Print Form

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044

Street Address: 1400 Tenth St., Rm 113, Sacramento, CA 95814

☐ County Clerk
County of: _____
Address: _____

From:
Public Agency: City of Signal Hill
Address: 2175 Cherry Avenue
Signal Hill, CA 90755
Contact: Susana Martinez
Phone: 562 989-7341

Lead Agency (if different from above):
_____
Address: _____
_____
Contact: _____
Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2021030665

Project Title: Gateway Center North

Project Applicant: Dutch Bros Coffee

Project Location (include county): 850 E 33rd StSignal Hill, CA 90755 Los Angeles County

Project Description:

The developer is proposing minor modifications to the original Area Three design as specified in Gateway Center North Specific Plan (SP-12). The proposed development would include construction and operation of a 1,025 square-foot Dutch Bros Coffee drive-through facility. In place of the previously designated 5000square-foot drive through restaurant space.

This is to advise that the City of Signal Hill has approved the above
(☒ Lead Agency or ☐ Responsible Agency)

described project on 08/18/2026 and has made the following determinations regarding the above
(date)
described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:

_____

Signature (Public Agency): _____ Title: Associate Planner

Date: 08/19/2026 Date Received for filing at OPR: 08/19/2026

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

Initial Study/Mitigated Negative Declaration Gateway Center North 950 E. 33rd St. & 3177 California Ave. (SCH #2021030665)

Addendum

Introduction

This document is an Addendum to the Initial Study/Mitigated Negative Declaration (ISMND) Gateway Center North Specific Plan. (SCH #2021030665) prepared by the City of Signal Hill (City). The ISMND is intended to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the phased development Gateway Center located at North 950 E. 33rd St. & 3177 California Ave in the City of Signal Hill (Project). The ISMND was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (Title 14, California Code of Regulations, § 15000 et seq.). The ISNMD was adopted by the City of Signal Hill City Council on May 11, 2021.

The Developer (Applicant) is proposing minor modifications to the original Area Three (5,000 square-foot drive-through restaurant space). The proposed development would include construction and operation of a 1,025 square-foot Dutch Bros Coffee drive-through facility, located on a 0.77-acre parcel (APN: 7148-005-047). The parcel proposed for the Dutch Bros Coffee is currently developed as part of the parking lot for the existing Gateway Center North Shopping Center. The site has an approved specific plan, Gateway Center North Specific Plan (SP-12), which was approved in May 2021 with the adoption of the ISMND. The proposed development would occupy the 5,000 square-foot drive-through restaurant space (Area Three) originally proposed in the Specific Plan (SP-12) and ISMND. Existing requirements for the Area Three drive through space include the following Conformity standards as set in §20.32.320 though §20.32.390 of the Signal Hill Municipal Code.

Purpose of Addendum

The purpose of this Addendum is to include the proposed site changes in the context of compliance with CEQA. Under CEQA, the lead agency shall prepare an addendum to a previously adopted negative declaration if some changes or additions are necessary to the prior adopted negative declaration, but none the conditions described in Section 15162 calling for the preparation of a subsequent negative declaration have occurred (CEQA Guidelines § 15164). Once a negative declaration has been adopted, several approaches can be used to achieve CEQA compliance for specific activities. A subsequent negative declaration is only required when the lead agency or responsible agency determines that one of the following conditions has been met:

- Substantial changes are proposed in the project, or substantial changes occur with respect to the circumstances under which the project is undertaken, which require major revisions of the previous negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects (CEQA Guidelines § 15162 (a)(1),(2));
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous negative declaration was adopted as complete, shows any of the following:
    1. The project will have one or more significant effects not discussed in the previous negative declaration;
    2. Significant effects previously examined will be substantially more severe than shown in the previous negative declaration;

3. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
4. Mitigation measures or alternatives which are considerably different from those analyzed in the previous negative declaration would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative (CEQA Guidelines § 15162(a)(3)).

A CEQA addendum is the appropriate CEQA compliance document when changes or additions are necessary to a negative declaration, but none of the conditions described in Section 15162 calling for preparation of a subsequent negative declaration have occurred (CEQA Guidelines, § 15164(a)). The CEQA Guidelines recommend that a brief explanation of the decision to prepare an addendum rather than a subsequent or supplemental negative declaration be included in the record (CEQA Guidelines § 15164(e)).

This Addendum has been prepared because the proposed modifications to the adopted ISMND do not meet the conditions for a subsequent or supplemental negative declaration. This Addendum explains why the proposed modifications would not result in new significant environmental effects nor result in a substantial increase in the severity of previously-identified significant effects. There is no new information demonstrating that the proposed modifications would have new significant effects or substantially increase the severity of significant effects on the environment or would change the conclusions of the previously adopted negative declaration

An addendum does not need to be circulated for public review, but rather can be attached to the adopted negative declaration (CEQA Guidelines § 15164(c)). Prior to initiating the modified Project, the City will consider this Addendum together with the adopted negative declaration and make a decision regarding the modified Project.

Initial Study/Mitigated Negative Declaration Gateway Center North Specific Plan Overview

The Project as stated in the ISMND is a 13.63-acre site located on the south side of E. 33rd Street between Atlantic and California Avenues in the North End neighborhood. The Project consisted of the following components to be built in phases: renovation of the existing Target store with new exterior features but no increase in floor area; construction of a new three-story, 177,345 square-foot self-storage facility on the southern parcel; construction of a new commercial space adjacent to the existing Target and totaling 18,500 square feet; and construction of a new 5,000 square-foot drive-thru restaurant.

The Project also includes a variety of site improvements including surface parking for 493 vehicles. Vehicular access would be via two driveways on 33rd Street and one driveway on California Avenue. The 18,5000 square foot commercial space and 5,000 square-foot drive through restaurant where to be built as tenants are secured and not part of the initial building phase. The original proposed site layout analyzed in the ISMND is provided in Figure 1.

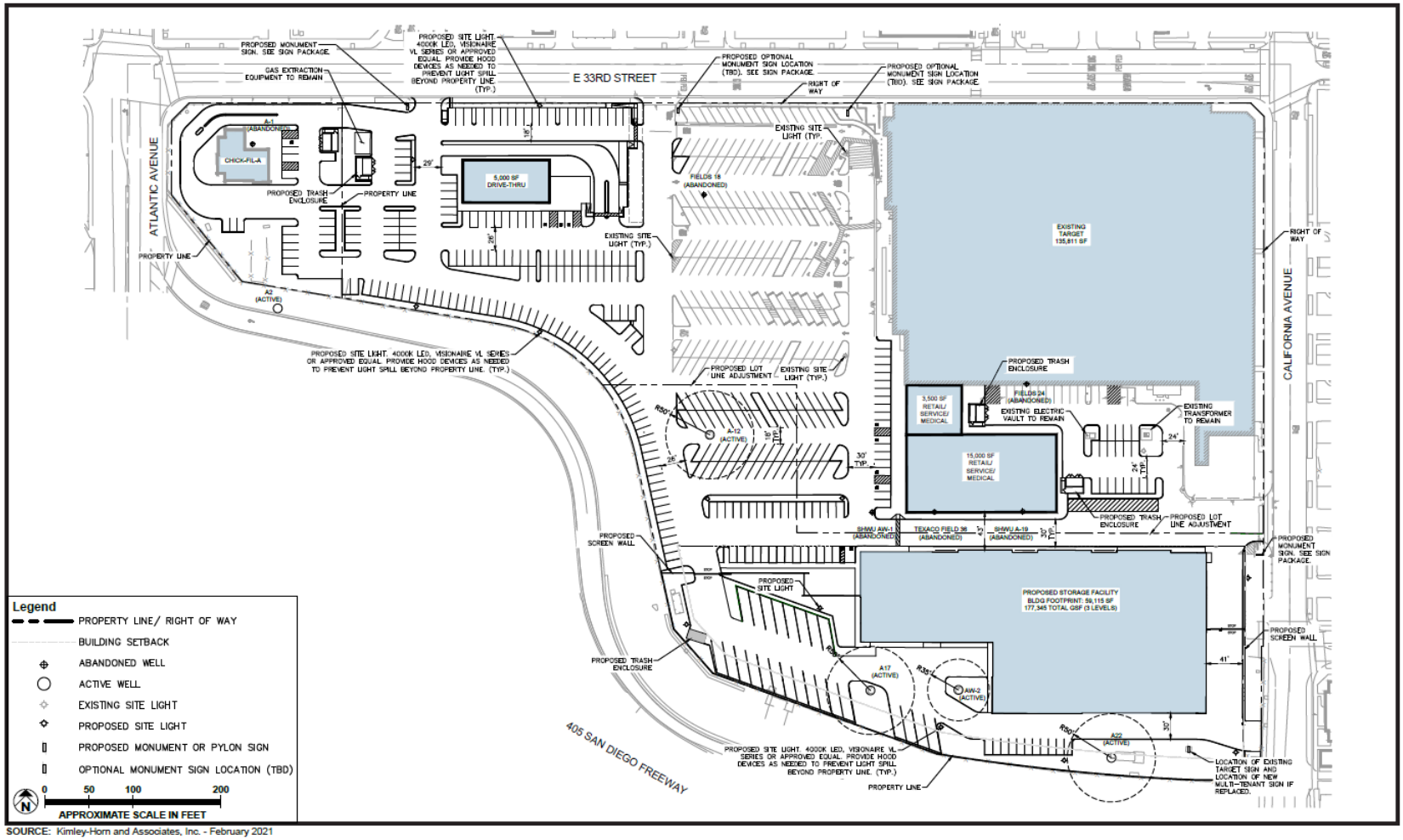


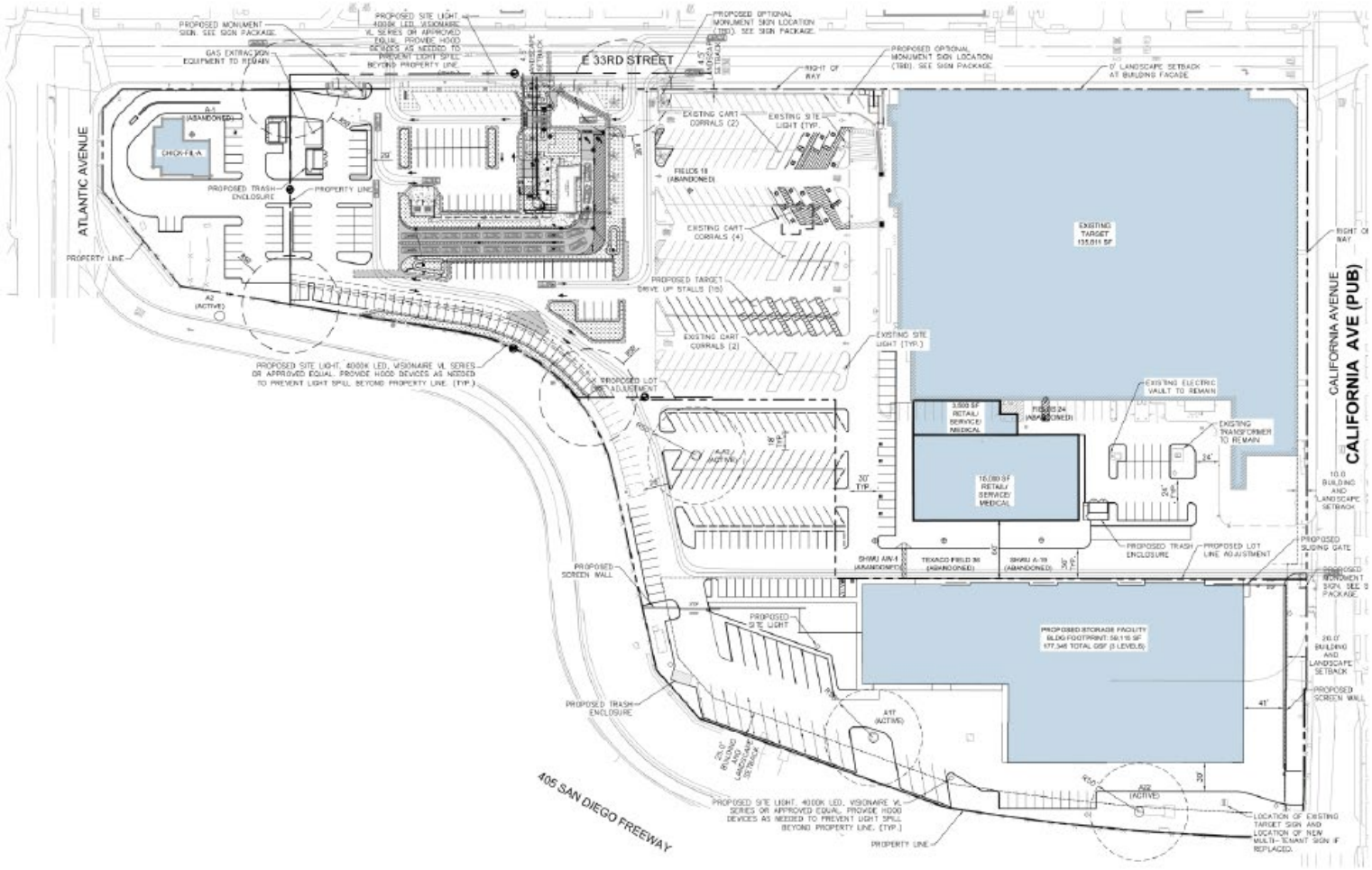
Figure 1: Original proposed site layout per Initial Study/Mitigated Negative Declaration Gateway Center North 950 E. 33rd St. & 3177 California Ave

Proposed Modification of Site Plan

The applicant proposes modification to the Area Three portion of the site plan originally designed as 5,000 square-foot drive-through restaurant space. The proposed development would consist of construction of a Dutch Bros Coffee drive-through facility. The development will not include any indoor seating. Instead, the Project will provide drive-through service, order-ahead pick-up, and a designated walk-up ordering area. A covered walk-up service window will be located on the west side of the building, opposite the drive-through service window for pedestrian traffic. The Dutch Bros Coffee drive-through will operate seven days a week, with typical hours of operation of 5:00 a.m. to 11:00 p.m. The proposed development will incorporate landscaping enhancements including combination of shrubs, groundcovers, and trees consistent with the rest of the developed shopping center. Changes from the original site design include:

- A reduction in building footprint from 5,000 sq ft to 1,025;
- A change in orientation of the drive though from a southern entrance and eastern exist to and eastern entrance and northern exit, with an extended two-lane portion of the drive through line;
- Movement of the proposed trash enclosure to along the drive through lanes;
- Accommodate an average of 754 trips per day;

The proposed modified site plan is shown as Figure 2 and Figure 3.



SOURCE: CORE STATES GROUP (2026)

Figure 2 Proposed modified Site Plan

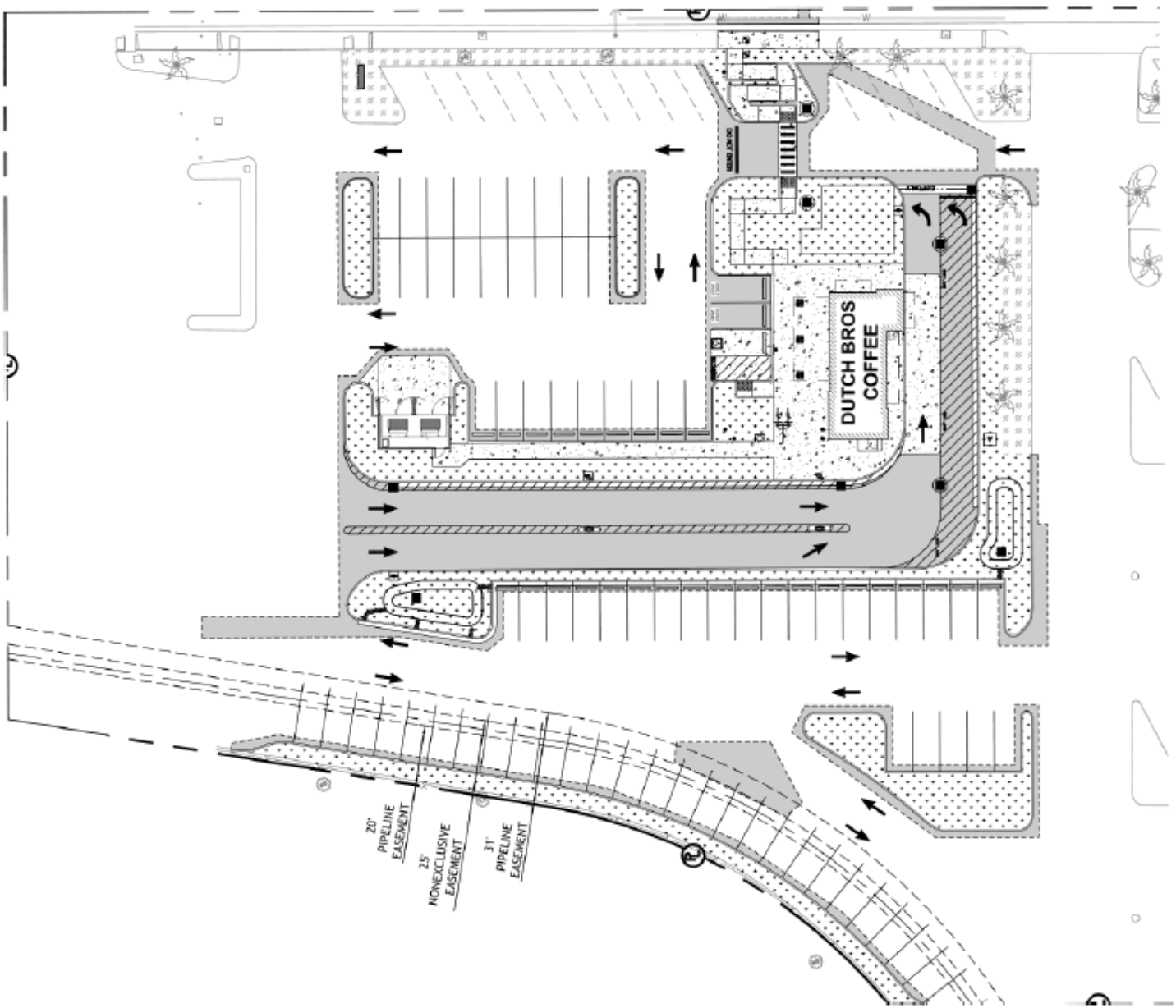


Figure 3 Enlarged Site Plan

Analysis of Potential Environmental Impacts Associated with the Proposed Modifications

The 2021 ISMND identified potentially significant impacts to Cultural Resources, Transportation /Traffic, Hazards & Hazardous Materials, and Tribal Cultural Resources and provide mitigation to reduce these impacts to less than significant. This consistency review analysed if the modified site plan would lead to new impacts, or more severe impacts, compared to the findings of the 2021 ISMND. The result of this consistency analysis, based on the substantial evidence in the record, is documented in the environmental checklist presented in Table 1. The use of a checklist table is consistent with CEQA Guidelines 15164(b) as follows:

> "An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred"

The modified site plan would not introduce new, operational, or infrastructure changes that may directly or indirectly affect the physical environment, compared to what was analysed in the 2021 ISMND and compared to the existing conditions related. Therefore, the modified site plan would not result in any new or more severe impacts compared to those identified in the 2021 ISMND.

