Appendix B

# Mobility Analysis Report
# University of the Nations Kona
# Master Plan Update
# Kona, Hawai‘i
# Fehr & Peers, Inc., February 2020

# Mobility Analysis Report for the University of the Nations Kona Master Plan Update Kona, HI

Prepared for:
University of the Nations Kona

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FEHR & PEERS

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# 1.0 EXECUTIVE SUMMARY

This report documents the assessment of traffic, mobility, and access for an update to the 2003 University of the Nations (UOFN) Kona Master Plan. The project site is on tax map key parcels TMK (3) 7-5-010: 085 and (3) 7-5-017: 006, between Kuakini Highway and Hualalai Road on the Island of Hawai'i. The project site is within the Kona Community Plan area. The existing site includes residential, religious, educational, recreational, and commercial uses.

Impacts of the proposed Master Plan Update were evaluated following guidelines established by the County of Hawai'i Department of Public Works-Engineering Division and the State of Hawai'i Department of Transportation (HDOT), which has jurisdiction over Hawai'i Belt Road/Queen Kaahumanu Highway (Highway 11). The operations of eight (8) intersections [seven (7) existing and one (1) future location] were evaluated during the weekday morning (AM) and evening (PM) peak hour for Existing (2019) and Master Plan Phase 1 (2030) conditions. Master Plan Phase 1 conditions were evaluated without and with the project.

To estimate project trip generation, multimodal counts of vehicles, bicyclists, and pedestrians were collected at the existing University of the Nations site driveway during October 2019. Vehicular counts were collected for a continuous 72-hour period, and bicycle/pedestrian counts were collected during the peak AM and PM commute periods. These counts were used to develop a per-student trip rate, which was applied to future university enrollment and employment forecasts to estimate future project trips. Using this approach, it was anticipated that 215 new peak hour trips (154 inbound/62 outbound) would occur during the AM peak hour and 161 new peak hour trips (64 inbound/97 outbound) would occur during the PM peak hour.

Project trip distribution was estimated using the location of complementary land uses and existing travel patterns, and trips were subsequently assigned to the adjacent streets. Proposed trip distribution is shown below on **Figure** 5-1. Key findings of the mobility analysis are summarized below.

## 1.1 INTERSECTION OPERATIONS

Under Phase 1 (2030) Plus Project conditions, all study intersections are anticipated to continue to operate at LOS D or better during the AM and PM peak hours with the addition of project-generated traffic except for the following unsignalized intersections:

- Kuakini Highway and University of the Nations Kona Driveway (LOS F, AM and PM peaks)
- Queen Kaahumanu Highway and Hualalai Road (LOS F, AM peak; LOS E, PM peak)
- Queen Kaahumanu Highway and Kuakini Highway (LOS F, AM and PM peaks)

The project is expected to cause an impact at the intersection of Kuakini Highway and University of the Nations Kona Driveway as intersection operations would degrade to undesirable LOS, and signal warrants would be met. However, the impact at this intersection can be mitigated by adding a refuge lane along Kuakini Highway to receive westbound left-turn movements from the University of Nations Kona Driveway. The addition of a refuge lane can could likely be accomplished within the existing highway right-of way with re-striping minor pavement modifications, though additional design analysis is needed to determine construction needs for this improvement. With a refuge lane, intersection operations would improve to LOS C in both AM and PM peak hours.

The intersections of Queen Kaahumanu Highway and Hualalai Road, and Queen Kaahumanu Highway and Kuakini Highway intersections would operate at an unacceptable LOS (LOS E or F) during both peak hours under Phase 1 Plus Project conditions. However, neither intersection met any of the signal warrants in this scenario, therefore no impacts are anticipated at these locations.

## 1.2 FUTURE PHASE 2 AND PHASE 3 ASSESSMENT

A high-level "hot spot" assessment was conducted to identify intersections where campus activities are close to triggering impacts in Phase 1 of the campus buildout, and in which it would be reasonable to expect project impacts to likely occur in Phase 2 (i.e. by 2040) or Phase 3 (beyond 2040) as a result of further anticipated on-campus and ambient traffic growth. The assessment determined that the following intersections could either have project-related impacts during Phase 2 or may require additional attention:

- **Queen Kaahumanu Highway/Hualalai Rd and Queen Kaahumanu Highway/Kuakini Highway:** warrants are not expected to be met, but HDOT may express concern that the project would add traffic to the northbound left-turn movements at both intersections, which would contribute to increased delays for minor street approaches.
- **Kuakini Highway and the University of the Nations Kona Driveway:** a sensitivity test found that the intersection would operate at LOS E in the AM peak and LOS C in the PM peak. Further, it was determined that the intersection would also meet both 4-hour and 8-hour signal warrants with the addition of Phase 2 project trips. As such, it is likely that a signal would be required with Phase 2 of the project to enhance intersection operations, site access, and safety.
- **Queen Kaahumanu Highway and Nani Kailua Drive**: The intersection is projected to operate at acceptable levels of service under Phase 1 conditions, however the intersection would likely operate worse than what is shown because congestion along Queen Kaahumanu Highway limits the number of vehicles that are able to pass through the intersection during the peak hour. Intersection conditions would likely continue to degrade with the addition of ambient and project-related traffic in Phase 2. If it is determined that Phase 2 of the project would create a

significant impact, the project may be required to contribute funding for anticipated roadway improvements (e.g. widening of Queen Kaahumanu Highway) or signal modifications.

- **Kuakini Highway Widening**: The secondary access into the project site (TMK (3) 7-5-010:085) off of Kuakini Highway is scheduled to be a part of Phase 2. In general, the secondary access on Kuakini Highway would help to distribute traffic on that highway; however, with increased through and project traffic after 2030, Kuakini Highway may need to be widened to accommodate a left-turn lane in and a refuge lane for left-turn traffic out of the site. The County of Hawaii has already planned the widening of Kuakini Highway fronting the project site in Federal Aid Project No. STP 01102 (Kuakini Highway Improvements, Phase II, Hualalai Road to the Proposed Alii Highway). If the roadway widening occurs by 2040, the UOFN Kona could be required to contribute funding for select improvements within the widened corridor or if it is determined future on-campus growth would significantly impact intersections along the highway.

Beyond 2040, the potential operational issues noted above would continue to persist and operations would likely degrade further without additional improvements. However, the Kuakini Highway Improvements, Phase II will likely change the LOS on Kuakini Highway and redistribute traffic in the subregion. With planned regional improvements such as the widening of Queen Kaahumanu Highway and Kuakini Highway, the UOFN Kona could be required to contribute funding or select improvements within the widened corridor.

## 1.3 VEHICULAR ACCESS AND CIRCULATION

**Site Access**

Direct access to the project site is provided by a driveway located on Kuakini Highway and is controlled by an access gate located approximately 125 feet east of Kuakini Highway. During peak travel periods, or during special events, campus-bound traffic could potentially queue up while waiting to pass through the access gate and spill back onto Kuakini Highway. To reduce the potential for spillback onto Kuakini Highway, it is recommended that the access gate be relocated to a point further east. A second access point would also be provided off of Hualalai Road via a new unsignalized intersection and driveway leading to the project site. No vehicular site access issues are expected as a result of Phase 1.

**On-Site Circulation**

Under Phase 1, the proposed site plan includes the extension of two on-site internal campus roadways. First, the on-site, east-west roadway located along the northern site boundary is planned to be extended within the site from its existing eastern terminus to a new driveway on Hualalai Road (as noted above in Section 8.1). In addition, the east-west campus roadway located along the southern edge of the developed campus will be extended from its existing eastern terminus to the existing north-south roadway serving

Hualalai Village Apartments. This second campus roadway will effectively be the central spine roadway within the overall campus master plan area. On the eastern side of campus, this roadway will be limited to on-campus circulation only and will not provide a connection to Hualalai Road via Hualalai Village Road.

To manage travel speeds along both of these roadways, it is recommended that stop signs and other traffic calming devices be included at key points along the roadway. Similar treatments should be employed as appropriate on any other future on-campus roadways built as part of Phases 2 and 3 that will include longer, tangent sections of uninterrupted street segments (i.e., of 600 feet or more).

Two-way, north-south drive aisles would intersect the primary east-west roadways, and they will provide access to existing and planned parking lots. Though the drive aisles and parking lots do not provide direct access to all campus facilities, students, faculty/staff, and visitors will be able to access campus facilities via unrestricted pedestrian and bicycle pathways. More information on these facilities is included below in Section 8.3.

**Parking**

Vehicle parking will be provided via on- and off-street parking throughout campus. Insufficient parking was not noted as an issue by the project development team at the time this report was written. As such, it is assumed that the existing parking inventory is sufficient to accommodate the parking demand generated by current levels of campus students, faculty, staff, and visitors. Therefore, it is recommended that parking supply provided in Phase 1 of the project maintain the same ratio of campus students, faculty, staff, and visitors to parking spaces unless adjustments to the supply are needed.

On the current site plan, several on-site parking lots are shown with multiple aisles that connect directly to the future east-west primary campus roadways, which creates additional vehicle conflicts and requires pedestrians and bicyclists to cross an excessive number of vehicle paths. To enhance safety and to internalize parking movements, it is recommended that all new surface parking lots be limited to one or two access driveways per lot (depending on the number of spaces served), and adequate aisles be provided within each lot to allow for internal vehicle circulation.

## 1.4 MULTIMODAL ASSESSMENT

**Bicycle and Pedestrian Facilities**

Implementation of Phase 1 of the project will not conflict with any existing pedestrian or bicycle facilities and will not preclude the implementation of any planned pedestrian or bicycle facilities within the study area.

A proposed bike lane along Kuakini Highway from Lako Street to Hualalai Road is identified as a high-priority project in Bike Plan Hawai'i. When completed, this facility will enhance bicycle connectivity to and from the University of the Nations Kona west entrance. No pedestrian improvements are planned along roadways adjacent to the University of the Nations Kona campus.

While the project-generated pedestrian and bicycle volumes are initially expected to be low, the addition of any active travelers along Kuakini Highway may result in people walking or biking along the roadway, which could result in a potential safety issue and a significant multimodal impact. To address this issue, the following pedestrian improvements are proposed at this location:

- An elevated sidewalk should be installed between the existing sidewalk on the east side of Kuakini Highway from the existing sidewalk's terminus to the existing crosswalk approximately 600 feet north of the University of the Nations Driveway.
- A high-visibility crosswalk, adequate nighttime lighting levels, and crosswalk warning signs should be added on the north and east legs of the intersections.
- The existing striped triangle on the east leg of the intersection should be converted to an elevated area to act as a pedestrian refuge island.
- A Pedestrian Hybrid Beacon (PHB) could also be installed on the north leg of the intersection, however a warrant would need to be conducted to determine whether it would be necessary. If it is not warranted, a Rectangular Rapid-Flashing Beacon (RRFB) could be added.

Direct pedestrian and bicycle connections between campus facilities and parking lots would be provided via unrestricted pedestrian and bicycle pathways throughout campus, however no improvements are planned along on-site campus roadways. As such, the following improvements are recommended:

- A shared-use path should be included on one side of both on-site campus roadways to further enhance pedestrian and bicycle connectivity and safety throughout the campus.
- An enhanced bicycle route (e.g. bike lane or "sharrows") should be included along the makai north-south campus roadway between the northern and central roadways.

- Pedestrian-level lighting is recommended along both the shared-use path and the pedestrian sidewalk.
- Raised crosswalks should be provided at all locations where pedestrian crossings are planned.

It is also recommended that secure bike parking – including bike racks near building entrance(s) – is provided to encourage and support non-motorized travel. Specific locations for bike racks should be determined by the project team in consultation with the University of the Nations Kona staff.

**Transit**

The Pahala-Kailua-Kona-South Kohala Resorts Route provides daily transit service along Queen Kaahumanu Highway. The nearest bus stop would require passengers to walk or bike at least 2,000 feet from campus to use the transit service. One potential improvement would be to provide a multi-use connection directly to Hualalai Road to reduce the overall distance transit riders would have to walk or bike to access the campus.

The project is anticipated to generate a low amount of transit riders at the completion of Phase 1. As project-related transit ridership is anticipated to be low, no project impacts to transit facilities or services are anticipated, and no modifications to transit stop locations or services would be required.

# 2.0 INTRODUCTION

This mobility analysis report (MAR) presents the study conducted by Fehr & Peers for the University of the Nations, Kona 2020 Master Plan Update, the proposed update to the 2003 UOFN Kona Master Plan in the Kona Community Plan area of Kailua-Kona on the Island of Hawai'i. The project site is located on tax map key parcels TMK (4) 7-5-010: 085 and (4) 7-5-017: 006, between Kuakini Highway and Hualalai Road. This MAR was conducted in accordance with the guidelines and standards of the affected government agencies, and it addresses the potential impact of the project on vehicular, bicycle, pedestrian, and transit conditions.

## 2.1 PROJECT DESCRIPTION

The University of the Nations is a Christian university with over 600 locations across 160 countries. With approximately 500 college students, 340 Pre-K-12 students, and 750 staff members, the Kona campus is one of the largest UOFN campuses worldwide. The existing site includes residential, religious, educational, recreational, and commercial uses.

The 2020 Master Plan Update was prepared for UOFN Kona and includes plans for the Existing Campus Site as well as the Petition Area (approximately 62 acres of land adjacent to the Existing Campus). The purpose is to update the Master Plan and to reflect current and upcoming priorities since the 2002-2005 master planning and land use entitlements period. Future buildings and projects planned in 10-year increments, with emphasis given to the next 5-10 years, are projected into the 2020 Master Plan Update.

Projected future buildings and projects fall into three categories:

- Phase 1: Planning Program Projects anticipated for development within the next 5-10 years
    - 500 Pre-K-12 Students
    - 1,000 University Students
    - 900 Faculty/Staff Members
- Phase 2: Planning Program Projects anticipated for development beyond the 10-year period
    - Potentially up to 750 Pre-K-12 Students
    - 1,500 University Students
    - 1,350 Faculty/Staff Members
- Phase 3: Planning Program Projects anticipated for development beyond the 20-year period.
    - Potentially up to 1,000 Pre-K-12 Students
    - 2,000 University Students
    - 1,800 Faculty/Staff Members

The 2020 Master Plan Update focuses on projects in the Phase 1 Planning Program, within the next 5-10 years. Projects beyond the period of 5-10 years are listed and included in the overall conceptual design of the Master Plan, but are not included for detailed description. Proposed buildings and improvements for Phase 1 of the project are as follows:

- Existing Campus Site
    - Student Resident Dormitory Buildings and Parking Area
    - Multi-Purpose Complex Building and Parking Area
- Petition Area
    - Discipleship Learning Center
    - Athletic/Training Complex
    - Lower School
    - Archaeological Preservation Sites
    - Agricultural Exhibit
    - Maintenance and Storage Facilities
    - Roadways/Pathways
    - Open Space: Lawn Areas and Landscaping

Additional facilities are planned on the existing campus site and petition area for Phase 2 and Phase 3. Phase 2 facilities may include additional discipleship learning center space, athletic/training complex space, a theatre, CERT building, and Pre-K-12 facilities, among others. Phase 3 facilities may include additional student resident dormitory buildings, faculty/staff housing, Discipleship Learning Center space, athletic/training complex space, and Pre-K-12 instructional buildings, among others.

Additionally, a second campus access point is planned on the mauka side of campus along Hualalai Village Road. Once this connection is completed, campus students, faculty/staff members, and visitors will be able to access the campus via the intersection of Hualalai Road and Hualalai Village Road.

Though details are not included in the Campus Master Plan Update, the university expects to host four or five higher-attendance community events throughout the course of the year. Each event would last between one and two weeks, and could host up to 3,000 attendees each. Additionally, the university expects to host four or five higher-attendance athletic events throughout the course of the year. Each of these events would last between one and two weeks, and could host up to 500 attendees each. A general overview of potential effects of these events are described in Section 6.4.

The location of the project site and immediate study area is shown on **Figure** 2-1. The proposed site plan showing building locations and campus access is illustrated on **Figure** 2-2.


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## Legend

- Project Study Area
- Study Intersections
- Future Study Intersections

Figure 2-1

Project Site & Study Intersections


Figure 2-2

Proposed Site Plan

## 2.2 PROJECT STUDY AREA

The project site is located in Kailua-Kona, bounded by Kuakini Highway and Hualalai Road. The campus is currently accessible via one driveway along Kuakini Highway, approximately one-half mile north of the intersection of Kuakini Highway and Walua Road/Oni Oni Street. The University of the Nations Driveway is a two-lane road that provides controlled access to university visitors. Land uses along Kuakini Highway in the vicinity of the project include commercial, single-family residential, and multi-family residential uses. Other surrounding land uses include residential neighborhoods and agricultural uses.

The mobility analysis evaluated the operations at a total of eight (8) intersections [seven (7) existing and one (1) future location] in the vicinity of the proposed project that are listed below and shown on **Figure** 2-1.

1. Kuakini Highway and Hualalai Road
2. Kuakini Highway and the University of the Nations Driveway
3. Hualalai Road and Nani Kailua Drive
4. Hualalai Road and Unnamed Campus Driveway (potential future intersection)
5. Hualalai Road and Hualalai Village Driveway
6. Nani Kailua Drive and Queen Kaahumanu Highway (Hwy 11)
7. Hualalai Road and Queen Kaahumanu Highway (Hwy 11)
8. Kuakini Highway and Queen Kaahumanu Highway (Hwy 11)

The study analyzed the potential project-related traffic impacts under typical weekday AM and PM peak hour traffic conditions. The AM and PM peak hours for each intersection are identified as the highest one-hour totals of traffic at the intersection from 6:00 to 9:00 AM and from 3:00 to 6:00 PM on a weekday.

## 2.3 STUDY SCENARIOS

This report includes the following types of analysis:

- **Phase 1 Detailed Intersection Operations Analysis**: Phase 1 of the Master Plan buildout was analyzed for the year 2030 using the methods described below in Section 2.4. This analysis includes the evaluation of existing and future intersections, as well as a qualitative assessment of potential impacts to study area transit services and bicycle and pedestrian facilities.
- **Phase 2 "Hot Spot" Assessment**: This analysis uses the findings from the detailed operational analysis to identify potential project impacts. The assessment identifies intersections where campus activities are close to triggering impacts in 2030, and in which it would be reasonable to expect project impacts to occur by 2040 as a result of further anticipated on-campus and ambient traffic growth.

For the Detailed Operational Analysis described above, operations of the study intersections were evaluated during weekday AM and PM peak hours for the following scenarios:

- **Existing Conditions:** The analysis of existing traffic conditions was based on 2019 counts collected for the analyzed peak hour and existing intersection configurations. The existing conditions analysis also includes a description of key area roadways and a review of existing transit facilities and services near the site.
- **Future Phase 1 (2030) No Project Conditions:** Existing peak hour volumes increased to account for approved (but not yet occupied) development projects and forecasted growth in the area at the year of anticipated implementation of Master Plan Phase 1 in 2030. Traffic growth was estimated based on an annual growth factor to account for ambient growth *plus* traffic generated from approved (but not yet constructed) and pending developments in the study area.
- **Future Phase 1 (2030) Plus Project Conditions:** This scenario provides projected traffic volumes and an assessment of operating conditions under Phase 1 Conditions with the addition of forecasted project-generated traffic. This scenario assumes intersection configurations would remain the same as the Future Phase 1 (2030) No Project scenario.

## 2.4 TRAFFIC ANALYSIS METHODS

The analysis of roadway operations performed for this study is based on procedures presented in the *Highway Capacity Manual 6th Edition* (HCM), published by the Transportation Research Board in 2016. The operations of roadway facilities are described with the term level of service (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six (6) levels are defined; from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents "at-capacity" operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions. The methodologies for signalized and unsignalized intersections are described below.

### 2.4.1 SIGNALIZED INTERSECTIONS

Signalized intersection operations were analyzed using the method described in Chapter 19: Signalized Intersections of the HCM. This LOS method analyzes a signalized intersection's operation based on average control delay per vehicle. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using Synchro 10.0 analysis software and is correlated to a LOS designation as shown in **Table** 2-1.

### 2.4.2 UNSIGNALIZED INTERSECTIONS

Unsignalized intersection operations were evaluated using the method contained in Chapter 20: Two-Way Stop-Controlled Intersections of the HCM. LOS ratings for stop-sign-controlled intersections are based on the average control delay expressed in seconds per vehicle. At two-way or side-street-controlled (SSSC) intersections, the average control delay is calculated for each minor-street-stopped movement and the major street left turns; not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. For approaches with multiple lanes, the control delay is computed for each movement; the movement with the worst (i.e., longest) delay is presented for two-way stop-controlled (TWSC). The average control delay for unsignalized intersections is calculated using Synchro 10.0 analysis software and is correlated to a LOS designation as shown in **Table** 2-2.

**Table 2-1. Signalized Intersection Level of Service Definitions**

| Level of Service | Description | Delay in Seconds |
|---|---|---|
| A | Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay. | ≤ 10.0 |
| B | Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay. | > 10.0 to 20.0 |
| C | Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping. | > 20.0 to 35.0 |
| D | The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable. | > 35.0 to 55.0 |
| E | This level is considered by many agencies to be the limit of desirable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. | > 55.0 to 80.0 |
| F | This level is considered undesirable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels. | > 80.0 |

Source: *Highway Capacity Manual*, Transportation Research Board, 2016.

**Table 2-2. Unsignalized Intersection Level of Service Definitions**

| Level of Service | Description | Average Control Delay Per Vehicle (Seconds) |
|---|---|---|
| A | Little or no delay | ≤ 10.0 |
| B | Short traffic delay | > 10.0 to 15.0 |
| C | Average traffic delays | > 15.0 to 25.0 |
| D | Long traffic delays | > 25.0 to 35.0 |
| E | Very long traffic delays | > 35.0 to 50.0 |
| F | Extreme traffic delays with capacity exceeded | > 50.0 |

Source: *Highway Capacity Manual*, Transportation Research Board, 2016.

