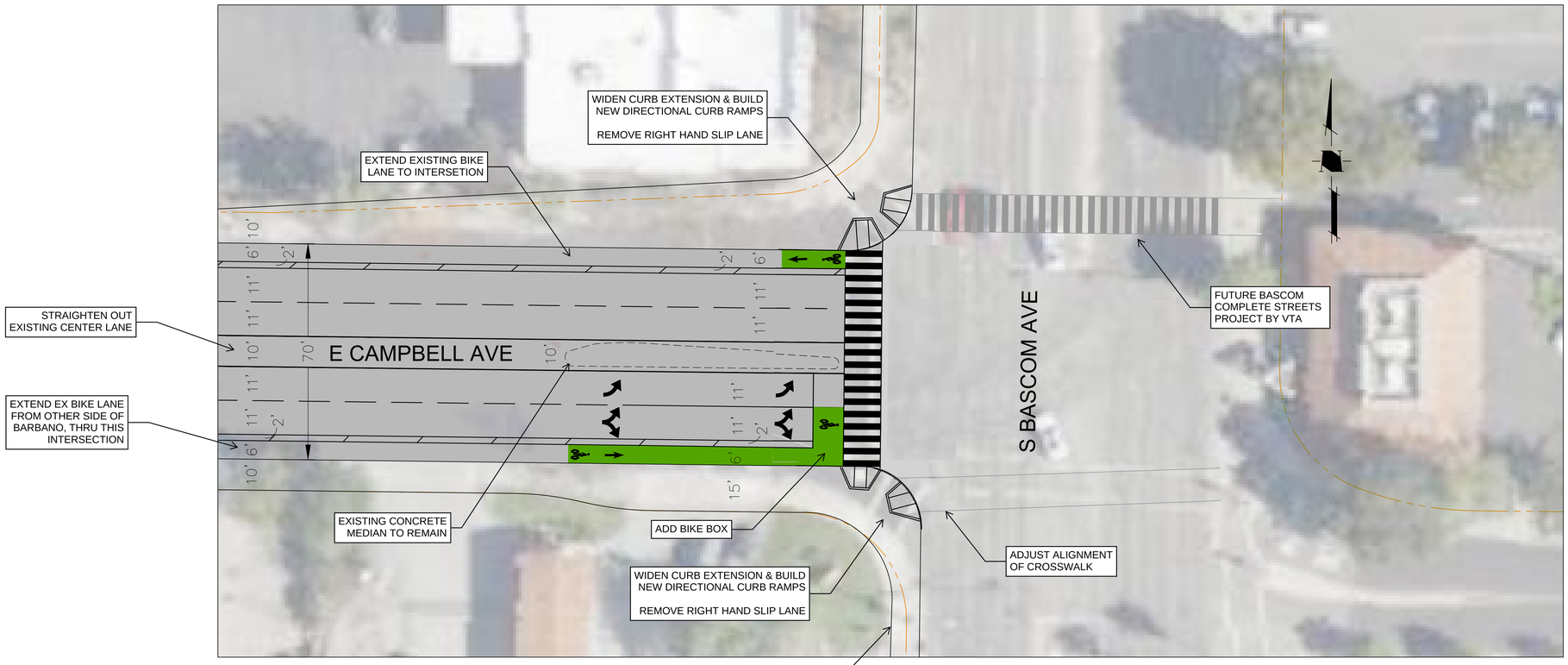
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HMH

PUBLIC WORKS

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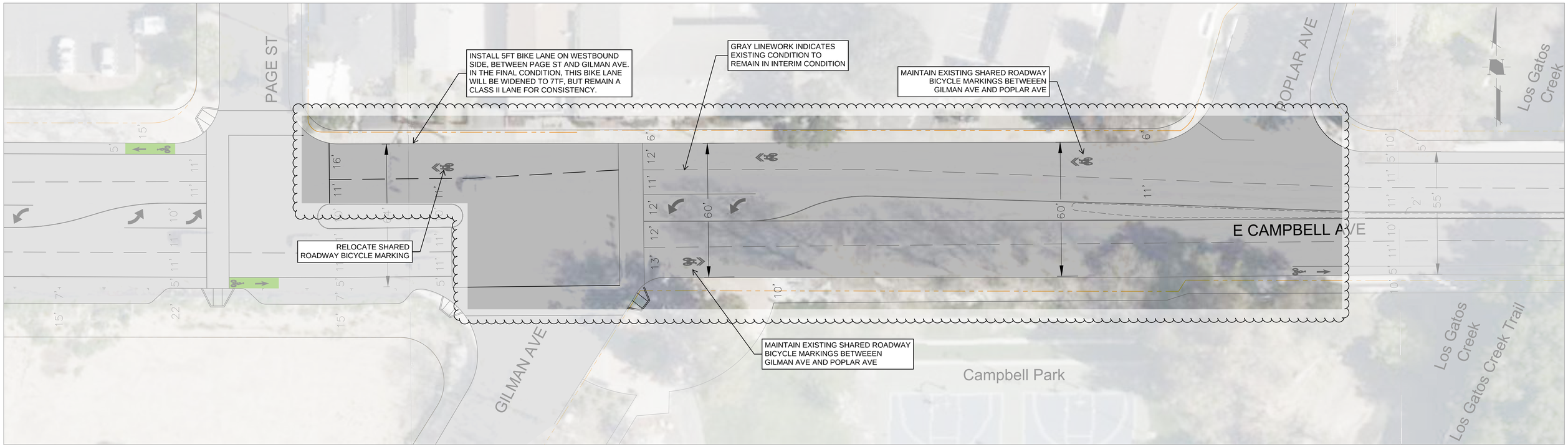
PREFERRED ALTERNATIVE



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E. CAMPBELL Ave

PREFERRED ALTERNATIVE - INTERIM CONDITION PAGE ST TO POPLAR AVE



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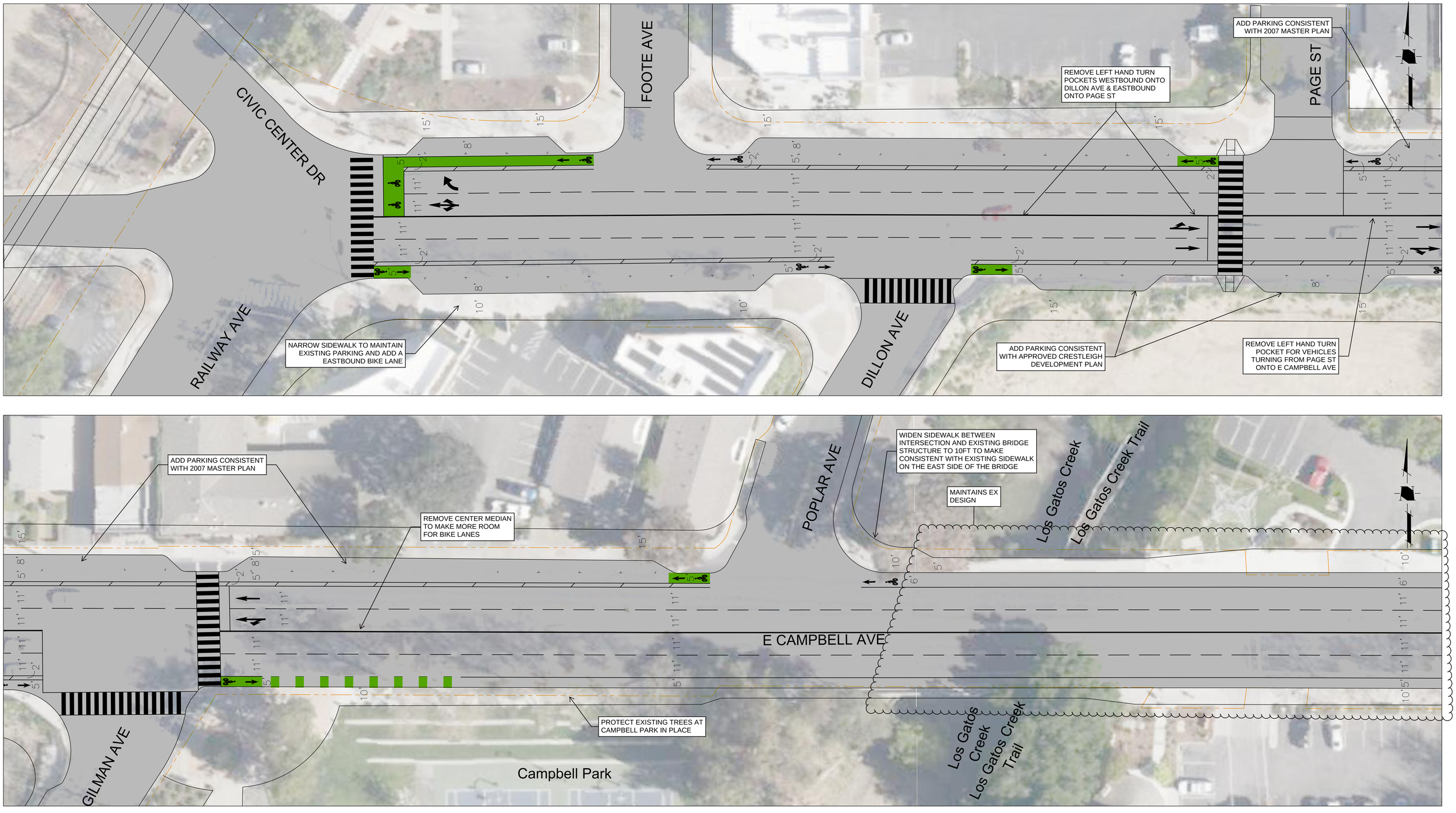
PUBLIC WORKS

APPENDIX B

NON-PREFERRED ALTERNATIVE 2: REMOVE LEFT-TURN LANES – PLAN VIEW EXHIBIT

E. CAMPBELL Ave

REMOVAL OF LEFT-TURN LANES ALTERNATIVE



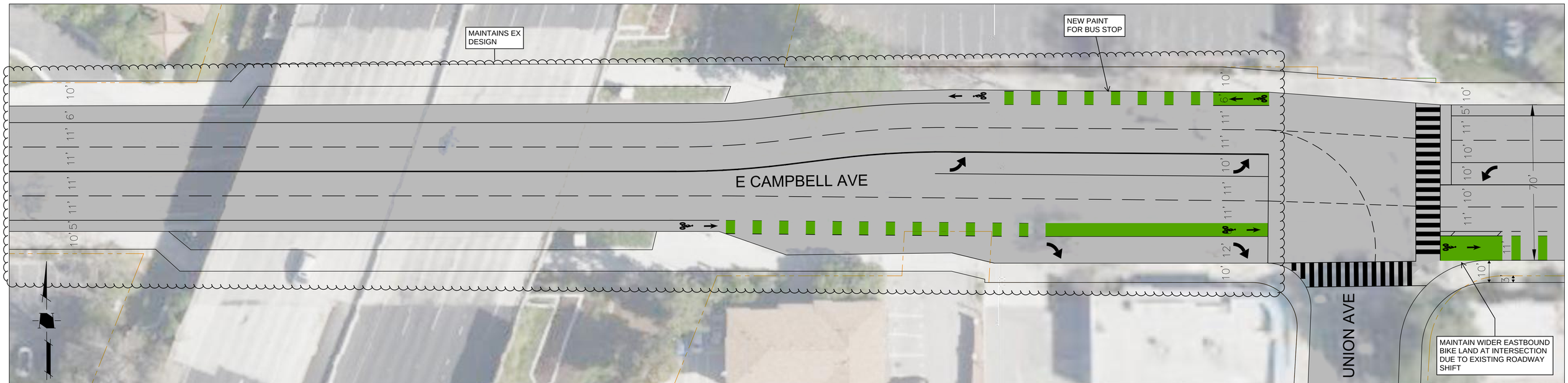
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PUBLIC WORKS

E. CAMPBELL Ave

REMOVAL OF LEFT-TURN LANES ALTERNATIVE



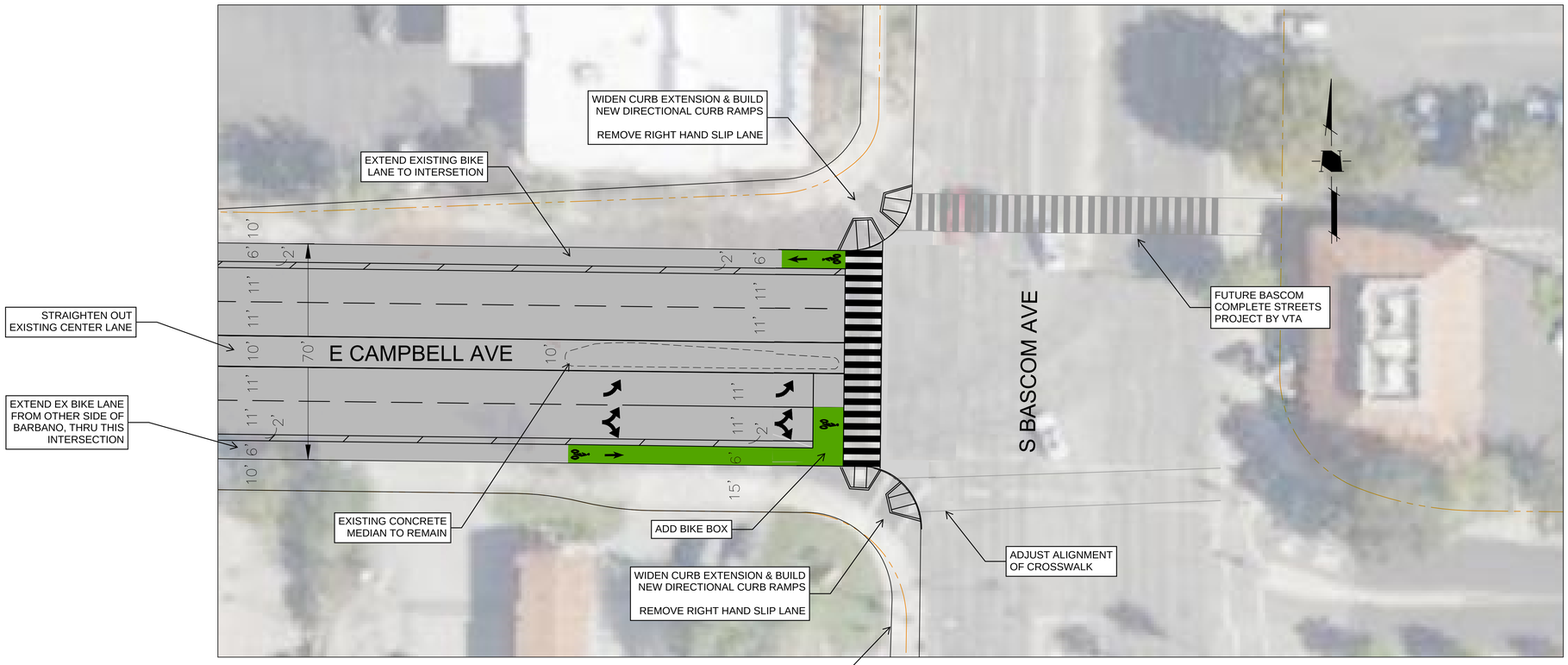
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PUBLIC WORKS

E. CAMPBELL Ave

REMOVAL OF LEFT-TURN LANES ALTERNATIVE



PUBLIC WORKS

APPENDIX C

PUBLIC OUTREACH MEMOS

HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

Date: December 15, 2025

To: Roger Storz, Campbell, CA

From: Shikha Jain

Subject: East Campbell Avenue Plan Line – Community Meeting #1

Background

The City of Campbell is undertaking the East Campbell Avenue Plan Line Study to update the East Campbell Avenue Master Plan to a street design that improves walking and biking facilities.

The East Campbell Avenue Master Plan, adopted in May 2007, identified several priorities—such as on-street parking, pedestrian accommodations, and vehicle operations—that must be balanced within a constrained right-of-way along East Campbell Avenue from Railway Avenue to Union Avenue. The intent of this plan was to strengthen the connection between historic Downtown Campbell and the Pruneyard office and shopping center, creating a more cohesive, attractive, and functional corridor. While the plan outlined the desired ultimate roadway geometry, it did not describe how the corridor should transition from its existing conditions to the envisioned future configuration. The East Campbell Avenue Plan Line Project seeks to update and enhance this older conceptual design into a multimodal corridor plan, incorporating current best practices, detailed geometric layouts, and right-of-way needs. This effort will also define the path that will be used to transition from existing geometrics to the ultimate configuration as parcels redevelop along the corridor.

As part of the public outreach effort, the City of Campbell hosted a community meeting on December 10, 2025, at the Campbell Community Center. The meeting provided an opportunity for community members to learn about the plan, ask questions, and share their experiences with using this corridor. The feedback from this event is intended to inform the project team of the community's challenges, opportunities, and priorities to assist in and guide the development of the plan line going forward.

Community members were notified of the meeting through flyers, A-frames posted along the corridor, City's mailing list, social media (Instagram, Facebook), project webpage, announcement at the Bicycle and Pedestrian Advisory Committee (BPAC) meeting, and outreach to businesses along the corridor.

Goals of the Community Meeting

- Provide project overview
- Receive input on bicycle and pedestrian safety concerns along the corridor, on-street parking usage, traffic issues, and other transportation concerns

Details

Date: December 10th, 2025
Time: 6:00 PM – 7:30 PM
Location: Campbell Community Center, Roosevelt Redwood Room (Q80)
City Team: Roger Storz, Matthew Jue
Consultant Team: Jon Cacciotti (HMH – project prime), Shikha Jain (Hexagon – subconsultant leading outreach and traffic analysis)
Meeting Attendees: 17

Meeting Format

Upon arrival, community members were asked to sign in using a sign-in sheet provided at the entrance. The event opened with a brief presentation led by Roger, Jon, and Shikha. Roger introduced the project team, shared his contact information, and provided an overview of the project background. Shikha outlined the meeting agenda and goals and facilitated a brief poll to understand who was in attendance and how they learned about the meeting. Jon followed with a summary of the project scope, process, schedule, preliminary concepts, and key tradeoffs. Shikha then presented an overview of the traffic analysis. Clarifying questions were addressed organically throughout the presentation.

Following the presentation, attendees participated in an interactive workshop session. Participants visited three stations, each focused on a different segment of the corridor, and used sticky notes to share comments and concerns directly on the display boards. The meeting concluded with a wrap-up session, during which staff from each station provided a brief summary of the feedback received at their respective boards and Jon provided a quick overview of next steps.

Polls

The first poll enquired who was attending the meeting. Twelve participants indicated that they live nearby, and all attendees reported that they visit the corridor frequently. Four attendees noted that they are associated with a business along the corridor. In terms of travel behavior, all attendees stated that they walk regularly along East Campbell Avenue, and four attendees reported that they bike along the corridor on a regular basis.

The second poll asked how attendees learned about the community meeting. Seven participants indicated that they heard about the meeting through social media, three through the flyer, and one through the project website. Additional sources mentioned included the City's mailing list, A-frame signs placed along the corridor, and outreach from the Downtown Campbell Neighborhood Association.

Community Input

During the presentation and question and answer session of the meeting, community members asked clarifying questions about the project, how redevelopment of properties along the corridor could play a role in the implementation of the corridor plan, as well as how key intersections—specifically Page Street at Campbell Avenue and Gilman Avenue at Campbell Avenue—would operate under proposed changes. Attendees sought additional information on the potential signalization of the Page Street and Campbell Avenue intersection, as well as the expected effects of the geometric changes being considered at both intersections

Following the presentation, staff and participants transitioned to the interactive stations.

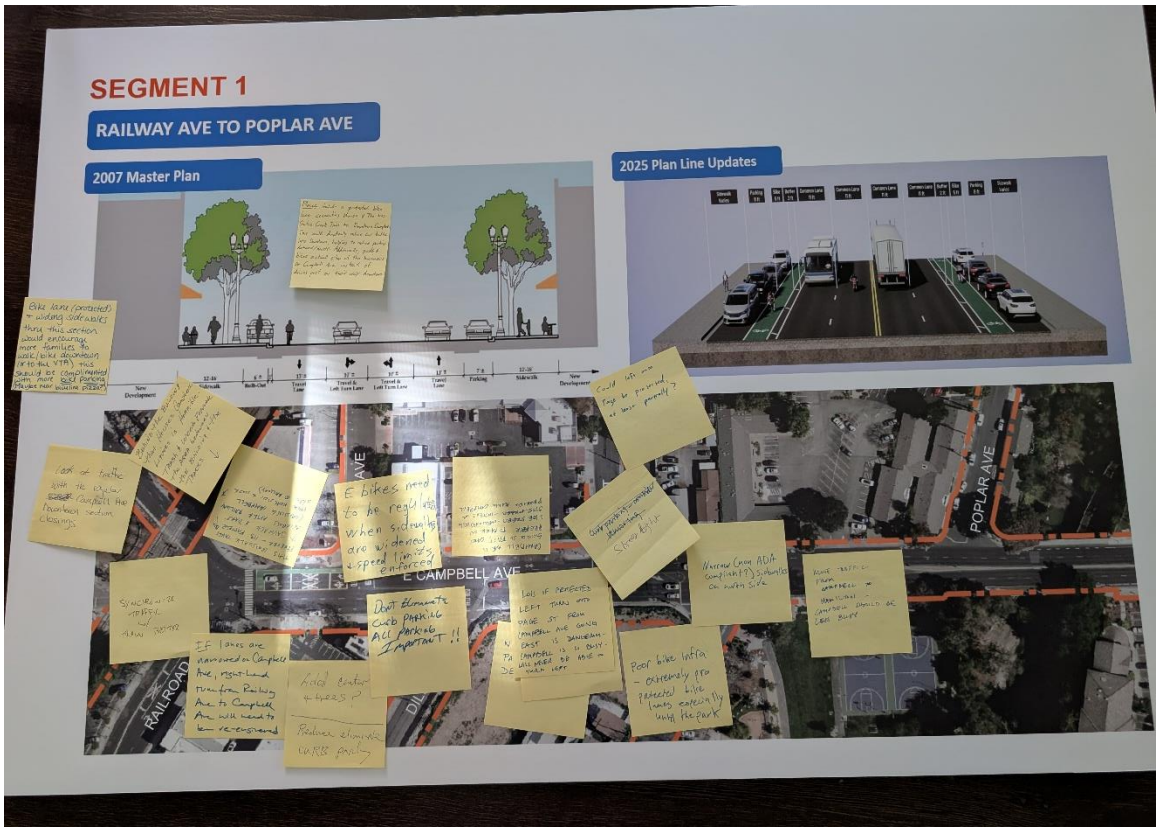
General themes of feedback received at the interactive stations is presented below.

- Support for protected and continuous bike lanes throughout the corridor.
- Interest in improving the connection to Los Gatos Creek Trail.
- Desire for wider, safer, and better-lit sidewalks, with improved accessibility and pedestrian comfort.
- Mixed views on parking, with some wanting to preserve curb parking and others supporting repurposing parking for bike or streetscape improvements.
- Requests for streetscape enhancements like adding more trees.
- Concerns about traffic operations, especially at key intersections (Page Street and Gilman Avenue), related to signal coordination with Railway Avenue, and when Downtown Campbell is closed on Farmers' Market Sundays.
- Consideration of a road diet for this corridor.

Photos of the boards from the meeting and transcribed stickies are included in the appendix.