Table 1. Consistency with 2021 IS/MND Impacts

CEQA Environmental Resource Area	Change to the Project That Would Affect the Resource?	New or More Severe Impact?
Aesthetics	No	No. Section D.1 of the existing ISMND found less than significant impacts to Aesthetic resources as the site was previously developed as a commercial plaza. The ISMND found that scale and mass of the proposed structures would be comparable to existing commercial structures in the surrounding area. The proposed modifications to the site plan by the proposed development would reduce the overall footprint and scale of originally the proposed structure and expand landscaping area. The proposed development would follow all building conformity requirements set forth in SP-12 (Gateway Center North Specific Plan) and therefore be of a similar character and quality to what was previously evaluated. This would not create an impact more significant than previously evaluated.
Agricultural and Forestry Resources	No	No. Section D.2 of ISMND identifies no impacts to agricultural and forestry as the area is fully urbanized. The proposed modified site plan would be within the existing development footprint and not result in conversion of any farmland of forestry resources. Therefore, the proposed project will not result in a more significant impact than Identified in the 2021 ISMND.
Air Quality	No	No. Section D.3 of the ISMND identifies impacts to air quality as less than significant as development was found to be consistent with the growth projections in the General Plan. The 2021 project was consistent with the South Coast Air Basin, Air Quality Management Plan for the South Coast Air Basin (AQMP). No new emission sources would be constructed as a result of the proposed Project. Potential emissions would result from construction or change in vehicle trips to the site. Due to the reduction in scope of construction for the *Area Three* site, construction emissions are assumed to be similar or less than stated in the 2021 ISMND. The 2021 analysis estimated trips to proposed Project location at 1273 two-way trips. The estimated daily trips for the proposed development are 754 trips based on similar Dutch Bros

CEQA Environmental Resource Area	Change to the Project That Would Affect the Resource?	New or More Severe Impact?
		locations. As total trip model generation for the proposed development is less than originally estimated it can be assumed that the emissions from traffic will similarly be reduced from the levels in the 2021 ISMND. The proposed development would be required follow all updated construction rules and guidelines from the SCAB and City.
Biological Resources	No	No. Section D.4 of the 2021 ISMND identifies less than significant impacts to biological resources as the site has disturbed by past industrial and existing facilities, and the surrounding area is fully urbanized, dominated by buildings and other structures, pavement, and ornamental vegetation such as turf grass, trees, and shrubs. There are no forms of natural wildlife habitat, no rivers, lakes or streams, and no native wildlife nursery sites in this area. The proposed development area is an active parking lot with no natural habitat, therefore there will no impact to biological resources, and will not result in a more significant impact than Identified in the 2021 ISMND.
Cultural Resources	No	No. Section D.5 of the 2021 ISMND identifies less than significant impacts with mitigation incorporated due to potential to of previously unidentified archaeological deposits. MM V-1 from the 2021 ISMND would be implemented during the proposed development. Due to the nature of the site and the multiple disturbances which have occurred within the proposed development area, discovery of new archaeological resources is unlikely. The impact of the proposed development would remain the same as originally identified less than significant impact with mitigation incorporated.
Energy	No	No. Section D.6 of the 2021 ISMND identifies impacts to energy as less than significant due to compliance with all State required building codes and energy efficacy standards. The proposed development would comply with all current building and energy efficacy standards. The proposed development does not include any design features that would significantly increase energy consumption compared to the original site design. Due to the decreased scale of the development energy consumption would likely be lower than originally assumed.
Geology and Soils	No	No. Section D.7 of the 2021 ISMND identified less than significant impacts with mitigation incorporated to geology and soils. The proposed development would be located on the same soils and geological formations which the original ISMND assessed and therefore there would be no changes to geological or soil hazards. The proposed development would connect to the existing wastewater system. The 2021 ISMND identified less than significant with mitigation incorporated impacts to potential unknown fossil discovery's during ground disturbing work. The proposed development would be required to incorporate MM-VII-1 to reduce potential impacts to previously undiscovered paleontological resources. Therefore, there will be no more significant impact than originally assessed in the 2021 ISMND.
Greenhouse Gas Emissions	No	No. Section D.8 of the 2021 ISMND found less than significant impacts related to greenhouse gas emissions the proposed development would not include any features or construction practices which would increase emissions evaluated in the 2021 ISMND. Equipment used during development would comply with all current emissions requirements. The 2021 ISMND found the development would comply with all regional plans and policies, the proposed Project would not change these findings as the development is within the original scope of the 2021 ISMND. The

CEQA Environmental Resource Area	Change to the Project That Would Affect the Resource?	New or More Severe Impact?
		proposed development has a lower estimated number of daily trips than what was assumed in the 2021 ISMND. The analysed estimated for trips to the proposed development location in the 2021 ISMND was 1273 two-way trips. The estimated daily trips for the proposed development are 754 trips based on similar Dutch Bros locations. As total trip generation estimates for the proposed development is less than originally estimated it can be assumed that the greenhouse gas emissions and Vehicle Miles travels (VMT) from project traffic will similarly be reduced from the levels in the 2021 ISMND.
Hazards and Hazardous Materials	No	No. Section D.9 of the 2021 ISMND identified less than significant impacts with mitigation incorporated to Hazards and Hazardous Materials the proposed development would not involve transport of hazardous materials or involve activities that would contribute to an impact related to hazards and hazardous materials above those stated in the 2021 ISMND. The site is a formal oil refinery and as such ground disturbance may expose contaminated soils or hazardous materials. A Human Health Risk Assessment conducted for the 2021 ISMND found no risk to human health for construction workers or commercial occupancy. The proposed development would be required to implement MM-IX-1, MM-IX-2, and MM-IX-3 from the 2021 ISMND.
Hydrology and Water Quality	No	No. Section D.10 of the 2021 ISMND found a less than significant impact as the project was found to not pose any threat to surface or ground water resources. The proposed development would be regulatorily required to prepare and implement a Construction Stormwater Pollution Prevention Plan. Development and implementation of a SWPPP would identify BMPs and spill response standards which would prevent significant storm water pollution during construction. The scope of construction impacts included the development of the proposed development site and therefore would not exceed the impact identified in the 2021 ISMND.
Land Use and Planning	No	No. Section D.11 of 2021 ISMND found less than significant impacts regarding Land Use and Planning. The proposed development will have no impact on land use or planning as the development of the site for the proposed land use has been specifically allowed for under the Gateway Center North Specific Plan (SP-12), adopted during initial development. No aspect of the proposed Project would require modification to the Gateway Center North Specific Plan requirements.
Mineral Resources	No	No. Section D.12 of the 2021 ISMND identifies less than significant impacts to Mineral Resources as abandon wells on the project parcel are not of substantial value to the region or the state. Development would occur within the bounds of the site assessed in the 2021 ISMND and therefore not result in additional impacts to Mineral Resources.
Noise	No	No. Section D.13 of the 2021 ISMND found operational noise to be less than significant. Primary noise sources from the proposed development would be construction equipment operation, and traffic to the proposed drive through; both of which were analysed in the 2021 ISMND. Traffic is estimated to be less than proposed in the ISMND and construction will be lesser in scope to what was evaluated in the 2021 ISMND. Therefore, it can be assumed no new or greater noise impacts will occur from development.

CEQA Environmental Resource Area	Change to the Project That Would Affect the Resource?	New or More Severe Impact?
Population and Housing	No	No.D.14 of the 2012 ISMND found no impact to population or housing as no homes, businesses, or infrastructure, with the effect of substantially inducing growth that would otherwise not have occurred. The proposed business was accounted for in the 2021 ISMND and no new homes or infrastructure are proposed as part of the development. Therefore, it can be assumed no new or greater impacts will occur from Project development.
Public Services	No	No. Section D15 of the 2021 ISMND found less than significant impacts to public services due increased service demand but no requirement for additional facilities. Activity from the proposed development was included in this analysis. Therefore, no new or greater impacts will occur from development.
Recreation	No	No. Section D.16 of the 2021 ISMND found no impact to recreation as the development would not result in noticeable population growth that would increase the use of existing parks or recreational facilities. The proposed development does not include residential facilities. Therefore, no new or greater impacts will occur.
Transportation and Traffic	No	No. Section D.17 of the 2021 ISMND found less than significant impacts with mitigation incorporated as the existing transportation infrastructure was determined to be sufficient for commercial development and use. The proposed development would be required to adhere to the Parking Management Plan (MM XVII-1). The analysed estimated for trips to proposed development location in the 2021 ISMND was 1273 two-way trips. The estimated daily trips for the proposed development are 754 trips based on similar Dutch Bros locations. The Traffic Operations Memorandum also assessed LOS at all potentially impacted intersections and found no change in LOS at any intersection potentially impacted by the proposed development. The proposed development will implement a Traffic Management Plan and Queuing Management Plan to reduce congestion at and around the site. Due to the reduced anticipated traffic from the 2021 ISMND, and implementation of: MM XVII-1, Traffic Control Plan, and Queuing Management Plan. The proposed development would maintain a less than significant impact with mitigation incorporated.
Tribal Cultural Resources	No	No. Section 18 of the 2021 ISMND found a less than significant impact with mitigation incorporated. there are no known cultural resources, including tribal cultural resources, on the Project site that are listed or eligible for listing in the California Register of Historical Resources. The proposed development site was originally developed as an oil refinery and then redeveloped as the existing shopping mall. It is unlikely new resources are uncovered due to the extensive previous disturbances. The proposed development would be required to implement MM XVIII-2, MM-XVIII3 to maintain a less than significant impact with mitigation incorporated level of impact.
Utilities and Service Systems	No	No. D.19 of the 2021 ISMND found a less than significant impact to Utilities and Service Systems as the existing infrastructure and upgrades completed as part of the original development would be sufficient to service the proposed site plan. The proposed development would be required to make new connections to this infrastructure the impact of a larger site was originally analysed in the 2021 ISMND. Due to the reduce scope of development and removal of indoor dining room facilities it can be assumed the proposed development would have a lesser impact than what was originally assessed. No aspect of the proposed development would result in a

CEQA Environmental Resource Area	Change to the Project That Would Affect the Resource?	New or More Severe Impact?
		significant increase in water, sewer, solid waste demand. The proposed development would be required to abided by all relevant federal, state or local statutes.
Wildfire	No	No. Section D20 of the 2021 ISMND found no impact to wildfire risks as it is located in a fully urbanized area and is not in a designated wildfire hazard area.

Incorporation of Feasible Mitigation Measures Developed in the 2021 ISMND

Pursuant to CEQA Guidelines Section 15164 and consistent with CEQA Guidelines 15162 checklist analysis provided in Table 2 above demonstrates no new or more severe impacts will occur from the approval of the proposed Project. The City will incorporate the mitigation measures adopted with the certification of the ISMND on May 11, 2021, as set forth in the adopted Mitigation Monitoring and Reporting Program (MMRP). In addition, the City will re-adopt the CEQA Findings for the ISMND, adopted on May 11, 2021 with this addendum pursuant to CEQA Guidelines 15164 (d).

Conclusion

City staff did not identify any new significant environmental effects or a substantial increase in the severity of significant effects identified in the negative declaration. In addition, City staff determined that no new information of substantial importance exists, which was not known and could not have been known with the exercise of reasonable diligence at the time the previously adopted negative declaration as complete, that would require the preparation of a subsequent negative declaration per §15162 of the CEQA guidelines.

References

California Environmental Quality Act Initial Study/ Mitigated Negative Declaration March 26, 2021 Gateway Center North. 950 E. 33rd St. & 3177 California Ave. SCH # 2021030665. Available at: https://ceqanet.lci.ca.gov/2021030665

City of Signal Hill General Plan Land Use Element. 2022. Available at: **https://www.cityofsignalhill.org/85/General-Plan**

City of Signal Hill General Plan Noise Element. 2009. Available at: **https://www.cityofsignalhill.org/85/General-Plan**

City of Signal Hill General Plan Safety Element. 2016. Available at: **https://www.cityofsignalhill.org/85/General-Plan**

City of Signal Hill Municipal Code. n.d. Available at: **https://www.cityofsignalhill.org/107/Code-Enforcement**.

Kittelson & Associates. 2026. Traffic Operations Memorandum. Orange, CA

APPENDIX A

Transportation Memorandum

KITTELSON & ASSOCIATES
750 The City Drive, Suite 410
Orange, CA 92868
P 714.468.1997

TECHNICAL MEMORANDUM

July 30, 2026 Project# 32816

To: City of Signal Hill
2175 Cherry Ave
Signal Hill, CA 90755

From: Kittelson & Associates, Inc

CC: Gurinderjit Kehr, Dutch Bros

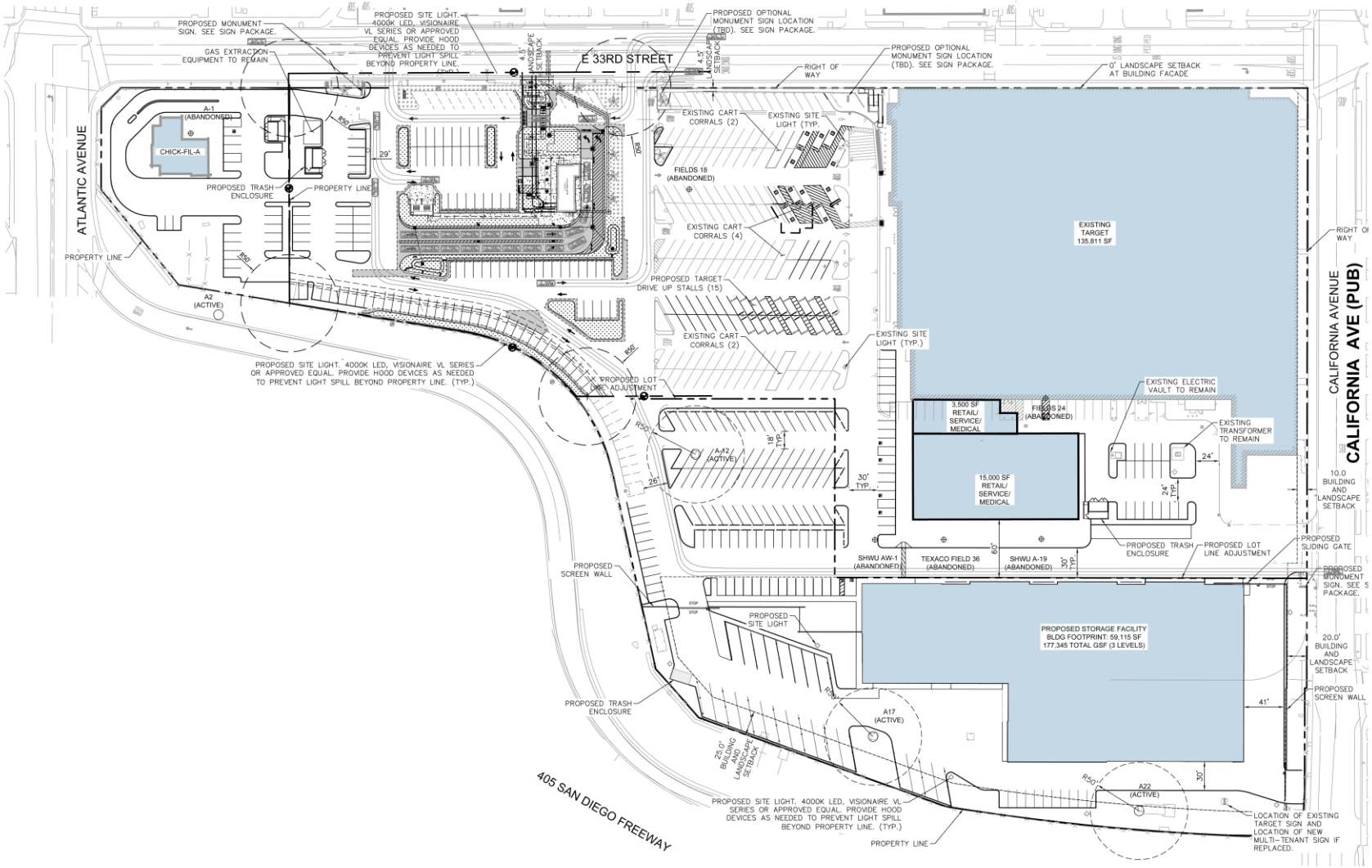
RE: Dutch Bros in Signal Hill, CA (CA7803) – Traffic Operations Memorandum

Dutch Bros is proposing to develop a new 1,025-square-foot (sf) drive-through coffee shop at the northeast corner of the I-405 freeway and Atlantic Avenue in Signal Hill, California. The project represents the first development within Phase 2 of a larger commercial development. **Figure 1** shows the overall site plan for the entire commercial development at the site and **Figure 2** shows the enlarged site plan for the Dutch Bros coffee shop.

A traffic study for the overall development has already been prepared and approved by the City. However, this technical memorandum provides a more localized analysis focused on the unique land use characteristics and trip generation associated with the proposed Dutch Bros development. The study scope was developed in coordination with Dutch Bros, Core States Group, and the City of Signal Hill during a scoping meeting held on December 16, 2025.