### 2.4.3 SIGNIFICANT IMPACT CRITERIA

The analysis of future conditions compares the Phase 1 or "no project" condition with conditions that include project-generated traffic assuming full development of Phase 1 uses. This is done to determine if the addition of project traffic is expected to result in a significant impact on the surrounding roadways. Based on previous studies conducted for the County of Hawai'i, the minimum desired operating standard for a signalized intersection is LOS D for the overall intersection. Additionally, the Hawai'i Department of Transportation (HDOT) strives to universally maintain LOS D intersection operations and in their *Draft HDOT Best Practices for Traffic Impact Report* (June 2012) defines a significant impact when the operations of an intersection, turning movement, or roadway segment change from LOS D or better to LOS E or F. Also, when evaluating intersection approach LOS at any location, other factors should be considered in the analysis, such as traffic volumes and potential secondary impacts to pedestrian, bicycle, and transit travel.

Any identified significant impacts could be further categorized as either a cumulative or direct impact. At a signalized intersection, if the addition of project traffic is expected to degrade acceptable service levels (LOS D or better) to unacceptable service levels (LOS E or F), then the project is considered to have a direct impact.

For unsignalized intersections, the criterion for a direct impact is the same as for signalized intersections regarding LOS as described above, but one or more signal warrants must also be met. The signal warrants used for this evaluation are those described in Chapter 4C of the Manual of Uniform Control Devices (MUTCD, 2009) published by the U.S. Department of Transportation Federal Highway Administration (FHWA). However, the project is determined to have a potentially significant cumulative impact when it adds traffic to a study location that includes a controlled approach operating at an unacceptable level (i.e., LOS E or F) *and* one or more volume-based signal warrants are met.

The County of Hawai'i and HDOT do not publish impact criteria for pedestrian, bicycle, and transit impacts. For this analysis, these impacts are evaluated based on whether a proposed project would: 1) conflict with existing or planned pedestrian, bicycle, or transit facilities and services, or 2) create substantive walking, bicycling, or transit use demand without providing adequate and appropriate facilities for non-motorized mobility. Existing facilities for pedestrians, bicycles, and transit users were inventoried to evaluate the quality and scope of facilities/services currently in place. The assessments of planned pedestrian, bicycle, and transit facilities were conducted using information in planning documents, such as the *Bike Plan Hawai'i Master Plan (2012)*, *Statewide Pedestrian Master Plan (2013),* and *County of Hawai'i Transit and Multi-Modal Transportation Master Plan (2018)*. For these modes, if the proposed project is expected to conflict with existing or planned improvements to pedestrian and bicycle facilities, or if the project is expected to generate a substantial demand which could warrant additional transit service, then the project would be determined to have a project-specific impact to non-motorized modes of transportation.

# 3.0 EXISTING CONDITIONS

This chapter describes the existing transportation network and includes a discussion of pedestrian, bicycle, and transit facilities located within the project study area. This chapter also includes a discussion of the existing intersection LOS operation results.

## 3.1 EXISTING SITE

The University of the Nations campus is located at 75-5952 Kuakini Highway in the community of Kona in Hawai'i County. The project site is on tax map key parcels TMK (4) 7-5-010: 085 and (4) 7-5-017: 006, between Kuakini Highway and Hualalai Road. The existing campus includes the following mix of uses:

- Residential land use (e.g., student and faculty housing)
- Religious land use (i.e., chapel)
- Educational land use (e.g., classrooms, campus services)
- Recreational land use (e.g., sports complex, swimming pool)
- Commercial land use (e.g., coffee shop, convenience store)

## 3.2 EXISTING TRANSPORTATION FACILITIES

A comprehensive data collection effort was undertaken to identify existing transportation conditions in the vicinity of the proposed project. The assessment of existing conditions relevant to this study includes an inventory of the street system, traffic volumes on these facilities, and operating conditions at key intersections. Existing public transit, bicycle, and pedestrian facilities are also described.

### 3.2.1 EXISTING ROADWAY SYSTEM

The key roadways providing access to or in the vicinity of the study area are described below.

*The University of the Nations Driveway* provides direct access from Kuakini Highway to the University of the Nations campus and serves as the primary internal campus roadway providing access to existing campus facilities. The roadway terminates just west of the Aloha Lanai Cafeteria. The unnamed road has speed bumps and is currently two lanes. The posted speed limit is 15 miles per hour (mph).

*Kuakini Highway* is the primary street that provides access to the project site. Adjacent to the project site, it is a two-lane collector roadway that extends generally from the north end of the town of Kailua-Kona to

Queen Kaahumanu Highway. The posted speed limit is 35 mph. Kuakini Highway is under the jurisdiction of the County of Hawai'i Department of Public Works (DPW). Sidewalks are not provided on either side of Kuakini Highway. No bicycle facilities exist along Kuakini Highway within the study area. Crosswalks are provided at the intersection of Kuakini Highway and Hualalai Road.

*Hualalai Road* is a two-lane local roadway that is under the jurisdiction of DPW. It runs east-west between Ali'i Drive and Queen Kaahumanu Hwy. The posted speed limit is 25 mph. Sidewalks are provided on both sides of the roadway makai of Kuakini Highway, on the north side of the roadway between Kuakini Highway and the Regency at Hualalai, and on the south side of the roadway just makai of Queen Kaahumanu Hwy. No bicycle facilities exist along Hualalai Road within the study area. On-street parking is not provided.

*Queen Kaahumanu Highway* is a two-lane highway that is under the jurisdiction of the State of Hawai'i Department of Transportation (HDOT). It is a major component of the Hawai'i Belt Road and runs from Hwy 19 in Kailua-Kona to Hwy 19 in Hilo. The posted speed limit within the study area is 45 mph. Neither sidewalks nor bicycle facilities are provided along the roadway. On-street parking is not provided.

*Nani Kailua Drive* is a two-lane local roadway that is under the jurisdiction of DPW. It runs east-west and extends from Hualalai Road to just mauka of Pikake Place. The posted speed limit is 25 mph. Neither sidewalks nor bicycle facilities are provided along the roadway. On-street parking is provided on both sides of the roadway.

### 3.2.2 EXISTING TRANSIT FACILITIES AND SERVICES

The County of Hawai'i Mass Transit Agency provides island-wide commuter and fixed-route service on the Island of Hawai'i, where it served over 800,000 riders in the fiscal year of 2016-2017.[1] Hele-On offers fixed-route transit service in the Hilo and Kona areas Monday through Saturday, and limited commuter services to the South Kohala Resort (SKR) areas seven days a week. Within the project study area, the Pahala-Kailua-Kona-South Kohala Resorts Route provides daily service along Queen Kaahumanu Highway with transit stops both north and south of the project site[2]. Detailed route schedule information, such as operating hours and frequencies, was not available at the time this was written.

### 3.2.3 EXISTING BICYCLE ACTIVITY

The study area has a low level of bicycle activity. Based on the peak period traffic counts, a range of 0-16 bicyclists were observed at each intersection during the AM peak hour and a range of 0-6 bicyclists were

[1] County of Hawai'i Mass Transit Agency Transit Agency Profile. National Transit Database, 2017. Accessed online at https://www.transit.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2017/9R03-91080.pdf
[2] County of Hawai'i Mass Transit Agency. Accessed online at https://www.hawaiicounty.gov/departments/mass-transit.

observed at each intersection during the PM peak hour. In general, most bicyclists were traveling mauka-bound along Hualalai Road.

At the intersection of Kuakini Highway and the University of the Nations Driveway, the highest level of morning bicycle activity occurred from 7:15 to 8:15 AM, with a total of two (2) bicyclists traveling through the intersection. In the evening, the highest level of bicycle activity occurred from 4:15 to 5:15 PM with a total of two (2) bicyclists traveling through the intersection.

### 3.2.4 EXISTING PEDESTRIAN ACTIVITY

The study area generally has a low level of pedestrian activity, except for the intersection of Kuakini Highway and Hualalai Road, where pedestrian activity is high. During the AM peak hour, 46 pedestrians were observed at the intersection of Kuakini Highway and Hualalai Road, and between zero (0) and three (3) pedestrians were observed at the other study intersections. During the PM peak hour, 32 pedestrians were observed at the intersection of Kuakini Highway and Hualalai Road, and between zero (0) and 11 pedestrians were observed at the other study intersections.

At the intersection of Kuakini Highway and the University of the Nations Driveway, the highest levels of pedestrian activity occurred in the morning from 7:15 to 8:15 AM with one (1) pedestrian, and in the evening from 4:15 to 5:15 PM with a total of 11 pedestrians. At the intersection of Kuakini Highway and Hualalai Road: 28 AM and six (6) PM peak hour pedestrian trips crossed the north leg of the intersection, five (5) AM and three (3) PM pedestrian trips crossed the south leg of the intersection, five (5) AM and 22 PM pedestrian trips crossed the mauka leg of the intersection, and a total of eight (8) AM trips and one (1) PM pedestrian trip crossed the makai leg of the intersection.

## 3.3 EXISTING TRAFFIC VOLUMES/LANE CONFIGURATIONS

Operations of the seven (7) existing study intersections were evaluated for the weekday AM and PM peak hours. Traffic counts were collected during the weekday AM and PM peak periods in October 2019 while university classes were in session. The weekday peak hours of traffic for the study area generally occurred between the hours of 7:15 to 8:15 AM and 4:15 to 5:15 PM.

Existing lane configurations and signal controls were obtained through field observations. **Figure** 3-1 presents the existing peak-hour turning movement volumes, corresponding lane configurations, and traffic control devices. Raw traffic count data sheets are provided in **Appendix A**.

## 3.4 FIELD OBSERVATIONS

As noted, a site visit was conducted by the project team in October 2019. During this visit, the project team observed vehicular traffic conditions (e.g. intersection operations, queuing, and travel speeds) to better understand how the development of Phase 1 of the project could affect future traffic operations. During this visit, the following key observations were made:

- Kuakini Highway/Hualalai Road: Vehicular congestion along Kuakini Highway limits the number of vehicles that can pass through this intersection during the peak hour than would in free-flow conditions. As fewer vehicles pass through the intersection, intersection delay is lower, and LOS is more desirable, than existing field observations indicate.
- Queen Kaahumanu Highway & Nani Kailua: Vehicular congestion along Queen Kaahumanu Highway limits the number of vehicles that can pass through this intersection during the peak hour than would in free-flow conditions. As fewer vehicles pass through the intersection, intersection delay is lower, and LOS is more desirable, than existing field observations indicate.
- Queen Kaahumanu Highway & Lako Street: though not located within the study area, delays at this intersection cause substantive amounts of queuing in the southbound direction along Queen Kaahumanu Highway. This queuing spills back into the intersection of Queen Kaahumanu Highway & Kuakini Highway and can disrupt intersection operations.

## 3.5 EXISTING INTERSECTION LEVELS OF SERVICE

Peak hour intersection capacity analysis was performed for the study intersections using the methodology described in Section 2.4 and the recently collected peak hour traffic count data. **Table 3-1** summarizes the results of the intersection operations analysis for Existing Conditions. Detailed LOS worksheets are provided in **Appendix B**.

**Table 3-1. Existing Peak Hour Intersection Level of Service**

| Intersection | Traffic Control | Peak Hour | Existing Conditions | |
|---|---|---|---|---|
| | | | (sec/veh)[1,3] | LOS[2,3] |
| 1. Kuakini Hwy & Hualalai Rd | Signalized | AM | 17.4 | B |
| | | PM | 19.2 | B |
| 2. Kuakini Hwy & University of the Nations Kona Driveway | SSSC | AM | **38.7** | **E** |
| | | PM | 33.0 | D |
| 3. Hualalai Rd & Nani Kailua Rd | SSSC | AM | 10.6 | B |
| | | PM | 10.5 | B |
| 4. Queen Kaahumanu Hwy & Nani Kailua Dr[4] | Signalized | AM | 11.1 | B |
| | | PM | 11.9 | B |
| 5. Hualalai Village Driveway & Hualalai Rd | SSSC | AM | 11.3 | B |
| | | PM | 10.4 | B |
| 6. Queen Kaahumanu Hwy & Hualalai Rd[4] | SSSC | AM | 32.9 | D |
| | | PM | 23.5 | C |
| 7. Queen Kaahumanu Hwy & Kuakini Hwy | SSSC | AM | **38.4** | **E** |
| | | PM | 28.7 | D |

Source: Fehr & Peers, 2020

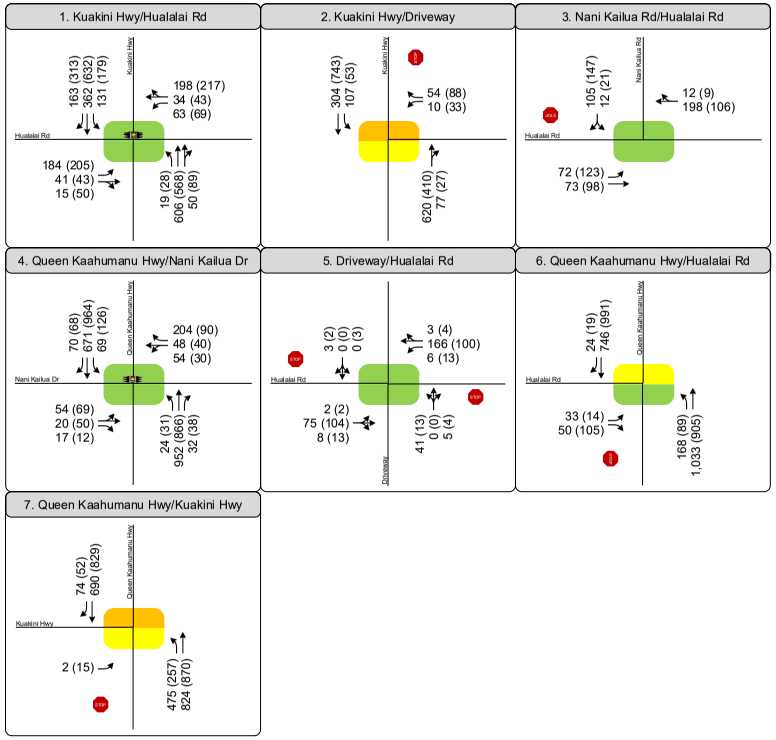
Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections. The vehicular delay for the worst movement is reported for the side-street stop-controlled (SSSC) intersection, and traffic along the main roadways typically moves more efficiently.
[2] LOS calculations performed using the Highway Capacity Manual (HCM) method.
[3] Unacceptable seconds of delay per vehicle and LOS highlighted in **bold**.
[4] Congestion along Queen Kaahumanu Highway limits the number of vehicles that can pass through this intersection. Actual intersection operations operate worse than indicated.

As shown in **Table 3-1,** the following intersections operate at less-than-desirable LOS:

- Kuakini Highway and University of the Nations Kona Driveway: LOS E (AM Peak)
- Queen Kaahumanu Highway and Kuakini Highway: LOS E (AM Peak)

Intersection results are generally consistent with field observations, except for the intersections of Kuakini Highway/Hualalai Road and Nani Kailua/Queen Kaahumanu Highway. These intersections operate worse than what is shown above, primarily because congestion along Kuakini Highway and Queen Kaahumanu Highway limits the number of vehicles that are able to pass through the intersection during the peak hour than would pass in free-flow conditions.


**LEGEND**

AM (PM) Peak Hour Traffic Volumes

Lane Configuration

Level of Service (LOS)


Figure 3-1
Peak Hour Traffic Volumes and Lane Configurations
Existing (2019) Conditions

# 4.0 PHASE 1 (2030) NO PROJECT CONDITIONS

To evaluate the potential impacts of traffic generated by the proposed project on the surrounding street system, it was necessary to first develop estimates of future traffic conditions in the area without the project. Future traffic conditions without the project reflect traffic increases due to regional growth and development. This scenario is referred to as Phase 1 or "no project" conditions. The forecasted future traffic volumes were then used as a Phase 1 to identify impacts on the roadway system from the project.

## 4.1 PHASE 1 (2030) NO PROJECT TRAFFIC ESTIMATES

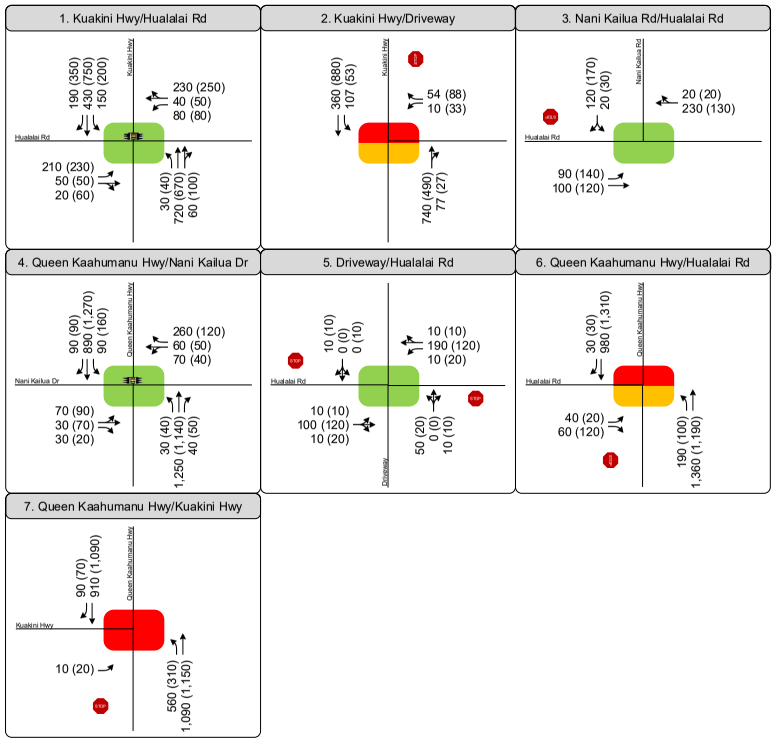
The following section summarizes growth assumptions used to estimate the amount of traffic that would be added to existing intersection volumes to develop Phase 1 (2030) No Project volume estimates.

### 4.1.1 AREAWIDE OR AMBIENT TRAFFIC GROWTH

A growth factor was applied to existing traffic volumes to account for future study area growth. This factor was derived using the travel demand forecasting model (TDFM), that was developed for the *Federal-Aid Highways 2035 Transportation Plan for the District of Hawaii (July 2014)* published by HDOT. The TDFM uses land use and socioeconomic data to assign traffic across the planned roadway network for the base and horizon years. Future year (2035) model volumes were compared to base year (2007) model volumes to develop growth factors along study area roadways. A comparison of these daily roadway volumes demonstrated that traffic near the project site would increase annually by 2.5% along Queen Kaahumanu Highway, 1.5% along Kuakini Highway, 2% along Nani Kailua Drive, and 1% along Hualalai Road. Growth rates were compounded over the future-year timeframe (2019 to 2030) and applied to each of the existing intersection turning movement traffic volumes collected in October 2019. Resulting volumes were then rounded to the nearest ten (10) vehicles.

### 4.1.2 FUTURE TRANSPORTATION IMPROVEMENTS

The project team coordinated with HDOT and the Hawai'i County Department of Public Works (DPW) to identify any transportation improvements within the study area that could affect vehicular traffic operations. Hawai'i County DPW noted that Kuakini Highway is planned to be widened within the study area, but that this improvement likely would not occur until after 2030. No other improvements are planned in the study area by 2030. Therefore, intersection lane configurations and traffic control devices are expected to remain the same in Phase 1 as under Existing Conditions. **Figure** 4-1 illustrates the forecasted peak hour traffic volumes for the Phase 1 (2030) No Project Conditions.


**LEGEND**


Figure 4-1
Peak Hour Traffic Volumes and Lane Configurations
Phase 1 (2030) No Project Conditions

## 4.2 PHASE 1 (2030) NO PROJECT LEVELS OF SERVICE

Peak hour intersection capacity analysis was performed for the study intersections using the volumes generated by the methodology described in Section 4.1. **Table** 4-1 summarizes the results of the intersection operations analysis for Existing Conditions. Detailed LOS worksheets are provided in **Appendix B**.

**Table 4-1. Phase 1 (2030) No Project Peak Hour Intersection Level of Service**

| Intersection | Traffic Control | Peak Hour | Phase 1 Conditions | |
|---|---|---|---|---|
| | | | (sec/veh)[1,3] | LOS[2,3] |
| 1. Kuakini Hwy & Hualalai Rd | Signalized | AM | 20.8 | C |
| | | PM | 26.4 | C |
| 2. Kuakini Hwy & University of the Nations Kona Driveway | SSSC | AM | **54.4** | **F** |
| | | PM | **47.4** | **E** |
| 3. Hualalai Rd & Nani Kailua Rd | SSSC | AM | 11.5 | B |
| | | PM | 11.6 | B |
| 4. Queen Kaahumanu Hwy & Nani Kailua Dr[4] | Signalized | AM | 23.6 | C |
| | | PM | 27.1 | C |
| 5. Hualalai Village Driveway & Hualalai Rd | SSSC | AM | 12.6 | B |
| | | PM | 11.1 | B |
| 6. Queen Kaahumanu Hwy & Hualalai Rd[4] | SSSC | AM | **64.7** | **F** |
| | | PM | **36.4** | **E** |
| 7. Queen Kaahumanu Hwy & Kuakini Hwy | SSSC | AM | **90.6** | **F** |
| | | PM | **51.1** | **F** |

Source: Fehr & Peers, 2020

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections. The vehicular delay for the worst movement is reported for the side-street stop-controlled (SSSC) intersection, and traffic along the main roadways typically moves more efficiently.

[2] LOS calculations performed using the Highway Capacity Manual (HCM) method.

[3] Unacceptable seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Congestion along Queen Kaahumanu Highway limits the number of vehicles that can pass through this intersection. Actual intersection operations operate worse than indicated.

As shown in **Table** 4-1**,** the following intersections operate at less-than-desirable LOS:

- Kuakini Highway and University of the Nations Driveway: LOS F in the AM and LOS E in the PM Peak
- Queen Kaahumanu Highway and Hualalai Road : LOS F in the AM and LOS E in the PM Peak
- Queen Kaahumanu Highway and Kuakini Highway: LOS F (AM and PM Peak)

It is important to note that the intersections of Kuakini Highway/Hualalai Road and Nani Kailua/Queen Kaahumanu Highway would likely operate worse than what is shown above, primarily because congestion along Kuakini Highway and Queen Kaahumanu Highway limits the number of vehicles that are able to pass through the intersection during the peak hour than would pass in free-flow conditions.