Appendix

Figure 1: Segment 1 (Railway Avenue to Poplar Avenue)

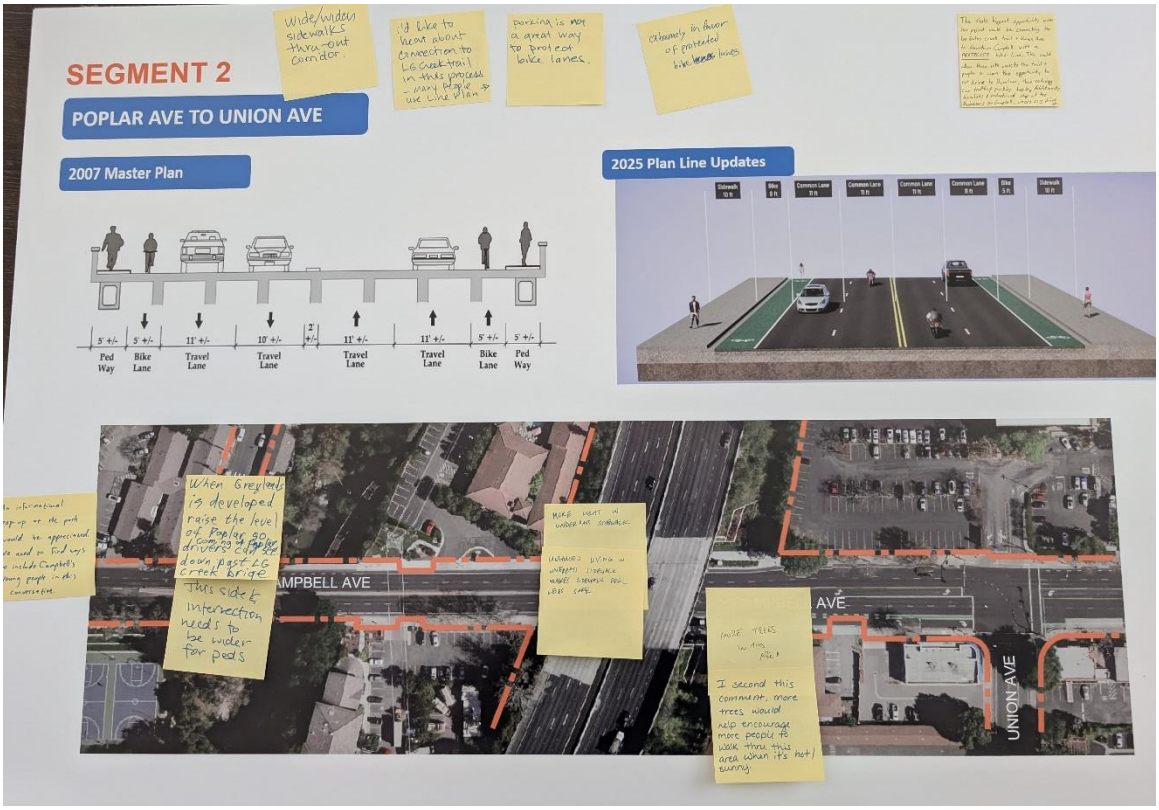


Stickies:

- "Bike lane (protected) plus widening sidewalks through this section would encourage more families to walk/bike downtown (or to the VTA). This should be complimented with more bike parking (Maybe near blue line pizza?)."
- "Looks at traffic with the regular Campbell Avenue Downtown section closings"
- "Synchronize traffic with train better"
- "If lanes are narrowed on Campbell Avenue, tight turn from Railway Avenue to Campbell Avenue would need to be re-engineered"
- "Behind the buildings that houses Campbell Liquor is horrible. Trash and weeds populate the area between the buildings and the tracks"
- "This crosswalk (crossing Campbell Avenue from north side to south side at Railway Avenue) takes forever – its faster to jaywalk and dart across after railway"
- "Please include a protected bike lane connecting union and the Los Gatos Creek Trail to Downtown Campbell. This would drastically reduce car traffic into Downtown, helping to reduce parking demand/hassle. Additionally, peds and bikes actually stop at the businesses on Campbell Avenue instead of driving past on their way Downtown."
- "E bikes need to be regulated when sidewalks are widened and speed limits enforced"
- "Don't eliminate curb parking – all parking important"
- "Add center plus trees; Reduce eliminate curb parking"

- "Campbell Avenue is going so fast, cars prefer to park on side streets, overloading side streets, instead of parking along Campbell Avenue"
- "Lots of protected left turns onto page street from Campbell Avenue going east is dangerous – Campbell Avenue is so busy, will never be able to turn left"
- "Preserve trees"
- "Need enough parking for new developments"
- "Could left onto Page be protected, at least partially"
- "Poor bike infrastructure, extremely pro protected bike lanes especially until park"
- "Narrow (non ADA compliant?) sidewalks on the north side"
- "Move traffic from Campbell Avenue to Hamilton Avenue. Campbell Avenue should be less busy"

Figure 2: Segment 2 (Poplar Avenue to Union Avenue)



Stickies:

- "An informational pop-up at the park would be appreciated. We need to find ways to include Campbell's young people in this conversation"
- "When Greylands is developed, raise the level of Poplar Avenue so going off Poplar, drivers can see down past Los Gatos Creek Bridge"
- "This side of intersection (north side of Poplar Avenue and Campbell Avenue intersection) needs to be wider for pedestrians"
- "Wide/widen sidewalks throughout the corridor"
- "I'd like to hear about connection to Los Gatos Creek Trail in this process. Many people use line plan"

- "Parking is not a great way to protect bike lanes"
- "Extremely in favor of protected bike lanes"
- "More light in underpass sidewalk"
- Unhoused living in underpass sidewalk makes sidewalk feel less safe"
- More trees in this area"
- "I second this comment. More trees would help encourage more people to walk through this area when its hot/sunny"
- "This single best opportunity with this project would be connecting the Los Gatos Creek Trail and Union Avenue to Downtown Campbell with a protected bike lane. This would allow those with access to the trail plus people on Union Avenue the opportunity to not drive to Downtown, thus reducing car traffic, parking hassle. Additionally, bicyclists and pedestrians stop at the businesses on Campbell Avenue, where cars drive by."

Figure 3: Segment 3 (Union Avenue to Bascom Avenue)



Stickies:

- "Road diet for entire corridor"
- "Eliminating center turn lane to add buffered bike lanes is a decent idea"
- "Trees in center"
- "Consideration for new developments on traffic"
- "Bike lanes sound great. Leaving bike lanes is also important"
- "Pro continuous and protected bike lanes on north and south"

Hexagon Transportation Consultants, Inc.

Memorandum

Date: April 27, 2026

To: Roger Storz, Campbell, CA

From: Shikha Jain

Subject: East Campbell Avenue Plan Line – Community Meeting #2

Background

The City of Campbell is undertaking the East Campbell Avenue Plan Line Study to update the East Campbell Avenue Master Plan, adopted in 2007, to a street design that improves walking and biking facilities. This study builds on the Master Plan's vision by advancing the conceptual design into a multimodal corridor plan with updated best practices, refined geometric layouts, and defined right-of-way needs.

As part of the public outreach effort for this study, the City of Campbell hosted a community meeting on April 23, 2026, at the Campbell Community Center. This was the second community meeting for the project. The first meeting provided an opportunity for community members to learn about the plan and share input on key challenges, opportunities, and priorities to help guide its development. The second meeting focused on presenting the alternatives analyzed as part of the study, including a detailed overview of both the preferred and non-preferred alternatives. It also provided community members with an opportunity to ask clarifying questions and share feedback.

Community members were notified of the meeting through flyers, A-frames posted along the corridor, City's mailing list, social media (Instagram, Facebook), project webpage, announcement at the Bicycle and Pedestrian Advisory Committee (BPAC) meeting, and outreach to businesses along the corridor.

Goals of the Community Meeting

- Share draft plan line alternatives analysis
- Share preferred alternative and cross-section concepts
- Answer clarifying questions and receive feedback
- Build consensus around the preferred alternative

Details

Date: April 23, 2026
Time: 6:00 PM – 7:30 PM
Location: Campbell Community Center, Roosevelt Redwood Room (Q80)
City Team: Roger Storz, Matthew Jue
Consultant Team: Jon Cacciotti (HMH), Alyson Goulden (HMH), Shikha Jain (Hexagon)
Meeting Attendees: 22

Meeting Format

Community members were asked to sign in upon arrival. The meeting began with a brief presentation led by Roger, Jon, and Shikha. Roger introduced the project team, provided an overview of the project background, and outlined the agenda and goals. Shikha conducted a brief poll to understand attendee demographics and participation in the first meeting. Jon then summarized community, BPAC, and property owner feedback to date, and presented the project alternatives, including a detailed overview of the preferred and non-preferred options, as well as next steps. Shikha provided an overview of the traffic analysis. The presentation explained that due to safety considerations, this project really had only one alternative the City could stand behind. The presentation also explained how this alternative deviated from the 2007 adopted master plan. Clarifying questions were addressed throughout the presentation, with additional questions and feedback collected at the end.

Polls

The first poll asked about attendee characteristics. Fourteen participants indicated they live nearby, and all reported visiting the corridor frequently. Three attendees were associated with businesses along the corridor. All participants stated they walk along East Campbell Avenue regularly, and six reported biking along the corridor on a regular basis.

The second poll found that nine participants had attended the first community meeting.

The third poll asked how attendees learned about the meeting. Two participants cited social media, five the flyer, and one the project website. Additional sources included the City's mailing list, A-frame signs along the corridor, and outreach from the Downtown Campbell Neighborhood Association.

Note that several attendees arrived after the polls were conducted and are not reflected in these results.

Community Input

The question and answer session of the meeting is summarized below. Note that no significant questions were asked about Segments 2 or 3 of the Plan Line.

Question/Comment	Answer
Concerned about loss of parking spaces in the preferred option, especially when comparing it to seeing lots of new parking spaces in the non-preferred option	Noted
Can Page Street be signalized even before the development of Cresleigh? Getting out of Page Street is a nightmare. Can't wait for signalization.	Signalization of Page Street/Campbell Avenue intersection is in the City's CIP. Cresleigh is conditioned to design the signal and pay fair share towards its construction. The City will construct the signal, remove the bulbout and parking spaces on the northwest corner and stripe the bike lane. Cresleigh is expected to go into construction later in 2026.

What will the ingress and egress be for the Cresleigh development?	Vehicles will use Gilman and Dillon to access different parking garage areas for the future development
In the interim condition of the roadway between Page Street and Gilman Avenue, the sharrows feel unsafe. Can it be narrowed to one travel lane and a bike lane?	Narrowing at one segment along the corridor is the same as a road diet and would not work. Concern about sharrows noted.
The eastbound left turn pocket at Page Street would not have sufficient storage.	The traffic analysis notes that the storage would not be sufficient and there might be spillover of 1 to 2 cars. The City can modify signal timing in the future to improve operations if required.
Biking along Campbell Avenue will not feel safe until development comes in and the interim condition is removed.	Noted
Questioned the functionality of how parked cars exit the on-street parking on the south side between Page Street and Gilman Avenue.	Noted
Vehicles turning eastbound left from Campbell Avenue onto Foote Avenue feels unsafe. Could a median be added to restrict the left turns?	Noted. This would be a change since this movement is allowed today 
Why is a protected left-turn pocket safer than shared left-through movement?	Provided an overview of phasing, and potential of vehicle-vehicle conflicts and vehicle-pedestrian conflicts for a shared left-through movement. Explained that the pedestrian phase goes concurrently with the shared left-through movement, and left-turning vehicles have to find a gap in traffic in the opposite direction as well as navigate pedestrians crossing that leg.
Could Page Street and Gilman Avenue operate with protected left-turn phasing without a left-turn pocket. (asked in regards to the non-preferred option)	No. FHWA does not allow a left-turn arrow for a shared left-through movement.
Could Page Street and Gilman Avenue operate with split phasing i.e. eastbound goes and then westbound goes. (asked in regards to the non-preferred option)	It could. But eastbound and westbound volumes are heavy and split phasing will result in longer queues and level of service deficiencies.
Have the queueing issues due to the light rail at Railway Avenue/Civic Center Drive been evaluated?	The traffic analysis did evaluate this intersection and there are existing and projected future queueing issues. However, improving queueing at the intersection is not a

	part of this study's scope. The preferred plan line concept would not modify this section of the roadway.
There are several approved developments near Campbell Avenue. All these vehicles will get into Campbell Avenue and worsen congestion.	Noted. The traffic study looks at future conditions i.e. the City's 2040 General Plan Buildout that includes regional growth as well planned development in the City.
What is the plan/timeline for Greylands?	There is no definitive timeline. The property will be redeveloped at a time the property owners decide.
Do studies show that bike lanes attract bicyclists?	Do not have data for projects in Campbell, but studies globally show that if you build bike lanes, they will come. Bike lanes are built incrementally and as the network gets built out, more bicyclists will feel comfortable in using them. Bike lanes are most effective when they connect destinations, and in this case, the bike lanes on Campbell Avenue would connect the Downtown to Pruneyard. A few individuals spoke up about how their personal habits would change and they would definitely use the corridor to get to downtown once the lanes are built
You're proposing to remove 8 parking spaces in exchange for 7 spaces across the street. Three of these spaces will be in the offset intersection and will produce a confusing traffic pattern that will lead to traffic incidences. Instead of straight traffic flow in front of Lloyd Square, vehicles would have to veer to the right in order to avoid traveling into the bike lane. It's possible to avoid all these problems by eliminating the parking in front of Cresleigh.	Noted. The team will analyze this option.
Bicyclists are observed riding on the sidewalk which makes pedestrians feel uncomfortable. Bikes coming down Harrison Avenue ride the wrong way to get to the Los Gatos Creek Trail.	Noted.
I live off Union Avenue and bike on Campbell Avenue to get to the Los Gatos Creek Trail because Segment 1 of Campbell Avenue is scary. I use the trail to go to businesses and restaurants in other Cities instead of Downtown Campbell. I am supportive of the Plan Line project, since it would give me a safer path to Downtown where I can patronage Campbell businesses as well.	Noted.
Is there sufficient space to add protected bike lanes in segment 1, under the preferred scenario?	Cannot narrow lanes beyond 10 feet. Therefore, the width of the bike lanes, although close enough, is not sufficient for protected bike lanes.

Under existing conditions, eastbound vehicles at Gilman Avenue/Campbell Avenue have been noted to drive through the intersection, even when the signal goes from yellow to red and a couple of seconds after red. Pedestrians crossing Campbell Avenue at Gilman Avenue from the park going north feel unsafe. A longer yellow or all red phase would make this movement safer.	Noted. 

APPENDIX D

TRAFFIC OPERATIONS ANALYSIS

Hexagon Transportation Consultants, Inc.

Memorandum

Date: April 1, 2026

To: Roger Storz, City of Campbell

From: Shikha Jain, Miles Henninger

Subject: Traffic Operations Analysis of the East Campbell Avenue Plan Line in Campbell, CA

Background

The City of Campbell is undertaking the East Campbell Avenue Plan Line Study to update the East Campbell Avenue Master Plan to a street design that improves both walking and biking facilities, while defining the path that will be used to transition from existing geometrics to the ultimate configuration as parcels redevelop along the corridor.

The East Campbell Avenue Master Plan, adopted in May 2007, identified several priorities—such as on-street parking, pedestrian accommodations, and vehicle operations—that must be balanced within a constrained right-of-way along East Campbell Avenue from Railway Avenue to Bascom Avenue (see Figure 1). The intent of this plan was to strengthen the connection between historic Downtown Campbell and the Pruneyard office and shopping center, creating a more cohesive, attractive, and functional corridor.

As identified in the East Campbell Avenue Master Plan, the existing right of way along the study corridor is constrained and in order to accommodate continuous bicycle facilities within this right of way, there would be tradeoffs like removal of left-turn lanes or removal of a travel lane, which could affect traffic operations. The evaluation of these tradeoffs, methodologies, and findings are presented in this memorandum.

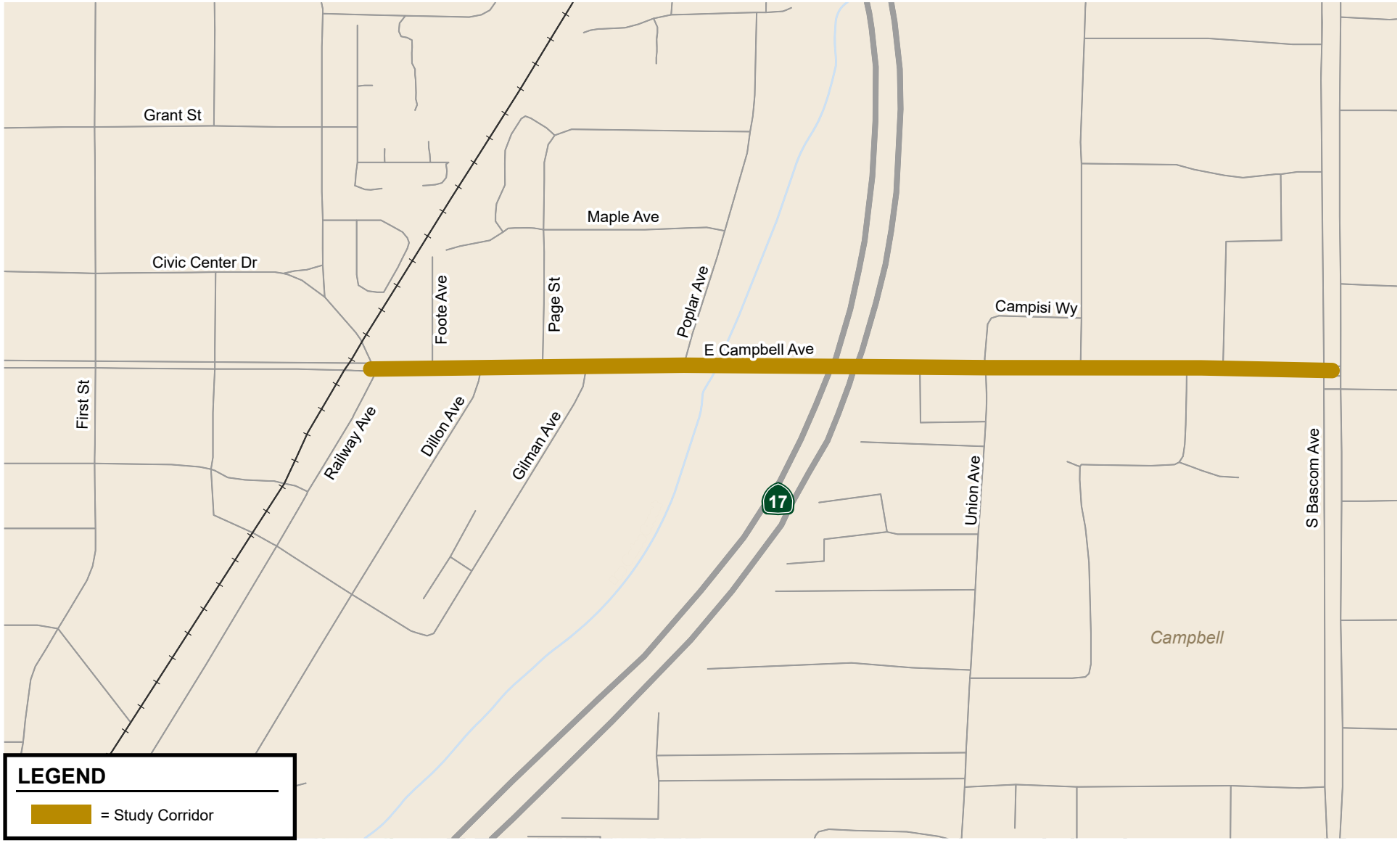


Figure 1
Site Location

Scope of Study

The purpose of this study is to analyze traffic operations in accordance with standards and methodologies set forth by the City of Campbell to evaluate changes in roadway geometry to accommodate continuous bicycle facilities within the existing right of way along the study corridor. Any associated safety implications under these scenarios are also discussed.

Two roadway reconfiguration scenarios were analyzed:

- **No Left-turn Lane Scenario:** Currently, there is a westbound left-turn lane at the intersection of Dillon Avenue and Campbell Avenue, eastbound left-turn lane at the intersection of Page Street and Campbell Avenue, westbound left-turn lane at the intersection of Gilman Avenue and Campbell Avenue, eastbound and westbound left-turn lanes at the intersection of Union Avenue and Campbell Avenue, and a two-way median left-turn lane between Union Avenue and Bascom Avenue.

  East of Poplar Avenue, Campbell Avenue widens and already has continuous bicycle lanes. West of Poplar Avenue, Campbell Avenue is narrower, and in order to maintain the existing left-turn lanes and accommodate continuous bicycle facilities within the curb-to-curb width, eight on-street parking spaces on the north side of the roadway between Foote Avenue and Page Street and the curb extension on the north-west corner of the intersection of Campbell Avenue and Page Street would need to be removed. Therefore, an analysis to evaluate intersection traffic operations with the removal of left-turn lanes at the intersections west of Union Avenue was conducted. Intersection traffic conditions were evaluated for the following scenarios:

  - *Existing Conditions.* Existing AM and PM peak hour traffic volumes were obtained from new turning-movement counts conducted on October 16, 2025. Traffic counts are included in Appendix A.
  - *Cumulative Conditions.* The City's Housing Element Update model run was used to develop intersection volumes under cumulative conditions. The Housing Element Update model includes the Cresleigh Homes development project. Therefore, this scenario assumes the signalization of the intersection of Page Street and Campbell Avenue as part of the Cresleigh Homes development agreement.
  - *Cumulative No Left-Turn Lanes.* Cumulative traffic volumes were applied to the study intersections with the removal of left turns. Intersection effects associated with the removal of left-turn lanes were evaluated relative to cumulative conditions.

- **Road Diet Scenario:** As an alternative to removing left-turn lanes, this scenario considers removal of one travel lane to accommodate bicycle facilities west of Poplar Avenue. Feasibility was evaluated qualitatively based on intersection level of service and queueing results from the no-left-turn lanes analysis.

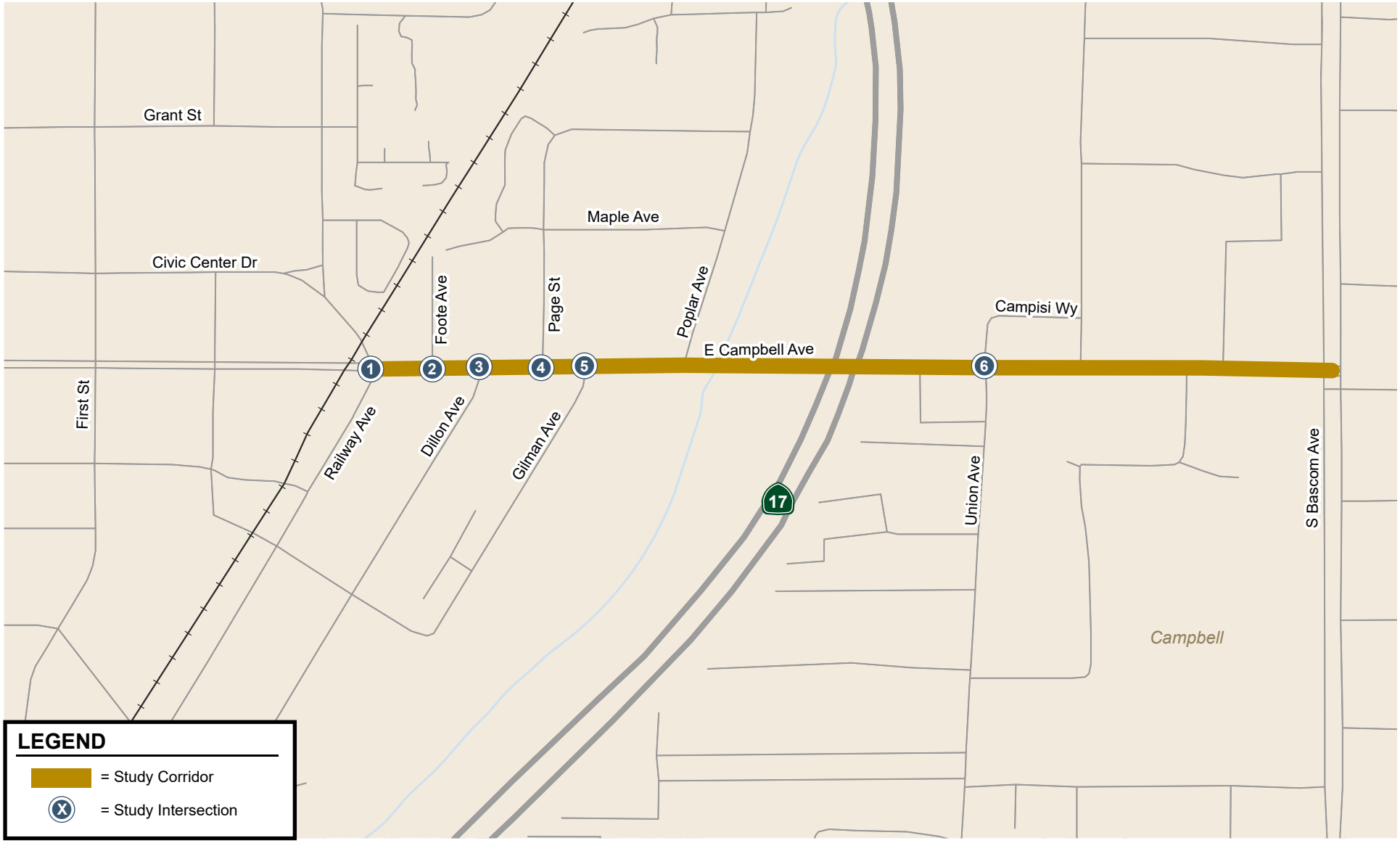


Figure 2
Study Intersections

Removal of Left-Turn Lanes Scenario

Under the existing, cumulative, and cumulative no left turn lane scenarios described previously, six intersections were analyzed in consultation with City staff to analyze the effect on traffic operations and queueing as they would be affected by the addition of bike lanes along Campbell Avenue. The intersections are listed below and shown in Figure 2:

1. Railway Avenue and Campbell Avenue
2. Foote Avenue and Campbell Avenue
3. Dillon Avenue and Campbell Avenue
4. Page Street and Campbell Avenue
5. Gilman Avenue and Campbell Avenue
6. Union Avenue and Campbell Avenue

No intersections east of Union Avenue were analyzed since Campbell Avenue widens and already has continuous bicycle lanes. No geometry changes would be required at those intersections.

A tabular summary of traffic volumes under Existing and Cumulative scenarios at each intersection is contained in Appendix B.

Intersection Operations Analysis Methodology

Data Requirements

The data required for the analysis was obtained from traffic counts, the City of Campbell, the City's Housing Element Update Model, and field observations. The following data was collected:

- Existing traffic volumes
- Lane geometries
- List of approved developments
- Cumulative Volumes

Intersection Level of Service Analysis Methodology

Traffic conditions at the study intersections were evaluated using level of service (LOS). Level of service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays.

This study utilizes Synchro software to determine intersection levels of service based on the Highway Capacity Manual (HCM) 2000 methodology. The HCM 2000 methodology estimates the average control delay per vehicle in seconds. *Control delay* is the amount of delay that is attributed to the particular traffic control device at the intersection, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For stop-controlled intersections, the delay is reported for the intersection movements that have stop signs. The average control delay can then be correlated to a level of service. Tables 1 and 2 present the level of service definitions for signalized and unsignalized intersections, respectively.

The HCM 2000 methodology was used instead of the latest HCM methodology since Synchro's HCM 7th Edition methodology cannot evaluate the signal timing setup used by intersections on this corridor.