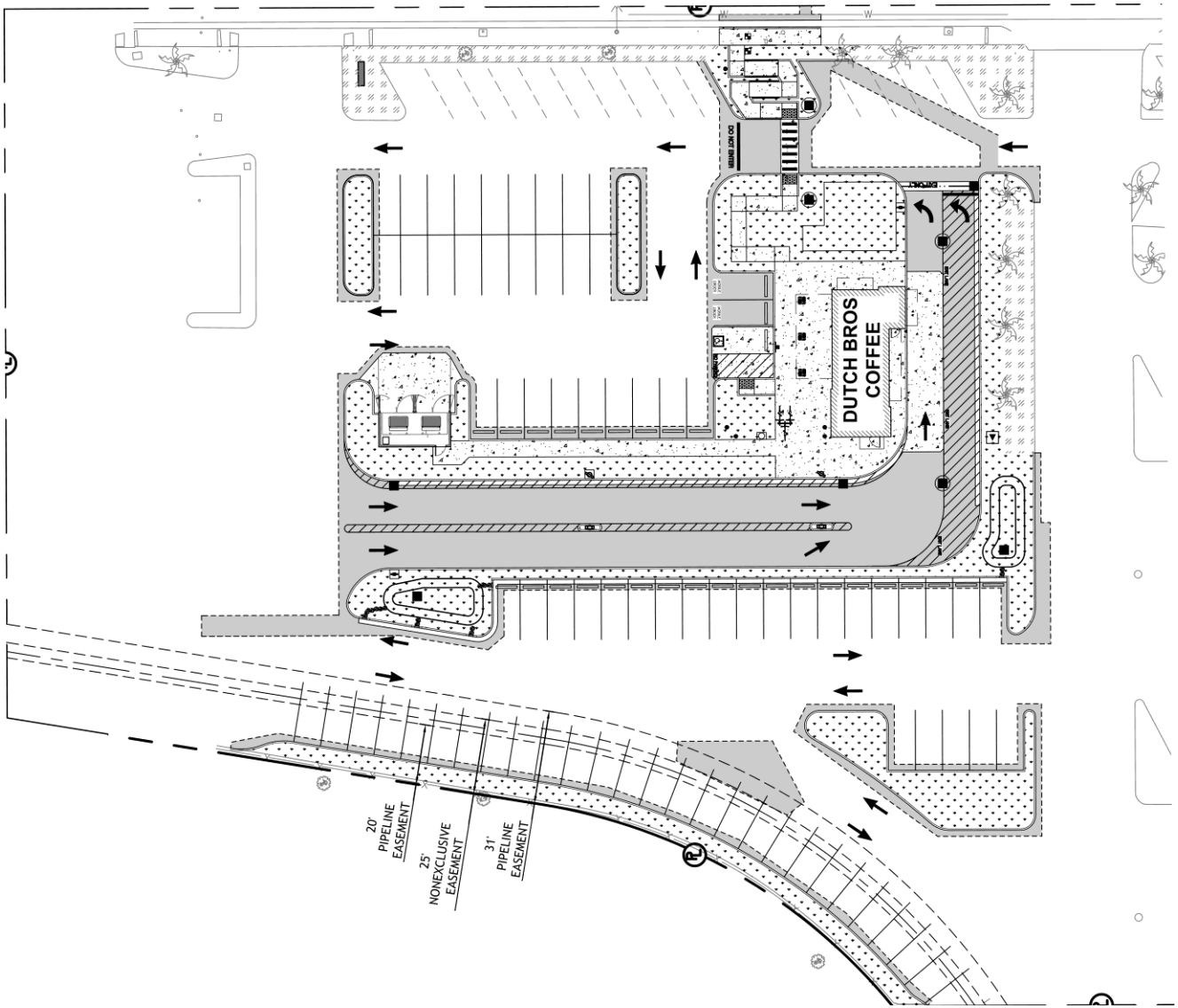
In conjunction with this memorandum, Kittelson & Associates, Inc. has prepared supplemental trip generation and parking compliance memoranda to confirm the proposed project development would still meet City development requirements for the overall development. Both memoranda are included as attachments.

Figure 1: Overall Site Plan



SOURCE: CORE STATES GROUP (2026)

Figure 2: Enlarged Site Plan - Dutch Bros Coffee CA 7803, Signal Hill, CA



SOURCE: CORE STATES GROUP (2026)

INTERSECTION OPERATIONS ANALYSIS

To assess how the proposed project affects local traffic operations, an intersection operations analysis was conducted using Level of Service (LOS). LOS provides a standardized way to describe traffic conditions based on average control delay, allowing for consistent comparison of intersection performance under various conditions.

Level of Service (LOS) Regulatory Standards

The concept of LOS describes the operating conditions experienced by motorists. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort, and convenience. LOS A through LOS F covers the entire range of traffic operations that might occur. Motorists using a facility that operates at a LOS A experience very little delay, while those using a facility that operates at a LOS F will experience long delays.

According to the Cities of Signal Hill and Long Beach, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, or the current LOS if the existing LOS is worse than LOS D (i.e. LOS E of F).

Study Intersections

Figure 3 visualizes the study intersections evaluated to understand the project's effects on the traffic operations of the local street network. The study area was developed in coordination with the City of Signal Hill. As shown in the figure, one of the intersections falls within the jurisdiction of City of Long Beach and is also the only signalized intersection for the project's study area.

Figure 3: Study Intersections

SOURCE: KITTELSON & ASSOCIATES, INC (2026)

Analysis Methodology

Consistent with the methodology adopted in the overall traffic study, the signalized and unsignalized intersections in the study area will be evaluated using the Highway Capacity Manual (HCM) methodology. Although the City of Signal Hill requires the use of Intersection Capacity Utilization (ICU) for signalized intersections, the signalized intersection within the study area falls under the jurisdiction of the City of Long Beach (as shown in Figure 3). Therefore, all six study area intersections, including both signalized and unsignalized locations, will be analyzed using the HCM method, calculated with the Vistro software.

For signalized intersections, LOS is determined based on the weighted average control delay per vehicle (measured in seconds) using signal timing data provided by the City. For unsignalized intersections, LOS is based on the weighted average control delay for each controlled approach and for the intersection overall. Specifically, at two-way stop-controlled intersections, LOS is reported for the approach with the greatest control delay.

Table 1 presents the relationship of delay to LOS for both signalized and unsignalized intersections per the HCM methodology.

Table 1: Level-of-Service Definition for Intersections

Level of Service	Delay Per Vehicle (Seconds)	
	Signalized Intersection	Unsignalized Intersection
A	< 10.0	< 10.0
B	> 10.0 to 20.0	> 10.0 to 15.0
C	> 20.0 to 35.0	> 15.0 to 25.0
D	> 35.0 to 55.0	> 25.0 to 35.0
E	> 55.0 to 80.0	> 35.0 to 50.0
F	> 80.0	> 50.0

SOURCE: HIGHWAY CAPACITY MANUAL

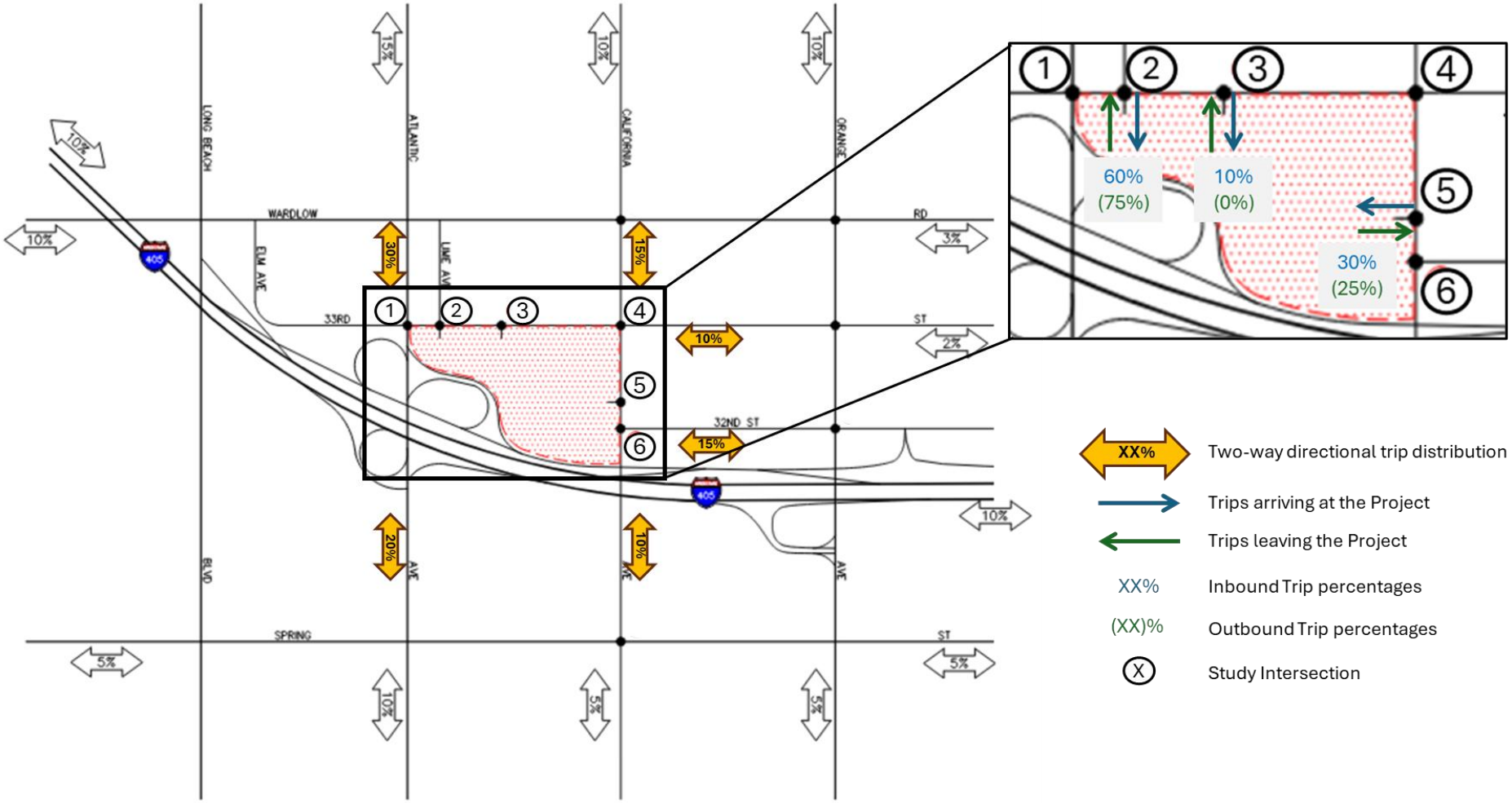
Project Trip Distribution and Assignment

While the project's trip distribution is generally consistent with the assumptions from the approved overall traffic study, adjustments were made to account for the drive-through–oriented nature of the coffee shop, including higher pass-by and diverted link percentages. **Figure 4** shows the trip distribution from the shopping center study with the driveway-specific distribution for the project.

Based on the refined trip distribution, primary and pass-by trips were assigned separately to the roadway network to estimate the number of new trips generated at each intersection. Trip generation estimates used for the trip assignment were obtained from the trip generation compliance memorandum. These volumes are shown in **Figure 5** and **Figure 6** for AM and PM, respectively.

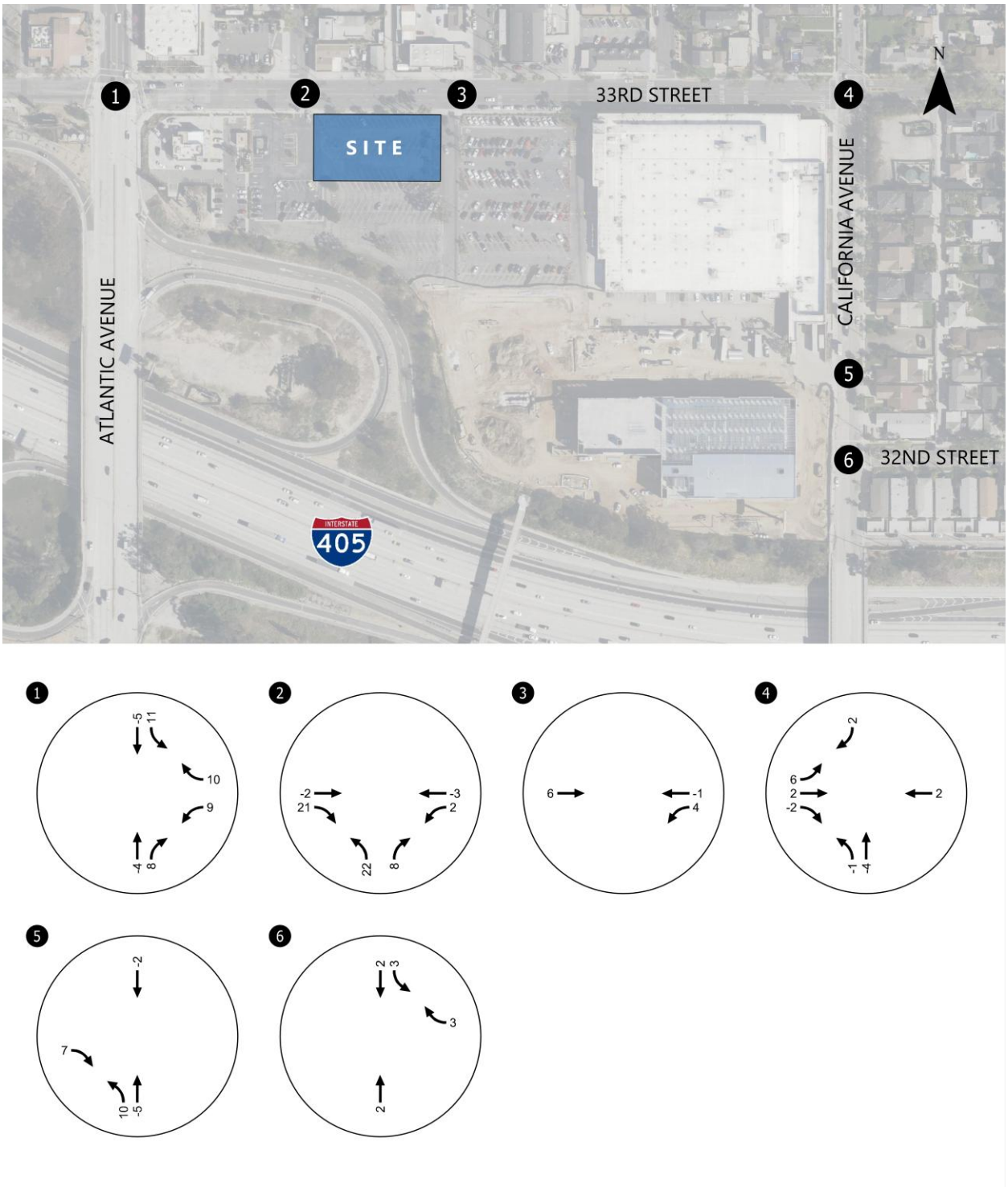
Detailed trip assignment figures (primary, pass-by, and project) are available for reference in Appendix A.

Figure 4: Trip Distribution



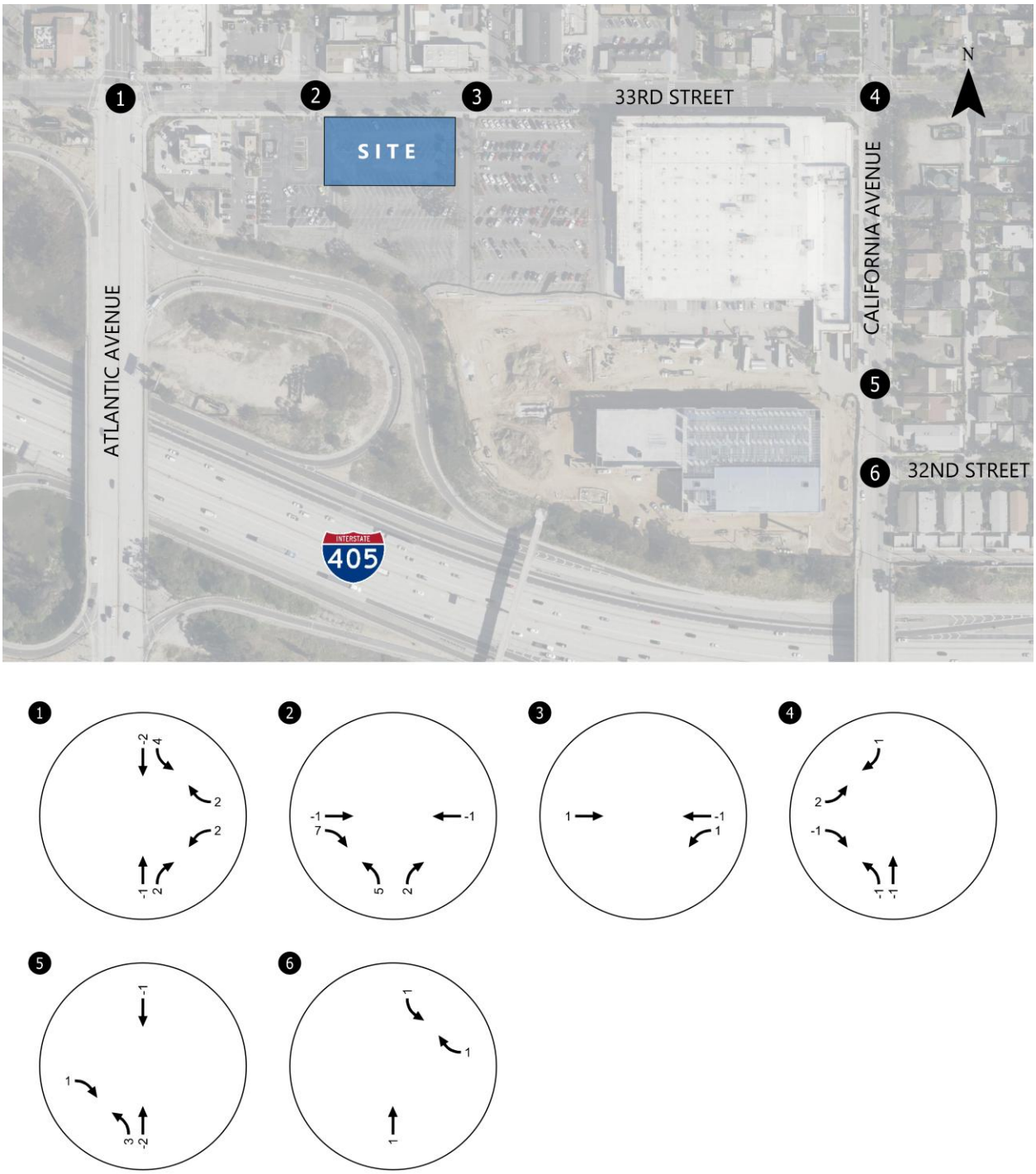
COMPILED BY: KITTELSON & ASSOCIATES, INC (2026)

Figure 5: Net Project Trips – AM Peak Hour



SOURCE: KITTELSON & ASSOCIATES, INC (2026)

Figure 6: Net Project Trips – PM Peak Hour



SOURCE: KITTELSON & ASSOCIATES, INC (2026)

Data Collection

Intersection turning movement counts were collected at all study intersections for the analysis time periods on January 22, 2026, when schools within the project vicinity were in session.