# 5.0 PROJECT TRAFFIC ESTIMATES

This section describes the anticipated number of vehicle trips and directionality of those trips that would result from implementation of Phase 1 of the Campus Master Plan. Future traffic added to the roadway system by the project is estimated using a three-step process: (1) project trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of project-generated traffic that would be added to the roadway network. The second step estimates the direction of travel to and from the project site. The third step assigns trips generated by the project to specific street segments and intersection turning movements. This process is described in more detail in the following sections.

## 5.1 PROJECT TRIP GENERATION ESTIMATES

Since the existing campus is self-contained, and existing access is limited to one location, it can be assumed that any growth in student and/or faculty/staff levels would directly result in an increase in trips to and from the university campus, and that any trips going in or coming from the University of the Nations Driveway are those generated by the university itself.

To estimate Phase 1 traffic generated by the university, a growth factor was first developed by comparing the total number of students, faculty, and staff projected to be living off campus (487) in Phase 1 to the number of existing students, faculty, and staff living off-campus (870). This growth factor (1.8) was then applied to existing count data taken at the project driveway along Kuakini Highway to derive future peak hour campus-generated vehicle trips. Total peak hour trips were then split into inbound and outbound trips. For this step, the ratio of inbound and outbound trips is assumed to be the same as under existing conditions.

**Table** 5-1 and **Table 5-2** summarize the forecasted trip generation for the proposed project. As shown, Phase 1 of the Campus Master Plan is estimated to generate up to 215 new AM peak hour trips (154 inbound/62 outbound) and up to 161 PM peak hour trips (64 inbound/97 outbound). These represent vehicle trips that are estimated to be added to the surrounding network with the implementation of Phase 1 as proposed.

**Table 5-1. Project Future Growth Factor Estimates**

| | Existing | | | Phase 1 | | |
|---|---|---|---|---|---|---|
| | Total | On campus | Off Campus | Total | On campus | Off Campus |
| Students | 840 | 90% | 10% | 1,500 | 90% | 10% |
| Staff | 504 | 20% | 80% | 900 | 20% | 80% |
| Total | 1,344 | 857 | 487 | 2,400 | 1,530 | 870 |
| Future Growth Factor (Phase 1/Existing) | | | | | | ***1.8*** |

Source: Fehr & Peers, 2020

**Table 5-2. Project Trip Generation Estimates**

| | AM | | | PM | | |
|---|---|---|---|---|---|---|
| | Total | In[1] | Out[1] | Total | In[1] | Out[1] |
| Existing Campus Driveway Trips | 269 | 192 | 77 | 201 | 80 | 121 |
| Future Growth Factor | 1.8 | | | 1.8 | | |
| Total Future (2030) Campus Trips | 484 | 346 | 139 | 362 | 144 | 218 |
| Net New Project Trips | ***215*** | ***154*** | ***62*** | ***161*** | ***64*** | ***97*** |

Source: Fehr & Peers, 2020

[1] To calculate project In and Out trips, the existing distribution percentages were used.

## 5.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The geographic distribution of project trips is primarily dependent on the roadway circulation network and the location of residential, commercial, and other land uses that would either produce trips destined for campus (e.g. faculty/staff housing) or attract trips from campus (e.g. commercial shopping centers).

Project trip distribution was developed using existing travel patterns and anticipated growth areas and assumed no substantive changes to the surrounding roadway circulation network.

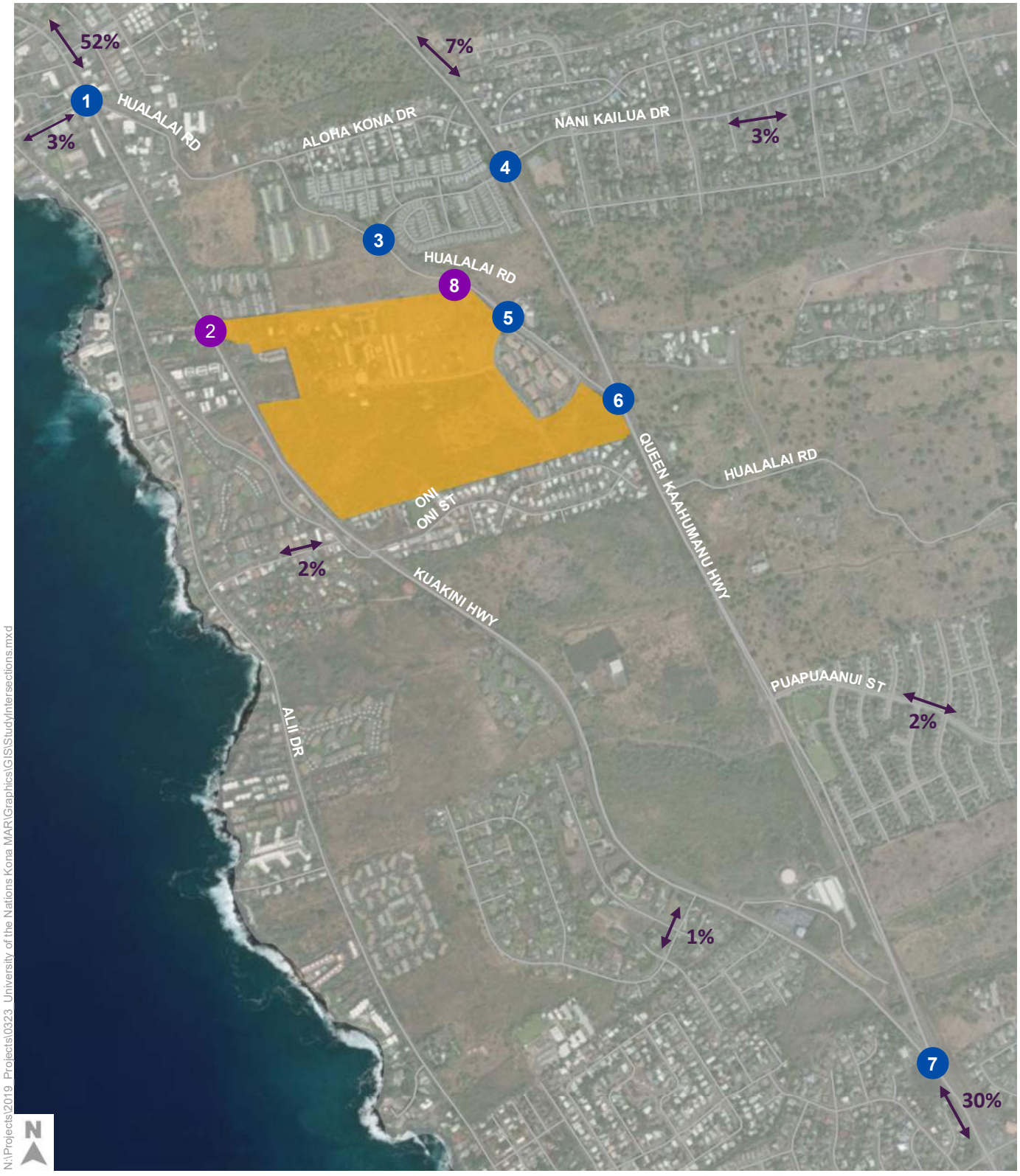
The resulting overall trip distribution pattern estimates for project-generated traffic are as follows:

- 65% north of the project site:
  - 59% to/from Kuakini Highway
  - 3% to/from Nani Kailua Drive
  - 3% to/from Hualalai Road
- 35% south of the project site:
  - 30% to/from Queen Kaahumanu Highway
  - 2% to/from Walua Road
  - 1% to/from Nakukui Drive
  - 2% to/from Puapuaanui Street

**Figure** 5-1 illustrates the project trip distribution pattern in the study area.

Using the estimated trip generation and trip distribution approach discussed above, the traffic forecast to be generated by the proposed project was assigned to the turning movements at each of the study intersections. **Figure** 5-2 illustrates the assignment of new project-generated trips for each turning movement at the study intersections.

As noted in Section 2.1, a second access point is planned on the mauka side of campus along Hualalai Village Road. Once this connection is completed, campus students, faculty/staff, and visitors will be able to access campus via the intersection of Hualalai Road and Hualalai Village Road. The provision of a second access point will shift some inbound and outbound traffic to the mauka side of campus. This change in travel patterns was accounted for in the project trip assignment.

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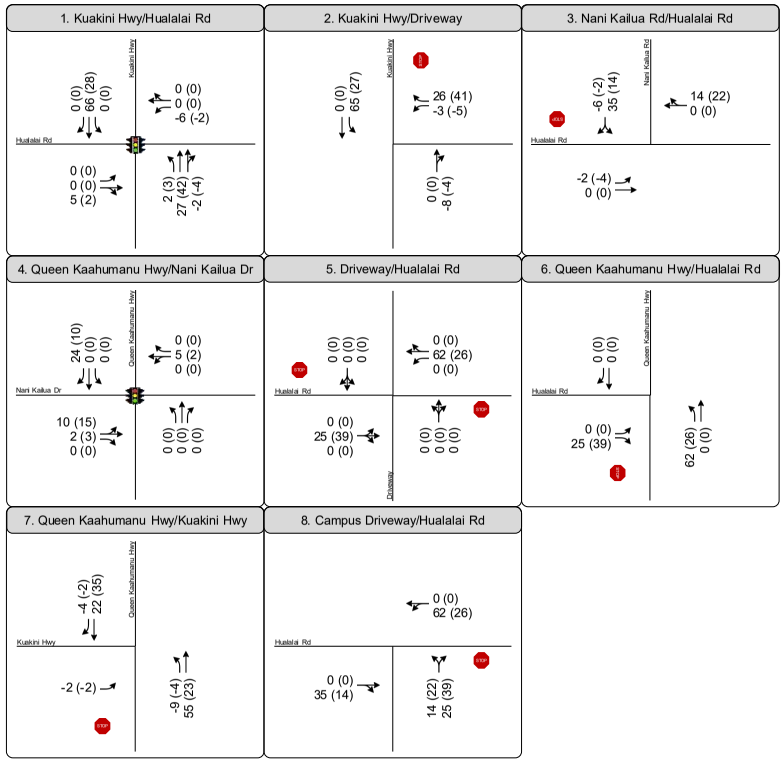
## Legend

X Project Access Points

XX% Project Trip Distribution Percentage

Figure 5-1

Phase 1 Project Trip Distribution


**LEGEND**

AM (PM) Peak Hour Traffic Volumes

Lane Configuration

Figure 5-2

Net Project Trip Assignment

# 6.0 PHASE 1 (2030) PLUS PROJECT CONDITIONS

This section describes the analysis of potential impacts on the roadway system due to projected future increases in traffic, including traffic generated by Phase 1 of the project in 2030. The Phase 1 (2030) Plus Project roadway network is the same network assumed under the Phase 1 No Project scenario. The analysis compares the project levels of service (LOS) at each study intersection with and without the addition of project-generated trips from Phase 1 to determine potential impacts to the transportation network.

## 6.1 PHASE 1 (2030) PLUS PROJECT INTERSECTION LEVEL OF SERVICE

To forecast the peak hour operating conditions at each study intersection, project trip volumes were added to Phase 1 (2030) No Project traffic volumes to derive Phase 1 (2030) Plus Project volumes.

**Figure** 6-1 presents the forecasted Phase 1 (2030) Plus Project AM and PM peak hour volumes. The peak hour volumes were used to analyze operations using the LOS methodology described in Section 2.4.

The comparative LOS analysis results for the study intersections under Phase 1 (2030) Without and With Project conditions are presented in **Table** 6-1. Detailed LOS results for intersection movements and corresponding LOS calculation sheets are included in **Appendix B**.

**Table 6-1. Phase 1 (2030) With and Without Project Peak Hour Intersection Level of Service**

| Intersection | Traffic Control | Peak Hour | Phase 1 Conditions | | Phase 1 + Project Conditions | | Change in Delay[4] |
|---|---|---|---|---|---|---|---|
| | | | (sec/veh)[1,3] | LOS[2,3] | (sec/veh)[1,3] | LOS[2,3] | |
| 1. Kuakini Hwy & Hualalai Rd | Signalized | AM | 20.8 | C | 21.1 | C | 0.3 |
| | | PM | 26.4 | C | 26.7 | C | 0.3 |
| 2. Kuakini Hwy & University of the Nations Kona Driveway | SSSC | AM | **54.4** | **F** | **77.6** | **F** | **23.2** |
| | | PM | **47.4** | **E** | **51.2** | **F** | 3.8 |
| 3. Hualalai Rd & Nani Kailua Rd | SSSC | AM | 11.5 | B | 13.2 | B | 1.7 |
| | | PM | 11.6 | B | 12.4 | B | 0.8 |
| 4. Queen Kaahumanu Hwy & Nani Kailua Dr[5] | Signalized | AM | 23.6 | C | 24.5 | C | 0.9 |
| | | PM | 27.1 | C | 30.3 | C | 3.2 |
| 5. Hualalai Village Driveway & Hualalai Rd | SSSC | AM | 12.6 | B | 14.2 | B | 1.6 |
| | | PM | 11.1 | B | 11.8 | B | 0.7 |
| 6. Queen Kaahumanu Hwy & Hualalai Rd[5] | SSSC | AM | **64.7** | **F** | **84.3** | **F** | **19.6** |
| | | PM | **36.4** | **E** | **39.1** | **E** | 2.7 |
| 7. Queen Kaahumanu Hwy & Kuakini Hwy | SSSC | AM | **90.6** | **F** | **90.7** | **F** | 0.1 |
| | | PM | **51.1** | **F** | **52.4** | **F** | 1.3 |
| 8. Campus Driveway & Hualalai Rd | SSSC | AM | **-** | - | 10.7 | B | - |
| | | PM | **-** | - | 10.3 | B | - |

Source: Fehr & Peers, 2020

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections. The vehicular delay for the worst movement is reported for the side-street stop-controlled (SSSC) intersection, and traffic along the main roadways typically moves more efficiently.

[2] LOS calculations performed using the Highway Capacity Manual (HCM) method.

[3] Unacceptable seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Delay increases of more than five seconds are colored in **red**.

[5] Congestion along Queen Kaahumanu Highway limits the number of vehicles that can pass through this intersection. Actual intersection operations operate worse than indicated.

The results presented in **Table** 6-1 indicate that under Phase 1 (2030) Plus Project conditions, all study intersections are anticipated to continue to operate at LOS D or better during the AM and PM peak hours with the addition of project-generated traffic except for the following unsignalized intersections:

- Kuakini Highway and University of the Nations Kona Driveway (LOS F, AM and PM peaks)
- Queen Kaahumanu Highway and Hualalai Road (LOS F, AM peak; LOS E, PM peak)
- Queen Kaahumanu Highway and Kuakini Highway (LOS F, AM and PM peaks)

The intersections of Kuakini Highway and University of the Nations Kona Driveway (AM and PM peaks) and Queen Kaahumanu Highway and Hualalai Road (AM peak) operate at undesirable LOS, and the addition of project traffic would cause operations at each location to degrade further. However, as noted in Section 2.4.3, one or more signal warrants must also be met at unsignalized intersections for a direct impact to occur. An overview of signal warrant analysis is included in Section 6.2.

It is important to note that the intersections of Kuakini Highway/Hualalai Road and Nani Kailua/Queen Kaahumanu Highway would likely operate worse than what is shown above, primarily because congestion along Kuakini Highway and Queen Kaahumanu Highway limits the number of vehicles that are able to pass through the intersection during the peak hour than would pass in free-flow conditions.

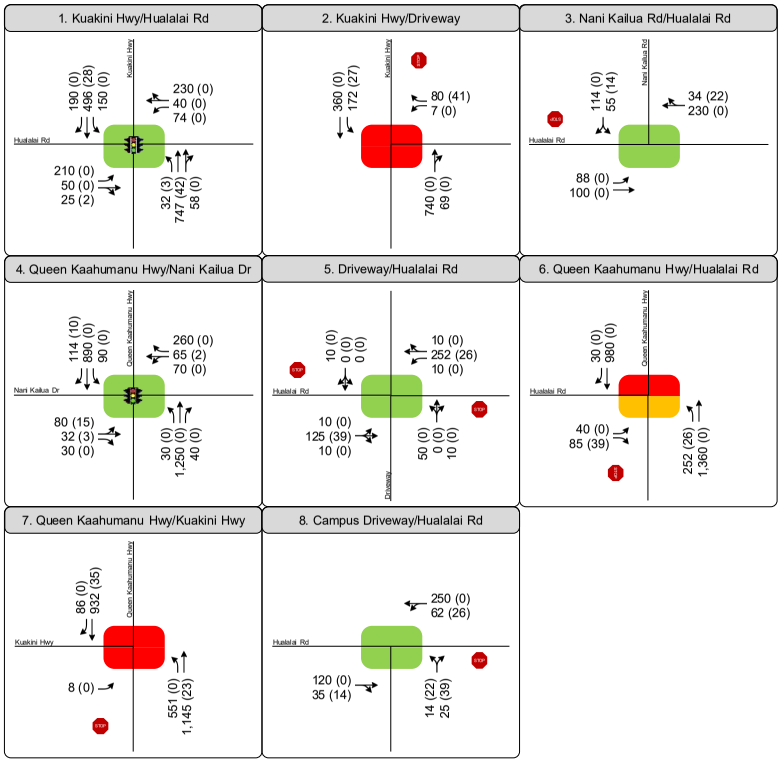




Figure 6-1
Traffic Volumes, Lane Configurations, and Level of Service Phase 1 (2030) Plus Project Conditions

## 6.2 SIGNAL WARRANT ANALYSIS

As noted in Section 2.4.3, a significant impact would occur at unsignalized intersections if operations change from LOS D or better to LOS E or F, and one or more signal warrants are met.

As noted in Section 6.1, the intersections of Kuakini Highway and the University of the Nations Kona Driveway, Queen Kaahumanu Highway and Hualalai Road, and Queen Kaahumanu Highway and Kuakini Highway intersections operate at an unacceptable LOS (LOS E or F) during both peak hours under Phase 1 Plus Project conditions. To determine whether significant impacts would occur at any of these intersections, four-hour and eight-hour signal warrant analyses were performed. The Queen Kaahumanu Highway and Hualalai Road and Queen Kaahumanu Highway and Kuakini Highway intersections did not meet any of the signal warrants in this scenario. However, the Kuakini Highway and University of the Nations Kona Driveway meets both signal warrants in the Phase 1 Plus Project Scenario. Signal warrant worksheets are included in **Appendix C and Appendix D**.

## 6.3 POTENTIAL INTERSECTION IMPACTS

Based upon the impact significance criteria and the results of the operations analysis presented, development of Phase 1 of the proposed project is forecast to result in a significant traffic impact at the intersection of Kuakini Highway and the University of the Nations Kona Driveway. However, the impact at this intersection can be mitigated by adding a refuge lane along Kuakini Highway to receive westbound left-turn movements from the University of Nations Kona Driveway. The addition of a refuge lane can could likely be accomplished within the existing highway right-of way with re-striping minor pavement modifications, though additional design analysis is needed to determine construction needs for this improvement. With a refuge lane, intersection operations would improve to LOS C in both AM and PM peak hours.

## 6.4 SPECIAL EVENTS

As noted in Section 2.1, the University of the Nations Kona plans to host four or five higher-attendance community and athletic events throughout the course of the year. Each event would last between one and two weeks. Community events could host up to 3,000 attendees each, whereas athletic events could host up to 500 attendees each. Events of this size and duration would be expected to generate substantial amounts of vehicular traffic traveling to and from the campus if demand was not managed.

It is recommended that the University of the Nations Kona develop a transportation management plan (TMP) – which should include a transportation demand management (TDM) program – to reduce potential temporary impacts to study area intersections during events. Potential TDM strategies include the use of event shuttles/buses, dynamic event parking pricing, remote parking, and incentives to encourage attendees to carpool to and/or from events. In addition to TDM, it is also expected that manual traffic control and focused enforcement will be needed to effectively manage special event traffic and minimize adjacent neighborhood intrusion.

# 7.0 FUTURE PHASE 2 AND PHASE 3 ASSESSMENT

## 7.1 Phase 2 "Hot Spot" Assessment

This section provides a high-level overview of intersections where campus development will be close to triggering impacts under Phase 1 of the campus buildout, and identifies locations at which it is reasonable to expect additional project impacts that are likely to occur in Phase 2 (i.e. by 2040). These impacts would be caused by some combination of traffic from anticipated on-campus development and ambient traffic growth.

As noted in Section 6.0, the project is not expected to result in a significant impact at the unsignalized intersections of Queen Kaahumanu Highway/Hualalai Rd and Queen Kaahumanu Highway/Kuakini Highway under Phase 1 conditions. Though the project causes operations for controlled movements at these intersections to change from LOS D or better to LOS E or F, no volume signal warrants are expected to be met. During Phase 2 campus development, two scenarios are possible that would trigger a significant impact at either intersection, including the following:

- **Ambient and Project Traffic Growth**: Ambient growth throughout the study area could result in a signal warrant being met, even without the addition of project traffic from Phase 2. In this scenario, if Phase 2 project traffic causes operations change from LOS D or better to LOS E or F, a significant impact would occur.
- **Project Traffic Growth Only:** If Phase 2 project traffic triggers a signal warrant and causes operations change from LOS D or better to LOS E or F, a significant impact would occur.

The hot spot assessment determined that the intersections below could either have project-related impacts during Phase 2 or may require additional attention for reasons noted.

**Queen Kaahumanu Highway/Hualalai Rd and Queen Kaahumanu Highway/Kuakini Highway**

Based on a limited amount of traffic expected to use the eastbound left turns at the intersections of Queen Kaahumanu Highway/Hualalai Rd and Queen Kaahumanu Highway/Kuakini Highway, signal warrants are not anticipated to be met. However, HDOT may express concern that Phase 2 campus development will add traffic to the northbound left-turn movements at both intersections, which would contribute to increased delays for the left-turn movement on the minor street approach, therefore exacerbating the need for a traffic signal to enhance traffic operations and safety.