Table 1

Signalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0

Sources: Transportation Research Board, *2000 Highway Capacity Manual. Traffic Level of Service Analysis Guidelines*, Santa Clara County Transportation Authority Congestion Management Program, June 2003.

Table 2
Unsignalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delay occurring with favorable progression.	up to 10.0
B	Operations with low delay occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression or high V/C ratios.	25.1 to 35.0
E	Operations with high delay values indicating poor progression and high V/C ratios. This is considered to be the limit of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	Greater than 50.0

Source: Transportation Research Board, *2000 Highway Capacity Manual*.

City of Campbell Level of Service Standard

Per Campbell's *Envision Campbell General Plan 2040*, the standard for acceptable intersection operations for signalized intersections under the City's jurisdiction is LOS D during weekday AM and PM peak hours. The City does not have a standard for unsignalized intersection operations, so

LOS D was used as the standard for the purposes of this study, consistent with previous studies in the area.

Signal Warrant Analysis

The need for signalization of an unsignalized intersection is assessed based on the Peak Hour Volume Warrant (Warrant 3) described in the California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD), Part 4, Highway Traffic Signals, 2014. This method makes no evaluation of intersection level of service but simply provides an indication of whether vehicular peak hour traffic volumes are, or would be, sufficient to justify the installation of a traffic signal. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Peak-hour traffic signal warrant checks were conducted for the Foote Avenue and Campbell Avenue and Dillon Avenue and Campbell Avenue intersections.

Intersection Vehicle Queuing Analysis

An evaluation of vehicle queuing was conducted using the Synchro software, utilizing its estimate of the 95th percentile queue and a comparison of this estimate to available storage space for the movement assuming 25 feet per vehicle. The vehicle queuing analysis was used to determine if the available storage would be sufficient for the 95th percentile queue at the study intersections even with the removal of left turns at some of the study intersections.

Existing Conditions

Traffic Volumes

AM and PM peak hour turning-movement counts were collected at each of the study intersections on October 16, 2025, a typical weekday. Existing peak hour traffic volumes are shown in Figure 3. The counts are attached in Appendix A.

The Campbell Farmers Market operates each Sunday from 9:00 AM to 1:00 PM on Campbell Avenue between Third Street and Central Avenue. During this period, this segment of Campbell Avenue is closed to vehicular traffic, and vehicles are diverted to Civic Center Drive and Railway Avenue to circulate around downtown, resulting in a temporary increase in traffic volumes on these roadways. However, overall weekend traffic volumes are generally lower than weekday peak-hour volumes, and the traffic diversion occurs only for a limited duration each week. Given the temporary nature of this condition and the relatively low background traffic levels, a separate analysis scenario for the farmers market period is not included in this study.

Roadway Network

Between Railway Avenue/Civic Center Drive and Union Avenue, Campbell Avenue consists of two lanes in each direction with left-turn pockets at its intersections with Dillon Avenue, Page Street, Gilman Avenue, and Union Avenue. On-street parking is provided along all side streets with the exceptions of Railway Avenue/Civic Center Drive and Union Avenue, and along Campbell Avenue on both sides between Railway Avenue/Civic Center Drive and Foote Avenue, and on the westbound side only between Foote Avenue and Page Street.

Class II bicycle facilities (striped bike lanes) are provided east of Poplar Avenue and on the westbound side only between Railway Avenue/Civic Center Drive and Foote Avenue. West of Poplar Avenue, Class III bicycle facilities (sharrows) are provided along Campbell Avenue. A concrete median is present between Poplar Avenue and the SR-17 overpass.

Continuous sidewalks are provided along both sides of the corridor. Crosswalks with pedestrian push-buttons across Campbell Avenue are provided at all signalized intersections along the corridor, while painted crosswalks across side streets only are provided at all other intersections.

All intersections along this segment of Campbell Avenue are one-way stop-controlled, except for the intersections with Railway Avenue/Civic Center Drive, Gilman Avenue, and Union Avenue, which are signalized. Existing lane configurations of the study intersections are shown in Figure 4.

Observed Existing Traffic Conditions

Roadway conditions were observed during the AM and PM peak periods on typical weekdays. Observations focused on the operations of the study intersections including Railway Avenue/Civic Center Drive and Campbell Avenue while it is being crossed by the light rail, to identify any existing operational deficiencies, and to confirm the accuracy of calculated levels of service.

Light Rail crossings were observed to last approximately 32 seconds. Potential safety issues with vehicles sneaking through the intersection as the gates were lowering were observed.

Long westbound vehicle queues were observed in the westbound direction during the AM and PM peak hour, extending past the intersection of Gilman Avenue and Campbell Avenue to the Los Gatos Creek bridge. Vehicles in the queue were observed to be generally turning westbound right at the intersection of Railway Avenue/Civic Center Drive and Campbell Avenue. Vehicles in queues were observed to generally obey the “keep clear” zones at Foote Avenue and Page Street, allowing vehicles making southbound or eastbound left-turns to access the intersections. Changes were made to intersection characteristics in the Synchro software based on these observations to more closely resemble existing conditions at the intersection. No queueing issues were observed in the eastbound direction at the study intersections on Campbell Avenue during either peak hour.

Existing Intersection Levels of Service

Table 3 shows the calculated level of service for each intersection. Based on the City of Campbell’s operating standard of LOS D, all study intersections currently operate at acceptable levels of service. The level of service calculations are provided in Appendix C.

While the intersection of Railway Avenue/Civic Center Drive and Campbell Avenue operates at an acceptable level of service, potential safety issues with vehicles sneaking through the intersection as the gates were lowering were observed as described in the previous section. It is recommended that safety issues at this intersection be evaluated.

Signal Warrant Evaluation

Neither the intersection of Foote Avenue and Campbell Avenue nor the intersection of Dillon Avenue and Campbell Avenue met thresholds which would warrant signalization during the AM or PM peak hours. The signal warrant analysis is provided in Appendix D.

Table 3
Existing Intersection Levels of Service

				Existing Conditions	
#	Intersection	Pk Hr	Control	Avg. Delay	LOS
1	Railway Avenue & Campbell Avenue[1]	AM	Signal	20.9	C
		PM		31.1	C
2	Foote Avenue & Campbell Avenue	AM	TWSC	13.6	B
		PM		19.8	C
3	Dillon Avenue & Campbell Avenue	AM	TWSC	29.9	D
		PM		34.2	D
4	Page Street & Campbell Avenue	AM	TWSC	17.7	C
		PM		29.3	D
5	Gilman Avenue & Campbell Avenue	AM	Signal	8.6	A
		PM		9.6	A
6	Union Avenue & Campbell Avenue	AM	Signal	19.0	B
		PM		25.9	C

Notes

TWSC = Two-Way Stop Controlled

For TWSC intersections, delay represents worst approach delay and LOS represents worst approach LOS

[1] Adjustments were made based on field observations. Light Rail crossings are represented as an all-red phase in Synchro based on the total duration of crossings in 1 hour divided by the amount of signal cycles in 1 hour.



Figure 3
Existing Traffic Volumes

NORTH
Not to Scale

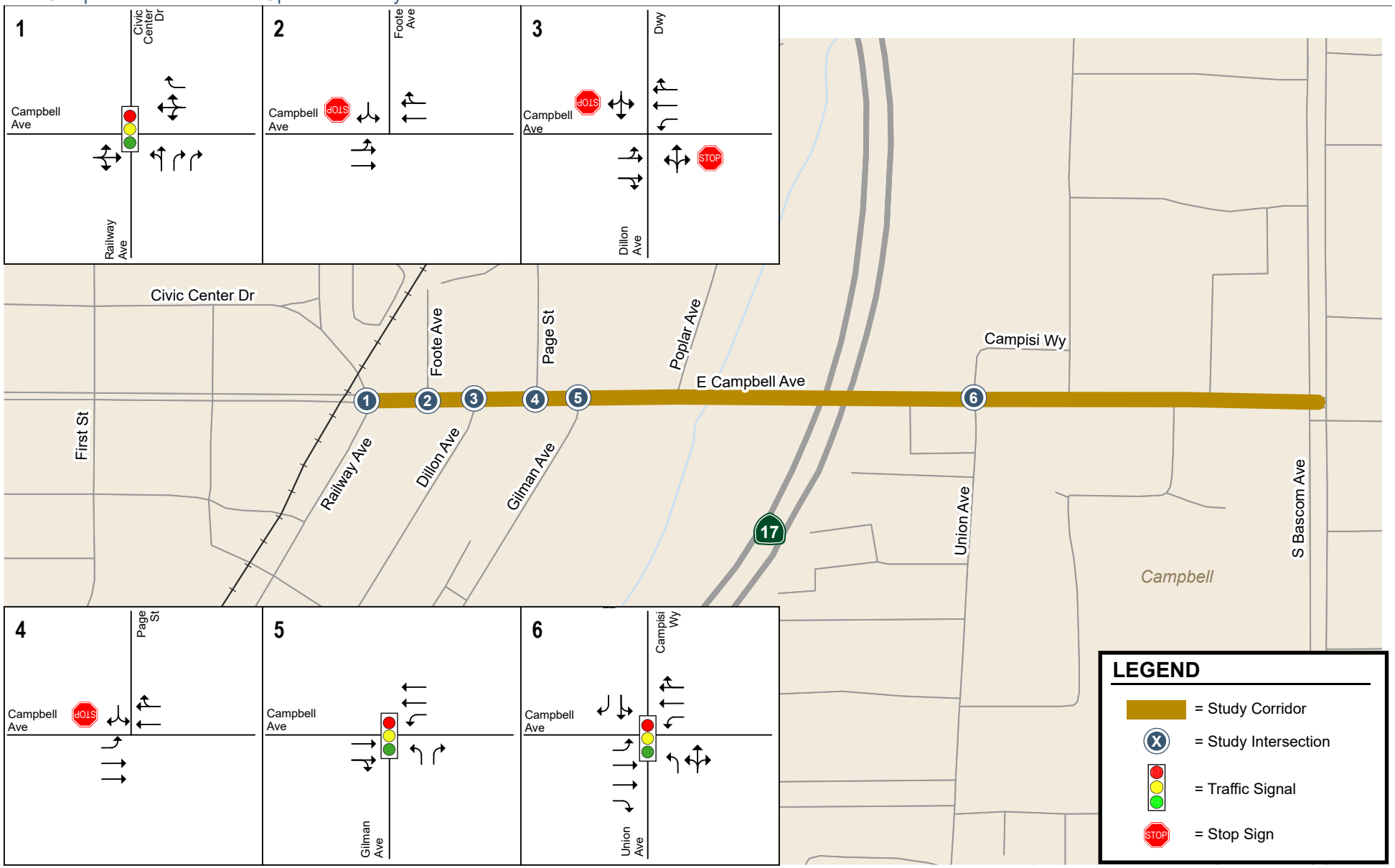


Figure 4
Existing Lane Configurations

NORTH
Not to Scale

Cumulative Conditions

Traffic Volumes

The City's Housing Element Update model run was used to develop intersection volumes under cumulative conditions. Figure 5 shows the cumulative volumes.

Roadway Network

The intersection lane configuration under cumulative no project conditions would be the same as under existing conditions.

The proposed Cresleigh Homes project located along Campbell Avenue on the south side of the roadway between Dillon Avenue and Gilman Avenue as part of its development agreement is required to signalize the intersection of Page Street and Campbell Avenue. The signal would be coordinated with the existing signal at the intersection of Gilman Avenue and Campbell Avenue, while keeping the existing geometry. This improvement is assumed under the cumulative scenario.

In order to accommodate continuous bike lanes while keeping the left-turn lanes, the curb extension at the north-west corner of the intersection of Campbell Avenue and Page Street would need to be removed. This would lengthen the pedestrian walk times across the intersection by two seconds. Longer pedestrian walk times across the intersection due to the removal of the curb extension were assumed under this analysis.

Cumulative No Left-Turn Lanes Conditions

Traffic Volumes

Traffic volumes used to analyze cumulative no left-turn Lanes conditions were the same as under cumulative conditions.

Roadway Network

Under cumulative no left-turn lanes conditions, left-turn only lanes would be removed and left-turns would be shared with the through lanes at Campbell Avenue's intersections with Dillon Avenue, Page Street, and Gilman Avenue (see Figure 6) to accommodate continuous bicycle facilities within the existing right-of-way. With the removal of the left-turn only lane, the signal phasing at the Campbell Avenue and Page Street and Campbell Avenue and Gilman Street intersections would be modified to permitted-protected left-turn phasing from protected left-turn phasing. The removal of left turn only lanes and the proposed signal modifications are also consistent with the approved 2007 East Campbell Avenue Master Plan.

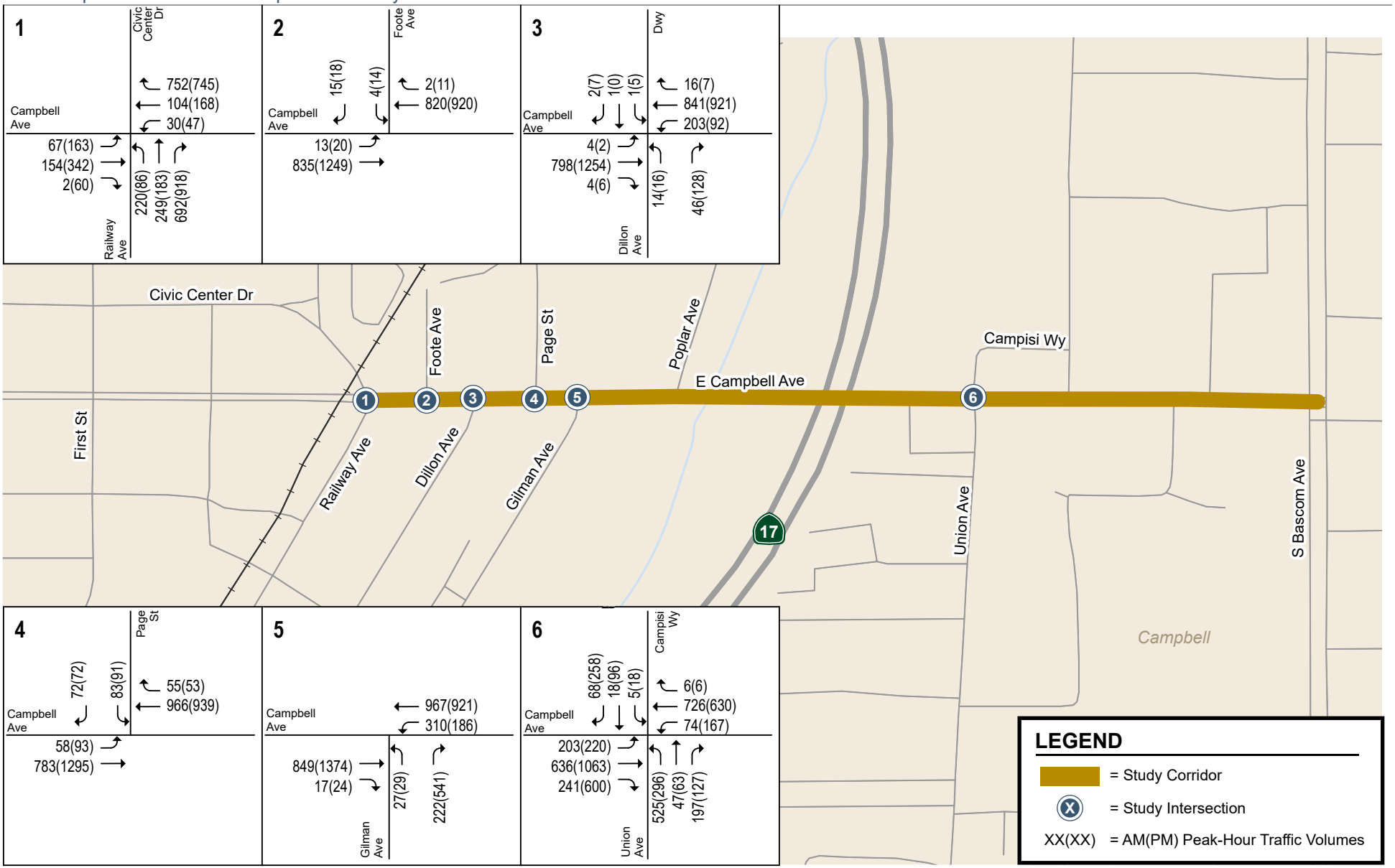


Figure 5
Cumulative and Cumulative No-Left Traffic Volumes

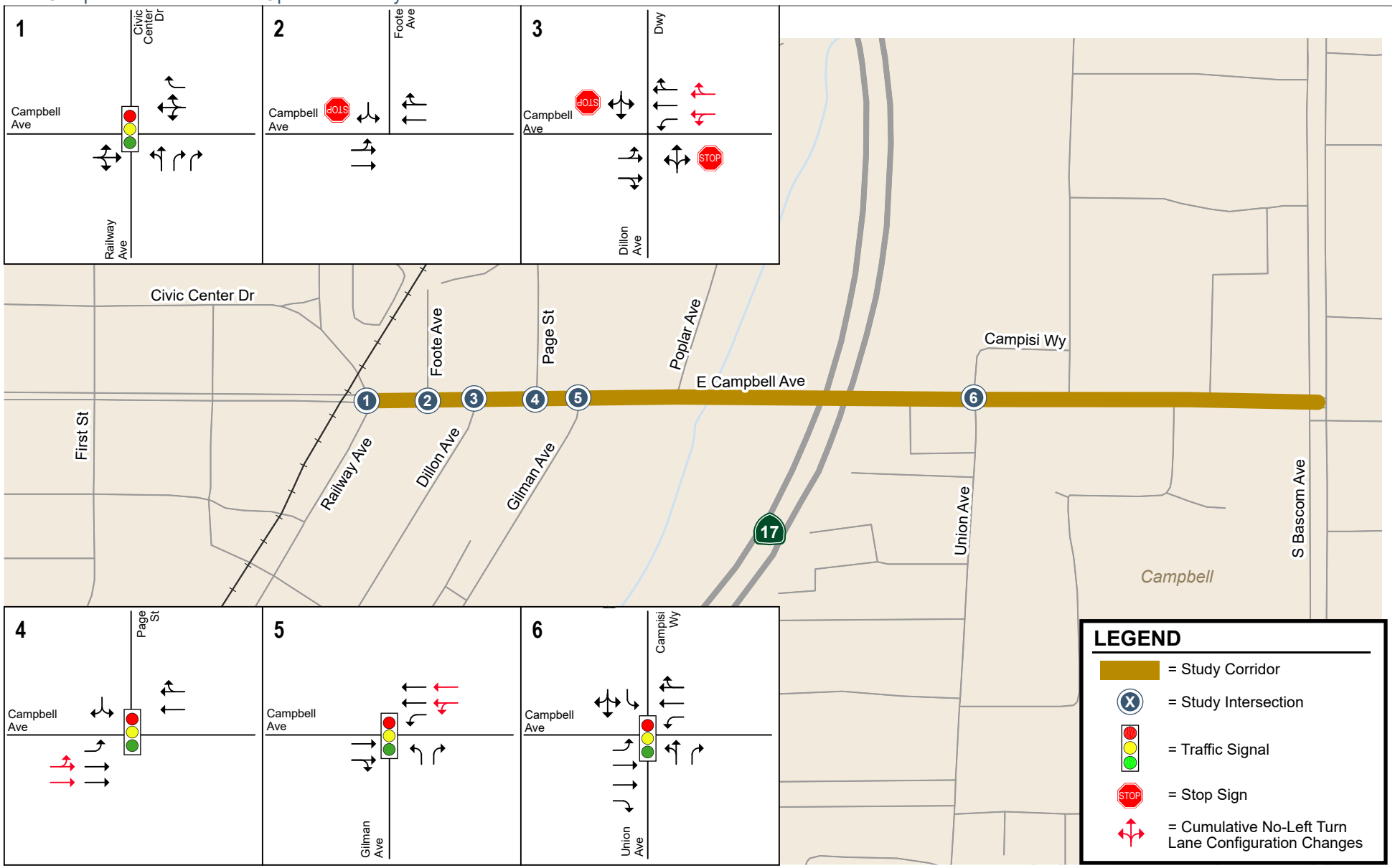


Figure 6
Cumulative and Cumulative No-Left Lane Configurations

Cumulative Intersection Levels of Service

Table 4 shows the calculated level of service for each intersection under cumulative and cumulative no left-turn lanes conditions. Under cumulative conditions, the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive would operate at an unacceptable LOS E during the PM peak hour, and the intersection of Campbell Avenue and Dillon Avenue would operate at an unacceptable LOS F during both peak hours. Furthermore, signal warrant analysis shows that the intersection of Campbell Avenue and Dillon Avenue would meet the signal warrant during the PM peak hour.

Relative to cumulative conditions, under the cumulative no left turn lanes scenario, average delay at the intersection of Page Street and Campbell Avenue would be slightly better during the AM peak hour and at the intersection of Gilman Avenue and Campbell Avenue would be slightly better during both peak hours.

Under the cumulative no left turn lanes scenario, average delay at the intersection of Foote Avenue and Campbell Avenue would increase, even though no geometric changes are proposed at this intersection. As discussed in the following section, eastbound queues at the intersection of Page Street and Campbell Avenue under the cumulative no–left-turn lanes scenario are expected to extend to Foote Avenue, which could contribute to increased delay for vehicles turning left from Foote Avenue onto Campbell Avenue.

The intersection of Campbell Avenue and Dillon Avenue would continue to operate at an unacceptable LOS F under the cumulative no–left-turn lane scenario and would continue to meet signal warrant criteria during the PM peak hour. Although signal warrant criteria are met, signalization at this intersection is not recommended due to its close proximity to the signalized intersections at Railway Avenue/Civic Center Drive and Campbell Avenue and Page Street and Campbell Avenue. As delays increase at this location, motorists are expected to divert to nearby signalized intersections, such as Railway Avenue/Civic Center Drive and Campbell Avenue and Gilman Avenue and Campbell Avenue, to access Campbell Avenue.

Intersection level of service calculations are provided in Appendix C.

Table 4
Cumulative Intersection Levels of Service

#	Intersection	Pk Hr	Control	Cumulative		Cumulative No Left-Turn Lanes		
				Avg. Delay	LOS	Avg. Delay	LOS	Change in Delay
1	Railway Avenue & Campbell Avenue[1]	AM	Signal	46.6	D	46.6	D	0.0
		PM		**71.9**	**E**	**71.9**	**E**	**0.0**
2	Foote Avenue & Campbell Avenue	AM	TWSC	12.8	B	14.4	B	1.6
		PM		26.2	D	31.9	D	5.7
3	Dillon Avenue & Campbell Avenue	AM	TWSC	**72.7**	**F**	**76.2**	**F**	**3.5**
		PM		**88.3**	**F**	**109.8**	**F**	**21.5**
4	Page Street & Campbell Avenue	AM	Signal	9.9	A	6.9	A	-3.0
		PM		16.4	B	17.3	B	0.9
5	Gilman Avenue & Campbell Avenue	AM	Signal	11.4	B	9.4	A	-2.0
		PM		24.4	C	23.1	C	-1.3
6	Union Avenue & Campbell Avenue	AM	Signal	31.7	C	31.7	C	0.0
		PM		43.0	D	43.0	D	0.0

Notes

TWSC = Two-Way Stop Controlled

For TWSC intersections, delay represents worst approach delay and LOS represents worst approach LOS

Bold indicates unacceptable LOS

[1] Adjustments were made based on field observations. Light Rail crossings are represented as an all-red phase in Synchro based on the total duration of crossings in 1 hour divided by the amount of signal cycles in 1 hour.

Vehicle Queueing

Vehicle queuing was evaluated using Synchro software, based on estimates of the 95th percentile queue length and a comparison of these queues to the available storage for each movement, assuming 25 feet per vehicle. The queuing analysis was conducted to determine whether available storage would be sufficient to accommodate the 95th percentile queues at the study intersections, including under scenarios where left-turn lanes are removed at select locations. Eastbound and westbound queues were analyzed to assess potential increases in queueing along the study corridor, while queues on minor-street approaches were evaluated to identify potential increases in delay resulting from corridor-wide operational changes. Queues at the intersection of Union Avenue and Campbell Avenue were not analyzed, as this intersection is further away from locations where left-turn lanes are proposed to be eliminated and would not be affected by upstream or downstream queuing. A summary of the queuing analysis is provided in Table 5.

Westbound Queues along Study Corridor

Under existing conditions, 95th percentile westbound vehicle queues at the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive exceed the available storage. During the AM peak hour, the 95th percentile westbound right-only queue extends nearly to the intersection of Gilman Avenue and Campbell Avenue, while during the PM peak hour it extends nearly to the intersection of Page Street and Campbell Avenue. Under cumulative conditions, these queues would worsen, extending beyond the intersection of Gilman Avenue and Campbell Avenue during the AM peak hour and approaching the intersection of Poplar Avenue and Campbell Avenue during the PM peak hour. Under the cumulative no–left-turn lanes scenario, no change in queueing would occur for this movement.

At the intersection of Campbell Avenue and Gilman Avenue, 95th percentile westbound left-turn queues exceed the available storage by approximately one vehicle during the PM peak hour under existing conditions. Under cumulative conditions, the 95th percentile westbound left-turn movement would exceed storage by approximately nine vehicles in the AM peak hour and seven vehicles in the PM peak hour. Under cumulative no–left-turn lane conditions, the exclusive westbound left-turn movement would be eliminated and left turns would operate from the shared through lane. Under this scenario, the 95th percentile westbound queues at this intersection are estimated to be approximately five vehicles in the AM peak hour and four vehicles in the PM peak hour. The reduction in queue at this intersection could be due to the slight improvement in delay at the intersection as discussed in the previous section.