Based on the collected counts, the peak traffic hours for the study area is at 7:50 AM to 8:50 AM during the weekday AM peak and 4:40 PM to 5:40 PM during the weekday PM peak period.

The intersection turning movement counts are attached in Appendix B.

Analysis Results

The intersection operations were analyzed for the following scenarios during weekday AM (7-9 AM) and weekday PM (4-6 PM) peak periods to determine potential project effects to the local roadway network:

- **Existing Conditions:** Volumes under this condition were based on the collected intersection turning movement counts.
- **Existing Plus Project Conditions:** Volumes under this condition were developed from the Existing Conditions volumes with the net project trip assignments added accordingly.

The intersections operations results for the weekday AM and weekday PM peak periods are shown in **Table 2** and **Table 3**, respectively. The intersection operations results presented in the tables indicate that during both the weekday AM and PM peak periods, all study intersections operate at LOS C or better which is within the minimum acceptable LOS D standard of the City of Signal Hill and the City of Long Beach. In the Existing plus Project scenario, delay at all study intersections during the weekday AM and PM peak periods increases by less than one second compared to the Existing no project scenario, and the LOS at each intersection remains unchanged.

Detailed Vistro reports are available for reference in Appendix C.

Table 2: Intersection Operations - Weekday AM Peak

#	Intersection	Control	Existing		Existing Plus Project	
			Delay	LOS	Delay	LOS
1	Atlantic Avenue & E 33rd Street	Signalized	19.6	B	19.6	B
2	Lime Avenue & Project Driveway	Two-way Stop	11.6	B	12.1	B
3	Olive Avenue & Project Driveway	Two-way Stop	11.3	B	11.5	B
4	California Avenue & E 33rd Street	All-way Stop	9.9	A	10.0	A
5	California Avenue & Project Driveway	Two-way Stop	13.7	B	14.0	B
6	California Avenue & E 32nd Street	Two-way Stop	14.1	B	14.2	B

Notes:
Delay is shown in seconds per vehicle

SOURCE: KITTELSON & ASSOCIATES, INC (2026)

Table 3: Intersection Operations - Weekday PM Peak

#	Intersection	Control	Existing		Existing Plus Project	
			Delay	LOS	Delay	LOS
1	Atlantic Avenue & E 33rd Street	Signalized	25.7	C	25.6	C
2	Lime Avenue & Project Driveway	Two-way Stop	20.8	C	21.3	C
3	Olive Avenue & Project Driveway	Two-way Stop	19.0	C	19.0	C
4	California Avenue & E 33rd Street	All-way Stop	10.8	B	10.8	B
5	California Avenue & Project Driveway	Two-way Stop	16.9	C	16.9	C
6	California Avenue & E 32nd Street	Two-way Stop	15.2	C	15.2	C

Notes:
Delay is shown in seconds per vehicle

SOURCE: KITTELSON & ASSOCIATES, INC (2026)

SITE OPERATIONS

The existing roadway conditions and proposed site plan were assessed to determine if improvements are recommended to improve safety or operations within the project site or at access points. This section discusses the site access and on-site circulation elements including the drive-through queuing analysis for the project.

On-Site Queueing Estimates

Drive-through queuing at coffee shops is often where the greatest potential for impacts to the surrounding roadway network may occur. To estimate potential queuing conditions and evaluate how frequently queues could affect the adjacent public right-of-way, a time-dependent queuing model was developed. The model evaluates how queues form and dissipate over time by incorporating different arrival and service rates during off-peak and on-peak demand periods, allowing for estimation of peak queue lengths under oversaturated conditions.

The model relies on hourly arrival volumes derived from historical transaction data collected at comparable Dutch Bros Coffee locations. Although ITE trip generation rates are commonly used to estimate site traffic, a comparison between the ITE rates and observed transaction data (using a 1.4-to-1 transaction-to-vehicle ratio) indicated that the ITE rates may underestimate drive-through demand for this land use type. A comparison between historical transaction data and trip generation estimates from the trip generation compliance memo is provided in **Table 4**.

Table 4: Hourly Demand Estimates[1 2]

Dutch Bros Site	AM Peak Hour	PM Peak Hour	Daily
Fontana (8010 Cherry Avenue)	59	43	693
Covina (980 Azusa Avenue)	41	30	456
Fountain Valley (17954 Magnolia Street)	51	52	839
Garden Grove (9901 Westminster Avenue)	47	44	735
Project (Average of Sites)	**53**	**46**	**754**
ITE Trip Generation Estimates	**40**	**15**	**179**

Notes:
[1] For each analyzed time period, hourly demand estimates were based on the highest average historical transaction volumes observed among the comparable Dutch Bros sites.
[2] A 1.4-to-1 transaction-to-vehicle ratio was used to convert transaction volumes to vehicle volumes. This ratio was developed based on a separate data collection effort conducted at existing Dutch Bros locations in Fountain Valley, Riverside, Escondido, Laguna Hills, La Habra, La Mirada, and Covina, where both transaction counts and arriving vehicle volumes were collected and compared.

SOURCE: KITTELSON & ASSOCIATES, INC (2026)

These comparable sites were selected in coordination with the City based on similarities in market characteristics, site layout, and surrounding traffic conditions, and are summarized in **Table 5**. The observed transaction data from comparable Dutch Bros sites during the AM and PM peak periods was found to be higher than ITE estimates and used for the hourly arrival volume inputs for the time-dependent queuing model.

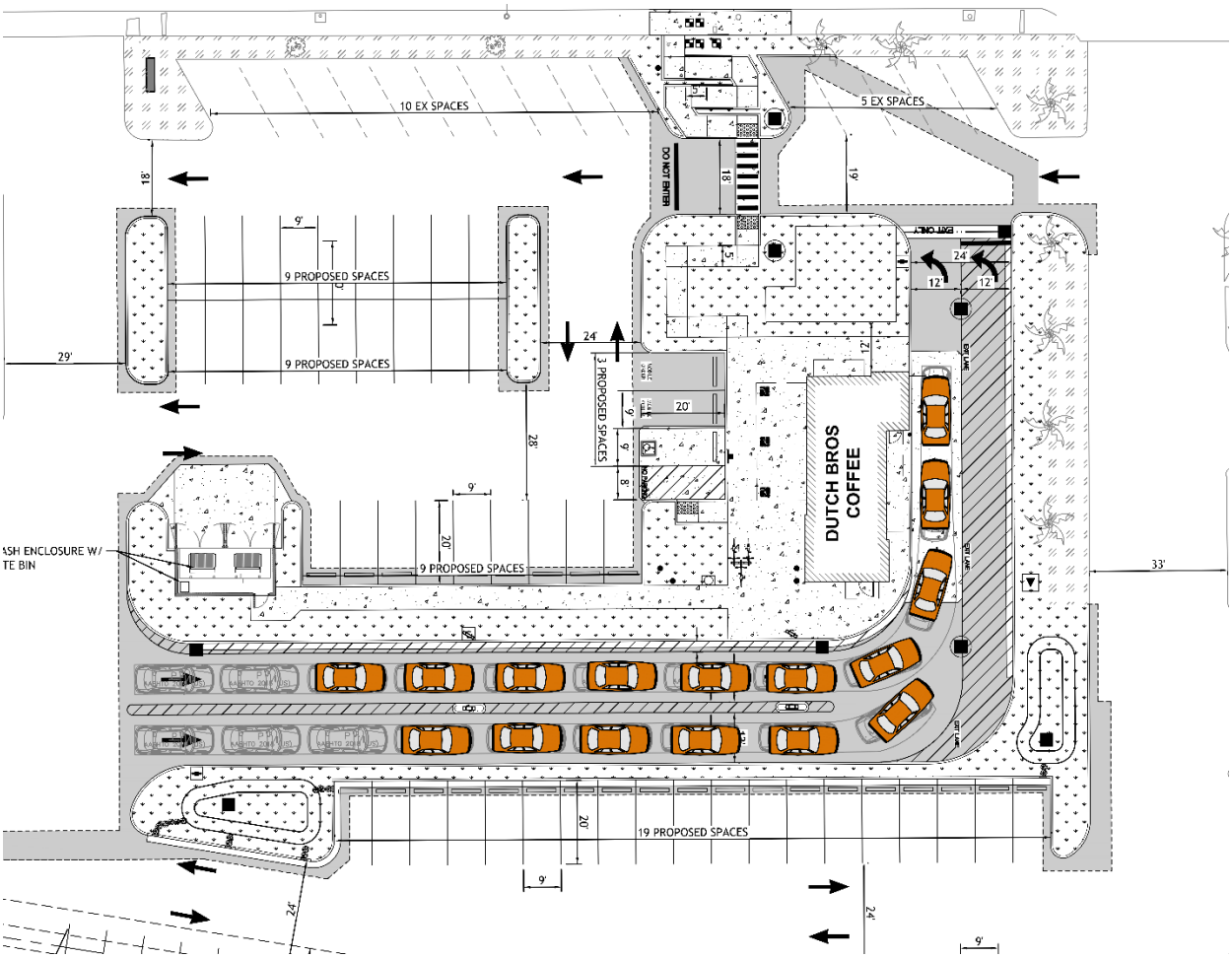
Table 5: Comparable Dutch Bros Sites

Site Characteristic	Project Site *I-405 Freeway and Atlantic Avenue*	Fontana *8010 Cherry Avenue*	Covina *980 Azusa Avenue*	Fountain Valley *17954 Magnolia Street*	Garden Grove *9901 Westminster Avenue*
Land use context	Part of a medium-large commercial parcel surrounded by other commercial uses and residential neighborhoods.	Part of a medium commercial parcel surrounded by other commercial uses and residential neighborhoods as well as industrial complexes.	Part of a medium commercial parcel surrounded by other commercial uses and residential neighborhoods.	Part of a small-medium commercial parcel surrounded by other commercial uses and residential neighborhoods.	Part of a medium-large commercial parcel surrounded by other medium-large commercial plazas and residential neighborhoods.
Roadway context	Corner of intersection of 4-lane arterials, near a highway	Corner of intersection of 6-lane arterials	Along a 4-lane highway	Corner of intersection of 4-lane arterials	Along a 6-lane arterial
Site features	Two drive-through lanes that merge at the drive-through window, walk-up window, no indoor seating	Two drive-through lanes that merge at the drive-through window, walk-up window, no indoor seating	Two drive-through lanes that merge at the drive-through window, walk-up window, no indoor seating	Two drive-through lanes that merge at the drive-through window, walk-up window, no indoor seating	Two drive-through lanes that merge at the drive-through window, walk-up window, no indoor seating
Approximate building size	1,000 square feet	1,000 square feet	1,000 square feet	1,000 square feet	1,000 square feet
Approximate queue storage	450 feet	300 feet	350 feet	400 feet	400 feet
Additional Considerations	-	-	Opened in September 2025, so transaction data is heightened and reflects peak period operations	-	Opened in June 2025, so transaction data is heightened and reflects peak period operations

SOURCE: KITTELSON AND ASSOCIATES (2026)

From the model, it was determined that there is approximately a 5% probability that the number of vehicles waiting to be served will be longer than 16 vehicles, as shown in **Figure 7**. Since the drive-through can accommodate up to 18 to 21 vehicles,[1] queues are not expected to affect the public right-of-way or circulation within the commercial shopping center.

Figure 7: 95th Percentile Queuing Scenario



SOURCE: KITTELSON AND ASSOCIATES (2026); SITE PLAN IS DRAWN BY CORE STATES GROUP (2026)

While the model operates at an aggregate level, it is designed to reasonably approximate field conditions and provide a planning-level assessment of higher-end queuing conditions to help inform site design and identify potential on-site constraints. Drive-through operations can vary substantially based on site-specific characteristics and day-to-day operational factors, including staffing levels, order processing efficiency, customer behavior, promotional activity, seasonal demand fluctuations, and traffic management practices. As such, queue estimates should be considered approximate and intended to represent a reasonable planning-level estimate rather than a precise prediction of future conditions.

[1] The number of vehicles that can be accommodated depends on the assumed storage length per vehicle and traffic management strategies, which ranges from 22 to 25 feet.

Based on the project's location, driveway access points, and surrounding traffic patterns, most vehicles are expected to enter via the driveways along 33rd Street. On-site queueing that extends beyond the drive-through could affect operations at the shopping center's parking lot. Therefore, it is recommended that Dutch Bros implement the following strategies once the drive-through reaches approximately 75% of its capacity (about 13 vehicles) to manage queues as efficiently and effectively as possible:

- Dutch Bros staff takes orders and payments from and makes deliveries to the queued drive-through lanes to minimize the wait time at the service window. The site plan also includes an exit adjacent to the drive-through lane exit. This is an important queue length management feature because it allows vehicles that receive their fulfilled orders prior to reaching the drive-through lane to exit out of the queue early, thereby reducing the overall length of the queue.
- Dutch Bros staff can place signage to guide non-Dutch Bros customer vehicles away from the drive-through entrance and act as temporary traffic control personnel who can effectively manage queues and prevent blockage situations.
- Dutch Bros staff to direct queued vehicles to minimize space between vehicles in order to maximize the drive through storage space. Because Dutch Bros staff takes orders for vehicles in the drive through, this would be an active queue management strategy that does not require additional resources.

The queuing management plan for this project is provided as reference in Appendix D.

Based on previous site visits from existing Dutch Bros locations (separate project efforts), sites commonly operate with at least two "line runners" managing the drive-through queue and taking orders directly from vehicles. Sites may also use traffic cones to redirect drivers or delineate the drive-through lane from adjacent parking areas, allowing parking areas to primarily serve mobile order pick-up customers and employees.

Observed weekday 95th percentile queues from existing sites ranged from approximately 11 to 21 vehicles. It should be noted that the site with a 95th percentile queue of 21 vehicles had been open for less than one year at the time of data collection and therefore likely reflected elevated demand associated with early operational conditions. Queue lengths were also observed to increase during special promotional events, such as merchandise or sticker giveaway days. However, these conditions are not considered representative of typical daily operations.

Table 6 summarizes the observed 95th percentile queues from other sites.

Table 6: Summary of Weekday Observed 95th Percentile Queues from Existing Dutch Bros Sites

Dutch Bros Site	Weekday Observed 95th Percentile Queue
Covina (511 S Citrus Ave)	11
Escondido (2365 E Valley Pkwy)	11
Fountain Valley (9067 Warner Ave)	11
La Habra (2060 W Lambert Rd)	19
La Mirada (14840 Beach Blvd)	21
Laguna Hills (24791 Alicia Pkwy)	17
Riverside (9604 Magnolia Ave)	11

SOURCE: KITTELSON AND ASSOCIATES (2026)

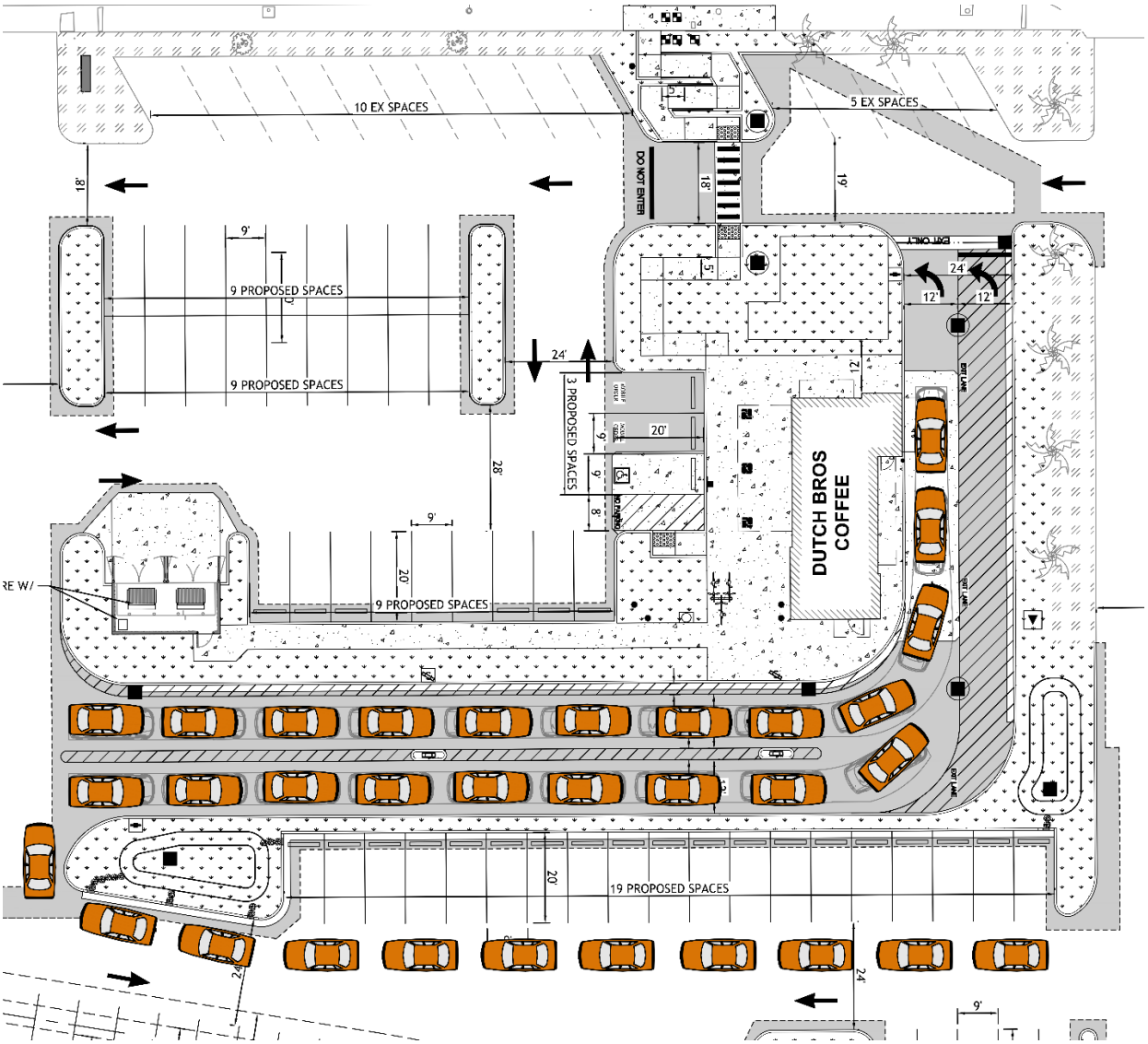
On-Site Circulation and Access

When reviewing the proposed site access and on-site circulation, the following details were noted:

- **Parking.** Generally, customer parking is not expected to be regularly needed because the operation is primarily drive-through. The proposed project would include 30 new on-site parking spaces, including one accessible space. In addition, the site is located within a larger commercial plaza where shared parking is available for customers of the surrounding retail stores. Therefore, the combined on-site and shared parking supply is expected to adequately accommodate parking demand for walk-up customers and employees.
- **Chick-fil-A Operational Considerations:** A Chick-fil-A is located near the project site within the same commercial shopping center. Since it is not anticipated for Dutch Bros queues to extend beyond the drive-through capacity as noted in the previous section, conflicts with Chick-fil-A is not anticipated to be a frequent occurrence. In the event that Dutch Bros queues extend beyond the drive-through capacity, it is recommended for Dutch Bros to wrap their queues around the lot to provide additional queuing capacity for up to 11 vehicles and minimize conflicts with Chick-fil-A queues, as shown in **Figure 8**. Should queues exceed this supplemental storage capacity, staff should implement the remaining measures identified in the queue management plan to maintain safe and efficient circulation within the commercial plaza.
- **Adequacy of Pedestrian Facilities.** Pedestrian access to the site would include new walkways, ramps, and crosswalks along the project frontage on E 33rd Street. Additionally, the site can be accessed from adjacent parking aisles through crosswalks and the City's existing sidewalk network.
- **Bicycle Accessibility.** There are limited bicyclist facilities in the project vicinity. Atlantic Avenue, E 33rd Street and California Avenue do not feature bicycle facilities in the project vicinity. Therefore, bicyclists would need to share facilities with pedestrians or motor vehicles to access the project site.
- **Accessibility from Adjacent Transit Stops.** The nearest bus stop to the project site is located approximately 400 feet west at the intersection of Atlantic Avenue and 33rd Street NE and is served by Long Beach Transit Routes 61, 101, and 103. Transit riders can access the project site via the existing sidewalk network along 33rd Street. Access requires crossing at the signalized intersection of

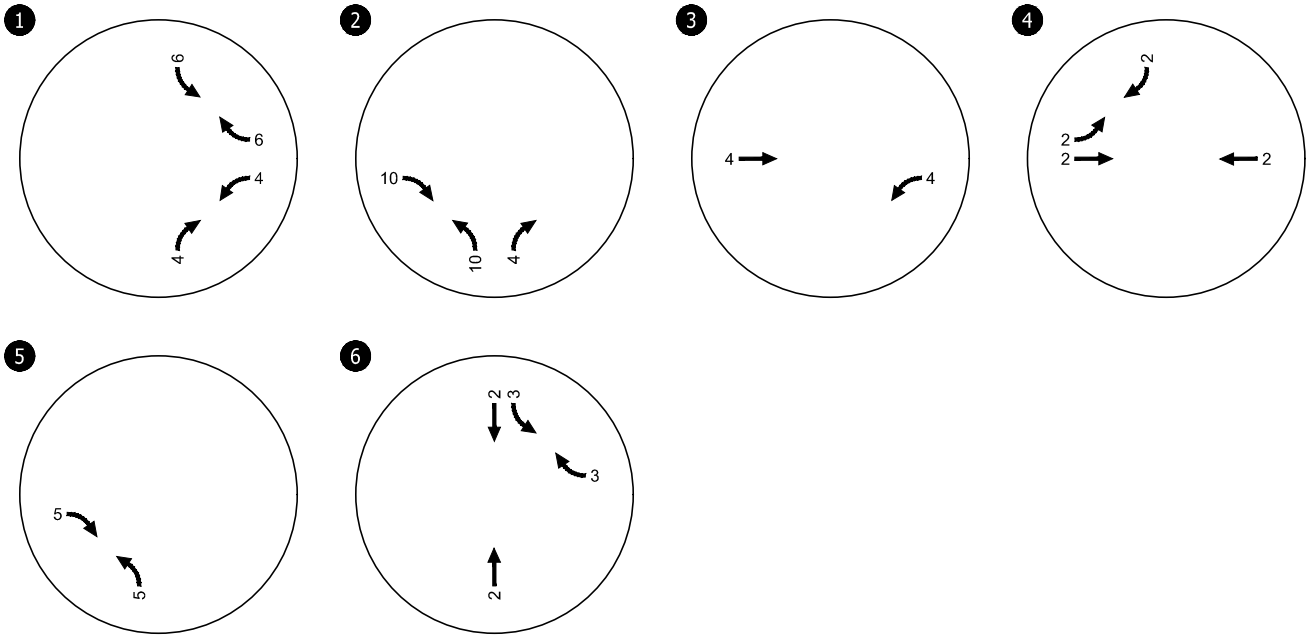
Atlantic Avenue and 33rd Street. Standard crosswalks are provided on all intersection legs except the south leg.

Figure 8: Dutch Bros Wrap Around Queuing Scenario



SOURCE: KITTELSON AND ASSOCIATES (2026); SITE PLAN IS DRAWN BY CORE STATES GROUP (2026)

APPENDIX A
Trip Distribution and Assignment

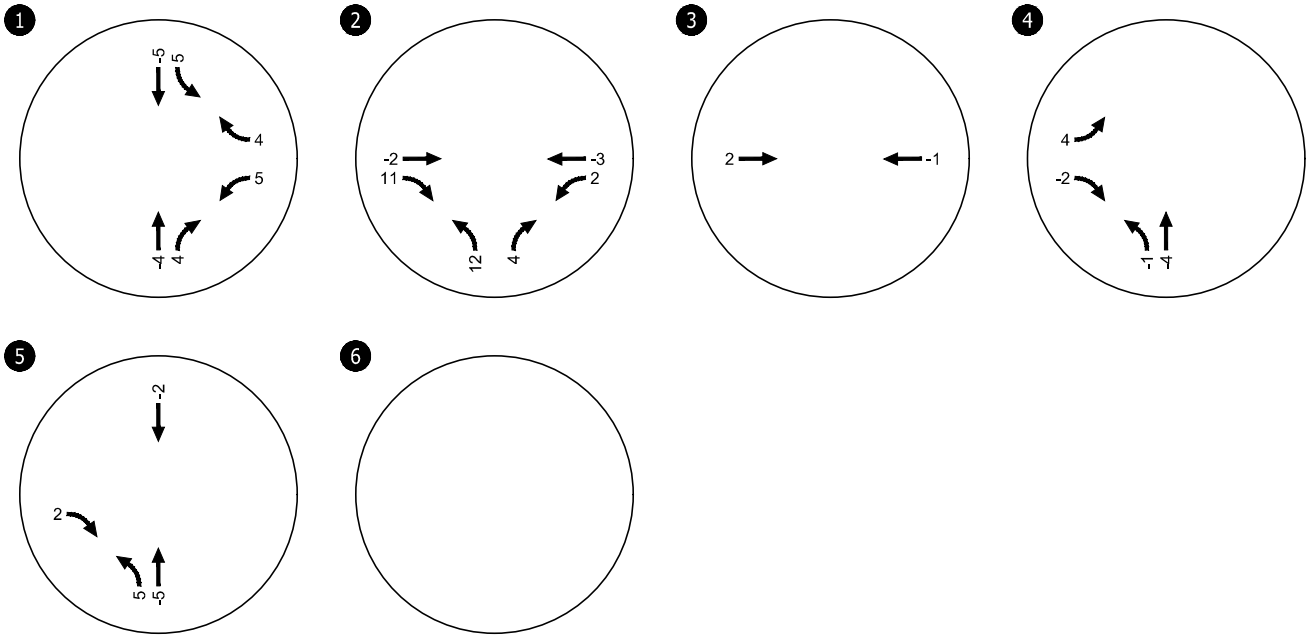


Detailed Trip Assignment Figures
Primary AM Trips
Signal Hill, CA

Figure
1

C:\Users\sliu\appdata\local\temp\AcPublish_6020\CA7803_DutchBros_SignalHill_BubbleFig.dwg Mar 06, 2026 - 11:48am - sliu Layout Tab: primary AM

KITTELSON & ASSOCIATES



Detailed Trip Assignment Figures
Pass-by AM Trips
Signal Hill, CA

Figure
2

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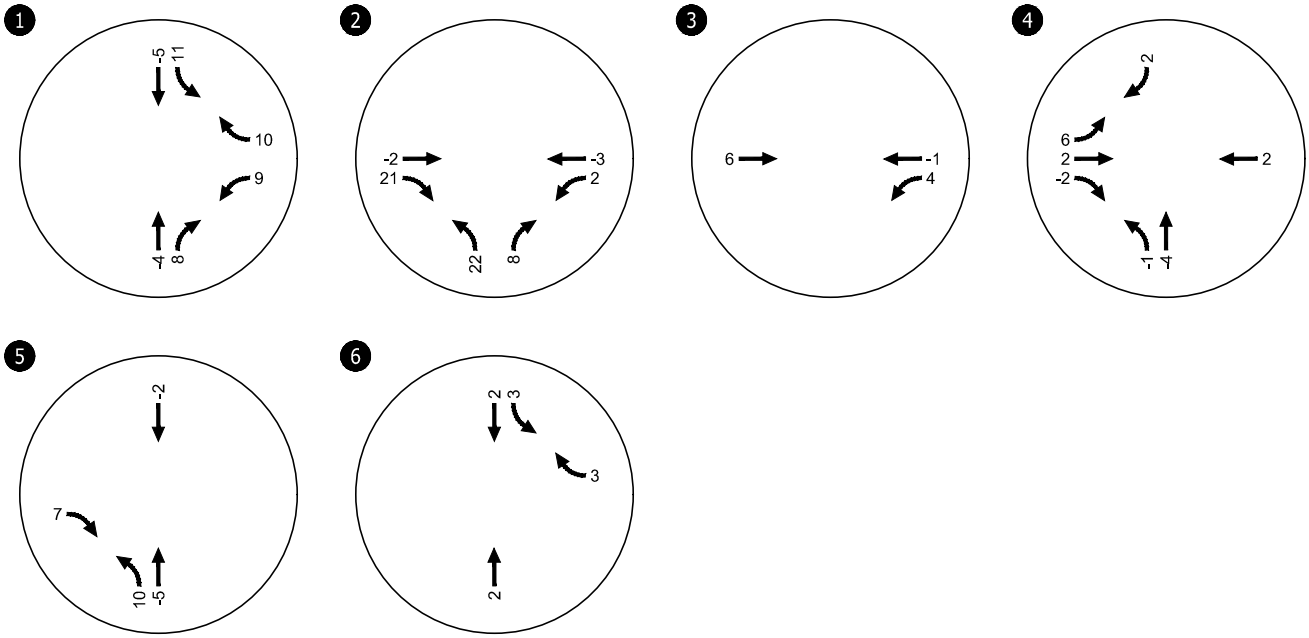
KITTELSON & ASSOCIATES



Detailed Trip Assignment Figures
Project AM Trips
Signal Hill, CA

Figure
3

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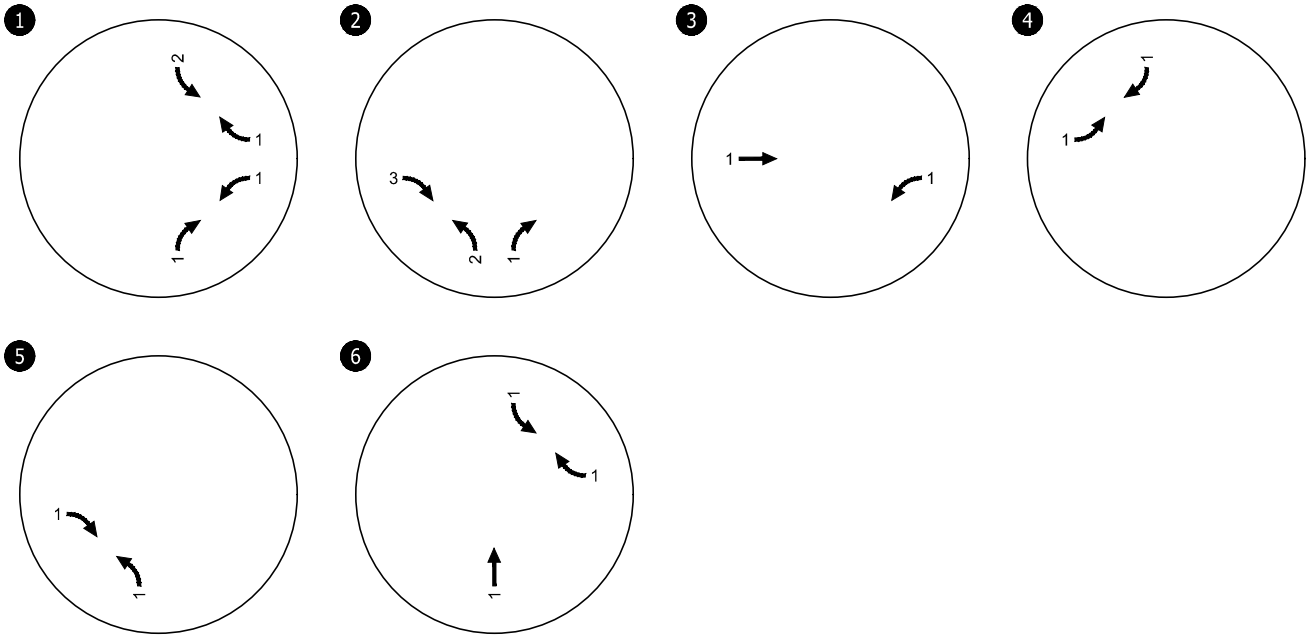
KITTELSON & ASSOCIATES



Detailed Trip Assignment Figures
Primary PM Trips
Signal Hill, CA

Figure
4

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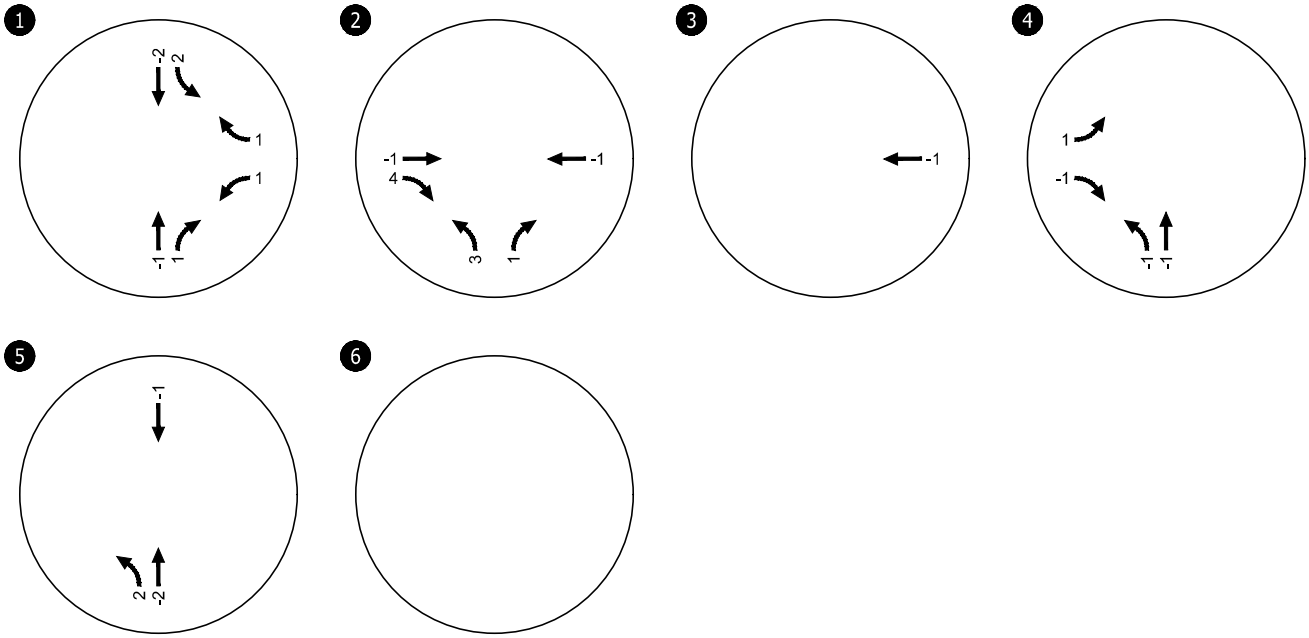
KITTELSON & ASSOCIATES



Detailed Trip Assignment Figures
Pass-by PM Trips
Signal Hill, CA

Figure
5

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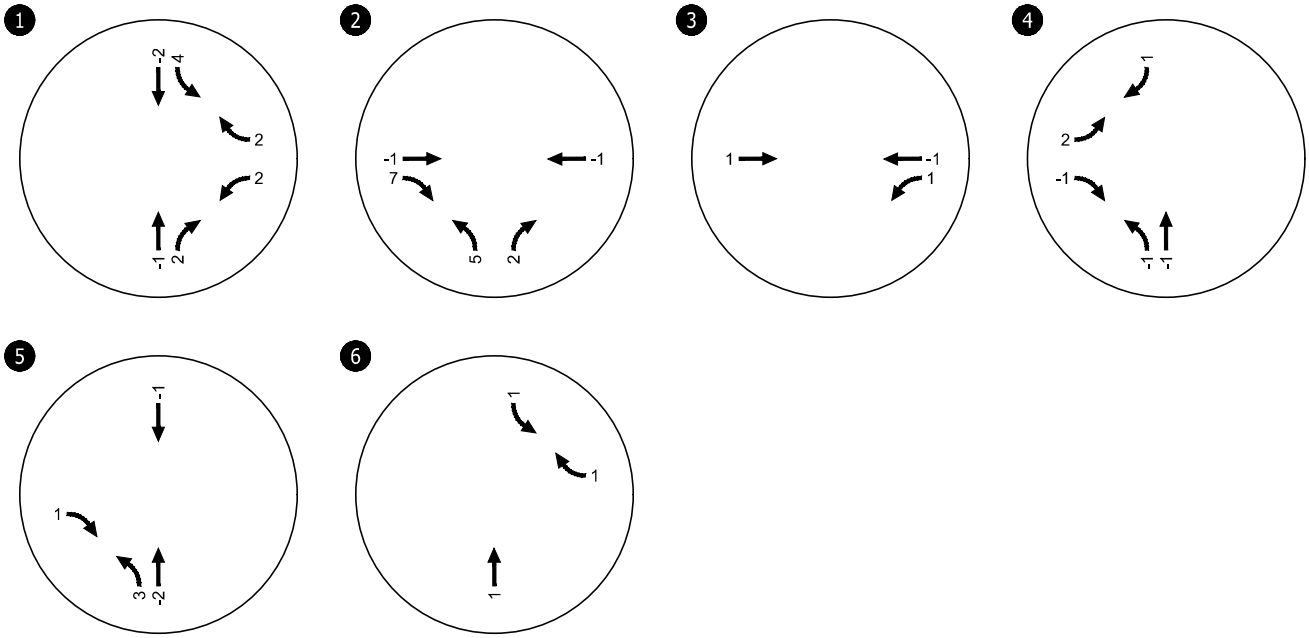
KITTELSON & ASSOCIATES



Detailed Trip Assignment Figures
Project PM Trips
Signal Hill, CA

Figure
6

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KITTELSON & ASSOCIATES

APPENDIX B
Turning Movement Counts

Traffic Management Plan

CA7803
NEC 405 Fwy & Atlantic Blvd,
Signal Hill, CA, 90807

Operator
TBD

Business Coach
TBD

Regional Activation Coach:
TBD

Site & Traffic Plan Administrator
Dutch Bros. HQ | Tempe, AZ
C: 602.525.8737
E: dbdesignteam@DutchBros.com

Speed

Quality

Service

Who We Are

Dutch Bros Inc. (NYSE: BROS) is a high-growth operator and franchisor of drive-thru shops that focus on serving high QUALITY, hand-crafted beverages with unparalleled SPEED and superior SERVICE.