**Kuakini Highway and the University of the Nations Kona Driveway**

The intersection of Kuakini Highway and the University of the Nations Kona Driveway is expected to operate at LOS C under Phase 1 conditions with the addition of a southbound refuge lane along Kuakini Highway for westbound vehicles that will turn left out of the campus driveway. As part of the hot spot assessment, the project team tested the sensitivity of this intersection to degrading to a less-than-desirable LOS with the addition of Phase 2 project trips. To do so, projected Phase 2 project trips were estimated using the trip generation methodology described in Section 5.1 and informed by campus student, faculty, and staff projections provided by UOFN Kona. Projected Phase 2 project trips were added to the Phase 1 No Project volumes and evaluated using Synchro software. The refuge lane mentioned in Section 6.3 was assumed to be in place, as this would represent mitigated intersection lane configurations under Phase 1.

The sensitivity test found that the intersection would operate at LOS E in the AM peak and LOS C in the PM peak. Further, it was determined that the intersection would also meet both 4-hour and 8-hour signal warrants with the addition of Phase 2 project trips. As such, it is likely that a signal would be required with Phase 2 of the project to enhance intersection operations, site access, and safety.

The UOFN site plan includes an additional access point along Kuakini Highway, south of the University of the National Kona Driveway, which is anticipated to be added during Phase 2. The addition of a second access point along Kuakini Highway would likely relieve some of the congestion at the existing University of the Nations Kona Driveway, although the refuge lane at the existing campus driveway would likely still be required. The County of Hawaii has planned the widening of Kuakini Highway fronting the project site which may impact the type of improvements required at the second access point. If the roadway widening does occur by 2040, the UOFN Kona could be required to contribute funding for select improvements within the widened corridor or if it is determined future on-campus growth would significantly impact intersections along the highway.

**Queen Kaahumanu Highway and Nani Kailua Drive**

The intersection of Queen Kaahumanu Highway and Nani Kailua Drive is projected to operate at acceptable levels of service under Phase 1 conditions, however it is recognized that the intersection is operating at a worse level than the initial calculated LOS is shown in Section 6.1. This is primarily because of congestion along Queen Kaahumanu Highway that limits the number of vehicles that are able to pass through the intersection during the peak hour. Intersection conditions would likely continue to degrade with the addition of ambient and project-related traffic in Phase 2. If it is determined that Phase 2 of the project would create a significant impact, the project may be required to make a fair-share contribution to funding for anticipated roadway improvements (e.g. widening of Queen Kaahumanu Highway at the intersection including lane and/or signal modifications.

**Kuakini Highway Widening**

Kuakini Highway could be widened by 2040. The widening of Kuakini Highway would affect the types of improvements which would be required for the secondary access planned for Phase 2. If the roadway widening does occur by 2040, the UOFN Kona could be required to contribute funding for select improvements within the widened corridor or if it is determined future on-campus growth would significantly impact intersections along the highway.

All of the other study intersections are forecast to operate at LOS C or better at the completion of Phase 1, and additional capacity is available to absorb some additional traffic from ambient growth and Phase 2 development expected under the campus master plan. Due to the planned widening of Kuakini Highway, a more detailed analysis may need to be conducted prior to the construction of the Phase 2 access to determine any potential impacts at the study intersections.

## 7.2 PHASE 3 DEVELOPMENT BEYOND 2040

Beyond 2040, the potential operational issues noted above would continue to persist and operations would likely degrade further without the additional improvements discussed for Phase 1 and Phase 2. Additionally, with the planned regional improvements such as the widening of Queen Kaahumanu Highway and Kuakini Highway, the UOFN Kona could be required to contribute funding or select improvements within the widened corridor if it is determined future on-campus growth would significantly impact intersections along the highway.

# 8.0 VEHICLE ACCESS, CIRCULATION, AND PARKING

This chapter includes a review of the proposed site plan to evaluate site access and on-site circulation. The site plan was reviewed to determine if adequate vehicle circulation would be provided so that turning vehicles to and from site driveways would not substantially impact operations on adjacent roadways (including the impact of any gated entry points). Additional recommendations are also provided, where applicable. All recommended improvements shall be designed in conformance with policies and principles established and maintained by the County of Hawaii Public Works Department Traffic Division.

## 8.1 VEHICULAR SITE ACCESS

Direct access to the project site is provided by a driveway located on Kuakini Highway and is controlled by an access gate located approximately 125 feet east of Kuakini Highway. During peak travel periods, or during special events, campus-bound traffic could potentially queue up while waiting to pass through the access gate and spill back onto Kuakini Highway. To reduce the potential for spillback onto Kuakini Highway, it is recommended that the access gate be relocated to a point further east.

As noted previously, the addition of a refuge lane on the south leg of the Kuakini Highway/University of the Nations Kona Driveway intersection will improve egress from campus by providing westbound left turns more space to merge onto Kuakini Highway.

Under Phase 1 conditions, a second access point will be provided off of Hualalai Road via a new unsignalized intersection and driveway leading to the project site. This will provide access to campus from areas mauka to the project site. Due to the relatively low volume of vehicles on this roadway and limited land uses served by it, no vehicular site access issues are expected as a result of implementing Phase 1 development.

## 8.2 ON-SITE VEHICLE CIRCULATION

Under Phase 1, the proposed site plan includes the extension of two on-site internal campus roadways. First, the on-site, east-west roadway located along the northern site boundary is planned to be extended within the site from its existing eastern terminus to a new driveway on Hualalai Road (as noted above in Section 8.1). In addition, the east-west campus roadway located along the southern edge of the developed campus will be extended from its existing eastern terminus to the existing north-south roadway serving Hualalai Village Apartments. This second campus roadway will effectively be the central spine roadway

within the overall campus master plan area. On the eastern side of campus, this roadway will be limited to on-campus circulation only and will not provide a connection to Hualalai Road via Hualalai Village Road.

To manage travel speeds along both of these roadways, it is recommended that stop signs and other traffic calming devices be included at key points along the roadway. Similar treatments should be employed as appropriate on any other future on-campus roadways built as part of Phases 2 and 3 that will include longer, tangent sections of uninterrupted street segments (i.e., of 600 feet or more).

Two-way, north-south drive aisles would intersect the primary east-west roadways, and they will provide access to existing and planned parking lots. Though the drive aisles and parking lots do not provide direct access to all campus facilities, students, faculty/staff, and visitors will be able to access campus facilities via unrestricted pedestrian and bicycle pathways. More information on these facilities is included below.

## 8.3 PARKING

As shown on the project site plan, vehicle parking will be provided via on- and off-street parking throughout campus. Insufficient parking was not noted as an issue by the project development team at the time this report was written. As such, it is assumed that the existing parking inventory is sufficient to accommodate the parking demand generated by current levels of campus students, faculty, staff, and visitors. Therefore, it is recommended that parking supply provided in Phase 1 of the project maintain the same ratio of campus students, faculty, staff, and visitors to parking spaces unless adjustments to the supply are needed.

On the current site plan, several on-site parking lots are shown with multiple aisles that connect directly to the future east-west primary campus roadways. This would require drivers looking for available spaces to use the campus roadways to re-circulate through the parking lot. This design will create additional vehicle conflicts and require pedestrians and bicyclists to cross an excessive number of vehicle paths. To enhance safety and to internalize parking movements, it is recommended that all new surface parking lots be limited to one or two access driveways per lot (depending on the number of spaces served), and adequate aisles be provided within each lot to allow for internal vehicle circulation.

# 9.0 MULTIMODAL ASSESSMENT

This section summarizes potential project impacts from Phase 1 to off- and on-site pedestrian, bicycle, and transit facilities and services, and identifies recommended improvements.

## 9.1 PEDESTRIAN AND BICYCLE ACCESS AND CIRCULATION

### 9.1.1 OFF-SITE PEDESTRIAN AND BICYCLE ACCESS

Pedestrians and cyclists can access the university from Kuakini Highway at the existing campus driveway. A pedestrian sidewalk runs along the east side of Kuakini Highway, beginning at the University of the Nations Kona Driveway and terminating approximately 150 feet north of the driveway. A pedestrian crosswalk exists approximately 600 feet north of the University of the Nations Driveway and provides connectivity across Kuakini Highway. On the east side of the project site, a pedestrian sidewalk exists along the south side of Hualalai Road adjacent to the Hualalai Village Apartments. No pedestrian crossings exist along Hualalai Road. Bicycle facilities do not exist along Kuakini Highway or Hualalai Road near the campus.

The following bicycle improvements, identified as high-priority projects in Bike Plan Hawai'i, are proposed within the study area:

- Hualalai Road from Kuakini Highway to Old Mamaloha: Signed Shared Path
- Kuakini Highway from Lako Street to Hualalai Road: Bike Lane
- Queen Kaahumanu Highway from Henry Road to Kuakini Highway: Signed Shared Path

The proposed bike lane along Kuakini Highway will enhance bicycle connectivity to and from the University of the Nations Kona west entrance.

No pedestrian improvements are planned along roadways adjacent to the University of the Nations Kona campus.

Implementation of Phase 1 of the project will not conflict with any existing pedestrian or bicycle facilities and will not preclude the implementation of any planned pedestrian or bicycle facilities within the study area. Phase 1 of the proposed project is expected to generate some bicycle and pedestrian trips to and from the project site. Most of these trips would occur along Kuakini Highway by university students, faculty/staff, or visitors traveling between campus and nearby residential, commercial, and retail land uses. As project-generated pedestrian and bicycle trips are projected to be low, no project impacts are anticipated.

### 9.1.2 ON-SITE PEDESTRIAN AND BICYCLE CIRCULATION

Direct connections between campus facilities and parking lots would be provided via unrestricted pedestrian and bicycle pathways throughout campus. Pedestrians and bicyclists would travel throughout campus via the shared-use path and crosswalks provided. Bicyclists may also share the on-campus roadway with vehicular traffic. The proposed unrestricted pedestrian and bicycle pathways are expected to provide adequate connectivity between buildings on campus. The project site plan does not identify any pedestrian or bicycle facilities along internal campus roadways.

## 9.2 TRANSIT ACCESS

As noted in Section 3.2.2, the Pahala-Kailua-Kona-South Kohala Resorts Route provides daily transit service along Queen Kaahumanu Highway. The nearest bus stop is located approximately 1,100 feet south of the intersection of Queen Kaahumanu Highway and Hualalai Road. Based on the site plan provided, transit riders would have to walk at least 2,000 feet to access this bus stop. One potential improvement would be to provide a multi-use connection directly to Hualalai Road to reduce the overall distance transit riders would have to walk or bike to access the campus.

The project is anticipated to generate a low amount of transit riders at the completion of Phase 1. This is primarily due to existing bus stops being located outside of comfortable walking distances from campus, and relatively low service frequencies. As project-related transit ridership is anticipated to be low, no project impacts to transit facilities or services are anticipated, and no modifications to transit stop locations or services would be required.

## 9.3 RECOMMENDED IMPROVEMENTS

### 9.3.1 OFF-SITE PEDESTRIAN AND BICYCLE IMPROVEMENTS

Using Federal Highway Administration (FHWA) guidelines and the Fehr & Peers proprietary Crosswalk+ tool, the project team identified potential pedestrian improvements that can be considered at the intersection of Kuakini Highway and the University of the Nations Driveway. The following improvements are proposed at this location:

- Addition of a high-visibility crosswalk, adequate nighttime lighting levels, and crosswalk warning signs on the north and east legs of the intersections.

- The existing striped triangle on the east leg of the intersection should be converted to an elevated area to act as a pedestrian refuge island.
- A Pedestrian Hybrid Beacon (PHB) could also be installed on the north leg of the intersection, however a warrant would need to be conducted to determine whether it would be necessary. If it is not warranted, a Rectangular Rapid-Flashing Beacon (RRFB) could be added.

While the project-generated pedestrian and bicycle volumes are initially expected to be low, the addition of any active travelers along Kuakini Highway may result in people walking or biking along the roadway, which could result in a potential safety issue and a significant multimodal impact. To address this issue and to encourage non-automobile travel and provide greater connectivity to nearby land uses, it is recommended that an elevated sidewalk be installed between the existing sidewalk on the east side of Kuakini Highway from the existing sidewalk's terminus to the existing crosswalk approximately 600 feet north of the University of the Nations Driveway. This ADA-compliant path would be a minimum of four (4) feet wide plus a two-foot buffer between the roadway edge and the path. The buffer could include a guardrail, asphalt berm, or landscaping to help separate pedestrians from vehicle traffic.

### 9.3.2 ON-SITE PEDESTRIAN AND BICYCLE IMPROVEMENTS

As noted, the project site plan does not include any pedestrian or bicycle facilities along the on-site campus roadways. As such, the following recommendations are recommended:

- A shared-use path should be included on one side of both on-site campus roadways to further enhance pedestrian and bicycle connectivity and safety throughout the campus.
- An enhanced bicycle route (e.g. bike lane or "sharrows") should be included along the makai north-south campus roadway between the northern and central roadways.
- Pedestrian-level lighting is recommended along both the shared-use path and the pedestrian sidewalk.
- Raised crosswalks should be provided at all locations where pedestrian crossings are planned.

It is also recommended that secure bike parking – including bike racks near building entrance(s) – is provided to encourage and support non-motorized travel. Specific locations for bike racks should be determined by the project team in consultation with the University of the Nations Kona staff.

A summary of recommended on-site pedestrian and bicycle improvements are shown on **Figure** 9-1.


## Legend

- Recommended Shared Use Paths
- Potential Bicycle Route Enhancement
- Potential Raised Crosswalk Locations
- Recommended Parking Lot Access Modifications

Figure 9-1

On-site Improvements

# APPENDIX A: TRAFFIC COUNT DATA

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

**LOCATION:** Kuakini Hwy -- Hualalai Rd
**CITY/STATE:** Kailua, HI

**QC JOB #:** 15036003
**DATE:** Tue, Oct 1 2019

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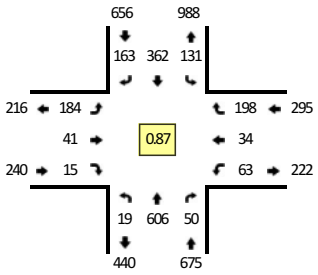
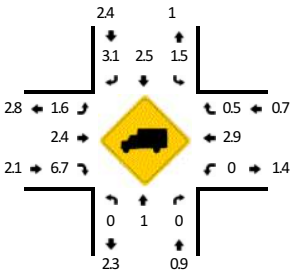
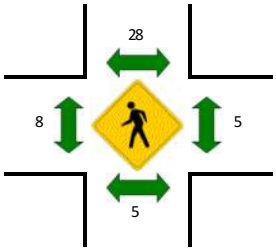
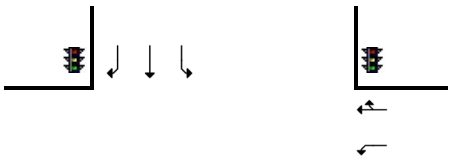
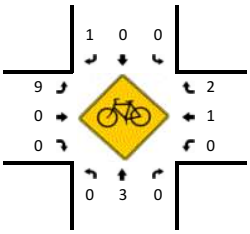
**Peak 15-Min: 7:45 AM -- 8:00 AM**

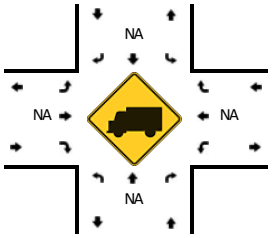


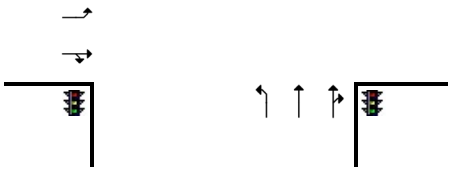



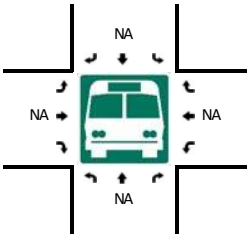








| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | Hualalai Rd (Eastbound) | | | | Hualalai Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 1 | 40 | 2 | 0 | 6 | 26 | 11 | 0 | 21 | 3 | 0 | 0 | 3 | 3 | 9 | 0 | 125 | |
| 6:15 AM | 2 | 72 | 3 | 0 | 3 | 24 | 18 | 0 | 20 | 2 | 2 | 0 | 5 | 4 | 16 | 0 | 171 | |
| 6:30 AM | 3 | 73 | 4 | 0 | 15 | 34 | 16 | 0 | 19 | 2 | 2 | 0 | 2 | 6 | 21 | 0 | 197 | |
| 6:45 AM | 3 | 106 | 9 | 0 | 20 | 50 | 40 | 0 | 38 | 1 | 3 | 0 | 5 | 4 | 19 | 0 | 298 | 791 |
| 7:00 AM | 4 | 105 | 8 | 0 | 18 | 58 | 18 | 0 | 40 | 2 | 6 | 0 | 2 | 11 | 12 | 0 | 284 | 950 |
| 7:15 AM | 1 | 133 | 7 | 0 | 14 | 81 | 34 | 0 | 40 | 15 | 4 | 0 | 6 | 5 | 31 | 0 | 371 | 1150 |
| 7:30 AM | 6 | 145 | 10 | 0 | 36 | 74 | 39 | 0 | 50 | 8 | 5 | 0 | 14 | 9 | 48 | 0 | 444 | 1397 |
| 7:45 AM | 8 | 162 | 17 | 0 | 36 | 108 | 56 | 0 | 49 | 7 | 5 | 0 | 26 | 7 | 56 | 0 | 537 | 1636 |
| 8:00 AM | 4 | 166 | 16 | 0 | 45 | 99 | 34 | 0 | 45 | 11 | 1 | 0 | 17 | 13 | 63 | 0 | 514 | 1866 |
| 8:15 AM | 9 | 146 | 13 | 0 | 37 | 73 | 41 | 0 | 36 | 9 | 6 | 0 | 12 | 14 | 45 | 0 | 441 | 1936 |
| 8:30 AM | 5 | 124 | 13 | 0 | 27 | 66 | 36 | 0 | 58 | 9 | 8 | 0 | 10 | 12 | 56 | 0 | 424 | 1916 |
| 8:45 AM | 5 | 124 | 16 | 0 | 35 | 103 | 45 | 0 | 46 | 9 | 5 | 0 | 17 | 21 | 73 | 0 | 499 | 1878 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 32 | 648 | 68 | 0 | 144 | 432 | 224 | 0 | 196 | 28 | 20 | 0 | 104 | 28 | 224 | 0 | 2148 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 8 | 4 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 20 |
| Pedestrians | | 12 | | | | 32 | | | | 4 | | | | 0 | | | 48 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 1 | | 1 | 0 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

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**CITY/STATE:** Kailua, HI

**QC JOB #:** 15036004
**DATE:** Tue, Oct 1 2019

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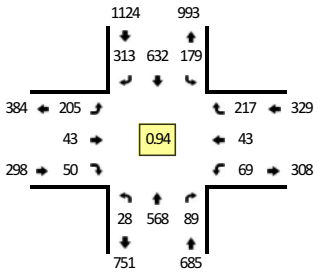
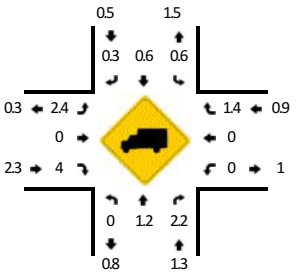
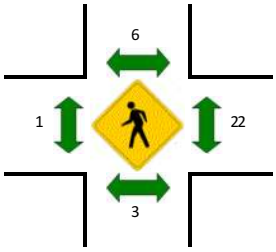
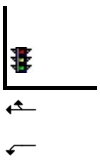
**Peak 15-Min: 4:00 PM -- 4:15 PM**

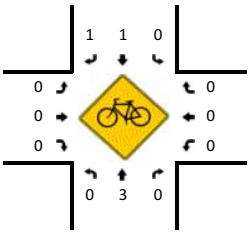


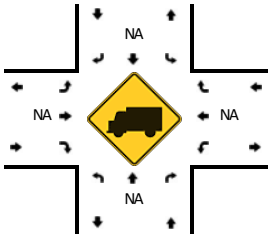

Quality Counts
DATA THAT DRIVES COMMUNITIES

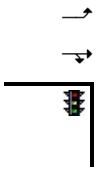


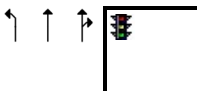



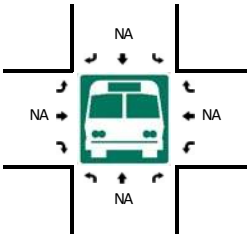







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| 3:15 PM | 7 | 136 | 19 | 0 | 49 | 164 | 70 | 0 | 55 | 15 | 17 | 0 | 7 | 13 | 56 | 0 | 608 | |
| 3:30 PM | 7 | 128 | 22 | 0 | 39 | 151 | 70 | 0 | 54 | 1 | 9 | 0 | 20 | 8 | 49 | 0 | 558 | |
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| 5:15 PM | 12 | 124 | 19 | 0 | 40 | 170 | 76 | 0 | 49 | 15 | 18 | 0 | 14 | 2 | 39 | 0 | 578 | 2312 |
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| 5:45 PM | 7 | 96 | 10 | 0 | 36 | 178 | 83 | 0 | 26 | 11 | 14 | 0 | 20 | 8 | 20 | 0 | 509 | 2238 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| All Vehicles | 20 | 572 | 88 | 0 | 180 | 680 | 376 | 4 | 204 | 52 | 40 | 0 | 84 | 48 | 256 | 0 | 2604 |
| Heavy Trucks | 0 | 12 | 0 | | 0 | 0 | 4 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 20 |
| Pedestrians | | 0 | | | | 16 | | | | 4 | | | | 0 | | | 20 |
| Bicycles | 0 | 2 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

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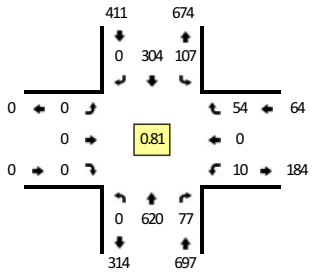
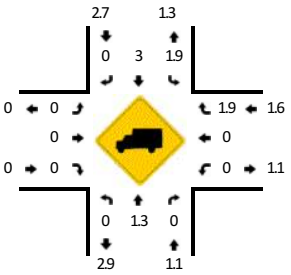
**CITY/STATE:** Kailua, HI