However, the primary queuing constraint along the study corridor is the westbound right-turn movement at the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive. Removal of westbound left-turn lanes at other intersections along the corridor would not change the westbound queues at this intersection. Improvements to westbound queueing conditions along the corridor would likely require evaluation of signal coordination and progression. However, light rail preemption could still result in queuing issues by throwing the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive out of progression.

Eastbound Queues along Study Corridor

Under existing conditions, the 95th percentile eastbound vehicle queue at the intersection of Gilman Avenue and Campbell Avenue extends beyond the intersection of Page Street and Campbell Avenue. Under cumulative conditions, the 95th percentile eastbound through queue at the intersection of Page Street and Campbell Avenue (assumed to be signalized) would extend past Dillon Avenue, while under cumulative no–left-turn lanes conditions the 95th percentile eastbound through queue would extend to Foote Avenue. Similar to westbound queueing, improvements to eastbound queueing conditions along the corridor would likely require evaluation of signal coordination and progression. However, light rail

preemption could still result in queuing issues by throwing the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive out of progression.

The eastbound through queue at the intersection of Gilman Avenue and Campbell Avenue is not reported under cumulative and cumulative no–left-turn conditions because the intersections of Page Street and Campbell Avenue and Gilman Avenue and Campbell Avenue would operate under a single signal controller. As a result, eastbound queueing is measured from the Page Street and Campbell Avenue intersection rather than at the Gilman Avenue and Campbell Avenue intersection.

Eastbound queue at the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive is not reported since it is not part of the study corridor.

Page Street/Gilman Avenue and Campbell Avenue

Southbound left-turn and Northbound left-turn

The intersections of Page Street and Campbell Avenue and Gilman Avenue and Campbell Avenue are located in close proximity to one another. With the signalization of Page Street and Campbell Avenue, the two intersections would operate under a single signal controller, as previously discussed. The spacing between the two intersections is approximately 100 feet. Under this configuration, southbound left-turn movements from Page Street onto Campbell Avenue and northbound left-turn movements from Gilman Avenue onto Campbell Avenue would queue within this shared segment and proceed concurrently with the eastbound and westbound through movements.

Under cumulative conditions, approximately 83 vehicles during the AM peak hour and 91 vehicles during the PM peak hour are projected to turn southbound left from Page Street onto Campbell Avenue, equating to roughly one to two vehicles per minute. Similarly, approximately 27 vehicles during the AM peak hour and 29 vehicles during the PM peak hour are projected to turn northbound left from Gilman Avenue onto Campbell Avenue, or less than one vehicle every one to two minutes. The segment between Page Street and Gilman Avenue consists of two travel lanes in each direction and can accommodate approximately eight vehicles per direction. Given the relatively low demand for these turning movements, the available storage between Page Street and Gilman Avenue would be sufficient, and spillback blocking the intersections is not anticipated.

Northbound Right-turn

Storage for this movement is the length of the existing right-turn pocket, totaling 65 feet, or two vehicles. Under existing conditions, the 95th percentile queues currently exceed the provided storage by one vehicle during the PM peak hour. Under cumulative conditions, the 95th percentile queues for the northbound right-turn movement would exceed the provided storage during the PM peak hour by 14 vehicles. Under cumulative no left turn lane conditions, the 95th percentile queues for the northbound right-turn movement would exceed the provided storage during the AM peak hour by 3 vehicles and during the PM peak hour by 22 vehicles. The increase in queues under cumulative no left-turn conditions is due to the reduced green time for the northbound right-turn movement during the peak hour due to the overall longer cycle length of the intersection. Vehicles queues would take longer than one cycle to clear due to conflicts with pedestrians crossing Campbell Avenue. Although the queued vehicles may temporarily block several driveways along Gilman Avenue, they are not expected to block adjacent intersections.

Table 5
Vehicle Queues

#	Intersection	Movement	Number of Lanes	Storage [1] (feet)	Storage [1] (vehicles [2])	Existing AM Queue Length [3] (feet)	Existing AM Queue Length [3] (vehicles [2])	Existing PM Queue Length [3] (feet)	Existing PM Queue Length [3] (vehicles [2])	Cumulative AM Queue Length [3] (feet)	Cumulative AM Queue Length [3] (vehicles [2])	Cumulative PM Queue Length [3] (feet)	Cumulative PM Queue Length [3] (vehicles [2])	Cumulative No Left Turn Lanes AM Queue Length [3] (feet)	Cumulative No Left Turn Lanes AM Queue Length [3] (vehicles [2])	Cumulative No Left Turn Lanes PM Queue Length [3] (feet)	Cumulative No Left Turn Lanes PM Queue Length [3] (vehicles [2])
1	Railway Avenue/Civic Center Drive & Campbell Avenue	WBL/T/R	1	100	4	**395**	**16**	**373**	**15**	**515**	**21**	**678**	**28**	**515**	**21**	**678**	**28**
		WBR	1	100	4	**513**	**21**	**400**	**16**	**673**	**27**	**797**	**32**	**673**	**27**	**797**	**32**
2	Foote Avenue & Campbell Avenue	SBL/R	1	65	2	4	1	11	1	3	1	15	1	4	1	19	1
3	Dillon Avenue & Campbell Avenue	NBL/T/R	1	750	30	7	1	34	2	56	3	154	7	62	3	163	7
4	Page Street & Campbell Avenue	SBL/R	1	375	15	14	1	27	2	79	4	105	5	121	5	149	6
		EBT (EBT/L [4])	2	135	5	-	-	-	-	96	4	**209**	**9**	99	4	**320**	**13**
		EBL	1	50	2	2	1	3	1	**56**	**3**	**94**	**4**	-	-	-	-
5	Gilman Avenue & Campbell Avenue	NBL	1	65	2	24	1	33	2	27	2	33	2	36	2	43	2
		NBR	1	65	2	32	2	**69**	**3**	50	2	**385**	**16**	**101**	**5**	**580**	**24**
		EBT [5]	2	65	2	32	2	**133**	**6**	-	-	-	-	-	-	-	-
		WBT (WBT/L [4])	2	250	10	39	2	32	2	96	4	126	6	114	5	86	4
		WBL	1	65	2	35	2	**72**	**3**	**254**	**11**	**218**	**9**	-	-	-	-

Source: Synchro 12 95th Percentile Queues
WB = Westbound, SB = Southbound, NB = Northbound, EB = Eastbound, L/T/R = Shared left-through-right, '-' indicates no reported queue
Bold indicates that queues would exceed storage or reach the upstream intersection

[1] Storage per lane. If there is an existing turn pocket, the storage of the turn pocket is reported, otherwise the distance to next major intersection is reported.
[2] 1 vehicle = 25 feet
[3] Queue length per lane is reported.
[4] Geometry under Cumulative No Left-Turn Lanes Scenario
[5] Eastbound through queue for the Gilman Avenue and Campbell Avenue intersection is not reported under cumulative and cumulative no left turn conditions since Page Avenue and Campbell Avenue and Gilman Avenue and Campbell Avenue would operate with one signal controller, therefore, the eastbound queue is measured from the Page Avenue and Campbell Avenue intersection instead of at the Gilman Avenue and Campbell Avenue intersection.

Safety Considerations

Removal of Left-turn Lanes

Under the cumulative no–left-turn lane scenario, the existing eastbound left-turn pocket at the intersection of Page Street and Campbell Avenue and the existing westbound left-turn pocket at the intersection of Gilman Avenue and Campbell Avenue would be removed. Left-turn movements at both intersections would instead operate from the shared through lane. As discussed in the previous section, the intersection of Page Street and Campbell Avenue would be signalized under cumulative conditions. With the removal of the exclusive left-turn pocket, the signal at the intersection of Gilman Avenue and Campbell Avenue would operate with permitted–protected left-turn phasing rather than protected-only phasing, meaning that the protected left-turn phase would be followed by a permitted phase during which left-turning vehicles must yield to opposing through traffic. The signal at the intersection of Page Street and Campbell Avenue would operate with permitted-only phasing.

According to the FHWA's Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE)[1], one of the most common conflicts at signalized intersections occurs between vehicles making permissive left turns and pedestrians crossing during the concurrent pedestrian signal phase. Drivers making permissive left turns often focus on identifying gaps in oncoming traffic and may not adequately attend to pedestrians in the parallel crosswalk. In addition, at congested intersections, permissive left-turn operations can result in drivers accepting smaller gaps, turning at higher speeds, or entering the intersection during yellow or all-red intervals. As a result, protected left-turn phasing is more effective at reducing vehicle–pedestrian conflicts compared to protected/permissive phasing, which only partially mitigates these conflicts. Consistent with this, the FHWA Crash Modification Factor (CMF) Clearinghouse indicates that protected left-turn phasing has CMFs ranging from 0.58 to 0.99 depending on crash type, whereas converting from protected-only phasing to flashing yellow arrow protected/permissive phasing has a CMF greater than 1.0, indicating the potential for an increase in crashes[2].

In addition, under the cumulative no–left-turn lane scenario, the westbound left-turn lane at the intersection of Dillon Avenue and Campbell Avenue would also be removed. Roadway safety research indicates that the presence of left-turn lanes or a median center turn lane on two-lane or four-lane corridors improves motor vehicle safety by reducing rear-end, head-on, and turning-related crashes[3]. Left-turn lanes reduce turning-related crashes by removing turning vehicles from the through travel lane while drivers wait for an acceptable gap, and they also reduce head-on collisions by providing a buffer between opposing directions of travel[4]. Furthermore, a study evaluating the safety performance of adding a left-turn lane or median center turn lane to an undivided four-lane roadway identified a CMF of 0.482 for such treatments on roadways with low to moderate average daily traffic in urban and suburban areas[5].

[1] Federal Highway Administration (FHWA). (n.d.). *Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE)*. U.S. Department of Transportation.
[2] Federal Highway Administration (FHWA). (n.d.). *Crash Modification Factors Clearinghouse*. U.S. Department of Transportation
[3] Subasish Das, Xiaoduan Sun, Karen Dixon, M. Ashifur Rahman. 2014. "Safety effectiveness of roadway conversion with a two way left turn lane." Science Direct.
[4] Amjadi, Roya. 2008. "Safety Evaluation of Center Two-Way Left-Turn Lanes on Two-Lane Roads." *FHWA Publication No.: FHWA-HRT-08-046.*
[5] Rahman, M.A., X. Sun, and S. Das. 2018. "Safety Performance Evaluation of Urban Undivided Four-Lane to Five-Lane Conversion in Louisiana." *Transportation Research Board, Paper No. 18-06321.*

Removal of Curb Extension

To retain the left-turn lanes at the intersections, the curb extension at the northwest corner of the intersection of Page Street and Campbell Avenue would be removed, along with on-street parking on the north side of Campbell Avenue between Page Street and Foote Avenue. Curb extensions—also known as bulb-outs or neckdowns—extend the sidewalk or curb line into the parking lane, reducing the effective street width and improving safety by increasing visibility, reducing turning vehicle speeds, shortening pedestrian crossing distances, and preventing vehicles from parking near corners[6].

With the removal of on-street parking along this segment of the roadway, the curb extension would no longer be necessary, as extending the curb line into the parking lane to improve visibility would not be required. The intersection would continue to maintain a relatively tight turning radius, keeping vehicle speeds low. Although pedestrians would experience a slightly longer crossing distance, this would be addressed through signal timing adjustments by providing additional pedestrian walk time. The level of service analysis indicates that increasing the pedestrian walk time would not result in an increase in vehicle delay.

Removal of Travel Lane (Road Diet) Scenario

To accommodate continuous bicycle facilities within the existing right-of-way along the study corridor, removal of a vehicular travel lane or a road diet—could be considered. As discussed in the previous section, intersection queueing along the corridor is already a concern. Existing westbound queues during the AM peak hour at the Railway Avenue/Civic Center Drive and Campbell Avenue intersection are substantial and are projected to increase under cumulative conditions as additional development occurs. Eastbound queues from the intersection of Page Street and Campbell Avenue under cumulative conditions would also block the Dillon Avenue and Campbell Avenue intersection. Removal of a travel lane would further exacerbate these queues and could result in traffic diversion to adjacent neighborhoods and parallel streets. Finally, side-street delays would worsen due to fewer gaps in Campbell Avenue traffic.

In addition, Campbell Avenue is one of only three east–west corridors in the City that cross State Route 17; therefore, reduced capacity along this corridor would likely lead to significant operational impacts on the broader roadway network. The other two east–west corridors, Hamilton Avenue and Camden Avenue are already congested, and with Campbell Avenue becoming more congested, traffic could cut through neighborhood streets.

Key Takeaways

The existing right of way along the Campbell Avenue between Railway Avenue/Civic Center Drive and Union Avenue is constrained and in order to accommodate continuous bicycle facilities within this right of way, there would be tradeoffs like removal of a curb extension and some on-street parking, removal of left-turn lanes, or removal of a travel lane. Removal of left-turn lanes or removal of a travel lane could affect traffic operations.

Removal of Left-Turn Lanes Scenario

The detailed traffic operations analysis of the removal of left turn lanes, which would occur at the intersections of Dillon Avenue and Campbell Avenue, Page Street and Campbell Avenue, and Gilman Avenue and Campbell Avenue was conducted. The findings of the analysis are listed below:

- **Level of Service**

[6] Federal Highway Administration (FHWA). (n.d.). *Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE)*. U.S. Department of Transportation.

  - Under cumulative and cumulative no left turn lanes scenario, the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive would operate at an unacceptable LOS E during the PM peak hour.
  - Under cumulative and cumulative no left turn lanes scenario, the intersection of Campbell Avenue and Dillon Avenue would operate at an unacceptable LOS F during both peak hours. Furthermore, signal warrant analysis shows that the intersection of Campbell Avenue and Dillon Avenue would meet the signal warrant during the PM peak hour. However, signalization at this intersection is not recommended due to its close proximity to other signalized intersections. As delays increase at this location, motorists are expected to divert to nearby signalized intersections, such as Railway Avenue/Civic Center Drive and Campbell Avenue and Gilman Avenue and Campbell Avenue, to access Campbell Avenue.
- **Queueing**
  - The primary westbound queuing constraint along the study corridor occurs at the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive with 95th percentile queues projected to extend beyond the intersection of Campbell Avenue and Gilman Avenue during the peak hours. Removal of left-turn lanes would not worsen the westbound queues at this intersection. Improvements to westbound queueing conditions along the corridor would likely require evaluation of signal coordination and progression. However, light rail preemption could still result in queuing issues by throwing the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive out of progression.
  - Under cumulative conditions, the 95th percentile eastbound through queue at the intersection of Page Street and Campbell Avenue (assumed to be signalized) would extend past Dillon Avenue, while under cumulative no–left-turn conditions the 95th percentile eastbound through queue would extend to Foote Avenue. Improvements to eastbound queueing conditions along the corridor would also likely require evaluation of signal coordination and progression. However, light rail preemption could still result in queuing issues by throwing the intersection of Campbell Avenue and Railway Avenue/Civic Center Drive out of progression.
  - Given the relatively low demand for the southbound left from Page Street onto Campbell Avenue and the northbound left-turn movements from Gilman Avenue onto Campbell Avenue, the available storage between Page Street and Gilman Avenue would be sufficient, and spillback blocking the intersections is not anticipated.
  - Under cumulative conditions, the 95th percentile queues for the northbound right-turn movement would exceed the provided storage during the PM peak hour by 14 vehicles. Under cumulative no left turn conditions, the 95th percentile queues for the northbound right-turn movement would exceed the provided storage during the AM peak hour by 3 vehicles and during the PM peak hour by 22 vehicles. Although the queued vehicles may temporarily block several driveways along Gilman Avenue, they are not expected to block adjacent intersections.
- **Safety**
  - Eliminating left-turn lanes at signalized intersections would require permitted–protected left-turn operations, which are associated with increased vehicle–pedestrian conflicts and higher crash potential compared to protected-only phasing.
  - Eliminating left-turn lanes at unsignalized intersections is associated with reducing safety by increasing turning-related and head-on crash potential.
  - With removal of the curb extension at Page Street and Campbell Avenue, pedestrians would experience a slightly longer crossing distance, which would be addressed through signal timing adjustments by providing additional pedestrian walk time. This would not result in an increase in vehicle delay.

Road Diet Scenario

While a road diet could allow for continuous bicycle facilities, existing and future queueing along Campbell Avenue—particularly at key intersections—would be exacerbated by reduced roadway capacity. Given that Campbell Avenue is one of only three east–west routes crossing State Route 17, a road diet would likely result in traffic diversion and broader operational impacts on the City's roadway network.

Recommendation

To implement continuous bicycle facilities along Campbell Avenue within the constrained right-of-way between Railway Avenue/Civic Center Drive and Union Avenue, it is recommended to remove on-street parking between Foote Avenue and Page Street and remove the curb extension at the northwest corner of the intersection of Campbell Avenue and Page Street, while retaining the existing left-turn lanes along the study corridor. This scenario would also include signalizing the intersection of Campbell Avenue and Page Street and operating it under a single controller with the Gilman Avenue intersection.

This approach balances the City's goal of providing continuous bicycle facilities with the need to maintain acceptable traffic operations and minimize safety risks at key intersections. Where feasible, further evaluation of signal coordination and progression along the corridor could also help improve queueing conditions and overall traffic flow.

East Campbell Plan Line Traffic Operations Analysis

Technical Appendices

April 1, 2026

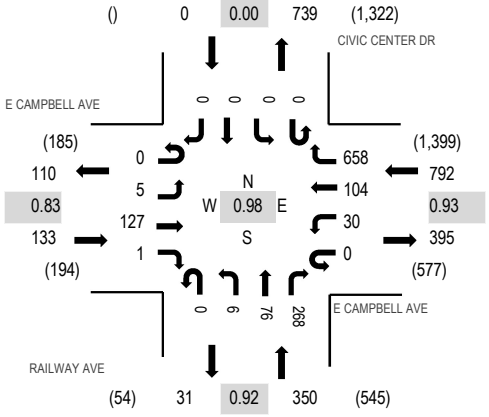
Appendix A

Traffic Counts

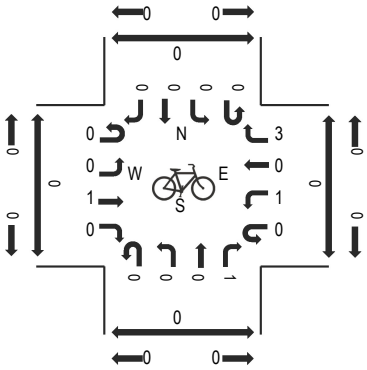
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 RAILWAY AVE & E CAMPBELL AVE AM
Date: Thursday, October 16, 2025
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

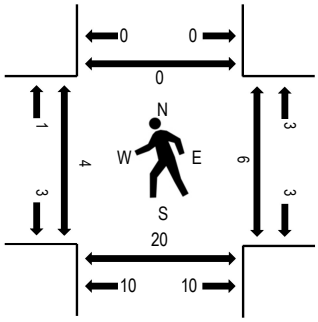
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				RAILWAY AVE Northbound				CIVIC CENTER DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	12	0	0	3	16	54	0	0	16	22	0	0	0	0	124	863	0	3	1	0
7:15 AM	0	2	16	1	0	1	17	115	0	2	19	26	0	0	0	0	199	1,064	0	1	3	0
7:30 AM	0	0	10	0	0	7	26	149	0	1	14	26	0	0	0	0	233	1,184	0	0	3	0
7:45 AM	0	0	19	0	0	11	12	196	0	1	17	51	0	0	0	0	307	1,261	0	2	0	0
8:00 AM	0	0	29	0	0	5	28	171	0	1	26	65	0	0	0	0	325	1,275	0	0	6	0
8:15 AM	0	2	29	1	0	8	27	170	0	0	18	64	0	0	0	0	319		0	1	5	0
8:30 AM	0	2	30	0	0	7	25	151	0	0	18	77	0	0	0	0	310		2	3	3	0
8:45 AM	0	1	39	0	0	10	24	166	0	5	14	62	0	0	0	0	321		2	2	6	0

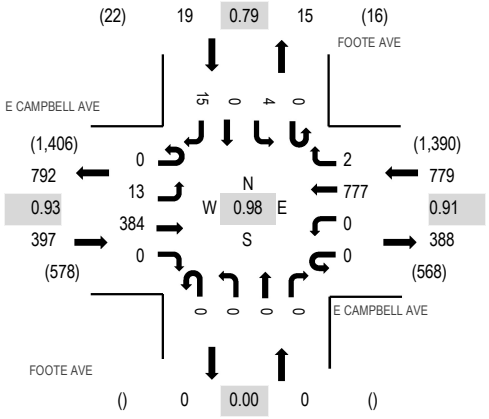
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	5	125	1	0	30	102	646	0	6	76	263	0	0	0	0	1,254
Mediums	0	0	2	0	0	0	2	12	0	0	0	5	0	0	0	0	21
Total	0	5	127	1	0	30	104	658	0	6	76	268	0	0	0	0	1,275

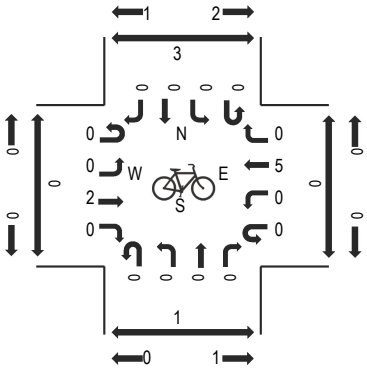
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 FOOTE AVE & E CAMPBELL AVE AM
Date: Thursday, October 16, 2025
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:45 AM - 09:00 AM

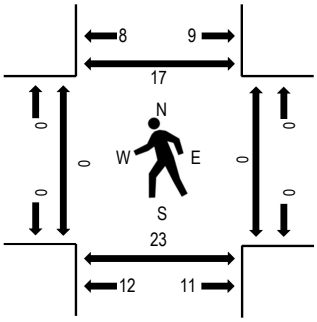
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				FOOTE AVE Northbound				FOOTE AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	34	0	0	0	71	0	0	0	0	0	0	0	0	1	106	795	0	0	3	6
7:15 AM	0	0	42	0	0	0	137	0	0	0	0	0	0	0	0	1	180	984	0	0	2	6
7:30 AM	0	0	36	0	0	0	183	0	0	0	0	0	0	0	0	1	220	1,102	0	0	4	7
7:45 AM	0	1	68	0	0	0	220	0	0	0	0	0	0	0	0	0	289	1,178	0	0	5	6
8:00 AM	0	3	90	0	0	0	197	0	0	0	0	0	0	1	0	4	295	1,195	0	0	5	4
8:15 AM	0	3	89	0	0	0	200	0	0	0	0	0	0	0	0	6	298		0	0	6	2
8:30 AM	0	2	105	0	0	0	184	0	0	0	0	0	0	1	0	4	296		0	0	5	4
8:45 AM	0	5	100	0	0	0	196	2	0	0	0	0	0	2	0	1	306		0	0	7	7

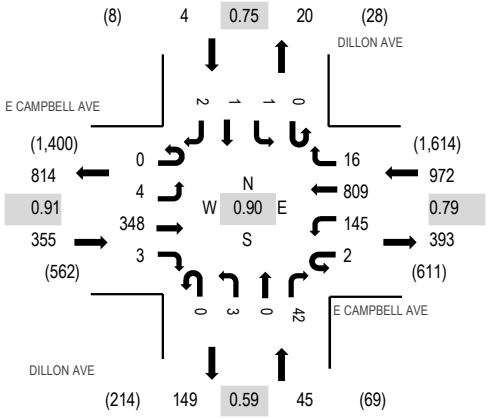
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	13	377	0	0	0	763	2	0	0	0	0	0	4	0	15	1,174
Mediums	0	0	7	0	0	0	14	0	0	0	0	0	0	0	0	0	21
Total	0	13	384	0	0	0	777	2	0	0	0	0	0	4	0	15	1,195

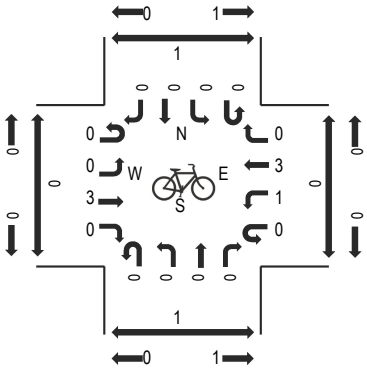
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 DILLON AVE & E CAMPBELL AVE AM
Date: Thursday, October 16, 2025
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

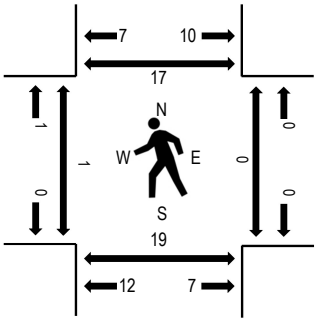
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				DILLON AVE Northbound				DILLON AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	32	0	0	12	67	0	0	3	0	3	0	0	0	1	119	940	0	0	2	6
7:15 AM	0	0	40	2	0	12	135	0	0	3	0	2	0	0	1	0	195	1,153	0	0	2	6
7:30 AM	0	0	34	0	0	22	179	1	0	2	0	4	0	0	0	0	242	1,296	0	0	4	9
7:45 AM	0	1	68	1	0	71	229	7	0	0	0	7	0	0	0	0	384	1,376	0	0	5	6
8:00 AM	0	0	86	1	1	34	193	2	0	1	0	12	0	0	1	1	332	1,313	0	0	4	4
8:15 AM	0	1	92	0	1	22	198	5	0	2	0	17	0	0	0	0	338		0	0	6	2
8:30 AM	0	2	102	1	0	18	189	2	0	0	0	6	0	1	0	1	322		1	0	4	5
8:45 AM	0	2	96	0	0	16	194	4	0	1	0	6	0	1	0	1	321		1	0	7	6