Founded in 1992 by brothers Dane and Travis Boersma, Dutch Bros began with a double-head espresso machine and a pushcart in Grants Pass, Oregon. While espresso-based beverages are still at the core of what we do, Dutch Bros now offers a wide variety of unique, customizable cold and hot beverages that delight a broad array of customers.

We believe Dutch Bros is more than just the products we serve—we are dedicated to making a massive difference in the lives of our employees, customers and communities. This combination of hand-crafted and high-quality beverages, our unique drive-thru experience and our community-driven, people-first culture has allowed us to successfully open new shops and continue to share the “Dutch Luv” at 1,043 locations across 19 states as of June 30, 2025.

Traffic Management Plan Overview

1

The Site & Traffic Plan Administrator creates a custom traffic management plan that is tailored to each unique site.

Each plan identifies paths of travel for customers, points of ingress/egress, crew parking, directional sign placement, and suggested staffing placement.

City ordinances, CC&Rs, easements agreements, etc., are reviewed when a traffic management plan is created to ensure compliance.

2

Once the plan is completed, it is then shared with the field leadership team for the subject shop and market area (i.e. Regional Operator, Business Coach, and Regional Activation Coach).

Field leadership provides feedback on the traffic management plan and can request revisions, if needed.

Once the plan is approved, directional a-frame/cone topper signs are ordered to be sent to the shop.

3

Field leadership and crew setup the traffic management plan by placing temporary signs, cones, and readying staff for placement.

All cones and temporary signs are removed at the end of each business day.

If third party traffic control is needed, the field leadership team will identify dates, times, and number of controllers needed approximately one (1) to two (2) weeks prior to the grand opening date.

All traffic management plans are subject to change depending on operational need and external factors as determined by Dutch Bros. HQ and the regional field leadership team.

Traffic Management Positions

Line Buster

Dutch Bros. Crew Member

This position primarily obtains drink orders from customers that are lined up in the queue behind the ordering window. They are equipped with iPad's, card readers, and some with cash bags for cash transactions. Their objective is to quickly and accurately obtain customer orders down the line to expedite time spent at the window. In some cases, a Line Buster may also run drinks out to cars as orders are completed.

Drink Runner

Dutch Bros. Crew Member

More commonly staffed during the grand opening period; this position's responsibility is to run completed drink orders out to cars in the queue. They may also help customers coordinate exiting the line using the escape lane and allowing customers to pull forward and shorten the queue.

DB Traffic Controller

Dutch Bros. Crew Member

Dutch Bros. crew members may also direct on-site traffic to ensure traffic flow remains unhindered at key points within drive aisles. Traffic Controllers are briefed on the traffic plan to ensure properly coordinated execution. They also will setup and take down cones and a-frame signs as needed.

Third Party Traffic Controller

Third Party Contracted

Described on page 5

Third Party Traffic Control

Hired by Third Party Broker

Dutch Bros. works with a national broker that recruits off-duty police officers from city, county, and state jurisdictions.

Off-Site Traffic Management

Third party traffic controllers work primarily off-site to manage overflow traffic. They provide direction to customers and keep public roadways and primary drive aisles clear.

Order Time-frame

Dutch Bros. HQ and the regional field leadership team determine the need for third party traffic control (dates, times, and number of officers). An order is submitted to our broker one to two weeks prior to the grand opening date. Traffic controllers orders are usually submitted in one to two week blocks.

Alternative

If there are not any available off-duty officers to fill the traffic control roles, our broker then reaches out to national security companies (i.e. Securitas, GardaWorld) to obtain security guards to fill the vacant positions.

Consistent Coverage Evaluation

The regional field leadership team evaluates toward the end of each order period if the need for third party traffic control is still existent or if it can be adjusted or eliminated. Queue times, number of customer visits, and additional data are gathered regularly to determine coverage needs.

Special Occasions

From time-to-time, Dutch Bros. has community giveback days (i.e. Dutch Luv, Drink one for Dane) or other marketing campaigns that cause an influx of customers to visit their local shop. Regional leadership teams plan ahead for these days and can request third party traffic control as needed based on historical, shop specific trends.

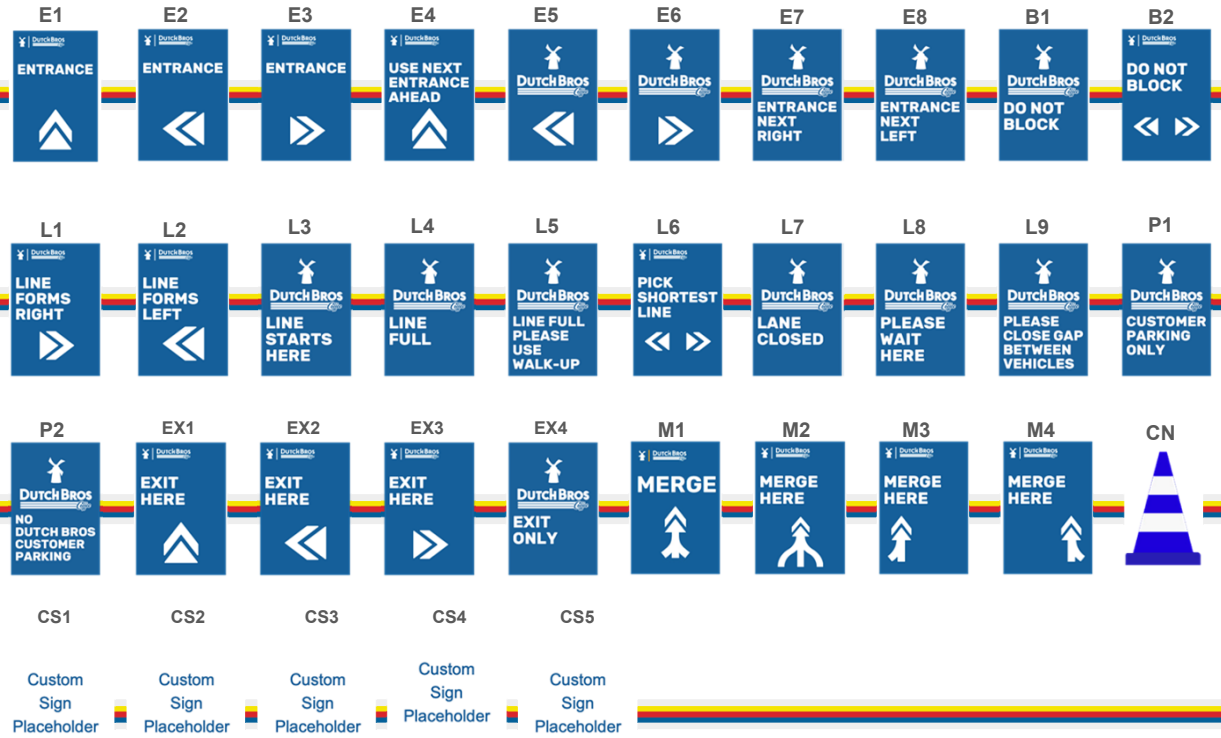
A-Frame Directional Sign Example

A-Frame Dimensions:
"Sandwich Board"
24 Inches Wide
36 Inches Tall

Signs shown are only examples. Custom a-frames and cone-toppers can be made upon request.

Traffic Management Plan

Sign Key



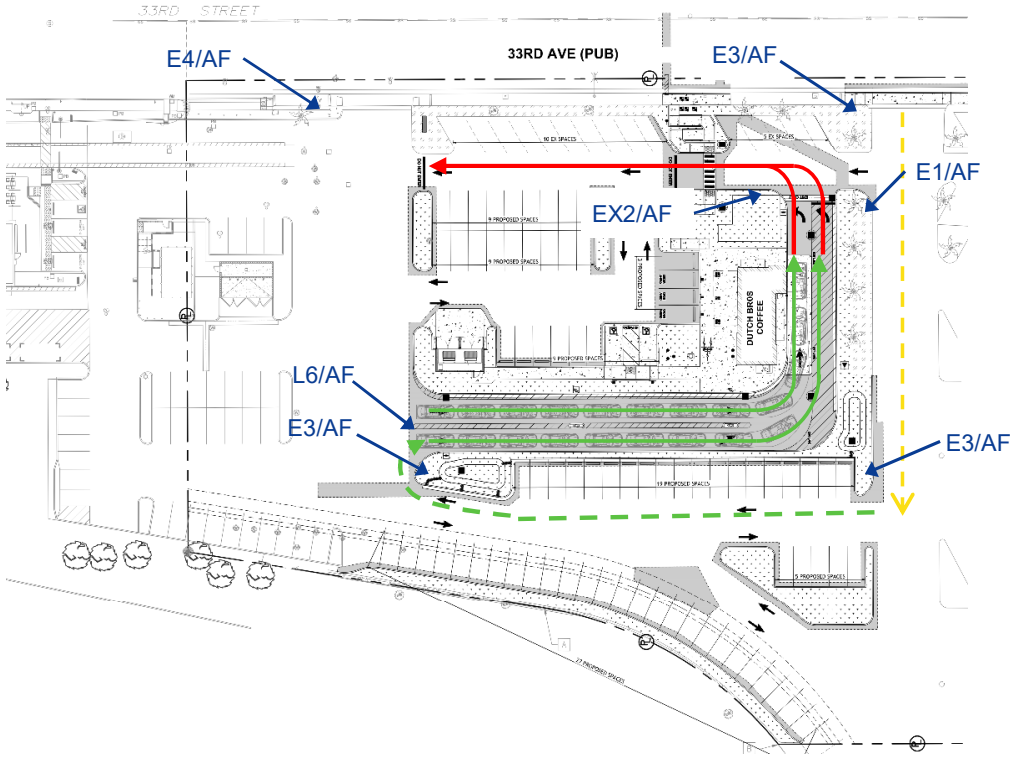
Examples as Portrayed on Plan

E2/AF

1. ***Letter(s)/Number*** identifies specific sign placed (i.e. ***E2*** would be an entrance sign with a left arrow.
1. ***AF*** stands for ***A-Frame***.
1. ***CT*** stands for ***Cone-Topper***.
1. ***Custom Signs*** will be marked as ***CS*** (i.e. ***CS1/AF***) and will have specific verbiage notated directly on the plan.

Traffic Management Plan

Sign Placement



Map Key

- Ingress/Queue *Stopped Cars*
- Egress
- Overflow Queue *Stopped Cars*
- Path of Travel *No Stopped Cars*

Traffic Management Plan

Staffing Placement

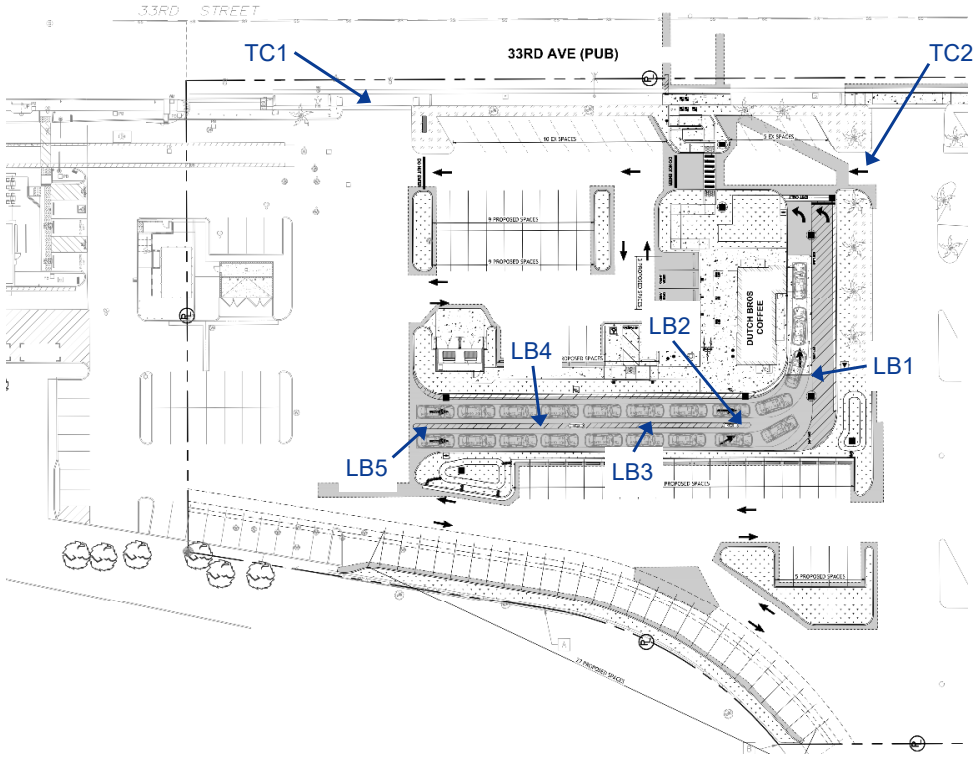
Staffing Key

LB
Line Buster

DR
Drink Runner

DBTC
Dutch Bros. Traffic Controller

TC
Third Party Traffic Controller
(Off-Duty Officer/Security Guard)



Map Key

- Ingress/Queue *Stopped Cars*
- Egress
- Overflow Queue *Stopped Cars*
- Path of Travel *No Stopped Cars*

APPENDIX C
Operations Analysis Reports

32816 Signal Hill Dutch Bros

Vistro File: H:\...\32816_DB Signal Hill.vistro
Report File: H:\...\1 Existing.pdf

Scenario 1 Existing AM
3/6/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Ave/E 33rd Street	Signalized	HCM 7th Edition	NB Right	0.636	19.6	B
2	Lime Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.005	11.6	B
3	Olive Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.010	11.3	B
4	California Ave/E 33rd Street	All-way stop	HCM 7th Edition	SB Thru	0.380	9.9	A
5	California Ave/Project Driveway	Two-way stop	HCM 7th Edition	EB Left	0.009	13.7	B
6	California Ave/E 32rd Street	Two-way stop	HCM 7th Edition	WB Left	0.043	14.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Atlantic Ave/E 33rd Street

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.636

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	11.00	11.00	11.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	40.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	755	148	64	993	13	5	10	36	73	14	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	3.00	2.00	3.00	8.00	0.00	0.00	0.00	1.00	0.00	6.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	755	148	64	993	13	5	10	36	73	14	94
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	197	39	17	259	3	1	3	9	19	4	24
Total Analysis Volume [veh/h]	29	786	154	67	1034	14	5	10	38	76	15	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			3			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	43.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No								
Signal Group	0	4	0	0	2	0	0	8	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0.0	30.0	0.0	0.0	50.0	0.0	0.0	30.0	0.0	0.0	50.0	0.0
Amber [s]	0.0	3.2	0.0	0.0	3.9	0.0	0.0	3.2	0.0	0.0	3.9	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	14.0	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0
Delayed Vehicle Green [s]	0.0	4.0	0.0	0.0	5.0	0.0	0.0	4.0	0.0	0.0	5.0	0.0
Rest In Walk		No			Yes			No			Yes	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Location [ft]	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Detector Length [ft]	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	35.0	0.0	0.0	55.0	0.0	0.0	35.0	0.0	0.0	55.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0.0	8.0	0.0	0.0	20.0	0.0	0.0	8.0	0.0	0.0	20.0	0.0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			Yes			No			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			Yes			No			Yes	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	33.2	33.2	33.2	61.7	61.7	61.7	33.2	61.7	61.7
g / C, Green / Cycle	0.37	0.37	0.37	0.69	0.69	0.69	0.37	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.02	0.29	0.29	0.05	0.31	0.31	0.05	0.13	0.07
s, saturation flow rate [veh/h]	1241	1656	1555	1152	1669	1661	1085	606	1325
c, Capacity [veh/h]	509	611	574	840	1145	1139	444	489	908
d1, Uniform Delay [s]	18.38	25.35	25.35	5.52	6.49	6.49	18.95	13.80	4.81
k, delay calibration	0.04	0.50	0.50	0.50	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	10.22	10.82	0.19	1.33	1.33	0.04	0.83	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.79	0.79	0.08	0.46	0.46	0.12	0.18	0.11
d, Delay for Lane Group [s/veh]	18.40	35.57	36.16	5.70	7.82	7.82	18.99	14.63	5.05
Lane Group LOS	B	D	D	A	A	A	B	B	A
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.39	10.57	10.02	0.44	4.23	4.22	0.71	0.77	0.59
50th-Percentile Queue Length [ft/ln]	9.64	264.29	250.60	11.06	105.87	105.40	17.84	19.29	14.83
95th-Percentile Queue Length [veh/ln]	0.69	15.90	15.22	0.80	7.61	7.58	1.28	1.39	1.07
95th-Percentile Queue Length [ft/ln]	17.36	397.60	380.41	19.91	190.25	189.59	32.11	34.72	26.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.40	35.79	36.16	5.70	7.82	7.82	18.99	18.99	18.99	14.63	14.00	5.05
Movement LOS	B	D	D	A	A	A	B	B	B	B	B	A
d_A, Approach Delay [s/veh]	35.33			7.69			18.99			9.61		
Approach LOS	D			A			B			A		
d_I, Intersection Delay [s/veh]	19.62											
Intersection LOS	B											
Intersection V/C	0.636											