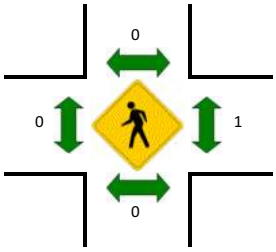
**QC JOB #:** 15036059
**DATE:** Tue, Oct 1 2019

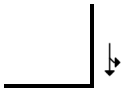
**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

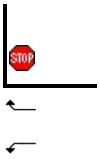


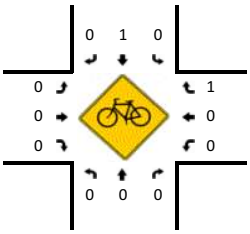



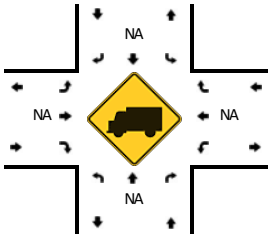

Quality Counts
DATA THAT DRIVES COMMUNITIES



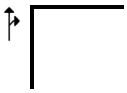



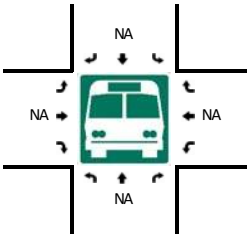









| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 12:00 AM | 0 | 6 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | |
| 12:15 AM | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | |
| 12:30 AM | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | |
| 12:45 AM | 0 | 5 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 48 |
| 1:00 AM | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 39 |
| 1:15 AM | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 35 |
| 1:30 AM | 0 | 2 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 38 |
| 1:45 AM | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 32 |
| 2:00 AM | 0 | 5 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 35 |
| 2:15 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 31 |
| 2:30 AM | 0 | 3 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 35 |
| 2:45 AM | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 39 |
| 3:00 AM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 33 |
| 3:15 AM | 0 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 35 |
| 3:30 AM | 0 | 7 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 32 |
| 3:45 AM | 0 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 29 |
| 4:00 AM | 0 | 7 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12 | 36 |
| 4:15 AM | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 43 |
| 4:30 AM | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 40 |
| 4:45 AM | 0 | 17 | 0 | 0 | 2 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 57 |
| 5:00 AM | 0 | 14 | 1 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 68 |
| 5:15 AM | 0 | 18 | 3 | 0 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 33 | 88 |
| 5:30 AM | 0 | 39 | 5 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 54 | 134 |
| 5:45 AM | 0 | 57 | 1 | 0 | 5 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 186 |
| 6:00 AM | 0 | 39 | 1 | 0 | 2 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 67 | 230 |
| 6:15 AM | 0 | 77 | 3 | 0 | 3 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 107 | 304 |
| 6:30 AM | 0 | 86 | 4 | 0 | 5 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 136 | 386 |
| 6:45 AM | 0 | 104 | 4 | 0 | 5 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 178 | 488 |
| 7:00 AM | 0 | 115 | 2 | 0 | 5 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 191 | 612 |
| 7:15 AM | 0 | 146 | 5 | 0 | 10 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 247 | 752 |
| 7:30 AM | 0 | 148 | 7 | 0 | 16 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 250 | 866 |
| 7:45 AM | 0 | 165 | 48 | 0 | 52 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 363 | 1051 |
| 8:00 AM | 0 | 161 | 17 | 0 | 29 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 28 | 0 | 312 | 1172 |
| 8:15 AM | 0 | 156 | 8 | 0 | 15 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 11 | 1 | 266 | 1191 |
| 8:30 AM | 0 | 117 | 3 | 0 | 18 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 251 | 1192 |
| 8:45 AM | 0 | 101 | 6 | 0 | 18 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 13 | 0 | 227 | 1056 |
| 9:00 AM | 0 | 122 | 3 | 1 | 12 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 224 | 968 |
| 9:15 AM | 0 | 96 | 3 | 0 | 10 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 14 | 0 | 205 | 907 |

| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 9:30 AM | 0 | 111 | 3 | 0 | 8 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 8 | 0 | 232 | 888 |
| 9:45 AM | 0 | 119 | 6 | 0 | 6 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 222 | 883 |
| 10:00 AM | 0 | 101 | 2 | 1 | 15 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17 | 0 | 217 | 876 |
| 10:15 AM | 0 | 95 | 0 | 0 | 6 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 208 | 879 |
| 10:30 AM | 0 | 94 | 1 | 0 | 10 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 186 | 833 |
| 10:45 AM | 0 | 125 | 3 | 0 | 10 | 94 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 8 | 0 | 246 | 857 |
| 11:00 AM | 0 | 100 | 3 | 0 | 9 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 222 | 862 |
| 11:15 AM | 0 | 101 | 3 | 0 | 12 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 242 | 896 |
| 11:30 AM | 0 | 102 | 4 | 0 | 12 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 228 | 938 |
| 11:45 AM | 0 | 93 | 10 | 0 | 15 | 105 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 232 | 924 |
| 12:00 PM | 0 | 104 | 6 | 0 | 9 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 17 | 0 | 259 | 961 |
| 12:15 PM | 0 | 97 | 4 | 0 | 8 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 30 | 0 | 268 | 987 |
| 12:30 PM | 0 | 98 | 5 | 0 | 10 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 21 | 0 | 250 | 1009 |
| 12:45 PM | 0 | 112 | 7 | 0 | 18 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 10 | 0 | 277 | 1054 |
| 1:00 PM | 0 | 88 | 5 | 0 | 16 | 104 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 | 0 | 225 | 1020 |
| 1:15 PM | 0 | 83 | 7 | 0 | 20 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 22 | 0 | 235 | 987 |
| 1:30 PM | 0 | 110 | 6 | 0 | 9 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 15 | 0 | 269 | 1006 |
| 1:45 PM | 0 | 103 | 5 | 0 | 10 | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 17 | 0 | 259 | 988 |
| 2:00 PM | 0 | 86 | 2 | 0 | 8 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 21 | 0 | 246 | 1009 |
| 2:15 PM | 0 | 114 | 2 | 0 | 15 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 16 | 0 | 274 | 1048 |
| 2:30 PM | 0 | 112 | 11 | 0 | 16 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 16 | 0 | 285 | 1064 |
| 2:45 PM | 0 | 101 | 9 | 0 | 15 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 21 | 0 | 277 | 1082 |
| 3:00 PM | 0 | 103 | 5 | 0 | 15 | 134 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 33 | 0 | 306 | 1142 |
| 3:15 PM | 0 | 119 | 8 | 0 | 15 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 24 | 0 | 326 | 1194 |
| 3:30 PM | 0 | 112 | 3 | 0 | 10 | 129 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 29 | 0 | 286 | 1195 |
| 3:45 PM | 0 | 137 | 5 | 0 | 12 | 162 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 24 | 0 | 349 | 1267 |
| 4:00 PM | 0 | 127 | 3 | 0 | 12 | 163 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 9 | 0 | 322 | 1283 |
| 4:15 PM | 0 | 114 | 6 | 0 | 14 | 162 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 19 | 0 | 319 | 1276 |
| 4:30 PM | 0 | 115 | 6 | 0 | 22 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 19 | 0 | 319 | 1309 |
| 4:45 PM | 0 | 116 | 8 | 0 | 20 | 183 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 15 | 0 | 351 | 1311 |
| 5:00 PM | 0 | 118 | 4 | 0 | 18 | 195 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 0 | 360 | 1349 |
| 5:15 PM | 0 | 86 | 5 | 0 | 21 | 183 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 12 | 0 | 310 | 1340 |
| 5:30 PM | 0 | 73 | 4 | 0 | 15 | 175 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 13 | 0 | 286 | 1307 |
| 5:45 PM | 0 | 76 | 6 | 0 | 24 | 168 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 9 | 0 | 288 | 1244 |
| 6:00 PM | 0 | 85 | 3 | 0 | 15 | 164 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 10 | 0 | 280 | 1164 |
| 6:15 PM | 0 | 76 | 3 | 0 | 9 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 27 | 0 | 255 | 1109 |
| 6:30 PM | 0 | 72 | 3 | 0 | 9 | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 15 | 0 | 232 | 1055 |
| 6:45 PM | 0 | 51 | 1 | 0 | 7 | 105 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 173 | 940 |
| 7:00 PM | 0 | 41 | 5 | 0 | 10 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 159 | 819 |
| 7:15 PM | 0 | 36 | 3 | 0 | 8 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 13 | 0 | 154 | 718 |
| 7:30 PM | 0 | 44 | 3 | 0 | 6 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 143 | 629 |
| 7:45 PM | 0 | 34 | 1 | 0 | 16 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 12 | 0 | 148 | 604 |
| 8:00 PM | 0 | 34 | 2 | 0 | 9 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 20 | 0 | 142 | 587 |
| 8:15 PM | 0 | 35 | 2 | 0 | 11 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 153 | 586 |
| 8:30 PM | 0 | 23 | 2 | 0 | 10 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 14 | 0 | 123 | 566 |
| 8:45 PM | 0 | 22 | 1 | 0 | 5 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 89 | 507 |
| 9:00 PM | 0 | 22 | 1 | 0 | 9 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 79 | 444 |
| 9:15 PM | 0 | 18 | 0 | 0 | 4 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 74 | 365 |
| 9:30 PM | 0 | 19 | 0 | 0 | 4 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 75 | 317 |
| 9:45 PM | 0 | 20 | 3 | 0 | 4 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 63 | 291 |
| 10:00 PM | 0 | 16 | 1 | 0 | 1 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 54 | 266 |
| 10:15 PM | 0 | 7 | 1 | 0 | 5 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 48 | 240 |
| 10:30 PM | 0 | 9 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 36 | 201 |
| 10:45 PM | 0 | 2 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 166 |
| 11:00 PM | 0 | 7 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 142 |
| 11:15 PM | 0 | 5 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14 | 108 |
| 11:30 PM | 0 | 3 | 0 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 88 |
| 11:45 PM | 0 | 8 | 0 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 79 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 660 | 192 | 0 | 208 | 324 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 48 | 0 | 1452 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 16 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 20 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 10/24/2019 1:09 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

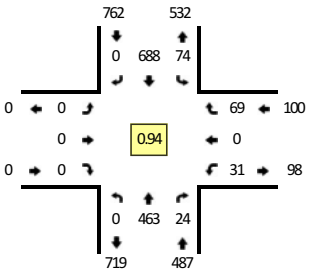
Type of peak hour being reported: Intersection Peak

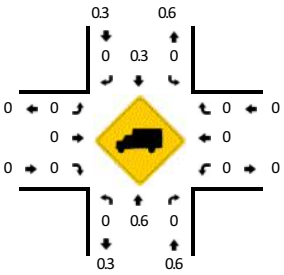
Method for determining peak hour: Total Entering Volume

**LOCATION:** Kuakini Hwy -- YWAM Driveway
**CITY/STATE:** Kailua, HI

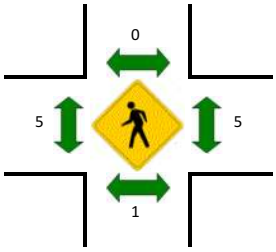
**QC JOB #:** 15036059
**DATE:** Tue, Oct 1 2019

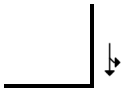
**Peak-Hour: 4:15 PM -- 5:15 PM**
**Peak 15-Min: 5:00 PM -- 5:15 PM**

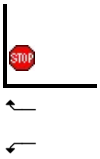


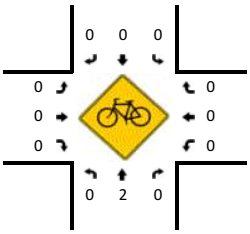



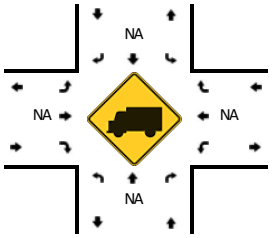

Quality Counts
DATA THAT DRIVES COMMUNITIES



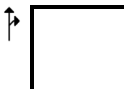



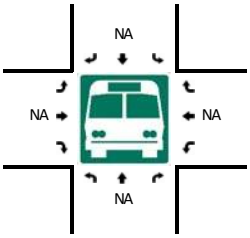









| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 12:00 AM | 0 | 6 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | |
| 12:15 AM | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | |
| 12:30 AM | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | |
| 12:45 AM | 0 | 5 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 48 |
| 1:00 AM | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 39 |
| 1:15 AM | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 35 |
| 1:30 AM | 0 | 2 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 38 |
| 1:45 AM | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 32 |
| 2:00 AM | 0 | 5 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 35 |
| 2:15 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 31 |
| 2:30 AM | 0 | 3 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 35 |
| 2:45 AM | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 39 |
| 3:00 AM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 33 |
| 3:15 AM | 0 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 35 |
| 3:30 AM | 0 | 7 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 32 |
| 3:45 AM | 0 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 29 |
| 4:00 AM | 0 | 7 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 12 | 36 |
| 4:15 AM | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 43 |
| 4:30 AM | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 40 |
| 4:45 AM | 0 | 17 | 0 | 0 | 2 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 57 |
| 5:00 AM | 0 | 14 | 1 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 68 |
| 5:15 AM | 0 | 18 | 3 | 0 | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 33 | 88 |
| 5:30 AM | 0 | 39 | 5 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 54 | 134 |
| 5:45 AM | 0 | 57 | 1 | 0 | 5 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 186 |
| 6:00 AM | 0 | 39 | 1 | 0 | 2 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 67 | 230 |
| 6:15 AM | 0 | 77 | 3 | 0 | 3 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 107 | 304 |
| 6:30 AM | 0 | 86 | 4 | 0 | 5 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 136 | 386 |
| 6:45 AM | 0 | 104 | 4 | 0 | 5 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 178 | 488 |
| 7:00 AM | 0 | 115 | 2 | 0 | 5 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 191 | 612 |
| 7:15 AM | 0 | 146 | 5 | 0 | 10 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 247 | 752 |
| 7:30 AM | 0 | 148 | 7 | 0 | 16 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 250 | 866 |
| 7:45 AM | 0 | 165 | 48 | 0 | 52 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 363 | 1051 |
| 8:00 AM | 0 | 161 | 17 | 0 | 29 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 28 | 0 | 312 | 1172 |
| 8:15 AM | 0 | 156 | 8 | 0 | 15 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 11 | 1 | 266 | 1191 |
| 8:30 AM | 0 | 117 | 3 | 0 | 18 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 251 | 1192 |
| 8:45 AM | 0 | 101 | 6 | 0 | 18 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 13 | 0 | 227 | 1056 |
| 9:00 AM | 0 | 122 | 3 | 1 | 12 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 224 | 968 |
| 9:15 AM | 0 | 96 | 3 | 0 | 10 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 14 | 0 | 205 | 907 |
| 9:30 AM | 0 | 111 | 3 | 0 | 8 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 8 | 0 | 232 | 888 |

| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 9:45 AM | 0 | 119 | 6 | 0 | 6 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 222 | 883 |
| 10:00 AM | 0 | 101 | 2 | 1 | 15 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17 | 0 | 217 | 876 |
| 10:15 AM | 0 | 95 | 0 | 0 | 6 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 208 | 879 |
| 10:30 AM | 0 | 94 | 1 | 0 | 10 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 186 | 833 |
| 10:45 AM | 0 | 125 | 3 | 0 | 10 | 94 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 8 | 0 | 246 | 857 |
| 11:00 AM | 0 | 100 | 3 | 0 | 9 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 222 | 862 |
| 11:15 AM | 0 | 101 | 3 | 0 | 12 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 242 | 896 |
| 11:30 AM | 0 | 102 | 4 | 0 | 12 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 228 | 938 |
| 11:45 AM | 0 | 93 | 10 | 0 | 15 | 105 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 232 | 924 |
| 12:00 PM | 0 | 104 | 6 | 0 | 9 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 17 | 0 | 259 | 961 |
| 12:15 PM | 0 | 97 | 4 | 0 | 8 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 30 | 0 | 268 | 987 |
| 12:30 PM | 0 | 98 | 5 | 0 | 10 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 21 | 0 | 250 | 1009 |
| 12:45 PM | 0 | 112 | 7 | 0 | 18 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 10 | 0 | 277 | 1054 |
| 1:00 PM | 0 | 88 | 5 | 0 | 16 | 104 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 | 0 | 225 | 1020 |
| 1:15 PM | 0 | 83 | 7 | 0 | 20 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 22 | 0 | 235 | 987 |
| 1:30 PM | 0 | 110 | 6 | 0 | 9 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 15 | 0 | 269 | 1006 |
| 1:45 PM | 0 | 103 | 5 | 0 | 10 | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 17 | 0 | 259 | 988 |
| 2:00 PM | 0 | 86 | 2 | 0 | 8 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 21 | 0 | 246 | 1009 |
| 2:15 PM | 0 | 114 | 2 | 0 | 15 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 16 | 0 | 274 | 1048 |
| 2:30 PM | 0 | 112 | 11 | 0 | 16 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 16 | 0 | 285 | 1064 |
| 2:45 PM | 0 | 101 | 9 | 0 | 15 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 21 | 0 | 277 | 1082 |
| 3:00 PM | 0 | 103 | 5 | 0 | 15 | 134 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 33 | 0 | 306 | 1142 |
| 3:15 PM | 0 | 119 | 8 | 0 | 15 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 24 | 0 | 326 | 1194 |
| 3:30 PM | 0 | 112 | 3 | 0 | 10 | 129 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 29 | 0 | 286 | 1195 |
| 3:45 PM | 0 | 137 | 5 | 0 | 12 | 162 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 24 | 0 | 349 | 1267 |
| 4:00 PM | 0 | 127 | 3 | 0 | 12 | 163 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 9 | 0 | 322 | 1283 |
| 4:15 PM | 0 | 114 | 6 | 0 | 14 | 162 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 19 | 0 | 319 | 1276 |
| 4:30 PM | 0 | 115 | 6 | 0 | 22 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 19 | 0 | 319 | 1309 |
| 4:45 PM | 0 | 116 | 8 | 0 | 20 | 183 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 15 | 0 | 351 | 1311 |
| 5:00 PM | 0 | 118 | 4 | 0 | 18 | 195 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 0 | 360 | 1349 |
| 5:15 PM | 0 | 86 | 5 | 0 | 21 | 183 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 12 | 0 | 310 | 1340 |
| 5:30 PM | 0 | 73 | 4 | 0 | 15 | 175 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 13 | 0 | 286 | 1307 |
| 5:45 PM | 0 | 76 | 6 | 0 | 24 | 168 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 9 | 0 | 288 | 1244 |
| 6:00 PM | 0 | 85 | 3 | 0 | 15 | 164 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 10 | 0 | 280 | 1164 |
| 6:15 PM | 0 | 76 | 3 | 0 | 9 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 27 | 0 | 255 | 1109 |
| 6:30 PM | 0 | 72 | 3 | 0 | 9 | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 15 | 0 | 232 | 1055 |
| 6:45 PM | 0 | 51 | 1 | 0 | 7 | 105 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | 173 | 940 |
| 7:00 PM | 0 | 41 | 5 | 0 | 10 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 159 | 819 |
| 7:15 PM | 0 | 36 | 3 | 0 | 8 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 13 | 0 | 154 | 718 |
| 7:30 PM | 0 | 44 | 3 | 0 | 6 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 143 | 629 |
| 7:45 PM | 0 | 34 | 1 | 0 | 16 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 12 | 0 | 148 | 604 |
| 8:00 PM | 0 | 34 | 2 | 0 | 9 | 72 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 20 | 0 | 142 | 587 |
| 8:15 PM | 0 | 35 | 2 | 0 | 11 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 153 | 586 |
| 8:30 PM | 0 | 23 | 2 | 0 | 10 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 14 | 0 | 123 | 566 |
| 8:45 PM | 0 | 22 | 1 | 0 | 5 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 89 | 507 |
| 9:00 PM | 0 | 22 | 1 | 0 | 9 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 79 | 444 |
| 9:15 PM | 0 | 18 | 0 | 0 | 4 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 74 | 365 |
| 9:30 PM | 0 | 19 | 0 | 0 | 4 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 75 | 317 |
| 9:45 PM | 0 | 20 | 3 | 0 | 4 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 63 | 291 |
| 10:00 PM | 0 | 16 | 1 | 0 | 1 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 54 | 266 |
| 10:15 PM | 0 | 7 | 1 | 0 | 5 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 48 | 240 |
| 10:30 PM | 0 | 9 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 36 | 201 |
| 10:45 PM | 0 | 2 | 0 | 0 | 1 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 166 |
| 11:00 PM | 0 | 7 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 142 |
| 11:15 PM | 0 | 5 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14 | 108 |
| 11:30 PM | 0 | 3 | 0 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 88 |
| 11:45 PM | 0 | 8 | 0 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 79 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 472 | 16 | 0 | 72 | 780 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 64 | 0 | 1440 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 4 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 4 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 10/14/2019 2:36 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: User-Defined