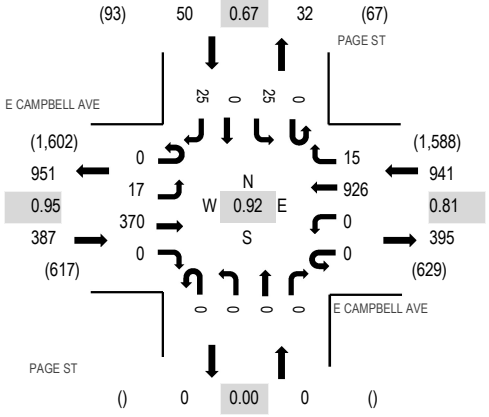
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2
Lights	0	4	343	3	2	144	798	16	0	3	0	40	0	1	1	2	1,357
Mediums	0	0	5	0	0	0	11	0	0	0	0	1	0	0	0	0	17
Total	0	4	348	3	2	145	809	16	0	3	0	42	0	1	1	2	1,376

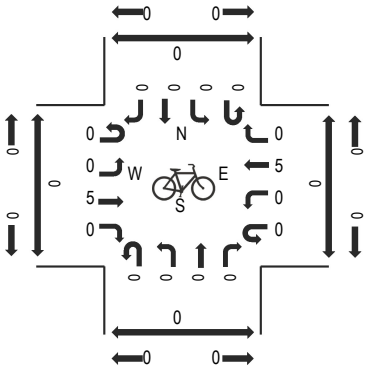
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 PAGE ST & E CAMPBELL AVE AM
Date: Thursday, October 16, 2025
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

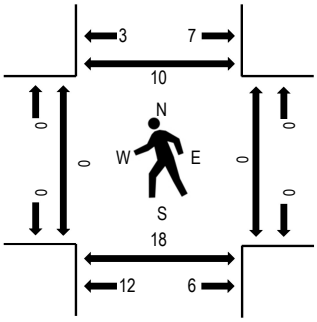
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				PAGE ST Northbound				PAGE ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	2	34	0	0	0	77	2	0	0	0	0	0	1	0	2	118	943	0	0	2	6
7:15 AM	0	3	39	0	0	0	141	4	0	0	0	0	0	3	0	7	197	1,156	0	0	2	4
7:30 AM	0	2	38	0	0	0	192	3	0	0	0	0	0	6	0	13	254	1,301	0	0	4	8
7:45 AM	0	3	69	0	0	0	292	0	0	0	0	0	0	4	0	6	374	1,378	0	0	5	3
8:00 AM	0	3	96	0	0	0	219	1	0	0	0	0	0	6	0	6	331	1,355	0	0	4	4
8:15 AM	0	6	102	0	0	0	220	4	0	0	0	0	0	6	0	4	342		0	0	5	1
8:30 AM	0	5	103	0	0	0	195	10	0	0	0	0	0	9	0	9	331		0	0	4	2
8:45 AM	0	7	105	0	0	0	216	12	0	0	0	0	0	8	0	3	351		0	0	7	4

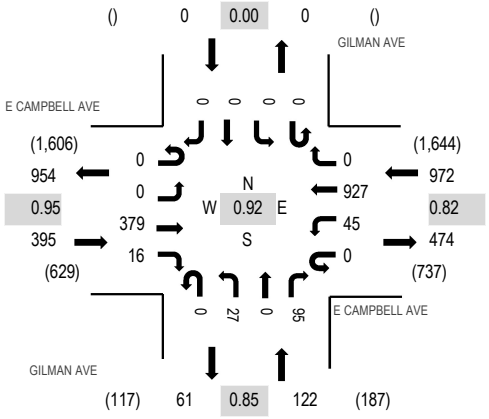
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Lights	0	17	363	0	0	0	915	15	0	0	0	0	0	24	0	24	1,358
Mediums	0	0	6	0	0	0	10	0	0	0	0	0	0	1	0	1	18
Total	0	17	370	0	0	0	926	15	0	0	0	0	0	25	0	25	1,378

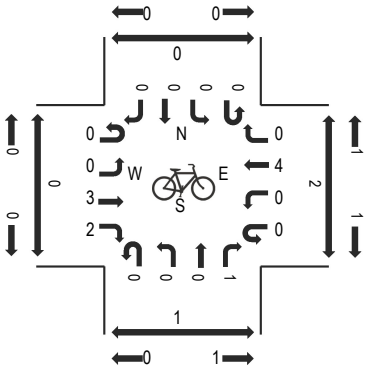
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 5 GILMAN AVE & E CAMPBELL AVE AM
Date: Thursday, October 16, 2025
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

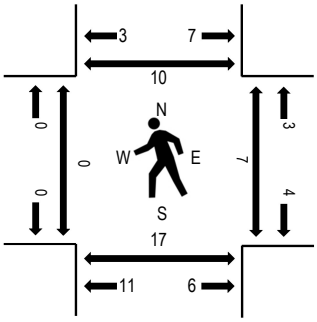
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				GILMAN AVE Northbound				GILMAN AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	30	4	0	13	72	0	0	5	0	4	0	0	0	0	128	996	0	4	2	7
7:15 AM	0	0	40	2	0	7	138	0	0	8	0	14	0	0	0	0	209	1,230	0	1	2	3
7:30 AM	0	0	39	4	0	6	193	0	0	3	0	9	0	0	0	0	254	1,392	0	4	5	6
7:45 AM	0	0	70	1	0	10	288	0	0	7	0	29	0	0	0	0	405	1,489	0	0	4	3
8:00 AM	0	0	94	7	0	9	222	0	0	5	0	25	0	0	0	0	362	1,464	0	2	5	4
8:15 AM	0	0	106	3	0	15	213	0	0	12	0	22	0	0	0	0	371		0	2	6	1
8:30 AM	0	0	109	5	0	11	204	0	0	3	0	19	0	0	0	0	351		0	3	2	2
8:45 AM	0	0	110	5	0	15	228	0	0	5	0	17	0	0	0	0	380		0	2	6	4

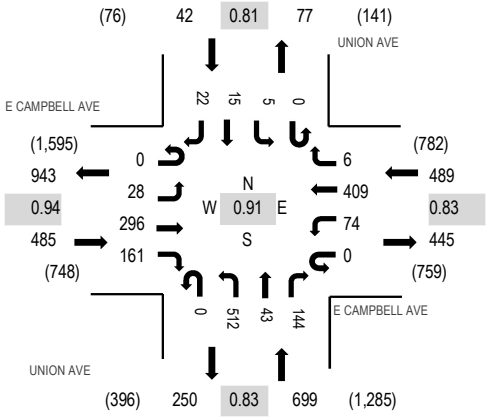
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Lights	0	0	372	15	0	45	917	0	0	26	0	93	0	0	0	0	1,468
Mediums	0	0	6	1	0	0	9	0	0	1	0	2	0	0	0	0	19
Total	0	0	379	16	0	45	927	0	0	27	0	95	0	0	0	0	1,489

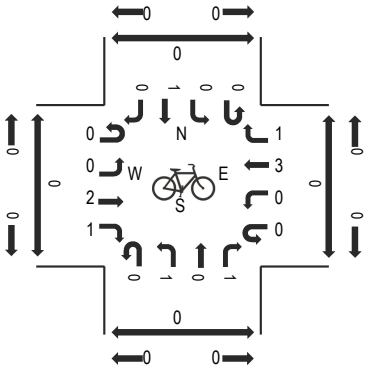
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 6 UNION AVE & E CAMPBELL AVE AM
Date: Thursday, October 16, 2025
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

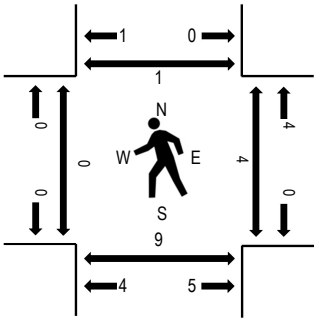
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				UNION AVE Northbound				UNION AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	17	13	0	17	32	1	0	60	4	30	0	0	4	1	180	1,239	0	1	3	1
7:15 AM	0	3	34	21	0	11	52	1	0	83	15	42	0	0	3	5	270	1,462	0	1	2	1
7:30 AM	0	3	29	23	0	9	60	0	0	131	6	47	0	1	3	5	317	1,623	0	1	4	2
7:45 AM	0	4	49	42	0	20	125	3	0	162	9	46	0	2	7	3	472	1,715	0	1	2	0
8:00 AM	0	4	78	43	0	11	102	0	0	109	14	31	0	0	3	8	403	1,652	0	0	3	1
8:15 AM	0	8	83	44	0	24	100	2	0	116	8	40	0	1	2	3	431		0	1	1	0
8:30 AM	0	12	86	32	0	19	82	1	0	125	12	27	0	2	3	8	409		0	2	3	0
8:45 AM	0	14	83	22	0	15	94	1	0	124	15	29	0	2	5	5	409		0	4	7	1

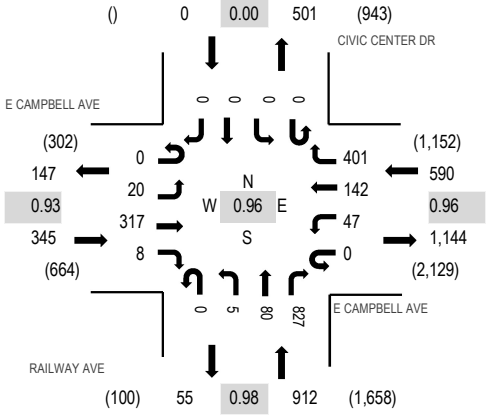
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
Lights	0	28	291	158	0	72	404	6	0	505	43	141	0	5	15	22	1,690
Mediums	0	0	4	3	0	1	4	0	0	7	0	3	0	0	0	0	22
Total	0	28	296	161	0	74	409	6	0	512	43	144	0	5	15	22	1,715

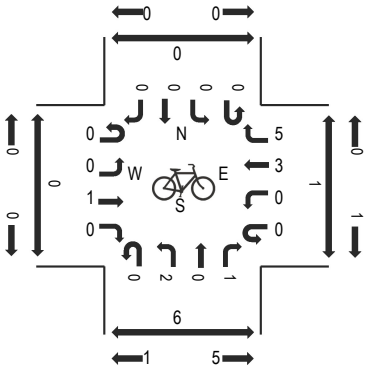
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 RAILWAY AVE & E CAMPBELL AVE PM
Date: Thursday, October 16, 2025
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

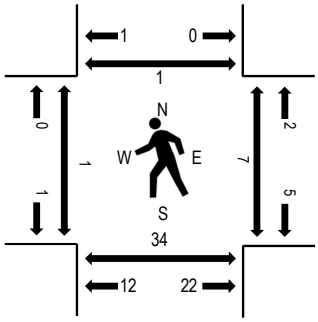
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				RAILWAY AVE Northbound				CIVIC CENTER DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	3	103	2	0	7	26	97	0	1	9	144	0	0	0	0	392	1,632	1	1	4	1
4:15 PM	0	3	73	0	0	10	36	91	0	0	13	173	0	0	0	0	399	1,689	0	2	1	0
4:30 PM	0	3	51	0	0	13	43	94	0	2	15	167	0	0	0	0	388	1,771	0	5	5	0
4:45 PM	0	5	69	3	0	11	32	103	0	2	17	211	0	0	0	0	453	1,847	0	1	13	0
5:00 PM	0	6	78	1	0	16	38	88	0	2	20	200	0	0	0	0	449	1,842	0	2	10	0
5:15 PM	0	5	87	2	0	10	39	106	0	1	20	211	0	0	0	0	481		1	2	6	1
5:30 PM	0	4	83	2	0	10	33	104	0	0	23	205	0	0	0	0	464		0	2	5	0
5:45 PM	0	2	79	0	0	13	41	91	0	6	21	195	0	0	0	0	448		0	4	9	0

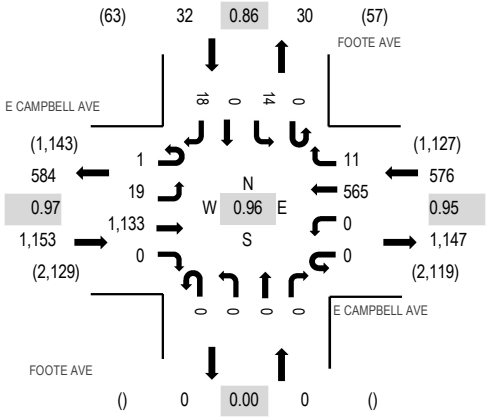
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	20	315	8	0	47	142	395	0	5	80	823	0	0	0	0	1,835
Mediums	0	0	2	0	0	0	0	6	0	0	0	4	0	0	0	0	12
Total	0	20	317	8	0	47	142	401	0	5	80	827	0	0	0	0	1,847

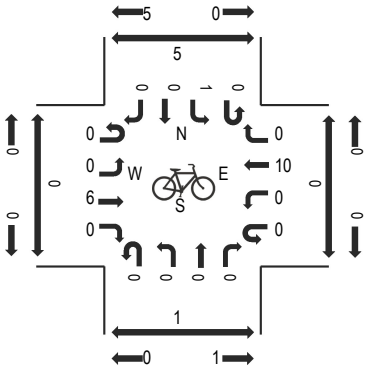
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 FOOTE AVE & E CAMPBELL AVE PM
Date: Thursday, October 16, 2025
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

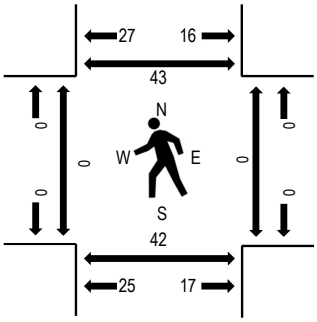
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				FOOTE AVE Northbound				FOOTE AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	3	245	0	0	0	129	2	0	0	0	0	0	1	0	3	383	1,558	0	0	5	6
4:15 PM	0	3	239	0	0	0	123	3	0	0	0	0	0	5	0	6	379	1,616	0	0	0	7
4:30 PM	0	5	213	0	0	0	148	6	0	0	0	0	0	2	0	6	380	1,695	0	0	8	11
4:45 PM	0	4	264	0	0	0	139	1	0	0	0	0	0	3	0	5	416	1,753	0	0	8	6
5:00 PM	0	5	285	0	0	0	138	2	0	0	0	0	0	6	0	5	441	1,761	0	0	10	9
5:15 PM	0	4	293	0	0	0	151	5	0	0	0	0	0	2	0	3	458		0	0	6	9
5:30 PM	0	5	283	0	0	0	139	2	0	0	0	0	0	4	0	5	438		0	0	7	13
5:45 PM	1	5	272	0	0	0	137	2	0	0	0	0	0	2	0	5	424		0	0	19	12

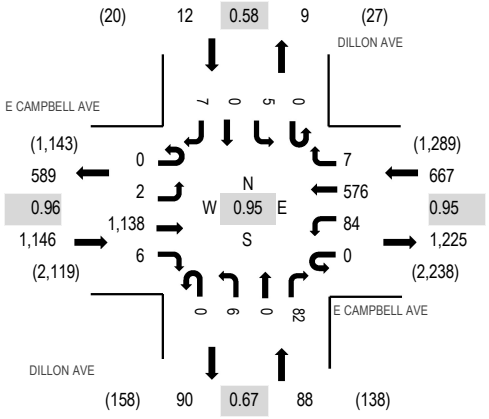
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	1	19	1,127	0	0	0	560	11	0	0	0	0	0	14	0	18	1,750
Mediums	0	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	11
Total	1	19	1,133	0	0	0	565	11	0	0	0	0	0	14	0	18	1,761

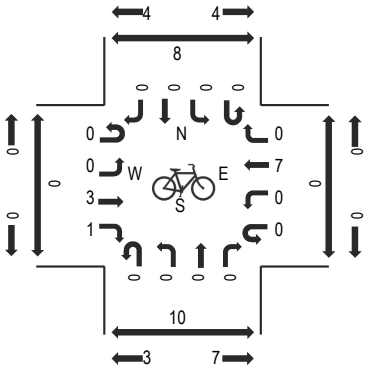
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 DILLON AVE & E CAMPBELL AVE PM
Date: Thursday, October 16, 2025
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

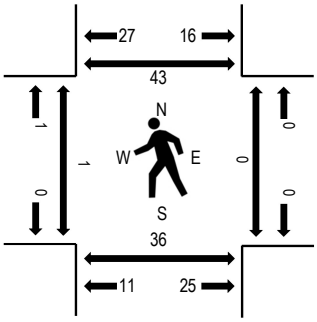
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				DILLON AVE Northbound				DILLON AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	2	240	1	0	21	129	1	0	3	0	10	0	0	0	2	409	1,663	0	0	5	9
4:15 PM	0	2	246	0	0	11	124	2	0	1	0	9	0	0	0	2	397	1,735	0	0	2	9
4:30 PM	0	1	212	1	0	23	153	2	0	0	0	12	0	1	0	2	407	1,816	0	0	5	8
4:45 PM	0	0	264	2	0	24	136	1	0	1	0	16	0	1	0	5	450	1,913	0	0	10	7
5:00 PM	0	1	294	1	0	14	143	3	0	2	0	20	0	3	0	0	481	1,903	1	0	12	12
5:15 PM	0	1	282	1	0	21	153	3	0	1	0	15	0	0	0	1	478		0	0	7	11
5:30 PM	0	0	298	2	0	25	144	0	0	2	0	31	0	1	0	1	504		0	0	7	13
5:45 PM	0	0	268	0	0	11	137	8	0	0	0	15	0	0	0	1	440		0	0	21	11

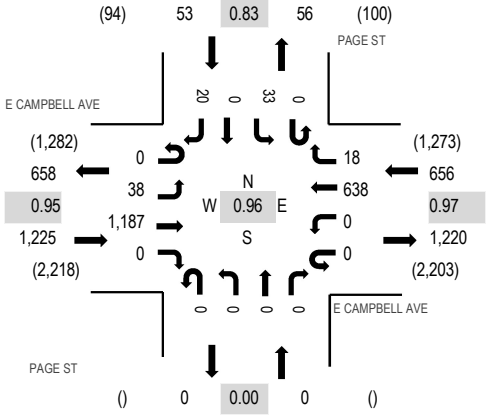
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	2	1,133	6	0	84	570	7	0	6	0	82	0	5	0	7	1,902
Mediums	0	0	5	0	0	0	6	0	0	0	0	0	0	0	0	0	11
Total	0	2	1,138	6	0	84	576	7	0	6	0	82	0	5	0	7	1,913

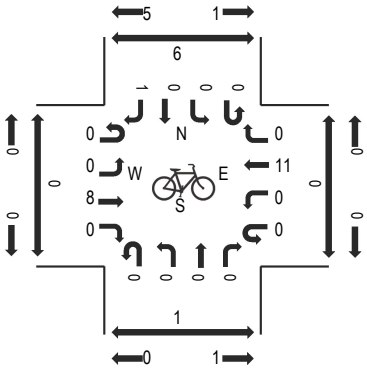
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 PAGE ST & E CAMPBELL AVE PM
Date: Thursday, October 16, 2025
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

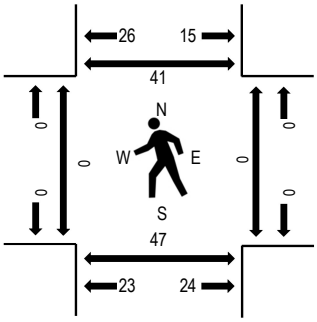
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				PAGE ST Northbound				PAGE ST Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	11	221	0	1	0	146	3	0	0	0	0	0	7	0	5	394	1,651	0	0	4	6
4:15 PM	0	7	253	0	0	0	130	3	0	0	0	0	0	4	0	4	401	1,761	0	0	2	5
4:30 PM	0	8	227	0	0	0	167	3	0	0	0	0	0	5	0	7	417	1,840	0	0	7	8
4:45 PM	0	7	259	0	0	0	162	2	0	0	0	0	0	6	0	3	439	1,921	0	0	11	6
5:00 PM	0	12	312	0	0	0	157	7	0	0	0	0	0	12	0	4	504	1,934	0	0	9	11
5:15 PM	0	8	285	0	0	0	168	4	0	0	0	0	0	9	0	6	480		0	0	10	8
5:30 PM	0	8	316	0	0	0	161	5	0	0	0	0	0	2	0	6	498		0	0	10	14
5:45 PM	0	10	274	0	0	0	152	2	0	0	0	0	0	10	0	4	452		0	0	18	8

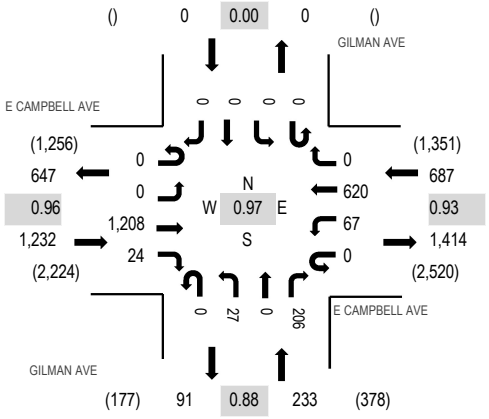
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	37	1,182	0	0	0	633	18	0	0	0	0	0	33	0	19	1,922
Mediums	0	1	5	0	0	0	5	0	0	0	0	0	0	0	0	1	12
Total	0	38	1,187	0	0	0	638	18	0	0	0	0	0	33	0	20	1,934

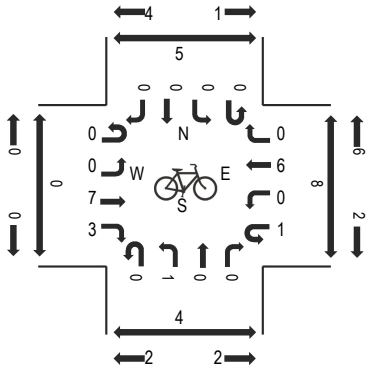
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 5 GILMAN AVE & E CAMPBELL AVE PM
Date: Thursday, October 16, 2025
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

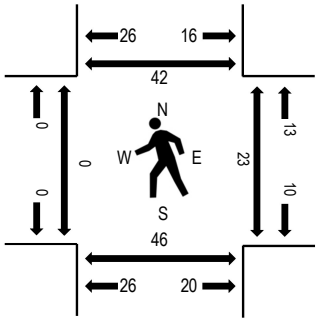
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				GILMAN AVE Northbound				GILMAN AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	228	6	0	13	146	0	0	2	0	28	0	0	0	0	423	1,801	0	8	2	4
4:15 PM	0	0	254	4	0	12	137	0	0	0	0	36	0	0	0	0	443	1,931	0	8	1	8
4:30 PM	0	0	232	2	0	22	167	0	0	0	0	31	0	0	0	0	454	2,026	0	5	6	8
4:45 PM	0	0	259	7	0	20	147	0	0	10	0	38	0	0	0	0	481	2,128	0	10	12	5
5:00 PM	0	0	315	6	0	18	148	0	0	9	0	57	0	0	0	0	553	2,152	0	6	8	10
5:15 PM	0	0	296	4	0	15	167	0	0	5	0	51	0	0	0	0	538		0	3	11	7
5:30 PM	0	0	319	3	0	14	158	0	0	9	0	53	0	0	0	0	556		0	7	10	16
5:45 PM	0	0	278	11	0	20	147	0	0	4	0	45	0	0	0	0	505		0	7	17	9

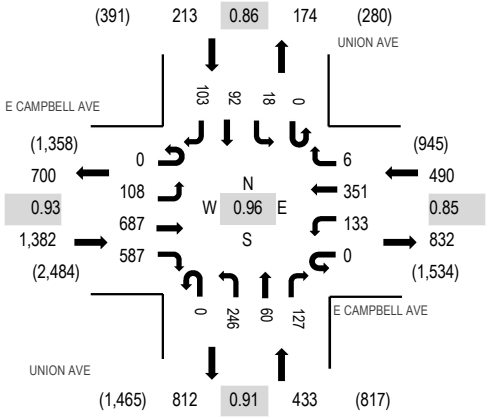
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	1,203	24	0	67	615	0	0	27	0	206	0	0	0	0	2,142
Mediums	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	10
Total	0	0	1,208	24	0	67	620	0	0	27	0	206	0	0	0	0	2,152

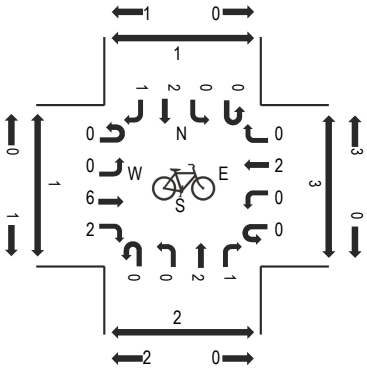
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 6 UNION AVE & E CAMPBELL AVE PM
Date: Thursday, October 16, 2025
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