Emissions

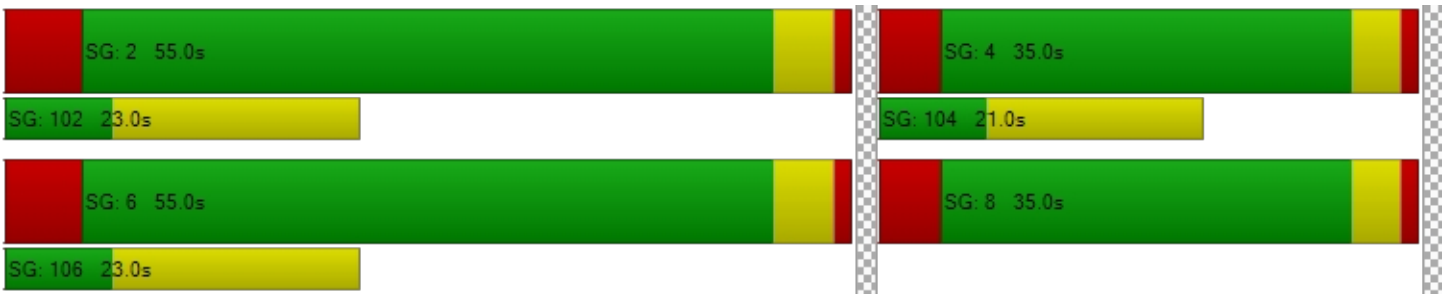
Vehicle Miles Traveled [mph]	1.50	25.10	23.57	4.08	32.02	31.86	3.35	5.61	6.17
Stops [stops/h]	15.43	422.86	400.96	17.70	169.40	168.64	28.55	30.86	23.73
Fuel consumption [US gal/h]	0.26	6.88	6.54	0.34	3.09	3.08	0.50	0.67	0.49
CO [g/h]	17.87	480.76	456.86	24.02	215.96	214.97	34.97	46.79	34.02
NOx [g/h]	3.48	93.54	88.89	4.67	42.02	41.82	6.80	9.10	6.62
VOC [g/h]	4.14	111.42	105.88	5.57	50.05	49.82	8.11	10.84	7.88

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	18.0	18.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	28.80	28.80	34.67
I_p,int, Pedestrian LOS Score for Intersectio	0.000	2.690	2.010	2.328
Crosswalk LOS		B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	596	1002	596	1002
d_b, Bicycle Delay [s]	22.20	11.22	22.19	11.20
I_b,int, Bicycle LOS Score for Intersection	2.359	2.479	1.647	1.716
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Lime Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	52	3	16	10	0	6	11	122	68	11	77	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	9.00	3.00	0.00	9.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	3	16	10	0	6	11	122	68	11	77	8
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	1	4	3	0	2	3	32	18	3	20	2
Total Analysis Volume [veh/h]	55	3	17	11	0	6	12	130	72	12	82	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.02	0.02	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	11.00	11.59	9.42	10.12	0.00	8.55	7.49	0.00	0.00	7.75	0.00	0.00
Movement LOS	B	B	A	B		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.35	0.35	0.35	0.05	0.00	0.02	0.02	0.01	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	8.82	8.82	8.82	1.17	0.00	0.44	0.50	0.25	0.00	0.50	0.25	0.00
d_A, Approach Delay [s/veh]	10.67			9.56			0.42			0.90		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	2.80											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Olive Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	35	5	21	2	2	2	14	68	62	23	59	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	0.00	50.00	0.00	0.00	14.00	3.00	2.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	21	2	2	2	14	68	62	23	59	8
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	6	1	1	1	4	19	18	7	17	2
Total Analysis Volume [veh/h]	40	6	24	2	2	2	16	77	70	26	67	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	10.81	11.31	9.17	11.15	11.09	8.53	7.52	0.00	0.00	7.52	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.31	0.03	0.03	0.03	0.03	0.01	0.00	0.04	0.02	0.00
95th-Percentile Queue Length [ft/ln]	7.68	7.68	7.68	0.66	0.66	0.66	0.67	0.34	0.00	1.10	0.55	0.00
d_A, Approach Delay [s/veh]	10.29			10.26			0.74			1.92		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	3.22											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 4: California Ave/E 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.380

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	37	162	13	11	224	22	17	12	58	22	27	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	2.00	8.00	9.00	1.00	0.00	0.00	0.00	5.00	0.00	4.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	162	13	11	224	22	17	12	58	22	27	7
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	47	4	3	64	6	5	3	17	6	8	2
Total Analysis Volume [veh/h]	43	186	15	13	257	25	20	14	67	25	31	8
Pedestrian Volume [ped/h]	3			2			2			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	757	777	583	685	654
Degree of Utilization, x	0.32	0.38	0.06	0.10	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.40	1.78	0.19	0.32	0.32
95th-Percentile Queue Length [ft]	34.93	44.61	4.63	8.10	8.10
Approach Delay [s/veh]	10.01	10.45	8.77		9.10
Approach LOS	B	B	A		A
Intersection Delay [s/veh]	9.93				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 5: California Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	34	210	295	10	4	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	1.00	20.00	0.00	11.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	210	295	10	4	27
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	58	81	3	1	7
Total Analysis Volume [veh/h]	37	231	324	11	4	30
Pedestrian Volume [ped/h]	0		0		3	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.01	0.04
d_M, Delay for Movement [s/veh]	7.97	0.00	0.00	0.00	13.73	10.55
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.17	0.17
95th-Percentile Queue Length [ft/ln]	1.57	1.57	0.00	0.00	4.19	4.19
d_A, Approach Delay [s/veh]	1.10		0.00		10.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.05					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: California Ave/E 32rd Street

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.043

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	243	18	10	311	16	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	6.00	0.00	2.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	18	10	311	16	2
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	5	3	85	4	1
Total Analysis Volume [veh/h]	267	20	11	342	18	2
Pedestrian Volume [ped/h]	0		0		3	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.83	0.00	14.05	10.12
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.02	0.02	0.14	0.14
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.46	0.46	3.60	3.60
d_A, Approach Delay [s/veh]	0.00		0.24		13.65	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.54					
Intersection LOS	B					

32816 Signal Hill Dutch Bros

Vistro File: H:\...\32816_DB Signal Hill.vistro
Report File: H:\...\3 Existing PM.pdf

Scenario 3 Existing PM
3/6/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Ave/E 33rd Street	Signalized	HCM 7th Edition	NB Right	0.654	25.7	C
2	Lime Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.025	20.7	C
3	Olive Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.016	18.8	C
4	California Ave/E 33rd Street	All-way stop	HCM 7th Edition	NB Thru	0.457	10.8	B
5	California Ave/Project Driveway	Two-way stop	HCM 7th Edition	EB Left	0.055	16.9	C
6	California Ave/E 32rd Street	Two-way stop	HCM 7th Edition	WB Left	0.032	15.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Atlantic Ave/E 33rd Street

Control Type:	Signalized	Delay (sec / veh):	25.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.654

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	11.00	11.00	11.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	40.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	923	264	100	772	18	4	23	44	136	13	163
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	923	264	100	772	18	4	23	44	136	13	163
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	240	69	26	201	5	1	6	11	35	3	42
Total Analysis Volume [veh/h]	29	961	275	104	804	19	4	24	46	142	14	170
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			1			1			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	43.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No								
Signal Group	0	4	0	0	2	0	0	8	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0.0	30.0	0.0	0.0	50.0	0.0	0.0	30.0	0.0	0.0	50.0	0.0
Amber [s]	0.0	3.2	0.0	0.0	3.9	0.0	0.0	3.2	0.0	0.0	3.9	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	14.0	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0
Delayed Vehicle Green [s]	0.0	4.0	0.0	0.0	5.0	0.0	0.0	4.0	0.0	0.0	5.0	0.0
Rest In Walk		No			Yes			No			Yes	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Location [ft]	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Detector Length [ft]	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	35.0	0.0	0.0	55.0	0.0	0.0	35.0	0.0	0.0	55.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0.0	8.0	0.0	0.0	20.0	0.0	0.0	8.0	0.0	0.0	20.0	0.0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			Yes			No			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			Yes			No			Yes	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	37.7	37.7	37.7	57.2	57.2	57.2	37.7	57.2	57.2
g / C, Green / Cycle	0.42	0.42	0.42	0.64	0.64	0.64	0.42	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.02	0.38	0.38	0.09	0.24	0.24	0.06	0.20	0.13
s, saturation flow rate [veh/h]	1217	1696	1558	1097	1696	1682	1167	688	1323
c, Capacity [veh/h]	554	711	653	718	1078	1068	531	514	840
d1, Uniform Delay [s]	15.58	24.44	24.55	8.70	7.91	7.91	16.34	17.95	6.86
k, delay calibration	0.04	0.50	0.50	0.50	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	16.98	18.96	0.42	1.03	1.04	0.04	1.52	0.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.90	0.91	0.14	0.38	0.38	0.14	0.30	0.20
d, Delay for Lane Group [s/veh]	15.59	41.42	43.50	9.12	8.94	8.95	16.38	19.47	7.41
Lane Group LOS	B	D	D	A	A	A	B	B	A
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.35	15.38	14.61	0.95	3.71	3.68	0.91	1.63	1.34
50th-Percentile Queue Length [ft/ln]	8.71	384.42	365.28	23.86	92.86	92.12	22.79	40.67	33.55
95th-Percentile Queue Length [veh/ln]	0.63	21.81	20.88	1.72	6.69	6.63	1.64	2.93	2.42
95th-Percentile Queue Length [ft/ln]	15.68	545.20	522.00	42.95	167.15	165.81	41.02	73.21	60.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.59	42.11	43.50	9.12	8.95	8.95	16.38	16.38	16.38	19.47	19.47	7.41
Movement LOS	B	D	D	A	A	A	B	B	B	B	B	A
d_A, Approach Delay [s/veh]	41.81			8.97			16.38			13.18		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	25.73											
Intersection LOS	C											
Intersection V/C	0.654											

Emissions

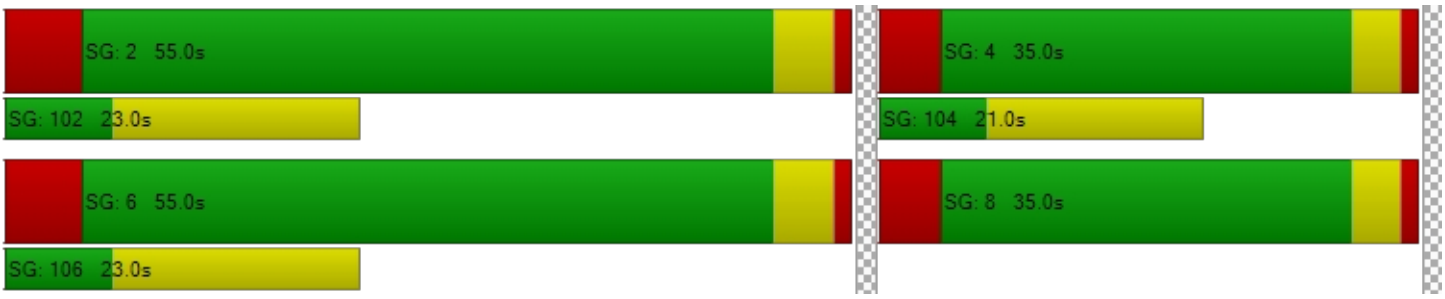
Vehicle Miles Traveled [mph]	1.50	33.24	30.76	6.34	25.19	24.97	4.67	9.72	10.59
Stops [stops/h]	13.94	615.08	584.45	38.18	148.58	147.39	36.47	65.07	53.68
Fuel consumption [US gal/h]	0.23	10.18	9.75	0.66	2.61	2.59	0.64	1.38	0.99
CO [g/h]	16.14	711.45	681.75	46.48	182.45	180.95	44.77	96.30	69.12
NOx [g/h]	3.14	138.42	132.64	9.04	35.50	35.21	8.71	18.74	13.45
VOC [g/h]	3.74	164.89	158.00	10.77	42.29	41.94	10.38	22.32	16.02

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	18.0	18.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	28.80	28.80	34.67
I_p,int, Pedestrian LOS Score for Intersectio	0.000	2.700	2.018	2.456
Crosswalk LOS		B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	596	1002	596	1002
d_b, Bicycle Delay [s]	22.21	11.21	22.20	11.20
I_b,int, Bicycle LOS Score for Intersection	2.603	2.324	1.682	1.829
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Lime Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	20.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	81	7	23	15	0	11	29	286	104	17	205	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	7.00	2.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	7	23	15	0	11	29	286	104	17	205	14
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	2	7	4	0	3	9	84	31	5	60	4
Total Analysis Volume [veh/h]	95	8	27	18	0	13	34	336	122	20	241	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.27	0.02	0.03	0.05	0.00	0.01	0.03	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	19.80	20.74	14.11	15.01	0.00	9.04	7.77	0.00	0.00	8.26	0.00	0.00
Movement LOS	C	C	B	C		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.43	1.43	1.43	0.15	0.00	0.04	0.06	0.03	0.00	0.03	0.02	0.00
95th-Percentile Queue Length [ft/ln]	35.67	35.67	35.67	3.74	0.00	1.09	1.44	0.72	0.00	0.84	0.42	0.00
d_A, Approach Delay [s/veh]	18.68			12.51			0.54			0.60		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	3.49											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Olive Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	18.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	148	6	70	6	3	12	10	133	181	50	84	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	1.00	0.00	0.00	11.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	148	6	70	6	3	12	10	133	181	50	84	9
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	2	20	2	1	3	3	38	51	14	24	3
Total Analysis Volume [veh/h]	168	7	80	7	3	14	11	151	206	57	95	10
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.36	0.02	0.10	0.01	0.01	0.01	0.01	0.00	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	18.56	18.80	15.10	12.11	14.26	8.75	7.53	0.00	0.00	8.03	0.00	0.00
Movement LOS	C	C	C	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.51	2.51	2.51	0.11	0.11	0.11	0.02	0.01	0.00	0.10	0.05	0.00
95th-Percentile Queue Length [ft/ln]	62.65	62.65	62.65	2.71	2.71	2.71	0.46	0.23	0.00	2.45	1.23	0.00
d_A, Approach Delay [s/veh]	17.48			10.42			0.23			2.83		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	6.49											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: California Ave/E 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.457

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	45	224	32	3	127	28	50	72	56	35	53	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	224	32	3	127	28	50	72	56	35	53	12
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	62	9	1	35	8	14	20	15	10	15	3
Total Analysis Volume [veh/h]	49	246	35	3	140	31	55	79	62	38	58	13
Pedestrian Volume [ped/h]	5			3			1			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	721	695	582	683	635
Degree of Utilization, x	0.46	0.25	0.23	0.09	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.41	0.99	0.88	0.30	0.62
95th-Percentile Queue Length [ft]	60.27	24.64	22.09	7.46	15.41
Approach Delay [s/veh]	12.13	9.89	10.02		9.84
Approach LOS	B	A	B		A
Intersection Delay [s/veh]	10.83				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 5: California Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.055

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	92	284	201	20	17	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	1.00	5.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	284	201	20	17	111
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	79	56	6	5	31
Total Analysis Volume [veh/h]	102	316	223	22	19	123
Pedestrian Volume [ped/h]	0		0		1	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.06	0.15
d_M, Delay for Movement [s/veh]	7.83	0.00	0.00	0.00	16.85	10.85
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.78	0.78
95th-Percentile Queue Length [ft/ln]	4.50	4.50	0.00	0.00	19.46	19.46
d_A, Approach Delay [s/veh]	1.91		0.00		11.65	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.05					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: California Ave/E 32rd Street

Control Type:	Two-way stop	Delay (sec / veh):	15.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	359	25	14	297	11	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	359	25	14	297	11	15
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	98	7	4	81	3	4
Total Analysis Volume [veh/h]	390	27	15	323	12	16
Pedestrian Volume [ped/h]	0		0		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	8.15	0.00	15.15	10.99
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.18	0.18
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.63	0.63	4.52	4.52
d_A, Approach Delay [s/veh]	0.00		0.36		12.78	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.61					
Intersection LOS	C					

32816 Signal Hill Dutch Bros

Vistro File: H:\...\32816_DB Signal Hill.vistro
Report File: H:\...\2 Existing AM + Proj.pdf

Scenario 2 Existing AM + Proj
3/6/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Ave/E 33rd Street	Signalized	HCM 7th Edition	NB Right	0.635	19.6	B
2	Lime Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.005	12.0	B
3	Olive Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.010	11.5	B
4	California Ave/E 33rd Street	All-way stop	HCM 7th Edition	SB Thru	0.385	10.0	A
5	California Ave/Project Driveway	Two-way stop	HCM 7th Edition	EB Left	0.010	14.0	B
6	California Ave/E 32rd Street	Two-way stop	HCM 7th Edition	WB Left	0.044	14.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Atlantic Ave/E 33rd Street