Method for determining peak hour: Total Entering Volume

**LOCATION:** Kuakini Hwy -- YWAM Driveway

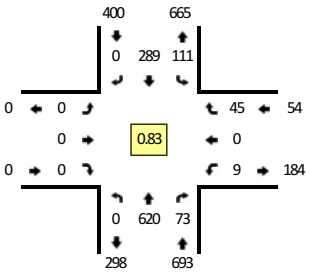
**QC JOB #:** 15036057

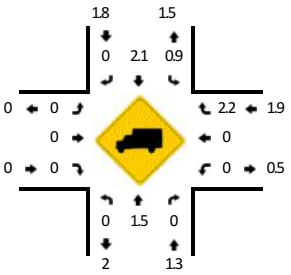
**CITY/STATE:** Kailua, HI

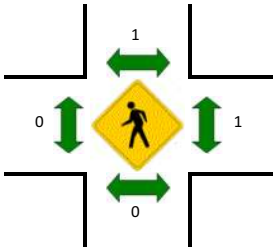
**DATE:** Wed, Oct 2 2019

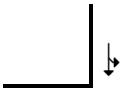
**Peak-Hour: 7:15 AM -- 8:15 AM**

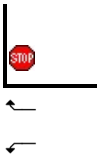
**Peak 15-Min: 7:45 AM -- 8:00 AM**

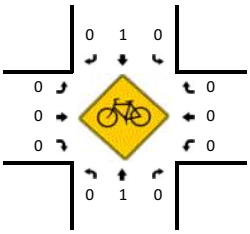


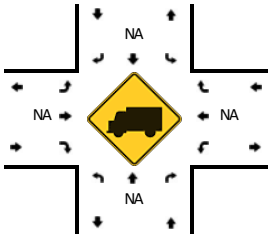



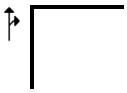



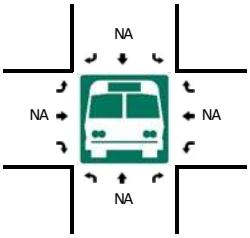









| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 12:00 AM | 0 | 4 | 0 | 0 | 0 | 14 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | |
| 12:15 AM | 0 | 8 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 21 | |
| 12:30 AM | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | |
| 12:45 AM | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 57 |
| 1:00 AM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 44 |
| 1:15 AM | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 30 |
| 1:30 AM | 0 | 4 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 32 |
| 1:45 AM | 0 | 6 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 36 |
| 2:00 AM | 0 | 6 | 1 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 18 | 48 |
| 2:15 AM | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 48 |
| 2:30 AM | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 44 |
| 2:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 36 |
| 3:00 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 22 |
| 3:15 AM | 0 | 8 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 26 |
| 3:30 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 24 |
| 3:45 AM | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 32 |
| 4:00 AM | 0 | 6 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 37 |
| 4:15 AM | 0 | 8 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 37 |
| 4:30 AM | 0 | 15 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 51 |
| 4:45 AM | 0 | 14 | 3 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 62 |
| 5:00 AM | 0 | 13 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 68 |
| 5:15 AM | 0 | 24 | 2 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 39 | 96 |
| 5:30 AM | 0 | 33 | 1 | 0 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 46 | 124 |
| 5:45 AM | 0 | 70 | 5 | 0 | 5 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 97 | 197 |
| 6:00 AM | 0 | 53 | 0 | 0 | 2 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 257 |
| 6:15 AM | 0 | 71 | 0 | 0 | 13 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 113 | 331 |
| 6:30 AM | 0 | 89 | 2 | 0 | 4 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 144 | 429 |
| 6:45 AM | 0 | 103 | 4 | 0 | 4 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 163 | 495 |
| 7:00 AM | 0 | 106 | 3 | 0 | 6 | 69 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 197 | 617 |
| 7:15 AM | 0 | 132 | 2 | 0 | 13 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 228 | 732 |
| 7:30 AM | 0 | 143 | 9 | 0 | 24 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 250 | 838 |
| 7:45 AM | 0 | 173 | 34 | 0 | 46 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 347 | 1022 |
| 8:00 AM | 0 | 172 | 28 | 0 | 28 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 17 | 0 | 322 | 1147 |
| 8:15 AM | 0 | 116 | 9 | 0 | 18 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 3 | 0 | 234 | 1153 |
| 8:30 AM | 0 | 124 | 1 | 0 | 17 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 0 | 232 | 1135 |
| 8:45 AM | 0 | 134 | 7 | 0 | 17 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 5 | 0 | 254 | 1042 |
| 9:00 AM | 0 | 126 | 11 | 0 | 7 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 3 | 0 | 230 | 950 |
| 9:15 AM | 0 | 115 | 5 | 1 | 12 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 2 | 2 | 230 | 946 |

| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 9:30 AM | 0 | 94 | 2 | 0 | 10 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 194 | 908 |
| 9:45 AM | 0 | 127 | 1 | 0 | 6 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 2 | 0 | 234 | 888 |
| 10:00 AM | 0 | 107 | 6 | 0 | 15 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 1 | 0 | 232 | 890 |
| 10:15 AM | 0 | 111 | 2 | 0 | 5 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 2 | 0 | 225 | 885 |
| 10:30 AM | 0 | 117 | 2 | 0 | 4 | 89 | 0 | 2 | 0 | 0 | 0 | 0 | 10 | 0 | 2 | 0 | 226 | 917 |
| 10:45 AM | 0 | 107 | 3 | 0 | 3 | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 215 | 898 |
| 11:00 AM | 0 | 100 | 1 | 0 | 10 | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 234 | 900 |
| 11:15 AM | 0 | 88 | 2 | 0 | 12 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 206 | 881 |
| 11:30 AM | 0 | 92 | 2 | 0 | 17 | 94 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 0 | 4 | 0 | 217 | 872 |
| 11:45 AM | 0 | 94 | 4 | 0 | 18 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 4 | 0 | 206 | 863 |
| 12:00 PM | 0 | 77 | 3 | 0 | 15 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 22 | 0 | 233 | 862 |
| 12:15 PM | 0 | 94 | 8 | 0 | 12 | 132 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 19 | 0 | 271 | 927 |
| 12:30 PM | 0 | 94 | 6 | 0 | 12 | 111 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 14 | 0 | 250 | 960 |
| 12:45 PM | 0 | 104 | 4 | 0 | 16 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 0 | 242 | 996 |
| 1:00 PM | 0 | 110 | 2 | 0 | 20 | 116 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 21 | 0 | 270 | 1033 |
| 1:15 PM | 0 | 124 | 5 | 0 | 20 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 13 | 0 | 276 | 1038 |
| 1:30 PM | 0 | 103 | 5 | 0 | 17 | 127 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 275 | 1063 |
| 1:45 PM | 0 | 123 | 3 | 0 | 8 | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 9 | 0 | 260 | 1081 |
| 2:00 PM | 0 | 102 | 4 | 0 | 12 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 19 | 0 | 258 | 1069 |
| 2:15 PM | 0 | 76 | 3 | 0 | 12 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 246 | 1039 |
| 2:30 PM | 0 | 104 | 4 | 0 | 19 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 256 | 1020 |
| 2:45 PM | 0 | 101 | 12 | 0 | 31 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 11 | 0 | 302 | 1062 |
| 3:00 PM | 0 | 74 | 5 | 1 | 12 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 14 | 0 | 257 | 1061 |
| 3:15 PM | 0 | 119 | 1 | 0 | 12 | 153 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 12 | 0 | 306 | 1121 |
| 3:30 PM | 0 | 103 | 2 | 0 | 7 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 11 | 0 | 271 | 1136 |
| 3:45 PM | 0 | 107 | 3 | 0 | 15 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 15 | 0 | 309 | 1143 |
| 4:00 PM | 0 | 115 | 3 | 0 | 9 | 154 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 15 | 0 | 304 | 1190 |
| 4:15 PM | 0 | 118 | 4 | 0 | 15 | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 0 | 330 | 1214 |
| 4:30 PM | 0 | 131 | 5 | 0 | 6 | 180 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 17 | 0 | 349 | 1292 |
| 4:45 PM | 0 | 95 | 6 | 0 | 13 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 15 | 0 | 327 | 1310 |
| 5:00 PM | 0 | 89 | 7 | 0 | 19 | 181 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 33 | 0 | 339 | 1345 |
| 5:15 PM | 0 | 95 | 9 | 0 | 15 | 189 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 23 | 0 | 339 | 1354 |
| 5:30 PM | 0 | 79 | 5 | 0 | 16 | 161 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 16 | 0 | 283 | 1288 |
| 5:45 PM | 0 | 79 | 7 | 0 | 13 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 15 | 0 | 285 | 1246 |
| 6:00 PM | 0 | 83 | 1 | 0 | 10 | 156 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 14 | 0 | 266 | 1173 |
| 6:15 PM | 0 | 79 | 12 | 0 | 13 | 156 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 269 | 1103 |
| 6:30 PM | 0 | 60 | 5 | 0 | 12 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 12 | 0 | 197 | 1017 |
| 6:45 PM | 0 | 47 | 4 | 0 | 7 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 0 | 176 | 908 |
| 7:00 PM | 0 | 52 | 1 | 0 | 15 | 89 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 0 | 171 | 813 |
| 7:15 PM | 0 | 50 | 2 | 0 | 9 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 150 | 694 |
| 7:30 PM | 0 | 40 | 1 | 0 | 12 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 157 | 654 |
| 7:45 PM | 0 | 36 | 2 | 0 | 7 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 20 | 0 | 153 | 631 |
| 8:00 PM | 0 | 34 | 3 | 0 | 7 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 0 | 141 | 601 |
| 8:15 PM | 0 | 32 | 7 | 0 | 9 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 135 | 586 |
| 8:30 PM | 0 | 30 | 1 | 0 | 4 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 0 | 113 | 542 |
| 8:45 PM | 0 | 33 | 4 | 0 | 5 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 99 | 488 |
| 9:00 PM | 0 | 18 | 4 | 0 | 5 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 78 | 425 |
| 9:15 PM | 0 | 23 | 1 | 0 | 7 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 94 | 384 |
| 9:30 PM | 0 | 25 | 1 | 0 | 9 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 95 | 366 |
| 9:45 PM | 0 | 15 | 2 | 0 | 5 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 61 | 328 |
| 10:00 PM | 0 | 20 | 1 | 0 | 2 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 62 | 312 |
| 10:15 PM | 0 | 14 | 1 | 0 | 1 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 54 | 272 |
| 10:30 PM | 0 | 13 | 0 | 0 | 3 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 53 | 230 |
| 10:45 PM | 0 | 7 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 31 | 200 |
| 11:00 PM | 0 | 13 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 36 | 174 |
| 11:15 PM | 0 | 6 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 24 | 144 |
| 11:30 PM | 0 | 8 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 117 |
| 11:45 PM | 0 | 10 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 104 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 692 | 136 | 0 | 184 | 316 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 1388 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 16 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 10/24/2019 1:09 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

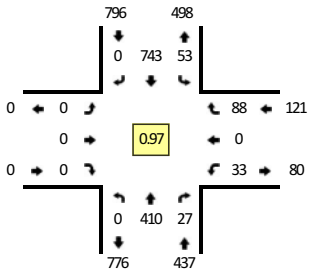
Type of peak hour being reported: Intersection Peak

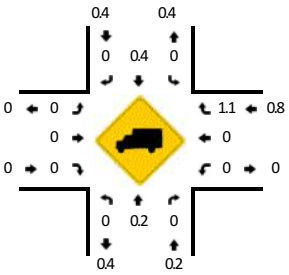
Method for determining peak hour: Total Entering Volume

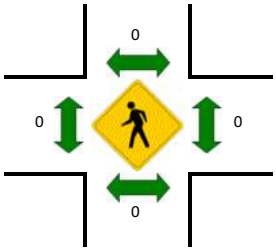
**LOCATION:** Kuakini Hwy -- YWAM Driveway
**CITY/STATE:** Kailua, HI

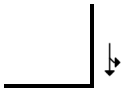
**QC JOB #:** 15036057
**DATE:** Wed, Oct 2 2019

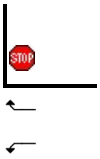
**Peak-Hour: 4:30 PM -- 5:30 PM**
**Peak 15-Min: 4:30 PM -- 4:45 PM**

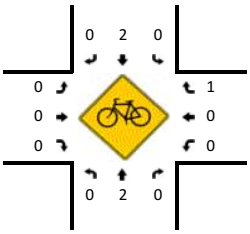


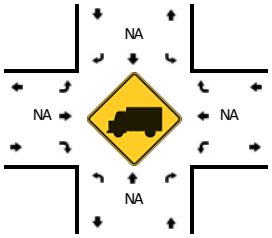



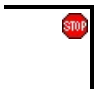



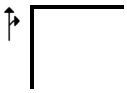



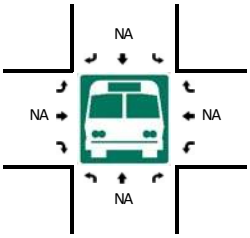





| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 12:00 AM | 0 | 4 | 0 | 0 | 0 | 14 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | |
| 12:15 AM | 0 | 8 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 21 | |
| 12:30 AM | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | |
| 12:45 AM | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 57 |
| 1:00 AM | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 44 |
| 1:15 AM | 0 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 30 |
| 1:30 AM | 0 | 4 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 32 |
| 1:45 AM | 0 | 6 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 36 |
| 2:00 AM | 0 | 6 | 1 | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 18 | 48 |
| 2:15 AM | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 48 |
| 2:30 AM | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 44 |
| 2:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 36 |
| 3:00 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 22 |
| 3:15 AM | 0 | 8 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 26 |
| 3:30 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 24 |
| 3:45 AM | 0 | 8 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 32 |
| 4:00 AM | 0 | 6 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 37 |
| 4:15 AM | 0 | 8 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 37 |
| 4:30 AM | 0 | 15 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 51 |
| 4:45 AM | 0 | 14 | 3 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 62 |
| 5:00 AM | 0 | 13 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 68 |
| 5:15 AM | 0 | 24 | 2 | 0 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 39 | 96 |
| 5:30 AM | 0 | 33 | 1 | 0 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 46 | 124 |
| 5:45 AM | 0 | 70 | 5 | 0 | 5 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 97 | 197 |
| 6:00 AM | 0 | 53 | 0 | 0 | 2 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 257 |
| 6:15 AM | 0 | 71 | 0 | 0 | 13 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 113 | 331 |
| 6:30 AM | 0 | 89 | 2 | 0 | 4 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 144 | 429 |
| 6:45 AM | 0 | 103 | 4 | 0 | 4 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 163 | 495 |
| 7:00 AM | 0 | 106 | 3 | 0 | 6 | 69 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 197 | 617 |
| 7:15 AM | 0 | 132 | 2 | 0 | 13 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 228 | 732 |
| 7:30 AM | 0 | 143 | 9 | 0 | 24 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 250 | 838 |
| 7:45 AM | 0 | 173 | 34 | 0 | 46 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 347 | 1022 |
| 8:00 AM | 0 | 172 | 28 | 0 | 28 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 17 | 0 | 322 | 1147 |
| 8:15 AM | 0 | 116 | 9 | 0 | 18 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 3 | 0 | 234 | 1153 |
| 8:30 AM | 0 | 124 | 1 | 0 | 17 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 0 | 232 | 1135 |
| 8:45 AM | 0 | 134 | 7 | 0 | 17 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 5 | 0 | 254 | 1042 |
| 9:00 AM | 0 | 126 | 11 | 0 | 7 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 3 | 0 | 230 | 950 |
| 9:15 AM | 0 | 115 | 5 | 1 | 12 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 2 | 2 | 230 | 946 |
| 9:30 AM | 0 | 94 | 2 | 0 | 10 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 194 | 908 |

| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 9:45 AM | 0 | 127 | 1 | 0 | 6 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 2 | 0 | 234 | 888 |
| 10:00 AM | 0 | 107 | 6 | 0 | 15 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 1 | 0 | 232 | 890 |
| 10:15 AM | 0 | 111 | 2 | 0 | 5 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 2 | 0 | 225 | 885 |
| 10:30 AM | 0 | 117 | 2 | 0 | 4 | 89 | 0 | 2 | 0 | 0 | 0 | 0 | 10 | 0 | 2 | 0 | 226 | 917 |
| 10:45 AM | 0 | 107 | 3 | 0 | 3 | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 2 | 215 | 898 |
| 11:00 AM | 0 | 100 | 1 | 0 | 10 | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 234 | 900 |
| 11:15 AM | 0 | 88 | 2 | 0 | 12 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 206 | 881 |
| 11:30 AM | 0 | 92 | 2 | 0 | 17 | 94 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 0 | 4 | 0 | 217 | 872 |
| 11:45 AM | 0 | 94 | 4 | 0 | 18 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 4 | 0 | 206 | 863 |
| 12:00 PM | 0 | 77 | 3 | 0 | 15 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 22 | 0 | 233 | 862 |
| 12:15 PM | 0 | 94 | 8 | 0 | 12 | 132 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 19 | 0 | 271 | 927 |
| 12:30 PM | 0 | 94 | 6 | 0 | 12 | 111 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 14 | 0 | 250 | 960 |
| 12:45 PM | 0 | 104 | 4 | 0 | 16 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 0 | 242 | 996 |
| 1:00 PM | 0 | 110 | 2 | 0 | 20 | 116 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 21 | 0 | 270 | 1033 |
| 1:15 PM | 0 | 124 | 5 | 0 | 20 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 13 | 0 | 276 | 1038 |
| 1:30 PM | 0 | 103 | 5 | 0 | 17 | 127 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 275 | 1063 |
| 1:45 PM | 0 | 123 | 3 | 0 | 8 | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 9 | 0 | 260 | 1081 |
| 2:00 PM | 0 | 102 | 4 | 0 | 12 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 19 | 0 | 258 | 1069 |
| 2:15 PM | 0 | 76 | 3 | 0 | 12 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 246 | 1039 |
| 2:30 PM | 0 | 104 | 4 | 0 | 19 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 256 | 1020 |
| 2:45 PM | 0 | 101 | 12 | 0 | 31 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 11 | 0 | 302 | 1062 |
| 3:00 PM | 0 | 74 | 5 | 1 | 12 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 14 | 0 | 257 | 1061 |
| 3:15 PM | 0 | 119 | 1 | 0 | 12 | 153 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 12 | 0 | 306 | 1121 |
| 3:30 PM | 0 | 103 | 2 | 0 | 7 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 11 | 0 | 271 | 1136 |
| 3:45 PM | 0 | 107 | 3 | 0 | 15 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 15 | 0 | 309 | 1143 |
| 4:00 PM | 0 | 115 | 3 | 0 | 9 | 154 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 15 | 0 | 304 | 1190 |
| 4:15 PM | 0 | 118 | 4 | 0 | 15 | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 0 | 330 | 1214 |
| 4:30 PM | 0 | 131 | 5 | 0 | 6 | 180 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 17 | 0 | 349 | 1292 |
| 4:45 PM | 0 | 95 | 6 | 0 | 13 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 15 | 0 | 327 | 1310 |
| 5:00 PM | 0 | 89 | 7 | 0 | 19 | 181 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 33 | 0 | 339 | 1345 |
| 5:15 PM | 0 | 95 | 9 | 0 | 15 | 189 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 23 | 0 | 339 | 1354 |
| 5:30 PM | 0 | 79 | 5 | 0 | 16 | 161 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 16 | 0 | 283 | 1288 |
| 5:45 PM | 0 | 79 | 7 | 0 | 13 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 15 | 0 | 285 | 1246 |
| 6:00 PM | 0 | 83 | 1 | 0 | 10 | 156 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 14 | 0 | 266 | 1173 |
| 6:15 PM | 0 | 79 | 12 | 0 | 13 | 156 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 6 | 0 | 269 | 1103 |
| 6:30 PM | 0 | 60 | 5 | 0 | 12 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 12 | 0 | 197 | 1017 |
| 6:45 PM | 0 | 47 | 4 | 0 | 7 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 0 | 176 | 908 |
| 7:00 PM | 0 | 52 | 1 | 0 | 15 | 89 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 0 | 171 | 813 |
| 7:15 PM | 0 | 50 | 2 | 0 | 9 | 79 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 150 | 694 |
| 7:30 PM | 0 | 40 | 1 | 0 | 12 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 157 | 654 |
| 7:45 PM | 0 | 36 | 2 | 0 | 7 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 20 | 0 | 153 | 631 |
| 8:00 PM | 0 | 34 | 3 | 0 | 7 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 0 | 141 | 601 |
| 8:15 PM | 0 | 32 | 7 | 0 | 9 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 0 | 135 | 586 |
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| 8:45 PM | 0 | 33 | 4 | 0 | 5 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 99 | 488 |
| 9:00 PM | 0 | 18 | 4 | 0 | 5 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 6 | 0 | 78 | 425 |
| 9:15 PM | 0 | 23 | 1 | 0 | 7 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 94 | 384 |
| 9:30 PM | 0 | 25 | 1 | 0 | 9 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 95 | 366 |
| 9:45 PM | 0 | 15 | 2 | 0 | 5 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 61 | 328 |
| 10:00 PM | 0 | 20 | 1 | 0 | 2 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 62 | 312 |
| 10:15 PM | 0 | 14 | 1 | 0 | 1 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 54 | 272 |
| 10:30 PM | 0 | 13 | 0 | 0 | 3 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 53 | 230 |
| 10:45 PM | 0 | 7 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 31 | 200 |
| 11:00 PM | 0 | 13 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 36 | 174 |
| 11:15 PM | 0 | 6 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 24 | 144 |
| 11:30 PM | 0 | 8 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 117 |
| 11:45 PM | 0 | 10 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 104 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 524 | 20 | 0 | 24 | 720 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 68 | 0 | 1396 |
| Heavy Trucks | 0 | 4 | 0 | | 0 | 12 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 20 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 10/14/2019 2:36 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

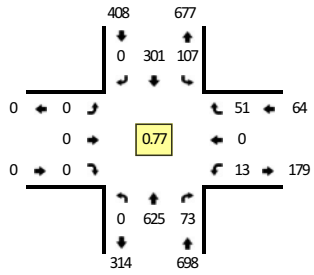
Type of peak hour being reported: User-Defined

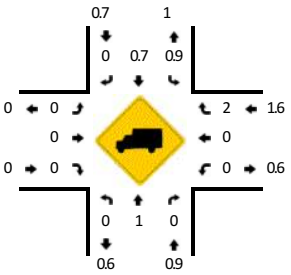
Method for determining peak hour: Total Entering Volume

**LOCATION:** Kuakini Hwy -- YWAM Driveway
**CITY/STATE:** Kailua, HI

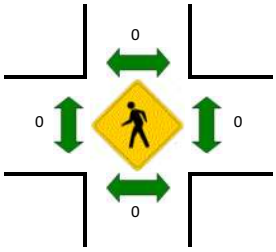
**QC JOB #:** 15036058
**DATE:** Thu, Oct 3 2019

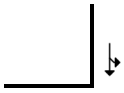
**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:45 AM -- 8:00 AM**