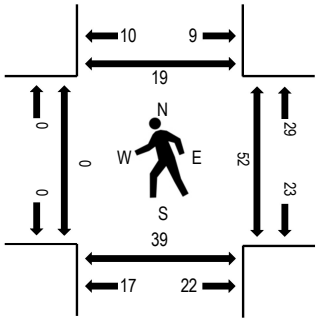
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	E CAMPBELL AVE Eastbound				E CAMPBELL AVE Westbound				UNION AVE Northbound				UNION AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	11	142	113	1	18	80	3	0	55	12	27	0	6	17	21	506	2,119	0	5	3	4
4:15 PM	0	12	127	122	0	28	77	0	0	49	12	29	0	4	20	19	499	2,268	0	4	4	2
4:30 PM	0	19	138	111	0	32	100	0	0	64	7	32	0	5	24	21	553	2,423	0	9	6	0
4:45 PM	0	22	159	126	0	29	87	0	0	58	8	31	0	1	13	27	561	2,516	0	13	5	1
5:00 PM	0	29	168	161	0	29	81	1	0	69	16	39	0	6	27	29	655	2,518	0	10	5	4
5:15 PM	0	27	150	159	0	51	96	2	0	58	19	31	0	2	30	29	654		0	15	15	2
5:30 PM	0	24	202	147	0	27	79	1	0	76	12	33	0	5	14	26	646		0	9	4	4
5:45 PM	0	28	167	120	0	26	95	2	0	43	13	24	0	5	21	19	563		0	18	15	9

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Lights	0	108	683	586	0	131	345	6	0	246	60	126	0	18	92	103	2,504
Mediums	0	0	4	1	0	2	6	0	0	0	0	0	0	0	0	0	13
Total	0	108	687	587	0	133	351	6	0	246	60	127	0	18	92	103	2,518

Appendix B

Traffic Volumes

1 1
Intersection Name: Railway Avenue/Civic Center Drive and Campbell Avenue
Peak Hour: AM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**0**	**0**	**0**	**0**	**658**	**104**	**30**	**792**	**268**	**76**	**6**	**350**	**1**	**127**	**5**	**133**	**1,275**
Cumulative Conditions	**0**	**0**	**0**	**0**	**752**	**104**	**30**	**886**	**692**	**249**	**220**	**1,161**	**2**	**154**	**67**	**223**	**2,270**

2 29
Intersection Name: Foote Avenue and Campbell Avenue
Peak Hour: AM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**15**	**0**	**4**	**19**	**2**	**777**	**0**	**779**	**0**	**0**	**0**	**0**	**0**	**384**	**13**	**397**	**1,195**
Cumulative Conditions	**15**	**0**	**4**	**19**	**2**	**820**	**0**	**822**	**0**	**0**	**0**	**0**	**0**	**835**	**13**	**848**	**1,689**

3 7
Intersection Name: Dillon Avenue and Campbell Avenue
Peak Hour: AM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**2**	**1**	**1**	**4**	**16**	**809**	**147**	**972**	**42**	**0**	**3**	**45**	**3**	**348**	**4**	**355**	**1,376**
Cumulative Conditions	**2**	**1**	**1**	**4**	**16**	**841**	**203**	**1,060**	**46**	**0**	**14**	**60**	**4**	**798**	**4**	**806**	**1,930**

4 2
Intersection Name: Page Street and Campbell Avenue
Peak Hour: AM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**25**	**0**	**25**	**50**	**15**	**926**	**0**	**941**	**0**	**0**	**0**	**0**	**0**	**370**	**17**	**387**	**1,378**
Cumulative Conditions	**72**	**0**	**83**	**155**	**55**	**966**	**0**	**1,021**	**0**	**0**	**0**	**0**	**0**	**783**	**58**	**841**	**2,017**

5 3
Intersection Name: Gilman Avenue and Campbell Avenue
Peak Hour: AM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**0**	**0**	**0**	**0**	**0**	**927**	**45**	**972**	**95**	**0**	**27**	**122**	**16**	**379**	**0**	**395**	**1,489**
Cumulative Conditions	**0**	**0**	**0**	**0**	**0**	**967**	**310**	**1,277**	**222**	**0**	**27**	**249**	**17**	**849**	**0**	**866**	**2,392**

6 4
Intersection Name: Union Avenue and Campbell Avenue
Peak Hour: AM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**22**	**15**	**5**	**42**	**6**	**409**	**74**	**489**	**144**	**43**	**512**	**699**	**161**	**296**	**28**	**485**	**1,715**
Cumulative Conditions	**68**	**18**	**5**	**91**	**6**	**726**	**74**	**806**	**197**	**47**	**525**	**769**	**241**	**636**	**203**	**1,080**	**2,746**

1 1
Intersection Name: Railway Avenue/Civic Center Drive and Campbell Avenue
Peak Hour: PM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**0**	**0**	**0**	**0**	**401**	**142**	**47**	**590**	**827**	**80**	**5**	**912**	**8**	**317**	**20**	**345**	**1,847**
Cumulative Conditions	**0**	**0**	**0**	**0**	**745**	**168**	**47**	**960**	**918**	**183**	**86**	**1,187**	**60**	**342**	**163**	**565**	**2,712**

2 29
Intersection Name: Foote Avenue and Campbell Avenue
Peak Hour: PM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**18**	**0**	**14**	**32**	**11**	**565**	**0**	**576**	**0**	**0**	**0**	**0**	**0**	**1,133**	**20**	**1,153**	**1,761**
Cumulative Conditions	**18**	**0**	**14**	**32**	**11**	**920**	**0**	**931**	**0**	**0**	**0**	**0**	**0**	**1,249**	**20**	**1,269**	**2,232**

3 7
Intersection Name: Dillon Avenue and Campbell Avenue
Peak Hour: PM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**7**	**0**	**5**	**12**	**7**	**576**	**84**	**667**	**82**	**0**	**6**	**88**	**6**	**1,138**	**2**	**1,146**	**1,913**
Cumulative Conditions	**7**	**0**	**5**	**12**	**7**	**921**	**92**	**1,020**	**128**	**0**	**16**	**144**	**6**	**1,254**	**2**	**1,262**	**2,438**

4 2
Intersection Name: Page Street and Campbell Avenue
Peak Hour: PM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**20**	**0**	**33**	**53**	**18**	**638**	**0**	**656**	**0**	**0**	**0**	**0**	**0**	**1,187**	**38**	**1,225**	**1,934**
Cumulative Conditions	**72**	**0**	**91**	**163**	**53**	**939**	**0**	**992**	**0**	**0**	**0**	**0**	**0**	**1,295**	**93**	**1,388**	**2,543**

5 3
Intersection Name: Gilman Avenue and Campbell Avenue
Peak Hour: PM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**0**	**0**	**0**	**0**	**0**	**620**	**67**	**687**	**206**	**0**	**27**	**233**	**24**	**1,208**	**0**	**1,232**	**2,152**
Cumulative Conditions	**0**	**0**	**0**	**0**	**0**	**921**	**186**	**1,107**	**541**	**0**	**29**	**570**	**24**	**1,374**	**0**	**1,398**	**3,075**

6 4
Intersection Name: Union Avenue and Campbell Avenue
Peak Hour: PM
Jurisdiction: 0
Count Date 10/16/25

	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Existing Conditions	**103**	**92**	**18**	**213**	**6**	**351**	**133**	**490**	**127**	**60**	**246**	**433**	**587**	**687**	**108**	**1,382**	**2,518**
Cumulative Conditions	**258**	**96**	**18**	**372**	**6**	**630**	**167**	**803**	**127**	**63**	**296**	**486**	**600**	**1,063**	**220**	**1,883**	**3,544**

Appendix C

Level of Service Calculations



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	136	412	396	84	273
v/c Ratio	0.44	0.57	0.78	0.37	0.13
Control Delay (s/veh)	37.8	24.3	36.4	40.8	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.8	24.3	36.4	40.8	4.5
Queue Length 50th (ft)	65	138	153	40	15
Queue Length 95th (ft)	142	395	#513	93	48
Internal Link Dist (ft)	757	97		365	
Turn Bay Length (ft)					
Base Capacity (vph)	532	748	523	554	2472
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.55	0.76	0.15	0.11

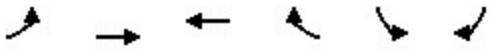
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	127	1	30	104	658	6	76	268	0	0	0
Future Volume (vph)	5	127	1	30	104	658	6	76	268	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1400	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			12.5	12.5		4.5	4.5			
Lane Util. Factor		1.00			0.95	0.95		1.00	0.88			
Frt		1.00			0.90	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)		1857			1586	1108		1856	2787			
Flt Permitted		1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)		1857			1586	1108		1856	2787			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	5	130	1	31	106	671	6	78	273	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	136	0	0	412	396	0	84	273	0	0	0
Turn Type	Split	NA		Split	NA	Prot	Split	NA	pt+ov			
Protected Phases	2	2		6	6	6	3	3	3 6			
Permitted Phases												
Actuated Green, G (s)		14.2			39.2	39.2		10.5	62.2			
Effective Green, g (s)		14.2			39.2	39.2		10.5	49.7			
Actuated g/C Ratio		0.17			0.46	0.46		0.12	0.58			
Clearance Time (s)		4.5			12.5	12.5		4.5				
Vehicle Extension (s)		2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)		308			728	508		228	1621			
v/s Ratio Prot		c0.07			0.26	c0.36		c0.05	0.10			
v/s Ratio Perm												
v/c Ratio		0.44			0.57	0.78		0.37	0.17			
Uniform Delay, d1		32.0			16.9	19.5		34.4	8.3			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		0.4			0.6	6.8		0.4	0.0			
Delay (s)		32.4			17.5	26.3		34.8	8.3			
Level of Service		C			B	C		C	A			
Approach Delay (s/veh)		32.4			21.8			14.5			0.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.4	Sum of lost time (s)	21.5
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	370	926	15	25	25
Future Volume (Veh/h)	17	370	926	15	25	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	18	389	975	16	26	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		500	159			
pX, platoon unblocked	0.88				0.88	0.88
vC, conflicting volume	991				1214	496
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	716				969	152
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				88	97
cM capacity (veh/h)	775				216	762

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	18	195	195	650	341	52
Volume Left	18	0	0	0	0	26
Volume Right	0	0	0	0	16	26
cSH	775	1700	1700	1700	1700	336
Volume to Capacity	0.02	0.11	0.11	0.38	0.20	0.15
Queue Length 95th (ft)	2	0	0	0	0	14
Control Delay (s/veh)	9.8	0.0	0.0	0.0	0.0	17.7
Lane LOS	A					C
Approach Delay (s/veh)	0.4			0.0		17.7
Approach LOS						C

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		



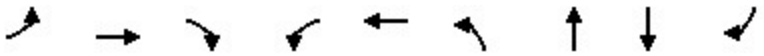
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	416	47	976	28	100
v/c Ratio	0.17	0.14	0.37	0.08	0.26
Control Delay (s/veh)	5.1	15.3	3.8	14.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.1	15.3	3.8	14.9	6.7
Queue Length 50th (ft)	15	7	45	4	0
Queue Length 95th (ft)	64	35	78	24	32
Internal Link Dist (ft)	79		69	430	
Turn Bay Length (ft)		50		55	
Base Capacity (vph)	2931	458	3421	566	574
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.10	0.29	0.05	0.17

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	379	16	45	927	27	95
Future Volume (vph)	379	16	45	927	27	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3518		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3518		1770	3539	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	399	17	47	976	28	100
RTOR Reduction (vph)	4	0	0	0	0	91
Lane Group Flow (vph)	412	0	47	976	28	9
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases						4
Actuated Green, G (s)	21.6		1.1	27.2	3.6	3.6
Effective Green, g (s)	21.6		1.1	27.2	3.6	3.6
Actuated g/C Ratio	0.54		0.03	0.68	0.09	0.09
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	1909		48	2418	160	143
v/s Ratio Prot	0.12		0.03	c0.28	c0.02	
v/s Ratio Perm						0.01
v/c Ratio	0.22		0.98	0.40	0.18	0.06
Uniform Delay, d1	4.7		19.3	2.8	16.7	16.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0		120.4	0.0	0.2	0.1
Delay (s)	4.7		139.8	2.8	16.9	16.6
Level of Service	A		F	A	B	B
Approach Delay (s/veh)	4.7			9.1	16.7	
Approach LOS	A			A	B	

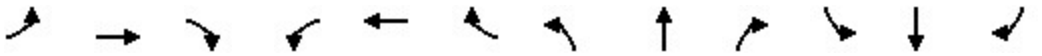
Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	39.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	29	312	169	78	437	377	359	21	23
v/c Ratio	0.13	0.38	0.13	0.33	0.44	0.58	0.55	0.09	0.08
Control Delay (s/veh)	37.9	25.8	1.2	36.3	22.3	21.4	18.7	37.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.9	25.8	1.2	36.3	22.3	21.4	18.7	37.5	0.5
Queue Length 50th (ft)	11	62	0	31	68	134	109	8	0
Queue Length 95th (ft)	46	125	18	91	163	280	242	36	0
Internal Link Dist (ft)		976			1049		545	204	
Turn Bay Length (ft)	150		220	140		240			
Base Capacity (vph)	221	1991	1379	368	2192	1174	1145	248	313
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.16	0.12	0.21	0.20	0.32	0.31	0.08	0.07

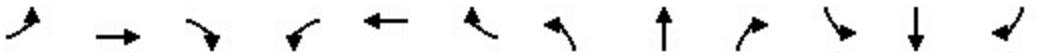
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	296	161	74	409	6	512	43	144	5	15	22
Future Volume (vph)	28	296	161	74	409	6	512	43	144	5	15	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.94			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3532		1681	1621			1841	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3532		1681	1621			1841	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	312	169	78	431	6	539	45	152	5	16	23
RTOR Reduction (vph)	0	0	67	0	1	0	0	27	0	0	0	22
Lane Group Flow (vph)	29	312	102	78	436	0	377	332	0	0	21	1
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2									4
Actuated Green, G (s)	1.7	14.5	37.8	4.1	16.9		23.3	23.3			2.8	2.8
Effective Green, g (s)	1.7	14.5	37.8	4.1	16.9		23.3	23.3			2.8	2.8
Actuated g/C Ratio	0.03	0.23	0.60	0.07	0.27		0.37	0.37			0.04	0.04
Clearance Time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0			1.5	1.5
Lane Grp Cap (vph)	47	818	954	115	952		624	602			82	70
v/s Ratio Prot	0.02	0.09	0.04	c0.04	c0.12		c0.22	0.20			c0.01	
v/s Ratio Perm			0.02									0.00
v/c Ratio	0.62	0.38	0.11	0.68	0.46		0.60	0.55			0.26	0.01
Uniform Delay, d1	30.2	20.3	5.3	28.7	19.1		16.0	15.6			28.9	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	15.7	0.3	0.0	11.8	0.4		1.7	1.1			0.6	0.0
Delay (s)	45.9	20.6	5.3	40.4	19.4		17.6	16.7			29.5	28.7
Level of Service	D	C	A	D	B		B	B			C	C
Approach Delay (s/veh)		17.0			22.6			17.2			29.1	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	62.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

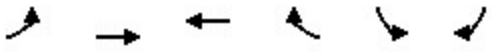


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	348	3	147	809	16	3	0	42	1	1	2
Future Volume (Veh/h)	4	348	3	147	809	16	3	0	42	1	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	387	3	163	899	18	3	0	47	1	1	2
Pedestrians								21				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								2				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		305			354							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	917			411			1196	1661	216	1483	1653	459
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	765			411			1064	1563	216	1372	1555	273
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			85			98	100	94	99	99	100
cM capacity (veh/h)	787			1121			140	86	773	80	87	676

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	198	197	163	599	318	50	4
Volume Left	4	0	163	0	0	3	1
Volume Right	0	3	0	0	18	47	2
cSH	787	1700	1121	1700	1700	607	149
Volume to Capacity	0.00*	0.12	0.15	0.35	0.19	0.08	0.03
Queue Length 95th (ft)	0	0	13	0	0	7	2
Control Delay (s/veh)	0.2	0.0	8.8	0.0	0.0	11.5	29.9
Lane LOS	A		A			B	D
Approach Delay (s/veh)	0.1		1.3			11.5	29.9
Approach LOS						B	D

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	47.8%	ICU Level of Service		A
Analysis Period (min)	15			

* Value less than 0.01.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	384	777	2	4	15
Future Volume (Veh/h)	13	384	777	2	4	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	417	845	2	4	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		177	482			
pX, platoon unblocked	0.99				0.99	0.99
vC, conflicting volume	847				1083	424
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	824				1062	396
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	97
cM capacity (veh/h)	793				212	597

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	153	278	563	284	20
Volume Left	14	0	0	0	4
Volume Right	0	0	0	2	16
cSH	793	1700	1700	1700	438
Volume to Capacity	0.02	0.16	0.33	0.17	0.05
Queue Length 95th (ft)	1	0	0	0	4
Control Delay (s/veh)	1.0	0.0	0.0	0.0	13.6
Lane LOS	A				B
Approach Delay (s/veh)	0.4		0.0		13.6
Approach LOS					B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

* Value less than 0.01.



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	359	322	293	88	861
v/c Ratio	0.79	0.74	1.00	0.27	0.50
Control Delay (s/veh)	38.5	39.0	85.7	27.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.5	39.0	85.7	27.7	9.1
Queue Length 50th (ft)	139	128	128	33	100
Queue Length 95th (ft)	283	#373	#400	76	192
Internal Link Dist (ft)	757	97		365	
Turn Bay Length (ft)					
Base Capacity (vph)	693	437	292	681	2272
Starvation Cap Reductn	0	0	0	0	191
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.74	1.00	0.13	0.41

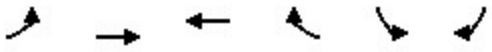
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	317	8	47	142	401	5	80	827	0	0	0
Future Volume (vph)	20	317	8	47	142	401	5	80	827	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1400	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			12.5	12.5		4.5	4.5			
Lane Util. Factor		1.00			0.95	0.95		1.00	0.88			
Frt		1.00			0.94	0.85		1.00	0.85			
Flt Protected		1.00			0.99	1.00		1.00	1.00			
Satd. Flow (prot)		1852			1654	1108		1857	2787			
Flt Permitted		1.00			0.99	1.00		1.00	1.00			
Satd. Flow (perm)		1852			1654	1108		1857	2787			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	330	8	49	148	418	5	83	861	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	359	0	0	322	293	0	88	861	0	0	0
Turn Type	Split	NA		Split	NA	Prot	Split	NA	pt+ov			
Protected Phases	2	2		6	6	6	3	3	3 6			
Permitted Phases												
Actuated Green, G (s)		17.2			18.5	18.5		12.1	43.1			
Effective Green, g (s)		17.2			18.5	18.5		12.1	30.6			
Actuated g/C Ratio		0.25			0.27	0.27		0.17	0.44			
Clearance Time (s)		4.5			12.5	12.5		4.5				
Vehicle Extension (s)		2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)		459			441	295		324	1230			
v/s Ratio Prot		c0.19			0.19	c0.26		0.05	c0.31			
v/s Ratio Perm												
v/c Ratio		0.78			0.73	0.99		0.27	0.70			
Uniform Delay, d1		24.3			23.1	25.3		24.8	15.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		7.8			5.3	50.2		0.2	1.5			
Delay (s)		32.1			28.4	75.6		24.9	17.1			
Level of Service		C			C	E		C	B			
Approach Delay (s/veh)		32.1			50.9			17.9			0.0	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	69.3	Sum of lost time (s)	21.5
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	1187	638	18	33	20
Future Volume (Veh/h)	38	1187	638	18	33	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	1249	672	19	35	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		500	159			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	691				1386	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	546				1285	179
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				75	97
cM capacity (veh/h)	959				141	784

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	40	625	625	448	243	56
Volume Left	40	0	0	0	0	35
Volume Right	0	0	0	0	19	21
cSH	959	1700	1700	1700	1700	204
Volume to Capacity	0.04	0.37	0.37	0.26	0.14	0.28
Queue Length 95th (ft)	3	0	0	0	0	27
Control Delay (s/veh)	8.9	0.0	0.0	0.0	0.0	29.3
Lane LOS	A					D
Approach Delay (s/veh)	0.3			0.0		29.3
Approach LOS						D

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		



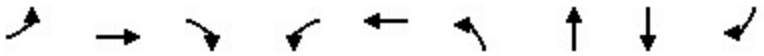
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1297	71	653	28	217
v/c Ratio	0.60	0.36	0.26	0.12	0.58
Control Delay (s/veh)	9.6	34.9	3.3	27.9	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.6	34.9	3.3	27.9	13.9
Queue Length 50th (ft)	152	25	26	10	9
Queue Length 95th (ft)	266	72	64	33	69
Internal Link Dist (ft)	79		69	430	
Turn Bay Length (ft)		50		55	
Base Capacity (vph)	2674	204	3086	394	501
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.35	0.21	0.07	0.43

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1208	24	67	620	27	206
Future Volume (vph)	1208	24	67	620	27	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3529		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3529		1770	3539	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1272	25	71	653	28	217
RTOR Reduction (vph)	2	0	0	0	0	167
Lane Group Flow (vph)	1295	0	71	653	28	50
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases						4
Actuated Green, G (s)	36.0		3.4	43.9	7.7	7.7
Effective Green, g (s)	36.0		3.4	43.9	7.7	7.7
Actuated g/C Ratio	0.59		0.06	0.72	0.13	0.13
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	2096		99	2563	224	201
v/s Ratio Prot	c0.37		c0.04	0.18	0.02	
v/s Ratio Perm						c0.03
v/c Ratio	0.62		0.72	0.25	0.13	0.25
Uniform Delay, d1	7.9		28.1	2.8	23.5	23.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		18.5	0.0	0.1	0.2
Delay (s)	8.3		46.6	2.8	23.6	24.1
Level of Service	A		D	A	C	C
Approach Delay (s/veh)	8.3			7.1	24.0	
Approach LOS	A			A	C	

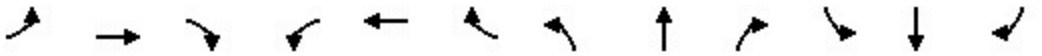
Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	114	723	618	140	375	233	223	116	108
v/c Ratio	0.56	0.71	0.57	0.61	0.32	0.56	0.50	0.56	0.39
Control Delay (s/veh)	52.1	33.3	6.5	51.8	24.9	35.9	24.9	51.5	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.1	33.3	6.5	51.8	24.9	35.9	24.9	51.5	13.5
Queue Length 50th (ft)	60	185	64	73	83	116	74	61	0
Queue Length 95th (ft)	139	306	178	163	147	234	177	138	51
Internal Link Dist (ft)		976			1049		545	204	
Turn Bay Length (ft)	150		220	140		240			
Base Capacity (vph)	283	1455	1227	327	1541	610	624	320	364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.50	0.50	0.43	0.24	0.38	0.36	0.36	0.30

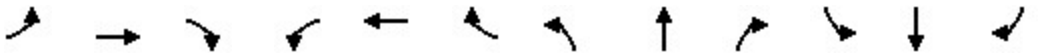
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	687	587	133	351	6	246	60	127	18	92	103
Future Volume (vph)	108	687	587	133	351	6	246	60	127	18	92	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3531		1681	1601			1848	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.99	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3531		1681	1601			1848	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	723	618	140	369	6	259	63	134	19	97	108
RTOR Reduction (vph)	0	0	158	0	1	0	0	50	0	0	0	96
Lane Group Flow (vph)	114	723	460	140	374	0	233	173	0	0	116	12
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2									4
Actuated Green, G (s)	8.1	25.9	47.4	11.1	28.9		21.5	21.5			9.8	9.8
Effective Green, g (s)	8.1	25.9	47.4	11.1	28.9		21.5	21.5			9.8	9.8
Actuated g/C Ratio	0.09	0.30	0.55	0.13	0.33		0.25	0.25			0.11	0.11
Clearance Time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0			1.5	1.5
Lane Grp Cap (vph)	166	1062	869	227	1182		418	398			209	179
v/s Ratio Prot	0.06	c0.20	0.13	c0.08	c0.11		c0.14	0.11			c0.06	
v/s Ratio Perm			0.16									0.01
v/c Ratio	0.69	0.68	0.53	0.62	0.32		0.56	0.43			0.56	0.07
Uniform Delay, d1	37.9	26.6	12.4	35.6	21.3		28.3	27.3			36.2	34.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	9.0	1.8	0.6	3.5	0.2		1.6	0.8			1.8	0.1
Delay (s)	46.9	28.4	12.9	39.1	21.5		29.9	28.0			38.0	34.2
Level of Service	D	C	B	D	C		C	C			D	C
Approach Delay (s/veh)		23.3			26.3			29.0			36.2	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	86.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

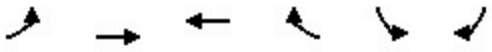


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1138	6	84	576	7	6	0	82	5	0	7
Future Volume (Veh/h)	2	1138	6	84	576	7	6	0	82	5	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	1198	6	88	606	7	6	0	86	5	0	7
Pedestrians								21				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								2				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		305			354							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	613			1225			1712	2015	623	1475	2015	307
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	551			1225			1679	1990	623	1435	1989	237
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			84			88	100	80	92	100	99
cM capacity (veh/h)	989			554			51	48	420	63	48	745

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	601	605	88	404	209	92	12
Volume Left	2	0	88	0	0	6	5
Volume Right	0	6	0	0	7	86	7
cSH	989	1700	554	1700	1700	285	135
Volume to Capacity	0.00*	0.36	0.16	0.24	0.12	0.32	0.09
Queue Length 95th (ft)	0	0	14	0	0	34	7
Control Delay (s/veh)	0.1	0.0	12.7	0.0	0.0	23.6	34.2
Lane LOS	A		B			C	D
Approach Delay (s/veh)	0.0		1.6			23.6	34.2
Approach LOS						C	D

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	63.3%	ICU Level of Service	B	
Analysis Period (min)	15			

* Value less than 0.01.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	1133	565	11	14	18
Future Volume (Veh/h)	20	1133	565	11	14	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1232	614	12	15	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		177	482			
pX, platoon unblocked	1.00				1.00	1.00
vC, conflicting volume	626				1280	313
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	620				1275	306
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				90	97
cM capacity (veh/h)	954				155	688

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	433	821	409	217	35
Volume Left	22	0	0	0	15
Volume Right	0	0	0	12	20
cSH	954	1700	1700	1700	278
Volume to Capacity	0.02	0.48	0.24	0.13	0.13
Queue Length 95th (ft)	2	0	0	0	11
Control Delay (s/veh)	0.7	0.0	0.0	0.0	19.8
Lane LOS	A				C
Approach Delay (s/veh)	0.2		0.0		19.8
Approach LOS					C

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

* Value less than 0.01.