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	11.00	11.00	11.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	40.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	751	156	75	988	13	5	10	36	82	14	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	4.00	3.00	2.00	3.00	8.00	0.00	0.00	0.00	1.00	0.00	6.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	751	156	75	988	13	5	10	36	82	14	104
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	196	41	20	257	3	1	3	9	21	4	27
Total Analysis Volume [veh/h]	29	782	163	78	1029	14	5	10	38	85	15	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	43.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No								
Signal Group	0	4	0	0	2	0	0	8	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0.0	30.0	0.0	0.0	50.0	0.0	0.0	30.0	0.0	0.0	50.0	0.0
Amber [s]	0.0	3.2	0.0	0.0	3.9	0.0	0.0	3.2	0.0	0.0	3.9	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	14.0	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0
Delayed Vehicle Green [s]	0.0	4.0	0.0	0.0	5.0	0.0	0.0	4.0	0.0	0.0	5.0	0.0
Rest In Walk		No			Yes			No			Yes	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Location [ft]	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Detector Length [ft]	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	35.0	0.0	0.0	55.0	0.0	0.0	35.0	0.0	0.0	55.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0.0	8.0	0.0	0.0	20.0	0.0	0.0	8.0	0.0	0.0	20.0	0.0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			Yes			No			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			Yes			No			Yes	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	33.3	33.3	33.3	61.6	61.6	61.6	33.3	61.6	61.6
g / C, Green / Cycle	0.37	0.37	0.37	0.68	0.68	0.68	0.37	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.02	0.29	0.29	0.06	0.31	0.31	0.05	0.14	0.08
s, saturation flow rate [veh/h]	1241	1656	1558	1141	1669	1662	1082	602	1325
c, Capacity [veh/h]	511	613	576	829	1143	1137	444	486	907
d1, Uniform Delay [s]	18.31	25.31	25.31	5.71	6.52	6.52	18.89	14.42	4.88
k, delay calibration	0.04	0.50	0.50	0.50	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	10.25	10.83	0.23	1.32	1.33	0.04	0.94	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.79	0.79	0.09	0.46	0.46	0.12	0.20	0.12
d, Delay for Lane Group [s/veh]	18.33	35.55	36.13	5.94	7.84	7.85	18.93	15.36	5.15
Lane Group LOS	B	D	D	A	A	A	B	B	A
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.38	10.62	10.08	0.53	4.23	4.21	0.71	0.86	0.66
50th-Percentile Queue Length [ft/ln]	9.62	265.44	252.09	13.25	105.65	105.22	17.80	21.44	16.59
95th-Percentile Queue Length [veh/ln]	0.69	15.96	15.29	0.95	7.60	7.57	1.28	1.54	1.19
95th-Percentile Queue Length [ft/ln]	17.32	399.04	382.29	23.86	189.94	189.33	32.04	38.58	29.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.33	35.77	36.13	5.94	7.84	7.85	18.93	18.93	18.93	15.36	14.54	5.15
Movement LOS	B	D	D	A	A	A	B	B	B	B	B	A
d_A, Approach Delay [s/veh]	35.31			7.71			18.93			10.00		
Approach LOS	D			A			B			A		
d_I, Intersection Delay [s/veh]	19.58											
Intersection LOS	B											
Intersection V/C	0.635											

Emissions

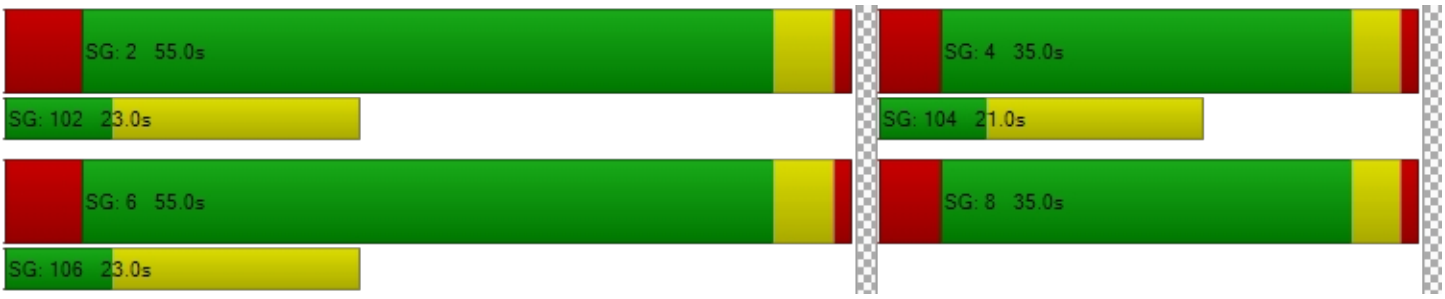
Vehicle Miles Traveled [mph]	1.50	25.21	23.72	4.75	31.86	31.71	3.35	6.16	6.80
Stops [stops/h]	15.40	424.71	403.35	21.21	169.04	168.35	28.48	34.30	26.55
Fuel consumption [US gal/h]	0.26	6.91	6.57	0.41	3.08	3.07	0.50	0.75	0.54
CO [g/h]	17.83	482.77	459.48	28.46	215.26	214.35	34.91	52.54	37.84
NOx [g/h]	3.47	93.93	89.40	5.54	41.88	41.70	6.79	10.22	7.36
VOC [g/h]	4.13	111.89	106.49	6.60	49.89	49.68	8.09	12.18	8.77

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	18.0	18.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	28.80	28.80	34.67
I_p,int, Pedestrian LOS Score for Intersectio	0.000	2.692	2.010	2.353
Crosswalk LOS		B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	596	1002	596	1002
d_b, Bicycle Delay [s]	22.19	11.20	22.19	11.20
I_b,int, Bicycle LOS Score for Intersection	2.363	2.484	1.647	1.731
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Lime Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	74	3	24	10	0	6	11	120	89	13	74	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	9.00	3.00	0.00	9.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	3	24	10	0	6	11	120	89	13	74	8
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	1	6	3	0	2	3	32	24	3	20	2
Total Analysis Volume [veh/h]	79	3	26	11	0	6	12	128	95	14	79	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.01	0.03	0.02	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	11.45	12.02	9.82	10.18	0.00	8.54	7.49	0.00	0.00	7.80	0.00	0.00
Movement LOS	B	B	A	B		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.54	0.54	0.54	0.05	0.00	0.02	0.02	0.01	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	13.58	13.58	13.58	1.19	0.00	0.44	0.50	0.25	0.00	0.59	0.29	0.00
d_A, Approach Delay [s/veh]	11.08			9.60			0.38			1.07		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	3.37											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: Olive Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	35	5	21	2	2	2	14	74	62	27	58	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	0.00	50.00	0.00	0.00	14.00	3.00	2.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	21	2	2	2	14	74	62	27	58	8
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	6	1	1	1	4	21	18	8	16	2
Total Analysis Volume [veh/h]	40	6	24	2	2	2	16	84	70	31	66	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	11.00	11.48	9.21	11.32	11.24	8.53	7.52	0.00	0.00	7.54	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.32	0.03	0.03	0.03	0.03	0.01	0.00	0.05	0.03	0.00
95th-Percentile Queue Length [ft/ln]	7.88	7.88	7.88	0.67	0.67	0.67	0.67	0.34	0.00	1.31	0.66	0.00
d_A, Approach Delay [s/veh]	10.43			10.36			0.71			2.20		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	3.26											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 4: California Ave/E 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	36	158	13	11	224	24	23	14	56	22	29	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	5.00	2.00	8.00	9.00	1.00	0.00	0.00	0.00	5.00	0.00	4.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	158	13	11	224	24	23	14	56	22	29	7
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	45	4	3	64	7	7	4	16	6	8	2
Total Analysis Volume [veh/h]	41	182	15	13	257	28	26	16	64	25	33	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	752	775	582	685	653
Degree of Utilization, x	0.32	0.38	0.07	0.09	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.36	1.82	0.23	0.31	0.34
95th-Percentile Queue Length [ft]	33.97	45.48	5.82	7.70	8.39
Approach Delay [s/veh]	9.98	10.52	8.84		9.13
Approach LOS	A	B	A		A
Intersection Delay [s/veh]	9.96				
Intersection LOS	A				

Intersection Level Of Service Report
Intersection 5: California Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	44	205	293	10	4	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	1.00	20.00	0.00	11.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	205	293	10	4	34
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	56	80	3	1	9
Total Analysis Volume [veh/h]	48	225	322	11	4	37
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.01	0.05
d_M, Delay for Movement [s/veh]	7.96	0.00	0.00	0.00	13.97	10.56
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.20	0.20
95th-Percentile Queue Length [ft/ln]	2.05	2.05	0.00	0.00	5.02	5.02
d_A, Approach Delay [s/veh]	1.40		0.00		10.89	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.28					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: California Ave/E 32rd Street

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	245	18	13	313	16	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	6.00	0.00	2.00	12.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	18	13	313	16	5
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	5	4	86	4	1
Total Analysis Volume [veh/h]	269	20	14	344	18	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.04	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	7.82	0.00	14.15	10.12
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.02	0.02	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.59	0.59	3.95	3.95
d_A, Approach Delay [s/veh]	0.00		0.31		13.27	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.62					
Intersection LOS	B					

32816 Signal Hill Dutch Bros

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Report File: H:\...\4 Existing PM + Proj.pdf

Scenario 4 Existing PM + Proj
3/6/2026

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Atlantic Ave/E 33rd Street	Signalized	HCM 7th Edition	NB Right	0.652	25.6	C
2	Lime Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.025	21.2	C
3	Olive Ave/Project Driveway	Two-way stop	HCM 7th Edition	NB Thru	0.016	18.9	C
4	California Ave/E 33rd Street	All-way stop	HCM 7th Edition	NB Thru	0.455	10.8	B
5	California Ave/Project Driveway	Two-way stop	HCM 7th Edition	EB Left	0.056	16.9	C
6	California Ave/E 32rd Street	Two-way stop	HCM 7th Edition	WB Left	0.032	15.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Atlantic Ave/E 33rd Street

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	11.00	11.00	11.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	40.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	28	922	266	104	770	18	4	23	44	138	13	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	922	266	104	770	18	4	23	44	138	13	165
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	240	69	27	201	5	1	6	11	36	3	43
Total Analysis Volume [veh/h]	29	960	277	108	802	19	4	24	46	144	14	172
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	43.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No								
Signal Group	0	4	0	0	2	0	0	8	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0.0	30.0	0.0	0.0	50.0	0.0	0.0	30.0	0.0	0.0	50.0	0.0
Amber [s]	0.0	3.2	0.0	0.0	3.9	0.0	0.0	3.2	0.0	0.0	3.9	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	14.0	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0
Delayed Vehicle Green [s]	0.0	4.0	0.0	0.0	5.0	0.0	0.0	4.0	0.0	0.0	5.0	0.0
Rest In Walk		No			Yes			No			Yes	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Location [ft]	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Detector Length [ft]	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	35.0	0.0	0.0	55.0	0.0	0.0	35.0	0.0	0.0	55.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0.0	8.0	0.0	0.0	20.0	0.0	0.0	8.0	0.0	0.0	20.0	0.0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Recall		No			Yes			No			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			Yes			No			Yes	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C	C
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g_i, Effective Green Time [s]	37.7	37.7	37.7	57.2	57.2	57.2	37.7	57.2	57.2
g / C, Green / Cycle	0.42	0.42	0.42	0.64	0.64	0.64	0.42	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.02	0.38	0.38	0.10	0.24	0.24	0.06	0.20	0.13
s, saturation flow rate [veh/h]	1217	1696	1568	1095	1696	1683	1176	689	1323
c, Capacity [veh/h]	554	711	657	716	1078	1069	535	514	840
d1, Uniform Delay [s]	15.58	24.41	24.51	8.76	7.90	7.90	16.33	18.00	6.88
k, delay calibration	0.04	0.50	0.50	0.50	0.50	0.50	0.04	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	16.78	18.58	0.45	1.03	1.04	0.04	1.54	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.90	0.91	0.15	0.38	0.38	0.14	0.31	0.20
d, Delay for Lane Group [s/veh]	15.59	41.18	43.09	9.21	8.93	8.94	16.37	19.55	7.43
Lane Group LOS	B	D	D	A	A	A	B	B	A
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.35	15.30	14.59	1.00	3.70	3.67	0.91	1.65	1.36
50th-Percentile Queue Length [ft/ln]	8.71	382.43	364.78	24.95	92.52	91.83	22.78	41.26	34.01
95th-Percentile Queue Length [veh/ln]	0.63	21.71	20.86	1.80	6.66	6.61	1.64	2.97	2.45
95th-Percentile Queue Length [ft/ln]	15.68	542.79	521.40	44.91	166.54	165.30	41.00	74.27	61.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.59	41.82	43.09	9.21	8.94	8.94	16.37	16.37	16.37	19.55	19.55	7.43
Movement LOS	B	D	D	A	A	A	B	B	B	B	B	A
d_A, Approach Delay [s/veh]	41.50			8.97			16.37			13.23		
Approach LOS	D			A			B			B		
d_I, Intersection Delay [s/veh]	25.56											
Intersection LOS	C											
Intersection V/C	0.652											

Emissions

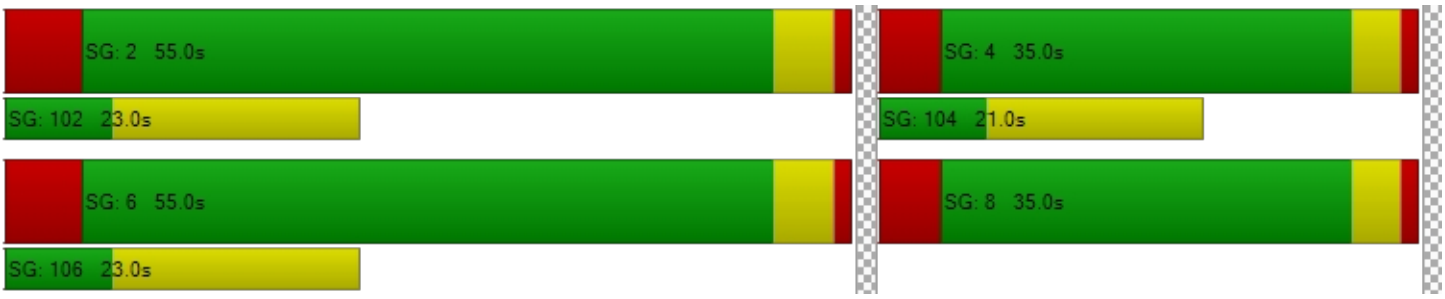
Vehicle Miles Traveled [mph]	1.50	33.18	30.88	6.58	25.12	24.92	4.67	9.84	10.72
Stops [stops/h]	13.94	611.89	583.65	39.92	148.03	146.93	36.45	66.02	54.41
Fuel consumption [US gal/h]	0.23	10.12	9.72	0.69	2.60	2.58	0.64	1.40	1.00
CO [g/h]	16.14	707.11	679.72	48.51	181.83	180.44	44.76	97.75	70.02
NOx [g/h]	3.14	137.58	132.25	9.44	35.38	35.11	8.71	19.02	13.62
VOC [g/h]	3.74	163.88	157.53	11.24	42.14	41.82	10.37	22.65	16.23

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	18.0	18.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	28.80	28.80	34.67
I_p,int, Pedestrian LOS Score for Intersectio	0.000	2.700	2.018	2.464
Crosswalk LOS		B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	596	1002	596	1002
d_b, Bicycle Delay [s]	22.19	11.20	22.19	11.20
I_b,int, Bicycle LOS Score for Intersection	2.604	2.326	1.682	1.832
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Lime Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	21.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	86	7	25	15	0	11	29	285	111	17	204	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	7.00	2.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	7	25	15	0	11	29	285	111	17	204	14
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	2	7	4	0	3	9	84	33	5	60	4
Total Analysis Volume [veh/h]	101	8	29	18	0	13	34	335	131	20	240	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.03	0.04	0.05	0.00	0.01	0.03	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	20.31	21.23	14.59	15.02	0.00	9.04	7.76	0.00	0.00	8.28	0.00	0.00
Movement LOS	C	C	B	C		A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.56	1.56	1.56	0.15	0.00	0.04	0.06	0.03	0.00	0.03	0.02	0.00
95th-Percentile Queue Length [ft/ln]	39.03	39.03	39.03	3.75	0.00	1.09	1.44	0.72	0.00	0.84	0.42	0.00
d_A, Approach Delay [s/veh]	19.16			12.51			0.53			0.60		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	3.66											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Olive Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	18.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	15.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	148	6	70	6	3	12	10	134	181	51	83	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	1.00	0.00	0.00	11.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	148	6	70	6	3	12	10	134	181	51	83	9
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	2	20	2	1	3	3	38	51	14	24	3
Total Analysis Volume [veh/h]	168	7	80	7	3	14	11	152	206	58	94	10
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.36	0.02	0.10	0.01	0.01	0.01	0.01	0.00	0.00	0.05	0.00	0.00
d_M, Delay for Movement [s/veh]	18.66	18.89	15.17	12.13	14.29	8.75	7.53	0.00	0.00	8.04	0.00	0.00
Movement LOS	C	C	C	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.52	2.52	2.52	0.11	0.11	0.11	0.02	0.01	0.00	0.10	0.05	0.00
95th-Percentile Queue Length [ft/ln]	63.08	63.08	63.08	2.71	2.71	2.71	0.46	0.23	0.00	2.50	1.25	0.00
d_A, Approach Delay [s/veh]	17.57			10.43			0.22			2.88		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	6.52											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: California Ave/E 33rd Street

Control Type:	All-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.455

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			30.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	44	223	32	3	127	29	52	72	55	35	53	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	223	32	3	127	29	52	72	55	35	53	12
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	61	9	1	35	8	14	20	15	10	15	3
Total Analysis Volume [veh/h]	48	245	35	3	140	32	57	79	60	38	58	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	722	696	582	684	635
Degree of Utilization, x	0.45	0.25	0.23	0.09	0.17

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.39	0.99	0.90	0.29	0.62
95th-Percentile Queue Length [ft]	59.68	24.80	22.52	7.19	15.40
Approach Delay [s/veh]	12.09	9.90	10.07		9.84
Approach LOS	B	A	B		A
Intersection Delay [s/veh]	10.82				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 5: California Ave/Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	95	282	200	20	17	112
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	1.00	5.00	0.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	282	200	20	17	112
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	78	56	6	5	31
Total Analysis Volume [veh/h]	106	313	222	22	19	124
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.06	0.15
d_M, Delay for Movement [s/veh]	7.82	0.00	0.00	0.00	16.93	10.84
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.00	0.00	0.78	0.78
95th-Percentile Queue Length [ft/ln]	4.69	4.69	0.00	0.00	19.59	19.59
d_A, Approach Delay [s/veh]	1.98		0.00		11.65	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.10					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: California Ave/E 32rd Street

Control Type:	Two-way stop	Delay (sec / veh):	15.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		35.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	360	25	15	297	11	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	360	25	15	297	11	16
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	98	7	4	81	3	4
Total Analysis Volume [veh/h]	391	27	16	323	12	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.03	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	8.14	0.00	15.16	10.98
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.19	0.19
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.67	0.67	4.65	4.65
d_A, Approach Delay [s/veh]	0.00		0.38		12.71	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.63					
Intersection LOS	C					