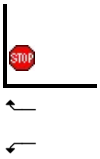


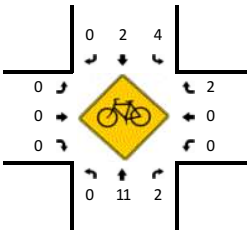



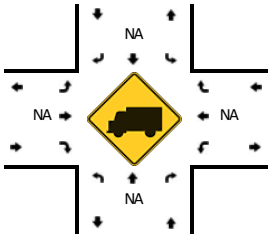

Quality Counts
DATA THAT DRIVES COMMUNITIES



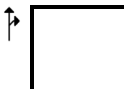



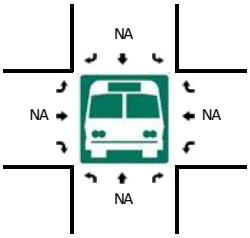









| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 12:00 AM | 0 | 6 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | |
| 12:15 AM | 0 | 7 | 1 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | |
| 12:30 AM | 0 | 2 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | |
| 12:45 AM | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 58 |
| 1:00 AM | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 39 |
| 1:15 AM | 0 | 2 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 33 |
| 1:30 AM | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 29 |
| 1:45 AM | 0 | 5 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 30 |
| 2:00 AM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 30 |
| 2:15 AM | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 26 |
| 2:30 AM | 0 | 1 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 26 |
| 2:45 AM | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 25 |
| 3:00 AM | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 27 |
| 3:15 AM | 0 | 10 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14 | 35 |
| 3:30 AM | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 32 |
| 3:45 AM | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 31 |
| 4:00 AM | 0 | 5 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 32 |
| 4:15 AM | 0 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 26 |
| 4:30 AM | 0 | 12 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 38 |
| 4:45 AM | 0 | 18 | 1 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 59 |
| 5:00 AM | 0 | 15 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 23 | 74 |
| 5:15 AM | 0 | 18 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 92 |
| 5:30 AM | 0 | 31 | 1 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 117 |
| 5:45 AM | 0 | 67 | 3 | 0 | 4 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 179 |
| 6:00 AM | 0 | 43 | 0 | 0 | 1 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 65 | 221 |
| 6:15 AM | 0 | 63 | 4 | 0 | 8 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 102 | 297 |
| 6:30 AM | 0 | 89 | 7 | 0 | 3 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 142 | 398 |
| 6:45 AM | 0 | 94 | 2 | 0 | 8 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 168 | 477 |
| 7:00 AM | 0 | 107 | 3 | 0 | 8 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 10 | 0 | 198 | 610 |
| 7:15 AM | 0 | 127 | 5 | 0 | 8 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 229 | 737 |
| 7:30 AM | 0 | 148 | 12 | 0 | 28 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 261 | 856 |
| 7:45 AM | 0 | 182 | 43 | 0 | 50 | 84 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 19 | 0 | 381 | 1069 |
| 8:00 AM | 0 | 168 | 13 | 0 | 20 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 20 | 0 | 299 | 1170 |
| 8:15 AM | 0 | 126 | 8 | 0 | 15 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 11 | 0 | 235 | 1176 |
| 8:30 AM | 0 | 143 | 4 | 0 | 15 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 243 | 1158 |
| 8:45 AM | 0 | 124 | 11 | 0 | 19 | 96 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 259 | 1036 |
| 9:00 AM | 0 | 108 | 3 | 0 | 11 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 29 | 0 | 237 | 974 |
| 9:15 AM | 0 | 105 | 6 | 0 | 6 | 84 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 218 | 957 |

| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 9:30 AM | 0 | 118 | 4 | 0 | 14 | 86 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 233 | 947 |
| 9:45 AM | 0 | 91 | 2 | 0 | 4 | 92 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 199 | 887 |
| 10:00 AM | 0 | 111 | 3 | 0 | 4 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 8 | 0 | 226 | 876 |
| 10:15 AM | 0 | 113 | 6 | 0 | 12 | 86 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 12 | 0 | 232 | 890 |
| 10:30 AM | 0 | 104 | 0 | 0 | 4 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 214 | 871 |
| 10:45 AM | 0 | 118 | 2 | 0 | 12 | 93 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 0 | 240 | 912 |
| 11:00 AM | 0 | 107 | 6 | 0 | 6 | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 232 | 918 |
| 11:15 AM | 0 | 127 | 2 | 0 | 21 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 254 | 940 |
| 11:30 AM | 0 | 106 | 5 | 0 | 18 | 104 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 249 | 975 |
| 11:45 AM | 0 | 93 | 8 | 0 | 17 | 95 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 8 | 0 | 227 | 962 |
| 12:00 PM | 0 | 97 | 3 | 0 | 12 | 115 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 31 | 0 | 263 | 993 |
| 12:15 PM | 0 | 87 | 11 | 0 | 7 | 116 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 17 | 0 | 244 | 983 |
| 12:30 PM | 0 | 109 | 5 | 0 | 20 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 21 | 0 | 258 | 992 |
| 12:45 PM | 0 | 91 | 3 | 0 | 17 | 131 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 13 | 0 | 260 | 1025 |
| 1:00 PM | 0 | 83 | 3 | 0 | 18 | 127 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 1 | 249 | 1011 |
| 1:15 PM | 0 | 99 | 5 | 0 | 16 | 137 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 1 | 275 | 1042 |
| 1:30 PM | 0 | 91 | 0 | 0 | 15 | 121 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 8 | 0 | 239 | 1023 |
| 1:45 PM | 0 | 99 | 4 | 0 | 17 | 119 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 256 | 1019 |
| 2:00 PM | 0 | 102 | 5 | 0 | 11 | 152 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 16 | 0 | 290 | 1060 |
| 2:15 PM | 0 | 125 | 2 | 0 | 11 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 278 | 1063 |
| 2:30 PM | 0 | 96 | 7 | 0 | 18 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 13 | 0 | 236 | 1060 |
| 2:45 PM | 0 | 101 | 8 | 0 | 21 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 39 | 0 | 326 | 1130 |
| 3:00 PM | 0 | 108 | 4 | 0 | 20 | 131 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 28 | 0 | 304 | 1144 |
| 3:15 PM | 0 | 99 | 14 | 0 | 15 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 15 | 0 | 310 | 1176 |
| 3:30 PM | 0 | 98 | 0 | 0 | 7 | 142 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 11 | 0 | 261 | 1201 |
| 3:45 PM | 0 | 131 | 1 | 0 | 6 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 16 | 0 | 322 | 1197 |
| 4:00 PM | 0 | 118 | 3 | 0 | 15 | 128 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 276 | 1169 |
| 4:15 PM | 0 | 131 | 6 | 0 | 14 | 140 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 19 | 0 | 312 | 1171 |
| 4:30 PM | 0 | 135 | 4 | 0 | 12 | 169 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 28 | 0 | 352 | 1262 |
| 4:45 PM | 0 | 104 | 3 | 0 | 16 | 163 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 21 | 0 | 318 | 1258 |
| 5:00 PM | 0 | 94 | 2 | 0 | 14 | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 11 | 0 | 302 | 1284 |
| 5:15 PM | 0 | 87 | 4 | 0 | 12 | 162 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 17 | 0 | 284 | 1256 |
| 5:30 PM | 0 | 77 | 10 | 0 | 20 | 144 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 10 | 0 | 266 | 1170 |
| 5:45 PM | 0 | 81 | 9 | 0 | 21 | 139 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 262 | 1114 |
| 6:00 PM | 0 | 79 | 7 | 0 | 19 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 10 | 0 | 266 | 1078 |
| 6:15 PM | 0 | 75 | 8 | 0 | 10 | 137 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 239 | 1033 |
| 6:30 PM | 0 | 83 | 3 | 0 | 7 | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 | 0 | 227 | 994 |
| 6:45 PM | 0 | 73 | 5 | 0 | 6 | 121 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 214 | 946 |
| 7:00 PM | 0 | 62 | 4 | 0 | 5 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 189 | 869 |
| 7:15 PM | 0 | 67 | 1 | 0 | 4 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 178 | 808 |
| 7:30 PM | 0 | 43 | 3 | 0 | 4 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 151 | 732 |
| 7:45 PM | 0 | 37 | 0 | 0 | 9 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 10 | 0 | 144 | 662 |
| 8:00 PM | 0 | 45 | 4 | 0 | 5 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 18 | 0 | 153 | 626 |
| 8:15 PM | 0 | 33 | 3 | 0 | 4 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 161 | 609 |
| 8:30 PM | 0 | 22 | 1 | 0 | 6 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 24 | 0 | 136 | 594 |
| 8:45 PM | 0 | 24 | 2 | 0 | 11 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 118 | 568 |
| 9:00 PM | 0 | 20 | 4 | 0 | 4 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 80 | 495 |
| 9:15 PM | 0 | 27 | 1 | 0 | 8 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 92 | 426 |
| 9:30 PM | 0 | 18 | 0 | 0 | 7 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 85 | 375 |
| 9:45 PM | 0 | 20 | 3 | 0 | 4 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 10 | 0 | 77 | 334 |
| 10:00 PM | 0 | 10 | 0 | 0 | 6 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 54 | 308 |
| 10:15 PM | 0 | 17 | 0 | 0 | 4 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 60 | 276 |
| 10:30 PM | 0 | 17 | 1 | 0 | 2 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 63 | 254 |
| 10:45 PM | 0 | 8 | 0 | 0 | 3 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 41 | 218 |
| 11:00 PM | 0 | 11 | 1 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 42 | 206 |
| 11:15 PM | 0 | 11 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 177 |
| 11:30 PM | 0 | 12 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 141 |
| 11:45 PM | 0 | 9 | 1 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 126 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 728 | 172 | 0 | 200 | 336 | 0 | 4 | 0 | 0 | 0 | 0 | 8 | 0 | 76 | 0 | 1524 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 4 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 5 | 0 | | 2 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 1 | | 8 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 10/24/2019 1:09 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

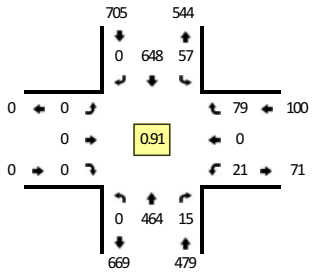
Type of peak hour being reported: Intersection Peak

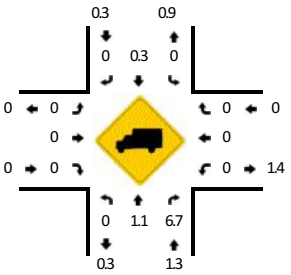
Method for determining peak hour: Total Entering Volume

**LOCATION:** Kuakini Hwy -- YWAM Driveway
**CITY/STATE:** Kailua, HI

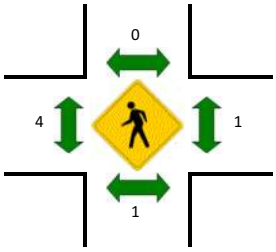
**QC JOB #:** 15036058
**DATE:** Thu, Oct 3 2019

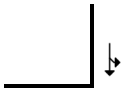
**Peak-Hour: 4:15 PM -- 5:15 PM**
**Peak 15-Min: 4:30 PM -- 4:45 PM**

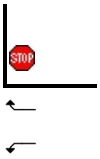


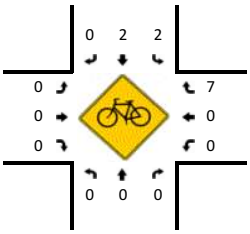



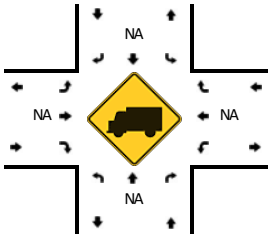

Quality Counts
DATA THAT DRIVES COMMUNITIES



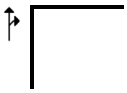



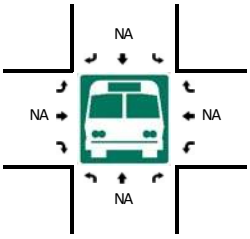









| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 12:00 AM | 0 | 6 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | |
| 12:15 AM | 0 | 7 | 1 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | |
| 12:30 AM | 0 | 2 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | |
| 12:45 AM | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 58 |
| 1:00 AM | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 39 |
| 1:15 AM | 0 | 2 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 33 |
| 1:30 AM | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 29 |
| 1:45 AM | 0 | 5 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 30 |
| 2:00 AM | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 30 |
| 2:15 AM | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 26 |
| 2:30 AM | 0 | 1 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 26 |
| 2:45 AM | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 25 |
| 3:00 AM | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 27 |
| 3:15 AM | 0 | 10 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 14 | 35 |
| 3:30 AM | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 32 |
| 3:45 AM | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 31 |
| 4:00 AM | 0 | 5 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 32 |
| 4:15 AM | 0 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 26 |
| 4:30 AM | 0 | 12 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 38 |
| 4:45 AM | 0 | 18 | 1 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 59 |
| 5:00 AM | 0 | 15 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 23 | 74 |
| 5:15 AM | 0 | 18 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 92 |
| 5:30 AM | 0 | 31 | 1 | 0 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 117 |
| 5:45 AM | 0 | 67 | 3 | 0 | 4 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 179 |
| 6:00 AM | 0 | 43 | 0 | 0 | 1 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 65 | 221 |
| 6:15 AM | 0 | 63 | 4 | 0 | 8 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 102 | 297 |
| 6:30 AM | 0 | 89 | 7 | 0 | 3 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 142 | 398 |
| 6:45 AM | 0 | 94 | 2 | 0 | 8 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 168 | 477 |
| 7:00 AM | 0 | 107 | 3 | 0 | 8 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 10 | 0 | 198 | 610 |
| 7:15 AM | 0 | 127 | 5 | 0 | 8 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 229 | 737 |
| 7:30 AM | 0 | 148 | 12 | 0 | 28 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 261 | 856 |
| 7:45 AM | 0 | 182 | 43 | 0 | 50 | 84 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 19 | 0 | 381 | 1069 |
| 8:00 AM | 0 | 168 | 13 | 0 | 20 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 20 | 0 | 299 | 1170 |
| 8:15 AM | 0 | 126 | 8 | 0 | 15 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 11 | 0 | 235 | 1176 |
| 8:30 AM | 0 | 143 | 4 | 0 | 15 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 243 | 1158 |
| 8:45 AM | 0 | 124 | 11 | 0 | 19 | 96 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 259 | 1036 |
| 9:00 AM | 0 | 108 | 3 | 0 | 11 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 29 | 0 | 237 | 974 |
| 9:15 AM | 0 | 105 | 6 | 0 | 6 | 84 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 218 | 957 |
| 9:30 AM | 0 | 118 | 4 | 0 | 14 | 86 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 233 | 947 |

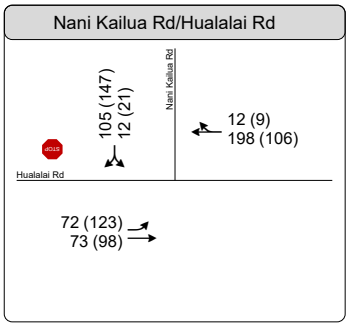
| 15-Min Count Period Beginning At | Kuakini Hwy (Northbound) | | | | Kuakini Hwy (Southbound) | | | | YWAM Driveway (Eastbound) | | | | YWAM Driveway (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 9:45 AM | 0 | 91 | 2 | 0 | 4 | 92 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 7 | 0 | 199 | 887 |
| 10:00 AM | 0 | 111 | 3 | 0 | 4 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 8 | 0 | 226 | 876 |
| 10:15 AM | 0 | 113 | 6 | 0 | 12 | 86 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 12 | 0 | 232 | 890 |
| 10:30 AM | 0 | 104 | 0 | 0 | 4 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 214 | 871 |
| 10:45 AM | 0 | 118 | 2 | 0 | 12 | 93 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 0 | 240 | 912 |
| 11:00 AM | 0 | 107 | 6 | 0 | 6 | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 232 | 918 |
| 11:15 AM | 0 | 127 | 2 | 0 | 21 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 254 | 940 |
| 11:30 AM | 0 | 106 | 5 | 0 | 18 | 104 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 249 | 975 |
| 11:45 AM | 0 | 93 | 8 | 0 | 17 | 95 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 8 | 0 | 227 | 962 |
| 12:00 PM | 0 | 97 | 3 | 0 | 12 | 115 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 31 | 0 | 263 | 993 |
| 12:15 PM | 0 | 87 | 11 | 0 | 7 | 116 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 17 | 0 | 244 | 983 |
| 12:30 PM | 0 | 109 | 5 | 0 | 20 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 21 | 0 | 258 | 992 |
| 12:45 PM | 0 | 91 | 3 | 0 | 17 | 131 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 13 | 0 | 260 | 1025 |
| 1:00 PM | 0 | 83 | 3 | 0 | 18 | 127 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 1 | 249 | 1011 |
| 1:15 PM | 0 | 99 | 5 | 0 | 16 | 137 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 1 | 275 | 1042 |
| 1:30 PM | 0 | 91 | 0 | 0 | 15 | 121 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 8 | 0 | 239 | 1023 |
| 1:45 PM | 0 | 99 | 4 | 0 | 17 | 119 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 12 | 0 | 256 | 1019 |
| 2:00 PM | 0 | 102 | 5 | 0 | 11 | 152 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 16 | 0 | 290 | 1060 |
| 2:15 PM | 0 | 125 | 2 | 0 | 11 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 10 | 0 | 278 | 1063 |
| 2:30 PM | 0 | 96 | 7 | 0 | 18 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 13 | 0 | 236 | 1060 |
| 2:45 PM | 0 | 101 | 8 | 0 | 21 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 39 | 0 | 326 | 1130 |
| 3:00 PM | 0 | 108 | 4 | 0 | 20 | 131 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 28 | 0 | 304 | 1144 |
| 3:15 PM | 0 | 99 | 14 | 0 | 15 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 15 | 0 | 310 | 1176 |
| 3:30 PM | 0 | 98 | 0 | 0 | 7 | 142 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 11 | 0 | 261 | 1201 |
| 3:45 PM | 0 | 131 | 1 | 0 | 6 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 16 | 0 | 322 | 1197 |
| 4:00 PM | 0 | 118 | 3 | 0 | 15 | 128 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 9 | 0 | 276 | 1169 |
| 4:15 PM | 0 | 131 | 6 | 0 | 14 | 140 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 19 | 0 | 312 | 1171 |
| 4:30 PM | 0 | 135 | 4 | 0 | 12 | 169 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 28 | 0 | 352 | 1262 |
| 4:45 PM | 0 | 104 | 3 | 0 | 16 | 163 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 21 | 0 | 318 | 1258 |
| 5:00 PM | 0 | 94 | 2 | 0 | 14 | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 11 | 0 | 302 | 1284 |
| 5:15 PM | 0 | 87 | 4 | 0 | 12 | 162 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 17 | 0 | 284 | 1256 |
| 5:30 PM | 0 | 77 | 10 | 0 | 20 | 144 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 10 | 0 | 266 | 1170 |
| 5:45 PM | 0 | 81 | 9 | 0 | 21 | 139 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 262 | 1114 |
| 6:00 PM | 0 | 79 | 7 | 0 | 19 | 148 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 10 | 0 | 266 | 1078 |
| 6:15 PM | 0 | 75 | 8 | 0 | 10 | 137 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 239 | 1033 |
| 6:30 PM | 0 | 83 | 3 | 0 | 7 | 122 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 9 | 0 | 227 | 994 |
| 6:45 PM | 0 | 73 | 5 | 0 | 6 | 121 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 0 | 214 | 946 |
| 7:00 PM | 0 | 62 | 4 | 0 | 5 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 8 | 0 | 189 | 869 |
| 7:15 PM | 0 | 67 | 1 | 0 | 4 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 178 | 808 |
| 7:30 PM | 0 | 43 | 3 | 0 | 4 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 151 | 732 |
| 7:45 PM | 0 | 37 | 0 | 0 | 9 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 10 | 0 | 144 | 662 |
| 8:00 PM | 0 | 45 | 4 | 0 | 5 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 18 | 0 | 153 | 626 |
| 8:15 PM | 0 | 33 | 3 | 0 | 4 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 161 | 609 |
| 8:30 PM | 0 | 22 | 1 | 0 | 6 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 24 | 0 | 136 | 594 |
| 8:45 PM | 0 | 24 | 2 | 0 | 11 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 16 | 0 | 118 | 568 |
| 9:00 PM | 0 | 20 | 4 | 0 | 4 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 0 | 80 | 495 |
| 9:15 PM | 0 | 27 | 1 | 0 | 8 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 5 | 0 | 92 | 426 |
| 9:30 PM | 0 | 18 | 0 | 0 | 7 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 85 | 375 |
| 9:45 PM | 0 | 20 | 3 | 0 | 4 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 10 | 0 | 77 | 334 |
| 10:00 PM | 0 | 10 | 0 | 0 | 6 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 54 | 308 |
| 10:15 PM | 0 | 17 | 0 | 0 | 4 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 60 | 276 |
| 10:30 PM | 0 | 17 | 1 | 0 | 2 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 63 | 254 |
| 10:45 PM | 0 | 8 | 0 | 0 | 3 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 41 | 218 |
| 11:00 PM | 0 | 11 | 1 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 42 | 206 |
| 11:15 PM | 0 | 11 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 177 |
| 11:30 PM | 0 | 12 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 141 |
| 11:45 PM | 0 | 9 | 1 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 126 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 0 | 540 | 16 | 0 | 48 | 676 | 0 | 4 | 0 | 0 | 0 | 0 | 12 | 0 | 112 | 0 | 1408 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 4 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 12 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 4 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 2 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 1 | | 4 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments:*

Report generated on 10/14/2019 2:36 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212




AM and PM Peak Hour counts were manually collected at this intersection during field observation on 30 September 2019.