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	227	459	445	478	706
v/c Ratio	0.82	0.70	0.96	0.96	0.32
Control Delay (s/veh)	79.6	40.3	73.4	80.3	5.0
Queue Delay	0.0	6.1	6.6	42.3	0.6
Total Delay (s/veh)	79.6	46.3	80.0	122.6	5.6
Queue Length 50th (ft)	201	370	425	442	102
Queue Length 95th (ft)	#303	515	#673	#672	129
Internal Link Dist (ft)	757	97		365	
Turn Bay Length (ft)					
Base Capacity (vph)	322	658	462	499	2183
Starvation Cap Reductn	0	147	15	84	1010
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.90	1.00	1.15	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	154	2	30	104	752	220	249	692	0	0	0
Future Volume (vph)	67	154	2	30	104	752	220	249	692	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1400	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			12.5	12.5		4.5	4.5			
Lane Util. Factor		1.00			0.95	0.95		1.00	0.88			
Frt		1.00			0.89	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (prot)		1833			1578	1108		1820	2787			
Flt Permitted		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (perm)		1833			1578	1108		1820	2787			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	68	157	2	31	106	767	224	254	706	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	227	0	0	459	445	0	478	706	0	0	0
Turn Type	Split	NA		Split	NA	Prot	Split	NA	pt+ov			
Protected Phases	2	2		6	6	6	3	3	3 6			
Permitted Phases												
Actuated Green, G (s)		20.6			57.1	57.1		37.5	107.1			
Effective Green, g (s)		20.6			57.1	57.1		37.5	94.6			
Actuated g/C Ratio		0.15			0.42	0.42		0.27	0.69			
Clearance Time (s)		4.5			12.5	12.5		4.5				
Vehicle Extension (s)		2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)		276			659	462		499	1928			
v/s Ratio Prot		c0.12			0.29	c0.40		c0.26	0.25			
v/s Ratio Perm												
v/c Ratio		0.82			0.70	0.96		0.96	0.37			
Uniform Delay, d1		56.3			32.7	38.8		48.8	8.7			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		16.9			2.6	32.2		29.3	0.0			
Delay (s)		73.1			35.3	70.9		78.1	8.7			
Level of Service		E			D	E		E	A			
Approach Delay (s/veh)		73.1			52.8			36.8			0.0	
Approach LOS		E			D			D			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	136.7	Sum of lost time (s)	21.5
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	61	824	1075	163
v/c Ratio	0.38	0.63	0.52	0.51
Control Delay (s/veh)	33.1	17.6	2.9	19.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.1	17.6	2.9	19.9
Queue Length 50th (ft)	21	116	21	31
Queue Length 95th (ft)	56	192	27	79
Internal Link Dist (ft)		115	79	235
Turn Bay Length (ft)	60			
Base Capacity (vph)	161	1391	2059	590
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	0.59	0.52	0.28

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	58	783	966	55	83	72
Future Volume (vph)	58	783	966	55	83	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3539	3511		1700	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1770	3539	3511		1700	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	824	1017	58	87	76
RTOR Reduction (vph)	0	0	5	0	55	0
Lane Group Flow (vph)	61	824	1070	0	108	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	5	2	6		3	
Permitted Phases						
Actuated Green, G (s)	2.9	22.7	33.0		8.8	
Effective Green, g (s)	2.9	22.7	33.0		8.8	
Actuated g/C Ratio	0.05	0.39	0.57		0.15	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	2.0	3.0		3.0	
Lane Grp Cap (vph)	88	1380	1990		257	
v/s Ratio Prot	c0.03	c0.23	c0.30		c0.06	
v/s Ratio Perm						
v/c Ratio	0.69	0.60	0.54		0.42	
Uniform Delay, d1	27.2	14.1	7.8		22.4	
Progression Factor	1.00	1.00	0.23		1.00	
Incremental Delay, d2	21.0	0.5	0.3		1.1	
Delay (s)	48.2	14.6	2.1		23.5	
Level of Service	D	B	A		C	
Approach Delay (s/veh)		16.9	2.1		23.5	
Approach LOS		B	A		C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	912	326	1018	28	234
v/c Ratio	0.70	0.79	0.49	0.10	0.53
Control Delay (s/veh)	6.6	39.0	9.5	21.1	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.6	39.0	9.5	21.1	8.3
Queue Length 50th (ft)	25	108	113	9	0
Queue Length 95th (ft)	36	#254	192	27	50
Internal Link Dist (ft)	79		69	430	
Turn Bay Length (ft)		50		55	
Base Capacity (vph)	1389	414	2070	569	667
Starvation Cap Reductn	1	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.79	0.49	0.05	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	849	17	310	967	27	222
Future Volume (vph)	849	17	310	967	27	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3529		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3529		1770	3539	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	894	18	326	1018	28	234
RTOR Reduction (vph)	2	0	0	0	0	199
Lane Group Flow (vph)	910	0	326	1018	28	35
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	7	
Permitted Phases						7
Actuated Green, G (s)	22.7		13.2	33.0	8.8	8.8
Effective Green, g (s)	22.7		13.2	33.0	8.8	8.8
Actuated g/C Ratio	0.39		0.23	0.57	0.15	0.15
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1376		401	2006	267	239
v/s Ratio Prot	c0.26		c0.18	0.29	0.02	
v/s Ratio Perm						c0.02
v/c Ratio	0.66		0.81	0.51	0.10	0.15
Uniform Delay, d1	14.6		21.3	7.7	21.3	21.4
Progression Factor	0.25		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8		11.9	0.2	0.2	0.3
Delay (s)	4.5		33.2	7.9	21.5	21.7
Level of Service	A		C	A	C	C
Approach Delay (s/veh)	4.5			14.0	21.7	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

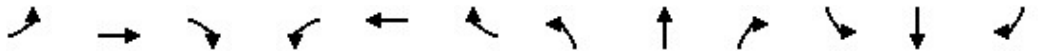


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	214	669	254	78	770	415	394	24	72
v/c Ratio	0.99	0.57	0.21	0.46	0.80	0.77	0.70	0.16	0.29
Control Delay (s/veh)	101.0	27.0	1.1	44.9	34.4	35.3	26.9	39.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	101.0	27.0	1.1	44.9	34.4	35.3	26.9	39.8	3.6
Queue Length 50th (ft)	~138	168	0	41	204	205	154	13	0
Queue Length 95th (ft)	#275	233	22	84	#275	320	262	36	6
Internal Link Dist (ft)		976			1049		545	204	
Turn Bay Length (ft)	150		220	140		240			
Base Capacity (vph)	216	1179	1254	216	1103	660	672	150	252
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.57	0.20	0.36	0.70	0.63	0.59	0.16	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	636	241	74	726	6	525	47	197	5	18	68
Future Volume (vph)	203	636	241	74	726	6	525	47	197	5	18	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3535		1681	1602			1844	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3535		1681	1602			1844	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	214	669	254	78	764	6	553	49	207	5	19	72
RTOR Reduction (vph)	0	0	92	0	1	0	0	49	0	0	0	68
Lane Group Flow (vph)	214	669	162	78	769	0	415	345	0	0	24	4
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2									4
Actuated Green, G (s)	9.4	25.6	50.2	6.0	22.2		24.6	24.6			4.4	4.4
Effective Green, g (s)	9.4	25.6	50.2	6.0	22.2		24.6	24.6			4.4	4.4
Actuated g/C Ratio	0.12	0.33	0.64	0.08	0.28		0.31	0.31			0.06	0.06
Clearance Time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0			1.5	1.5
Lane Grp Cap (vph)	211	1152	1011	135	998		526	501			103	88
v/s Ratio Prot	c0.12	c0.19	0.05	0.04	c0.22		c0.25	0.22			c0.01	
v/s Ratio Perm			0.05									0.00
v/c Ratio	1.01	0.58	0.16	0.58	0.77		0.79	0.69			0.23	0.05
Uniform Delay, d1	34.6	22.0	5.7	35.1	25.9		24.6	23.7			35.5	35.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	65.7	0.8	0.1	3.7	3.7		7.7	3.9			0.4	0.1
Delay (s)	100.3	22.8	5.8	38.8	29.6		32.3	27.6			35.9	35.2
Level of Service	F	C	A	D	C		C	C			D	D
Approach Delay (s/veh)		33.6			30.4			30.0			35.4	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	78.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	798	4	203	841	16	14	0	46	1	1	2
Future Volume (Veh/h)	4	798	4	203	841	16	14	0	46	1	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	887	4	226	934	18	16	0	51	1	1	2
Pedestrians								21				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								2				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		305			195							
pX, platoon unblocked	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	952			912			1840	2322	467	1898	2315	476
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544			912			1608	2187	467	1678	2178	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			69			61	100	90	97	96	100
cM capacity (veh/h)	852			728			41	25	532	35	26	904

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	448	448	226	623	329	67	4
Volume Left	4	0	226	0	0	16	1
Volume Right	0	4	0	0	18	51	2
cSH	852	1700	728	1700	1700	139	57
Volume to Capacity	0.00*	0.26	0.31	0.37	0.19	0.48	0.07
Queue Length 95th (ft)	0	0	33	0	0	56	5
Control Delay (s/veh)	0.1	0.0	12.2	0.0	0.0	53.1	72.7
Lane LOS	A		B			F	F
Approach Delay (s/veh)	0.1		2.3			53.1	72.7
Approach LOS						F	F

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	60.8%	ICU Level of Service	B	
Analysis Period (min)	15			

* Value less than 0.01.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	835	820	2	4	15
Future Volume (Veh/h)	13	835	820	2	4	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	908	891	2	4	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		177	323			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	893				1374	447
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	560				1117	43
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	98
cM capacity (veh/h)	870				171	879

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	317	605	594	299	20
Volume Left	14	0	0	0	4
Volume Right	0	0	0	2	16
cSH	870	1700	1700	1700	481
Volume to Capacity	0.02	0.36	0.35	0.18	0.04
Queue Length 95th (ft)	1	0	0	0	3
Control Delay (s/veh)	0.6	0.0	0.0	0.0	12.8
Lane LOS	A				B
Approach Delay (s/veh)	0.2		0.0		12.8
Approach LOS					B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	589	519	481	281	956
v/c Ratio	1.11	0.83	1.12	0.90	0.53
Control Delay (s/veh)	118.5	53.2	122.1	90.1	15.3
Queue Delay	0.0	37.3	0.2	0.0	2.4
Total Delay (s/veh)	118.5	90.5	122.3	90.1	17.7
Queue Length 50th (ft)	~644	471	~560	267	265
Queue Length 95th (ft)	#883	#678	#797	#434	325
Internal Link Dist (ft)	757	97		365	
Turn Bay Length (ft)					
Base Capacity (vph)	532	624	428	317	1803
Starvation Cap Reductn	0	136	9	0	687
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.11	1.06	1.15	0.89	0.86

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	342	60	47	168	745	86	183	918	0	0	0
Future Volume (vph)	163	342	60	47	168	745	86	183	918	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1400	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			12.5	12.5		4.5	4.5			
Lane Util. Factor		1.00			0.95	0.95		1.00	0.88			
Frt		0.99			0.91	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (prot)		1810			1611	1108		1833	2787			
Flt Permitted		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (perm)		1810			1611	1108		1833	2787			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	170	356	63	49	175	776	90	191	956	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	589	0	0	519	481	0	281	956	0	0	0
Turn Type	Split	NA		Split	NA	Prot	Split	NA	pt+ov			
Protected Phases	2	2		6	6	6	3	3	3 6			
Permitted Phases												
Actuated Green, G (s)		42.5			56.0	56.0		24.5	93.0			
Effective Green, g (s)		42.5			56.0	56.0		24.5	80.5			
Actuated g/C Ratio		0.29			0.39	0.39		0.17	0.56			
Clearance Time (s)		4.5			12.5	12.5		4.5				
Vehicle Extension (s)		2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)		532			624	429		310	1552			
v/s Ratio Prot		c0.33			0.32	c0.43		c0.15	0.34			
v/s Ratio Perm												
v/c Ratio		1.11			0.83	1.12		0.91	0.62			
Uniform Delay, d1		51.0			40.0	44.3		58.9	21.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		71.7			8.9	80.8		27.8	0.5			
Delay (s)		122.7			48.9	125.0		86.7	22.1			
Level of Service		F			D	F		F	C			
Approach Delay (s/veh)		122.7			85.5			36.8			0.0	
Approach LOS		F			F			D			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	71.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	144.5	Sum of lost time (s)	21.5
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	98	1363	1044	172
v/c Ratio	0.50	0.86	0.60	0.37
Control Delay (s/veh)	42.5	26.7	4.5	19.9
Queue Delay	0.0	0.7	0.0	0.0
Total Delay (s/veh)	42.5	27.4	4.5	19.9
Queue Length 50th (ft)	47	315	27	50
Queue Length 95th (ft)	94	#418	33	105
Internal Link Dist (ft)		115	79	235
Turn Bay Length (ft)	60			
Base Capacity (vph)	222	1589	1735	479
Starvation Cap Reductn	0	54	0	0
Spillback Cap Reductn	0	39	0	2
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.89	0.60	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	93	1295	939	53	91	72
Future Volume (vph)	93	1295	939	53	91	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3539	3511		1704	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1770	3539	3511		1704	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	98	1363	988	56	96	76
RTOR Reduction (vph)	0	0	5	0	36	0
Lane Group Flow (vph)	98	1363	1039	0	136	0
Turn Type	Prot	NA	NA		Prot	
Protected Phases	5	2	6		3	
Permitted Phases						
Actuated Green, G (s)	7.5	36.6	39.2		20.2	
Effective Green, g (s)	7.5	36.6	39.2		20.2	
Actuated g/C Ratio	0.09	0.46	0.49		0.25	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	2.0	3.0		3.0	
Lane Grp Cap (vph)	165	1611	1711		428	
v/s Ratio Prot	c0.06	c0.39	c0.30		c0.08	
v/s Ratio Perm						
v/c Ratio	0.59	0.85	0.61		0.32	
Uniform Delay, d1	35.0	19.4	15.0		24.5	
Progression Factor	1.00	1.00	0.20		1.00	
Incremental Delay, d2	5.6	4.1	0.5		0.4	
Delay (s)	40.6	23.5	3.5		24.9	
Level of Service	D	C	A		C	
Approach Delay (s/veh)		24.7	3.5		24.9	
Approach LOS		C	A		C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1471	196	969	31	569
v/c Ratio	0.93	0.88	0.56	0.07	0.97
Control Delay (s/veh)	13.0	71.7	16.8	23.0	48.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.0	71.7	16.8	23.0	48.7
Queue Length 50th (ft)	44	100	187	12	172
Queue Length 95th (ft)	#492	#218	251	33	#385
Internal Link Dist (ft)	79		69	430	
Turn Bay Length (ft)		50		55	
Base Capacity (vph)	1586	224	1744	460	596
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.93	0.88	0.56	0.07	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1374	24	186	921	29	541
Future Volume (vph)	1374	24	186	921	29	541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3530		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3530		1770	3539	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1446	25	196	969	31	569
RTOR Reduction (vph)	2	0	0	0	0	186
Lane Group Flow (vph)	1469	0	196	969	31	383
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	7	
Permitted Phases						7
Actuated Green, G (s)	36.6		10.1	39.2	20.2	20.2
Effective Green, g (s)	36.6		10.1	39.2	20.2	20.2
Actuated g/C Ratio	0.46		0.13	0.49	0.25	0.25
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1606		222	1725	444	397
v/s Ratio Prot	c0.42		c0.11	c0.27	0.02	
v/s Ratio Perm						c0.24
v/c Ratio	0.91		0.88	0.56	0.07	0.96
Uniform Delay, d1	20.4		34.6	14.5	22.9	29.7
Progression Factor	0.22		1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9		31.1	0.4	0.1	35.5
Delay (s)	9.4		65.6	15.0	23.0	65.2
Level of Service	A		E	B	C	E
Approach Delay (s/veh)	9.4			23.5	63.0	
Approach LOS	A			C	E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

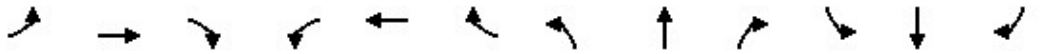


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	232	1119	632	176	669	262	250	120	272
v/c Ratio	1.13	0.98	0.58	1.10	0.64	0.57	0.50	0.84	0.73
Control Delay (s/veh)	138.0	50.8	8.0	139.4	28.0	28.8	19.5	82.7	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	138.0	50.8	8.0	139.4	28.0	28.8	19.5	82.7	18.2
Queue Length 50th (ft)	~137	287	115	~102	150	115	73	60	0
Queue Length 95th (ft)	#300	#486	194	#244	232	190	143	#169	#103
Internal Link Dist (ft)		976			1049		545	204	
Turn Bay Length (ft)	150		220	140		240			
Base Capacity (vph)	206	1144	1234	160	1052	630	650	143	373
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.98	0.51	1.10	0.64	0.42	0.38	0.84	0.73

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

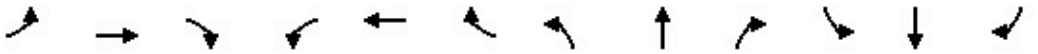
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	1063	600	167	630	6	296	63	127	18	96	258
Future Volume (vph)	220	1063	600	167	630	6	296	63	127	18	96	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3534		1681	1611			1848	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.99	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3534		1681	1611			1848	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	1119	632	176	663	6	312	66	134	19	101	272
RTOR Reduction (vph)	0	0	44	0	1	0	0	54	0	0	0	251
Lane Group Flow (vph)	232	1119	588	176	668	0	262	196	0	0	120	21
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2									4
Actuated Green, G (s)	9.1	25.3	46.8	7.0	23.2		21.5	21.5			6.0	6.0
Effective Green, g (s)	9.1	25.3	46.8	7.0	23.2		21.5	21.5			6.0	6.0
Actuated g/C Ratio	0.12	0.33	0.60	0.09	0.30		0.28	0.28			0.08	0.08
Clearance Time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0			1.5	1.5
Lane Grp Cap (vph)	207	1150	952	159	1053		464	445			142	122
v/s Ratio Prot	c0.13	c0.32	c0.17	0.10	0.19		0.16	0.12			c0.06	
v/s Ratio Perm			0.20									0.01
v/c Ratio	1.12	0.97	0.62	1.11	0.63		0.56	0.44			0.85	0.17
Uniform Delay, d1	34.4	25.9	9.8	35.4	23.6		24.1	23.2			35.4	33.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	98.8	20.2	1.2	102.9	1.3		1.6	0.7			33.3	0.2
Delay (s)	133.1	46.1	11.0	138.3	24.9		25.7	23.9			68.8	33.8
Level of Service	F	D	B	F	C		C	C			E	C
Approach Delay (s/veh)		45.1			48.5			24.8			44.5	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1254	6	92	921	7	16	0	128	5	0	7
Future Volume (Veh/h)	2	1254	6	92	921	7	16	0	128	5	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	1320	6	97	969	7	17	0	135	5	0	7
Pedestrians								21				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								2				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		305			195							
pX, platoon unblocked	0.79						0.79	0.79		0.79	0.79	0.79
vC, conflicting volume	976			1347			2034	2518	684	1966	2518	488
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	443			1347			1779	2391	684	1693	2390	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			80			49	100	65	81	100	99
cM capacity (veh/h)	881			497			33	21	383	26	21	858

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	662	666	97	646	330	152	12
Volume Left	2	0	97	0	0	17	5
Volume Right	0	6	0	0	7	135	7
cSH	881	1700	497	1700	1700	177	60
Volume to Capacity	0.00*	0.39	0.20	0.38	0.19	0.86	0.20
Queue Length 95th (ft)	0	0	18	0	0	154	17
Control Delay (s/veh)	0.1	0.0	14.0	0.0	0.0	88.3	80.1
Lane LOS	A		B			F	F
Approach Delay (s/veh)	0.0		1.3			88.3	80.1
Approach LOS						F	F

Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	79.7%	ICU Level of Service		D
Analysis Period (min)	15			

* Value less than 0.01.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	1249	920	11	14	18
Future Volume (Veh/h)	20	1249	920	11	14	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1358	1000	12	15	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		177	323			
pX, platoon unblocked	0.80				0.80	0.80
vC, conflicting volume	1012				1729	506
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	504				1404	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				85	98
cM capacity (veh/h)	842				101	864

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	475	905	667	345	35
Volume Left	22	0	0	0	15
Volume Right	0	0	0	12	20
cSH	842	1700	1700	1700	204
Volume to Capacity	0.03	0.53	0.39	0.20	0.17
Queue Length 95th (ft)	2	0	0	0	15
Control Delay (s/veh)	0.8	0.0	0.0	0.0	26.2
Lane LOS	A				D
Approach Delay (s/veh)	0.3		0.0		26.2
Approach LOS					D

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

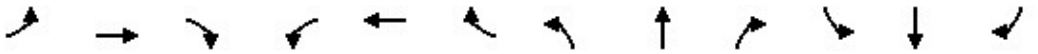
* Value less than 0.01.



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	227	459	445	478	706
v/c Ratio	0.82	0.70	0.96	0.96	0.32
Control Delay (s/veh)	79.6	40.3	73.4	80.3	5.0
Queue Delay	0.0	6.1	6.6	42.3	0.6
Total Delay (s/veh)	79.6	46.3	80.0	122.6	5.6
Queue Length 50th (ft)	201	370	425	442	102
Queue Length 95th (ft)	#303	515	#673	#672	129
Internal Link Dist (ft)	757	97		365	
Turn Bay Length (ft)					
Base Capacity (vph)	322	658	462	499	2183
Starvation Cap Reductn	0	147	15	84	1010
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.90	1.00	1.15	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	154	2	30	104	752	220	249	692	0	0	0
Future Volume (vph)	67	154	2	30	104	752	220	249	692	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1400	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			12.5	12.5		4.5	4.5			
Lane Util. Factor		1.00			0.95	0.95		1.00	0.88			
Frt		1.00			0.89	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (prot)		1833			1578	1108		1820	2787			
Flt Permitted		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (perm)		1833			1578	1108		1820	2787			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	68	157	2	31	106	767	224	254	706	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	227	0	0	459	445	0	478	706	0	0	0
Turn Type	Split	NA		Split	NA	Prot	Split	NA	pt+ov			
Protected Phases	2	2		6	6	6	3	3	3 6			
Permitted Phases												
Actuated Green, G (s)		20.6			57.1	57.1		37.5	107.1			
Effective Green, g (s)		20.6			57.1	57.1		37.5	94.6			
Actuated g/C Ratio		0.15			0.42	0.42		0.27	0.69			
Clearance Time (s)		4.5			12.5	12.5		4.5				
Vehicle Extension (s)		2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)		276			659	462		499	1928			
v/s Ratio Prot		c0.12			0.29	c0.40		c0.26	0.25			
v/s Ratio Perm												
v/c Ratio		0.82			0.70	0.96		0.96	0.37			
Uniform Delay, d1		56.3			32.7	38.8		48.8	8.7			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		16.9			2.6	32.2		29.3	0.0			
Delay (s)		73.1			35.3	70.9		78.1	8.7			
Level of Service		E			D	E		E	A			
Approach Delay (s/veh)		73.1			52.8			36.8			0.0	
Approach LOS		E			D			D			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	136.7	Sum of lost time (s)	21.5
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	885	1075	163
v/c Ratio	0.50	0.41	0.60
Control Delay (s/veh)	10.4	1.5	33.9
Queue Delay	0.0	0.8	0.0
Total Delay (s/veh)	10.4	2.3	33.9
Queue Length 50th (ft)	122	23	60
Queue Length 95th (ft)	197	33	121
Internal Link Dist (ft)	115	79	235
Turn Bay Length (ft)			
Base Capacity (vph)	1832	2752	414
Starvation Cap Reductn	0	1254	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.48	0.72	0.39

Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	58	783	966	55	83	72
Future Volume (vph)	58	783	966	55	83	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frt		1.00	0.99		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3527	3511		1700	
Flt Permitted		0.80	1.00		0.97	
Satd. Flow (perm)		2844	3511		1700	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	824	1017	58	87	76
RTOR Reduction (vph)	0	0	4	0	38	0
Lane Group Flow (vph)	0	885	1071	0	125	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		3	
Permitted Phases	2					
Actuated Green, G (s)		50.1	61.0		11.1	
Effective Green, g (s)		50.1	61.0		11.1	
Actuated g/C Ratio		0.62	0.75		0.14	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.0	3.0		3.0	
Lane Grp Cap (vph)		1756	2640		232	
v/s Ratio Prot			c0.31		c0.07	
v/s Ratio Perm		c0.31				
v/c Ratio		0.50	0.41		0.54	
Uniform Delay, d1		8.6	3.6		32.6	
Progression Factor		1.00	0.31		1.00	
Incremental Delay, d2		0.1	0.1		2.4	
Delay (s)		8.7	1.2		35.0	
Level of Service		A	A		D	
Approach Delay (s/veh)		8.7	1.2		35.0	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	912	1344	28	234
v/c Ratio	0.42	0.84	0.14	0.61
Control Delay (s/veh)	3.3	12.5	33.2	19.3
Queue Delay	0.1	0.0	0.0	0.0
Total Delay (s/veh)	3.5	12.5	33.2	19.3
Queue Length 50th (ft)	32	115	14	50
Queue Length 95th (ft)	44	#227	36	101
Internal Link Dist (ft)	79	69	430	
Turn Bay Length (ft)			55	
Base Capacity (vph)	2273	1673	395	395
Starvation Cap Reductn	459	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.80	0.07	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	849	17	310	967	27	222
Future Volume (vph)	849	17	310	967	27	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	0.95			0.95	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3529			3497	1770	1583
Flt Permitted	1.00			0.56	0.95	1.00
Satd. Flow (perm)	3529			1986	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	894	18	326	1018	28	234
RTOR Reduction (vph)	2	0	0	0	0	109
Lane Group Flow (vph)	910	0	0	1344	28	125
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	7	1
Permitted Phases			6			7
Actuated Green, G (s)	50.1			61.0	11.1	17.5
Effective Green, g (s)	50.1			61.0	11.1	17.5
Actuated g/C Ratio	0.62			0.75	0.14	0.22
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	2.0			3.0	3.0	3.0
Lane Grp Cap (vph)	2180			1613	242	429
v/s Ratio Prot	0.26			c0.07	0.02	c0.02
v/s Ratio Perm				c0.56		0.06
v/c Ratio	0.42			0.83	0.12	0.29
Uniform Delay, d1	8.0			6.7	30.7	26.6
Progression Factor	0.33			1.00	1.00	1.00
Incremental Delay, d2	0.0			3.9	0.2	0.4
Delay (s)	2.7			10.5	30.9	27.0
Level of Service	A			B	C	C
Approach Delay (s/veh)	2.7			10.5	27.4	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

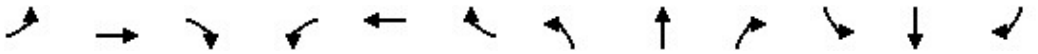


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	214	669	254	78	770	415	394	24	72
v/c Ratio	0.99	0.57	0.21	0.46	0.80	0.77	0.70	0.16	0.29
Control Delay (s/veh)	101.0	27.0	1.1	44.9	34.4	35.3	26.9	39.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	101.0	27.0	1.1	44.9	34.4	35.3	26.9	39.8	3.6
Queue Length 50th (ft)	~138	168	0	41	204	205	154	13	0
Queue Length 95th (ft)	#275	233	22	84	#275	320	262	36	6
Internal Link Dist (ft)		976			1049		545	204	
Turn Bay Length (ft)	150		220	140		240			
Base Capacity (vph)	216	1179	1254	216	1103	660	672	150	252
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.57	0.20	0.36	0.70	0.63	0.59	0.16	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	636	241	74	726	6	525	47	197	5	18	68
Future Volume (vph)	203	636	241	74	726	6	525	47	197	5	18	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3535		1681	1602			1844	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98			0.99	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3535		1681	1602			1844	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	214	669	254	78	764	6	553	49	207	5	19	72
RTOR Reduction (vph)	0	0	92	0	1	0	0	49	0	0	0	68
Lane Group Flow (vph)	214	669	162	78	769	0	415	345	0	0	24	4
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2									4
Actuated Green, G (s)	9.4	25.6	50.2	6.0	22.2		24.6	24.6			4.4	4.4
Effective Green, g (s)	9.4	25.6	50.2	6.0	22.2		24.6	24.6			4.4	4.4
Actuated g/C Ratio	0.12	0.33	0.64	0.08	0.28		0.31	0.31			0.06	0.06
Clearance Time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0			1.5	1.5
Lane Grp Cap (vph)	211	1152	1011	135	998		526	501			103	88
v/s Ratio Prot	c0.12	c0.19	0.05	0.04	c0.22		c0.25	0.22			c0.01	
v/s Ratio Perm			0.05									0.00
v/c Ratio	1.01	0.58	0.16	0.58	0.77		0.79	0.69			0.23	0.05
Uniform Delay, d1	34.6	22.0	5.7	35.1	25.9		24.6	23.7			35.5	35.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	65.7	0.8	0.1	3.7	3.7		7.7	3.9			0.4	0.1
Delay (s)	100.3	22.8	5.8	38.8	29.6		32.3	27.6			35.9	35.2
Level of Service	F	C	A	D	C		C	C			D	D
Approach Delay (s/veh)		33.6			30.4			30.0			35.4	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	78.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	798	4	203	841	16	14	0	46	1	1	2
Future Volume (Veh/h)	4	798	4	203	841	16	14	0	46	1	1	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	887	4	226	934	18	16	0	51	1	1	2
Pedestrians								21				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								2				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		305			195							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	952			912			1840	2322	467	1898	2315	476
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	704			912			1699	2240	467	1764	2232	171
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			69			58	100	90	97	96	100
cM capacity (veh/h)	793			728			38	25	532	32	25	752

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	448	448	693	485	67	4
Volume Left	4	0	226	0	16	1
Volume Right	0	4	0	18	51	2
cSH	793	1700	728	1700	129	55
Volume to Capacity	0.00*	0.26	0.31	0.29	0.52	0.07
Queue Length 95th (ft)	0	0	33	0	62	6
Control Delay (s/veh)	0.2	0.0	7.5	0.0	59.8	76.2
Lane LOS	A		A		F	F
Approach Delay (s/veh)	0.1		4.4		59.8	76.2
Approach LOS					F	F

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	66.7%	ICU Level of Service	C	
Analysis Period (min)	15			

* Value less than 0.01.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	835	820	2	4	15
Future Volume (Veh/h)	13	835	820	2	4	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	908	891	2	4	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		177	323			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	893				1374	447
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	736				1253	256
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	98
cM capacity (veh/h)	805				150	692

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	317	605	594	299	20
Volume Left	14	0	0	0	4
Volume Right	0	0	0	2	16
cSH	805	1700	1700	1700	402
Volume to Capacity	0.02	0.36	0.35	0.18	0.05
Queue Length 95th (ft)	1	0	0	0	4
Control Delay (s/veh)	0.6	0.0	0.0	0.0	14.4
Lane LOS	A				B
Approach Delay (s/veh)	0.2		0.0		14.4
Approach LOS					B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

* Value less than 0.01.



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	589	519	481	281	956
v/c Ratio	1.11	0.83	1.12	0.90	0.53
Control Delay (s/veh)	118.5	53.2	122.1	90.1	15.3
Queue Delay	0.0	37.3	0.2	0.0	2.4
Total Delay (s/veh)	118.5	90.5	122.3	90.1	17.7
Queue Length 50th (ft)	~644	471	~560	267	265
Queue Length 95th (ft)	#883	#678	#797	#434	325
Internal Link Dist (ft)	757	97		365	
Turn Bay Length (ft)					
Base Capacity (vph)	532	624	428	317	1803
Starvation Cap Reductn	0	136	9	0	687
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.11	1.06	1.15	0.89	0.86

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	342	60	47	168	745	86	183	918	0	0	0
Future Volume (vph)	163	342	60	47	168	745	86	183	918	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1400	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			12.5	12.5		4.5	4.5			
Lane Util. Factor		1.00			0.95	0.95		1.00	0.88			
Frt		0.99			0.91	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (prot)		1810			1611	1108		1833	2787			
Flt Permitted		0.99			1.00	1.00		0.98	1.00			
Satd. Flow (perm)		1810			1611	1108		1833	2787			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	170	356	63	49	175	776	90	191	956	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	589	0	0	519	481	0	281	956	0	0	0
Turn Type	Split	NA		Split	NA	Prot	Split	NA	pt+ov			
Protected Phases	2	2		6	6	6	3	3	3 6			
Permitted Phases												
Actuated Green, G (s)		42.5			56.0	56.0		24.5	93.0			
Effective Green, g (s)		42.5			56.0	56.0		24.5	80.5			
Actuated g/C Ratio		0.29			0.39	0.39		0.17	0.56			
Clearance Time (s)		4.5			12.5	12.5		4.5				
Vehicle Extension (s)		2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)		532			624	429		310	1552			
v/s Ratio Prot		c0.33			0.32	c0.43		c0.15	0.34			
v/s Ratio Perm												
v/c Ratio		1.11			0.83	1.12		0.91	0.62			
Uniform Delay, d1		51.0			40.0	44.3		58.9	21.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		71.7			8.9	80.8		27.8	0.5			
Delay (s)		122.7			48.9	125.0		86.7	22.1			
Level of Service		F			D	F		F	C			
Approach Delay (s/veh)		122.7			85.5			36.8			0.0	
Approach LOS		F			F			D			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	71.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	144.5	Sum of lost time (s)	21.5
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL
Lane Group Flow (vph)	1461	1044	172
v/c Ratio	0.92	0.39	0.66
Control Delay (s/veh)	28.8	1.5	43.5
Queue Delay	10.5	0.8	0.0
Total Delay (s/veh)	39.4	2.3	43.5
Queue Length 50th (ft)	390	25	80
Queue Length 95th (ft)	#640	31	149
Internal Link Dist (ft)	115	79	235
Turn Bay Length (ft)			
Base Capacity (vph)	1596	2709	352
Starvation Cap Reductn	141	1236	0
Spillback Cap Reductn	22	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.00	0.71	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	93	1295	939	53	91	72
Future Volume (vph)	93	1295	939	53	91	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	
Lane Util. Factor		0.95	0.95		1.00	
Frt		1.00	0.99		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		3527	3511		1704	
Flt Permitted		0.76	1.00		0.97	
Satd. Flow (perm)		2699	3511		1704	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	98	1363	988	56	96	76
RTOR Reduction (vph)	0	0	3	0	30	0
Lane Group Flow (vph)	0	1461	1041	0	142	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		3	
Permitted Phases	2					
Actuated Green, G (s)		56.1	73.1		12.8	
Effective Green, g (s)		56.1	73.1		12.8	
Actuated g/C Ratio		0.59	0.77		0.13	
Clearance Time (s)		4.5	4.5		4.5	
Vehicle Extension (s)		2.0	3.0		3.0	
Lane Grp Cap (vph)		1595	2704		229	
v/s Ratio Prot			c0.30		c0.08	
v/s Ratio Perm		c0.54				
v/c Ratio		0.92	0.38		0.62	
Uniform Delay, d1		17.3	3.6		38.7	
Progression Factor		1.00	0.31		1.00	
Incremental Delay, d2		8.4	0.1		4.9	
Delay (s)		25.7	1.2		43.7	
Level of Service		C	A		D	
Approach Delay (s/veh)		25.7	1.2		43.7	
Approach LOS		C	A		D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	94.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1471	1165	31	569
v/c Ratio	0.70	0.74	0.13	1.10
Control Delay (s/veh)	4.6	7.7	36.6	99.0
Queue Delay	3.4	0.0	0.0	0.0
Total Delay (s/veh)	7.9	7.7	36.6	99.0
Queue Length 50th (ft)	49	103	17	~382
Queue Length 95th (ft)	m73	172	43	#580
Internal Link Dist (ft)	79	69	430	
Turn Bay Length (ft)			55	
Base Capacity (vph)	2087	1577	336	519
Starvation Cap Reductn	504	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.93	0.74	0.09	1.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1374	24	186	921	29	541
Future Volume (vph)	1374	24	186	921	29	541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	0.95			0.95	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3530			3510	1770	1583
Flt Permitted	1.00			0.49	0.95	1.00
Satd. Flow (perm)	3530			1743	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1446	25	196	969	31	569
RTOR Reduction (vph)	1	0	0	0	0	24
Lane Group Flow (vph)	1470	0	0	1165	31	545
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	7	1
Permitted Phases			6			7
Actuated Green, G (s)	56.1			73.1	12.8	25.3
Effective Green, g (s)	56.1			73.1	12.8	25.3
Actuated g/C Ratio	0.59			0.77	0.13	0.27
Clearance Time (s)	4.5			4.5	4.5	4.5
Vehicle Extension (s)	2.0			3.0	3.0	3.0
Lane Grp Cap (vph)	2086			1575	238	497
v/s Ratio Prot	0.42			0.10	0.02	c0.14
v/s Ratio Perm				c0.47		0.20
v/c Ratio	0.70			0.74	0.13	1.10
Uniform Delay, d1	13.6			5.8	36.1	34.8
Progression Factor	0.25			1.00	1.00	1.00
Incremental Delay, d2	0.4			1.9	0.2	69.1
Delay (s)	3.8			7.7	36.4	103.9
Level of Service	A			A	D	F
Approach Delay (s/veh)	3.8			7.7	100.4	
Approach LOS	A			A	F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	94.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

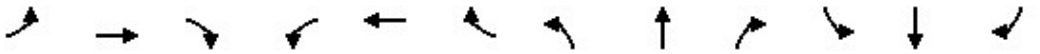


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	232	1119	632	176	669	262	250	120	272
v/c Ratio	1.13	0.98	0.58	1.10	0.64	0.57	0.50	0.84	0.73
Control Delay (s/veh)	138.0	50.8	8.0	139.4	28.0	28.8	19.5	82.7	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	138.0	50.8	8.0	139.4	28.0	28.8	19.5	82.7	18.2
Queue Length 50th (ft)	~137	287	115	~102	150	115	73	60	0
Queue Length 95th (ft)	#300	#486	194	#244	232	190	143	#169	#103
Internal Link Dist (ft)		976			1049		545	204	
Turn Bay Length (ft)	150		220	140		240			
Base Capacity (vph)	206	1144	1234	160	1052	630	650	143	373
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.98	0.51	1.10	0.64	0.42	0.38	0.84	0.73

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	1063	600	167	630	6	296	63	127	18	96	258
Future Volume (vph)	220	1063	600	167	630	6	296	63	127	18	96	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.99	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3534		1681	1611			1848	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99			0.99	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3534		1681	1611			1848	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	1119	632	176	663	6	312	66	134	19	101	272
RTOR Reduction (vph)	0	0	44	0	1	0	0	54	0	0	0	251
Lane Group Flow (vph)	232	1119	588	176	668	0	262	196	0	0	120	21
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5	2	3	1	6		3	3		4	4	
Permitted Phases			2									4
Actuated Green, G (s)	9.1	25.3	46.8	7.0	23.2		21.5	21.5			6.0	6.0
Effective Green, g (s)	9.1	25.3	46.8	7.0	23.2		21.5	21.5			6.0	6.0
Actuated g/C Ratio	0.12	0.33	0.60	0.09	0.30		0.28	0.28			0.08	0.08
Clearance Time (s)	4.0	5.0	4.5	4.0	5.0		4.5	4.5			4.5	4.5
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0			1.5	1.5
Lane Grp Cap (vph)	207	1150	952	159	1053		464	445			142	122
v/s Ratio Prot	c0.13	c0.32	c0.17	0.10	0.19		0.16	0.12			c0.06	
v/s Ratio Perm			0.20									0.01
v/c Ratio	1.12	0.97	0.62	1.11	0.63		0.56	0.44			0.85	0.17
Uniform Delay, d1	34.4	25.9	9.8	35.4	23.6		24.1	23.2			35.4	33.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	98.8	20.2	1.2	102.9	1.3		1.6	0.7			33.3	0.2
Delay (s)	133.1	46.1	11.0	138.3	24.9		25.7	23.9			68.8	33.8
Level of Service	F	D	B	F	C		C	C			E	C
Approach Delay (s/veh)		45.1			48.5			24.8			44.5	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1254	6	92	921	7	16	0	128	5	0	7
Future Volume (Veh/h)	2	1254	6	92	921	7	16	0	128	5	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	1320	6	97	969	7	17	0	135	5	0	7
Pedestrians								21				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								3.5				
Percent Blockage								2				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		305			195							
pX, platoon unblocked	0.90						0.90	0.90		0.90	0.90	0.90
vC, conflicting volume	976			1347			2034	2518	684	1966	2518	488
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	762			1347			1931	2467	684	1856	2466	222
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			80			42	100	65	78	100	99
cM capacity (veh/h)	765			497			29	21	383	22	21	707

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	662	666	582	492	152	12
Volume Left	2	0	97	0	17	5
Volume Right	0	6	0	7	135	7
cSH	765	1700	497	1700	163	51
Volume to Capacity	0.00*	0.39	0.20	0.29	0.93	0.23
Queue Length 95th (ft)	0	0	18	0	173	20
Control Delay (s/veh)	0.1	0.0	5.5	0.0	109.8	95.7
Lane LOS	A		A		F	F
Approach Delay (s/veh)	0.0		3.0		109.8	95.7
Approach LOS					F	F

Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	82.4%	ICU Level of Service	E	
Analysis Period (min)	15			

* Value less than 0.01.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	1249	920	11	14	18
Future Volume (Veh/h)	20	1249	920	11	14	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1358	1000	12	15	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		177	323			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	1012				1729	506
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	827				1611	274
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				82	97
cM capacity (veh/h)	732				84	662

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	475	905	667	345	35
Volume Left	22	0	0	0	15
Volume Right	0	0	0	12	20
cSH	732	1700	1700	1700	168
Volume to Capacity	0.03	0.53	0.39	0.20	0.21
Queue Length 95th (ft)	2	0	0	0	19
Control Delay (s/veh)	0.9	0.0	0.0	0.0	31.9
Lane LOS	A				D
Approach Delay (s/veh)	0.3		0.0		31.9
Approach LOS					D

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

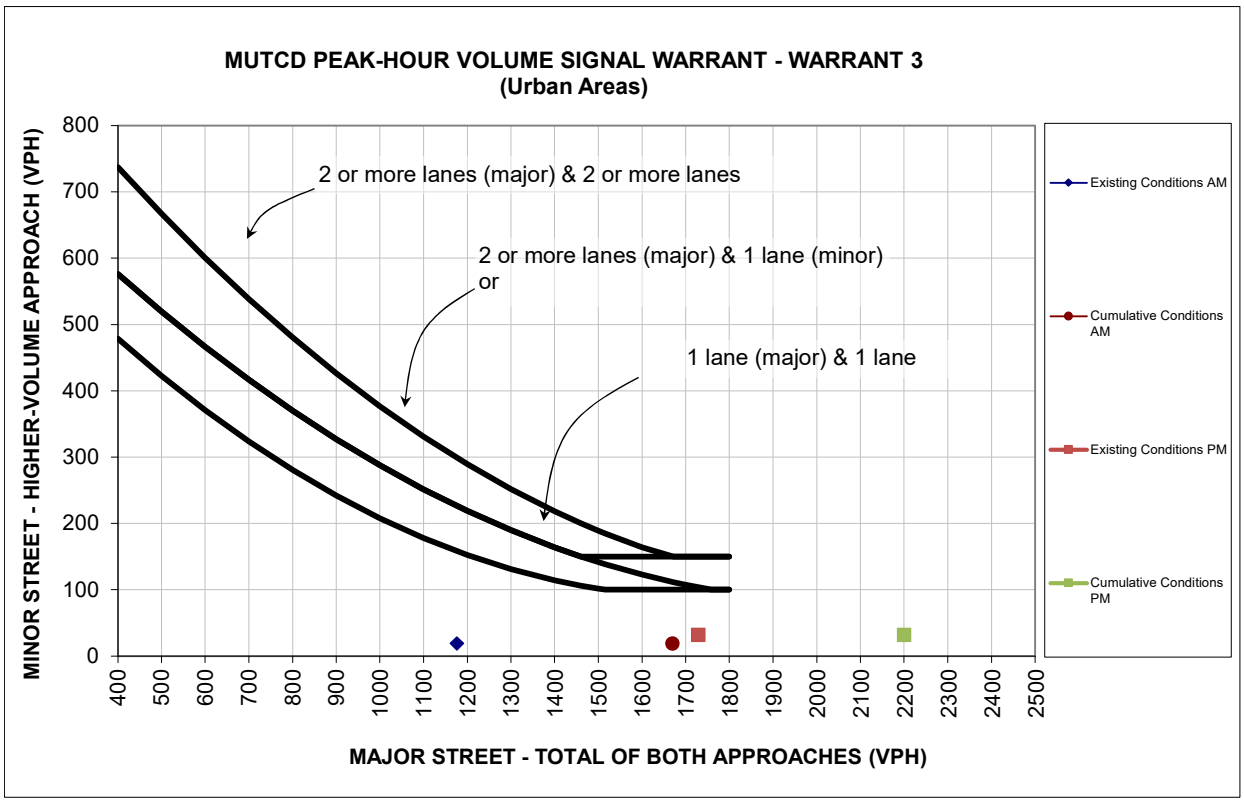
* Value less than 0.01.

Appendix D

Signal Warrant Analysis

East Campbell Plan Line

2 . Foote Avenue and Campbell Avenue



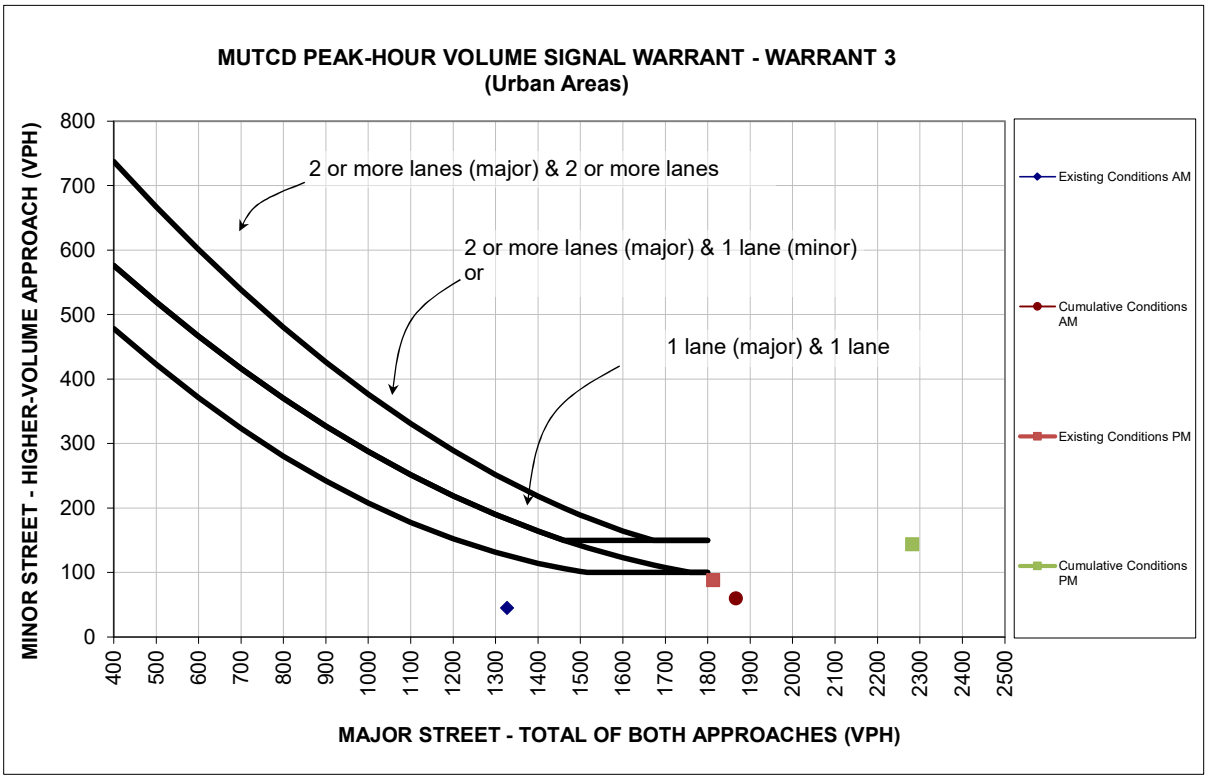
Source: Figure 4C-3 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing Conditions AM	Cumulative Conditions AM
Major Street - Both Approaches	Campbell Avenue		X	1176	1670
Minor Street - Highest Approach	Foote Avenue	X		19	19
		Warrant Met?		No	No

		Approach Lanes: One	Approach Lanes: 2 or More	Existing Conditions PM	Cumulative Conditions PM
Major Street - Both Approaches	Campbell Avenue		X	1729	2200
Minor Street - Highest Approach	Foote Avenue	X		32	32
		Warrant Met?		No	No

East Campbell Plan Line

3 . Dillon Avenue and Campbell Avenue



Source: Figure 4C-3 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing Conditions AM	Cumulative Conditions AM
Major Street - Both Approaches	Campbell Avenue		X	1327	1866
Minor Street - Highest Approach	Dillon Avenue	X		45	60
Maximum warrant threshold for minor street volume				182	100
Difference between warrant threshold & minor street volume				-137	-40
		Warrant Met?		No	No

		Approach Lanes: One	Approach Lanes: 2 or More	Existing Conditions PM	Cumulative Conditions PM
Major Street - Both Approaches	Campbell Avenue		X	1813	2282
Minor Street - Highest Approach	Dillon Avenue	X		88	144
		Warrant Met?		No	**Yes**