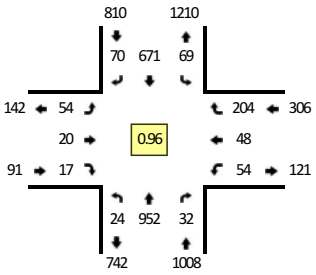
Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

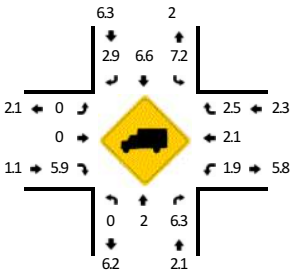
**LOCATION:** Queen Kaahumanu Hwy -- Nani Kailua Dr
**CITY/STATE:** Kailua, HI

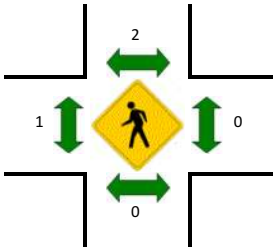
**QC JOB #:** 15036001
**DATE:** Tue, Oct 1 2019

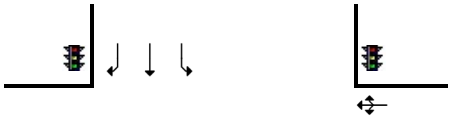
**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:30 AM -- 7:45 AM**

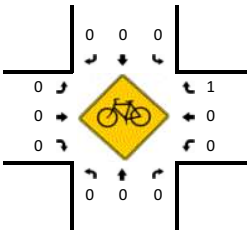


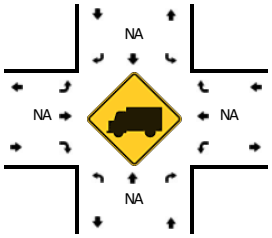

Quality Counts
DATA THAT DRIVES COMMUNITIES

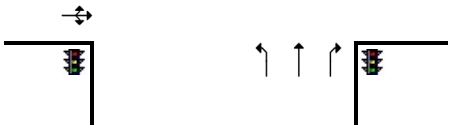


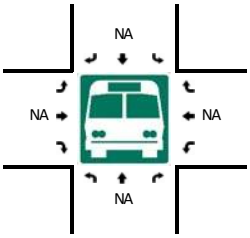








| 15-Min Count Period Beginning At | Queen Kaahumanu Hwy (Northbound) | | | | Queen Kaahumanu Hwy (Southbound) | | | | Nani Kailua Dr (Eastbound) | | | | Nani Kailua Dr (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 2 | 173 | 0 | 0 | 2 | 77 | 2 | 0 | 7 | 0 | 4 | 0 | 6 | 4 | 17 | 0 | 294 | |
| 6:15 AM | 3 | 253 | 4 | 0 | 4 | 112 | 2 | 0 | 8 | 2 | 0 | 0 | 5 | 8 | 22 | 0 | 423 | |
| 6:30 AM | 2 | 247 | 1 | 0 | 10 | 132 | 6 | 0 | 7 | 2 | 0 | 0 | 7 | 7 | 28 | 0 | 449 | |
| 6:45 AM | 3 | 243 | 6 | 0 | 13 | 167 | 8 | 0 | 12 | 1 | 2 | 0 | 16 | 7 | 31 | 1 | 510 | 1676 |
| 7:00 AM | 2 | 264 | 5 | 0 | 12 | 188 | 10 | 0 | 8 | 2 | 2 | 0 | 12 | 6 | 27 | 0 | 538 | 1920 |
| 7:15 AM | 5 | 256 | 7 | 0 | 13 | 189 | 14 | 0 | 11 | 2 | 6 | 0 | 17 | 6 | 44 | 0 | 570 | 2067 |
| 7:30 AM | 6 | 235 | 5 | 0 | 12 | 177 | 21 | 0 | 14 | 5 | 5 | 0 | 22 | 20 | 53 | 0 | 575 | 2193 |
| 7:45 AM | 12 | 235 | 13 | 0 | 16 | 160 | 20 | 0 | 9 | 9 | 3 | 0 | 9 | 14 | 56 | 0 | 556 | 2239 |
| 8:00 AM | 1 | 226 | 7 | 0 | 28 | 145 | 15 | 0 | 20 | 4 | 3 | 0 | 6 | 8 | 51 | 0 | 514 | 2215 |
| 8:15 AM | 2 | 242 | 8 | 0 | 24 | 179 | 17 | 0 | 16 | 1 | 4 | 0 | 4 | 7 | 26 | 0 | 530 | 2175 |
| 8:30 AM | 0 | 243 | 6 | 0 | 26 | 156 | 15 | 0 | 14 | 2 | 2 | 0 | 6 | 14 | 29 | 0 | 513 | 2113 |
| 8:45 AM | 5 | 257 | 5 | 0 | 9 | 170 | 19 | 0 | 11 | 10 | 3 | 0 | 6 | 8 | 36 | 0 | 539 | 2096 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 24 | 940 | 20 | 0 | 48 | 708 | 84 | 0 | 56 | 20 | 20 | 0 | 88 | 80 | 212 | 0 | 2300 |
| Heavy Trucks | 0 | 16 | 4 | | 0 | 36 | 4 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 64 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 1 | | 1 |
| Railroad Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

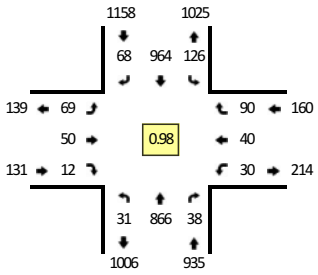
Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

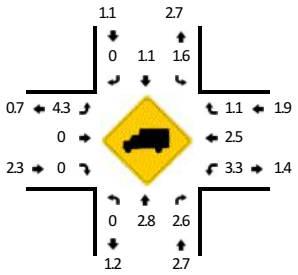
**LOCATION:** Queen Kaahumanu Hwy -- Nani Kailua Dr
**CITY/STATE:** Kailua, HI

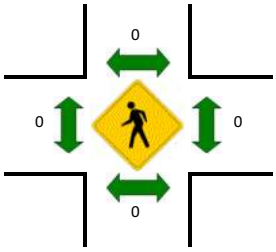
**QC JOB #:** 15036002
**DATE:** Tue, Oct 1 2019

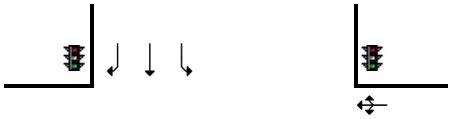
**Peak-Hour: 3:15 PM -- 4:15 PM**
**Peak 15-Min: 3:30 PM -- 3:45 PM**

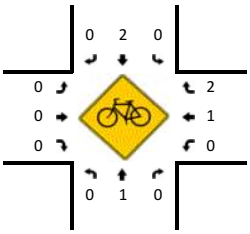


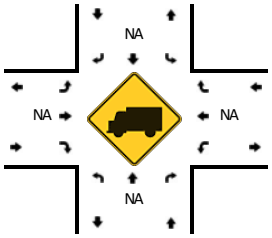

Quality Counts
DATA THAT DRIVES COMMUNITIES

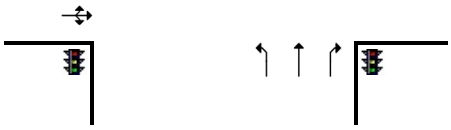


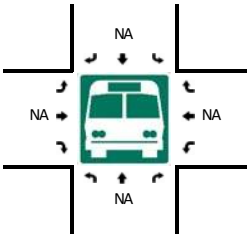








| 15-Min Count Period Beginning At | Queen Kaahumanu Hwy (Northbound) | | | | Queen Kaahumanu Hwy (Southbound) | | | | Nani Kailua Dr (Eastbound) | | | | Nani Kailua Dr (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 3:00 PM | 8 | 248 | 14 | 0 | 35 | 226 | 32 | 0 | 16 | 17 | 9 | 0 | 9 | 10 | 31 | 0 | 655 | |
| 3:15 PM | 6 | 194 | 8 | 0 | 36 | 241 | 16 | 0 | 16 | 12 | 3 | 0 | 8 | 16 | 23 | 0 | 579 | |
| 3:30 PM | 6 | 239 | 7 | 0 | 38 | 248 | 15 | 0 | 15 | 12 | 0 | 0 | 5 | 6 | 19 | 0 | 610 | |
| 3:45 PM | 12 | 223 | 9 | 0 | 28 | 237 | 21 | 0 | 14 | 13 | 0 | 0 | 13 | 10 | 22 | 0 | 602 | 2446 |
| 4:00 PM | 7 | 210 | 14 | 0 | 24 | 238 | 16 | 0 | 24 | 13 | 9 | 0 | 4 | 8 | 26 | 0 | 593 | 2384 |
| 4:15 PM | 9 | 198 | 0 | 0 | 23 | 200 | 17 | 0 | 16 | 15 | 3 | 0 | 10 | 8 | 30 | 0 | 529 | 2334 |
| 4:30 PM | 7 | 212 | 10 | 0 | 24 | 237 | 19 | 0 | 14 | 7 | 4 | 0 | 8 | 7 | 27 | 0 | 576 | 2300 |
| 4:45 PM | 6 | 189 | 9 | 0 | 33 | 238 | 22 | 0 | 14 | 16 | 4 | 0 | 12 | 7 | 13 | 0 | 563 | 2261 |
| 5:00 PM | 4 | 160 | 5 | 0 | 42 | 224 | 12 | 0 | 13 | 16 | 2 | 0 | 5 | 9 | 30 | 1 | 523 | 2191 |
| 5:15 PM | 4 | 173 | 8 | 0 | 29 | 241 | 19 | 0 | 11 | 18 | 2 | 0 | 5 | 6 | 21 | 0 | 537 | 2199 |
| 5:30 PM | 2 | 152 | 6 | 0 | 34 | 224 | 20 | 0 | 14 | 12 | 2 | 0 | 9 | 6 | 32 | 0 | 513 | 2136 |
| 5:45 PM | 4 | 161 | 12 | 0 | 28 | 232 | 12 | 0 | 7 | 13 | 4 | 0 | 5 | 8 | 23 | 0 | 509 | 2082 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 24 | 956 | 28 | 0 | 152 | 992 | 60 | 0 | 60 | 48 | 0 | 0 | 20 | 24 | 76 | 0 | 2440 |
| Heavy Trucks | 0 | 24 | 0 | | 4 | 12 | 0 | | 4 | 0 | 0 | | 0 | 0 | 0 | | 44 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 1 | 2 | | 5 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

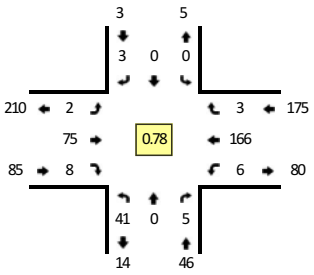
Type of peak hour being reported: System Peak

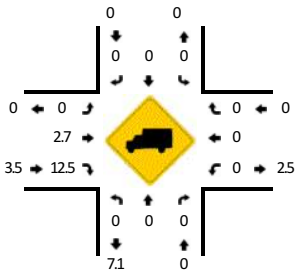
Method for determining peak hour: Total Entering Volume

**LOCATION:** NW Loop -- Hualalai Rd
**CITY/STATE:** Kailua, HI

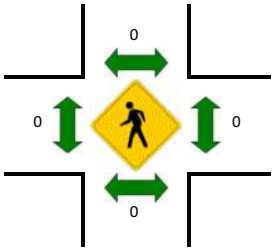
**QC JOB #:** 15036011
**DATE:** Tue, Oct 1 2019

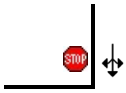
**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:30 AM -- 7:45 AM**

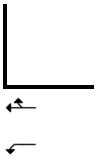


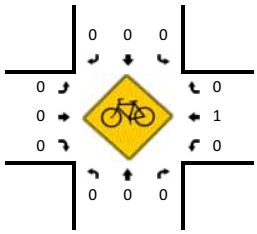



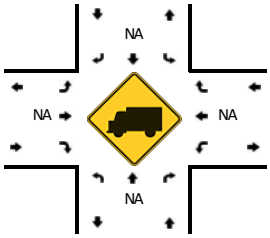

Quality Counts
DATA THAT DRIVES COMMUNITIES

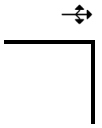


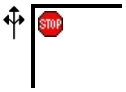



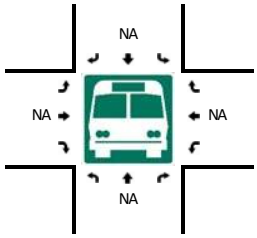








| 15-Min Count Period Beginning At | NW Loop (Northbound) | | | | NW Loop (Southbound) | | | | Hualalai Rd (Eastbound) | | | | Hualalai Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 10 | 1 | 0 | 22 | |
| 6:15 AM | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 4 | 0 | 0 | 18 | |
| 6:30 AM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 1 | 16 | 4 | 0 | 29 | |
| 6:45 AM | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 1 | 24 | 3 | 0 | 48 | 117 |
| 7:00 AM | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13 | 4 | 0 | 1 | 16 | 2 | 0 | 40 | 135 |
| 7:15 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 28 | 0 | 0 | 0 | 24 | 0 | 0 | 60 | 177 |
| 7:30 AM | 14 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 24 | 2 | 0 | 4 | 51 | 1 | 0 | 99 | 247 |
| 7:45 AM | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 1 | 56 | 0 | 0 | 81 | 280 |
| 8:00 AM | 10 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 11 | 6 | 0 | 1 | 35 | 2 | 0 | 69 | 309 |
| 8:15 AM | 2 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 15 | 1 | 0 | 0 | 43 | 2 | 0 | 67 | 316 |
| 8:30 AM | 3 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 11 | 1 | 0 | 1 | 41 | 1 | 0 | 61 | 278 |
| 8:45 AM | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 11 | 1 | 0 | 1 | 57 | 1 | 0 | 77 | 274 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 56 | 0 | 4 | 0 | 0 | 0 | 8 | 0 | 0 | 96 | 8 | 0 | 16 | 204 | 4 | 0 | 396 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 4 | | 0 | 0 | 0 | | 4 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 1 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

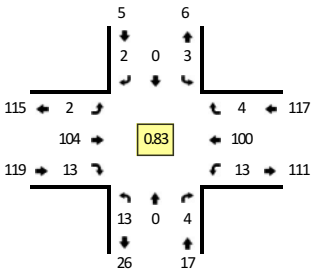
Type of peak hour being reported: System Peak

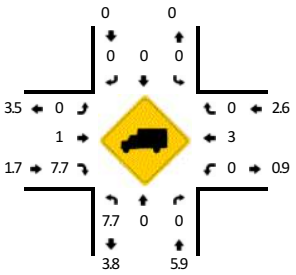
Method for determining peak hour: Total Entering Volume

**LOCATION:** NW Loop -- Hualalai Rd
**CITY/STATE:** Kailua, HI

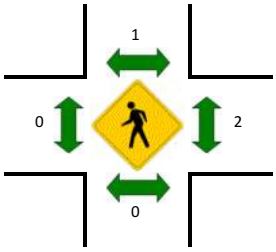
**QC JOB #:** 15036012
**DATE:** Tue, Oct 1 2019

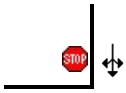
**Peak-Hour: 3:15 PM -- 4:15 PM**
**Peak 15-Min: 4:00 PM -- 4:15 PM**

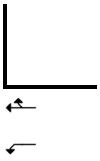


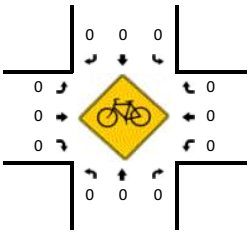



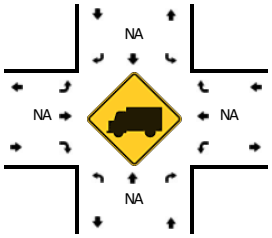

Quality Counts
DATA THAT DRIVES COMMUNITIES

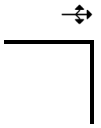


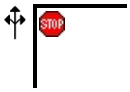



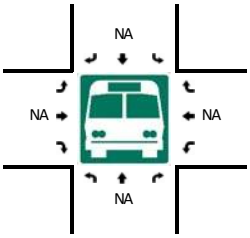








| 15-Min Count Period Beginning At | NW Loop (Northbound) | | | | NW Loop (Southbound) | | | | Hualalai Rd (Eastbound) | | | | Hualalai Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 3:00 PM | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 23 | 6 | 0 | 3 | 27 | 0 | 0 | 64 | |
| 3:15 PM | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 22 | 5 | 0 | 1 | 15 | 0 | 0 | 48 | |
| 3:30 PM | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 21 | 5 | 0 | 2 | 28 | 0 | 0 | 61 | |
| 3:45 PM | 3 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 27 | 2 | 0 | 3 | 31 | 3 | 0 | 71 | 244 |
| 4:00 PM | 5 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 34 | 1 | 0 | 7 | 26 | 1 | 0 | 78 | 258 |
| 4:15 PM | 3 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 22 | 6 | 0 | 2 | 27 | 0 | 1 | 64 | 274 |
| 4:30 PM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 5 | 0 | 2 | 23 | 2 | 0 | 57 | 270 |
| 4:45 PM | 6 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 27 | 0 | 0 | 4 | 13 | 0 | 0 | 54 | 253 |
| 5:00 PM | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 31 | 2 | 0 | 3 | 13 | 0 | 0 | 54 | 229 |
| 5:15 PM | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 14 | 7 | 0 | 2 | 7 | 0 | 0 | 35 | 200 |
| 5:30 PM | 4 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 19 | 3 | 0 | 0 | 13 | 0 | 0 | 42 | 185 |
| 5:45 PM | 5 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 15 | 4 | 0 | 3 | 7 | 0 | 0 | 36 | 167 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 20 | 0 | 12 | 0 | 4 | 0 | 0 | 0 | 0 | 136 | 4 | 0 | 28 | 104 | 4 | 0 | 312 |
| Heavy Trucks | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 4 | 0 | | 4 |
| Pedestrians | | 0 | | | | 4 | | | | 0 | | | | 0 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

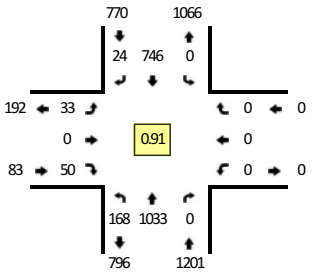
Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

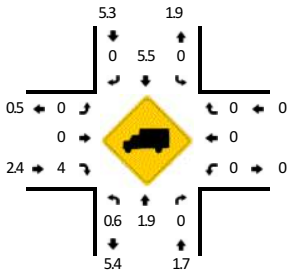
**LOCATION:** Queen Kaahumanu Hwy -- Hualalai Rd
**CITY/STATE:** Kailua, HI

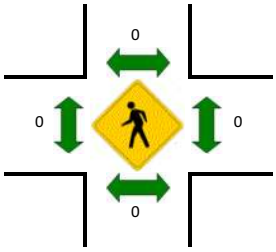
**QC JOB #:** 15036007
**DATE:** Tue, Oct 1 2019

**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:15 AM -- 7:30 AM**

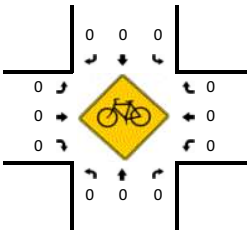


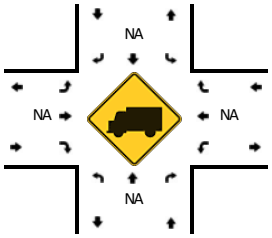




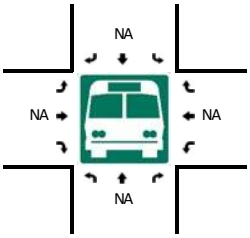












| 15-Min Count Period Beginning At | Queen Kaahumanu Hwy (Northbound) | | | | Queen Kaahumanu Hwy (Southbound) | | | | Hualalai Rd (Eastbound) | | | | Hualalai Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 10 | 169 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 275 | |
| 6:15 AM | 4 | 246 | 0 | 0 | 0 | 111 | 0 | 0 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 370 | |
| 6:30 AM | 20 | 249 | 0 | 0 | 0 | 127 | 5 | 0 | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 410 | |
| 6:45 AM | 29 | 254 | 0 | 0 | 0 | 184 | 4 | 0 | 1 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 482 | 1537 |
| 7:00 AM | 19 | 282 | 0 | 0 | 0 | 190 | 6 | 0 | 4 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 510 | 1772 |
| 7:15 AM | 27 | 283 | 0 | 0 | 0 | 214 | 10 | 0 | 14 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 564 | 1966 |
| 7:30 AM | 49 | 256 | 0 | 0 | 0 | 206 | 11 | 0 | 15 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 546 | 2102 |
| 7:45 AM | 56 | 240 | 0 | 0 | 0 | 176 | 2 | 0 | 4 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 489 | 2109 |
| 8:00 AM | 36 | 254 | 0 | 0 | 0 | 150 | 1 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 455 | 2054 |
| 8:15 AM | 37 | 262 | 0 | 0 | 0 | 192 | 2 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 510 | 2000 |
| 8:30 AM | 36 | 255 | 0 | 0 | 0 | 178 | 2 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 480 | 1934 |
| 8:45 AM | 53 | 263 | 0 | 0 | 0 | 184 | 1 | 0 | 1 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 513 | 1958 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 108 | 1132 | 0 | 0 | 0 | 856 | 40 | 0 | 56 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 2256 |
| Heavy Trucks | 0 | 8 | 0 | | 0 | 16 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 24 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

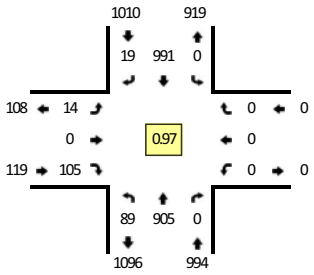
Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

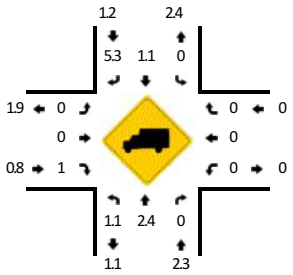
**LOCATION:** Queen Kaahumanu Hwy -- Hualalai Rd
**CITY/STATE:** Kailua, HI

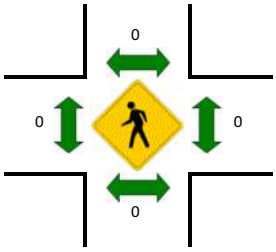
**QC JOB #:** 15036008
**DATE:** Tue, Oct 1 2019

**Peak-Hour: 3:15 PM -- 4:15 PM**
**Peak 15-Min: 4:00 PM -- 4:15 PM**

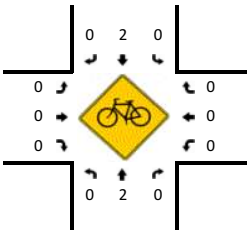


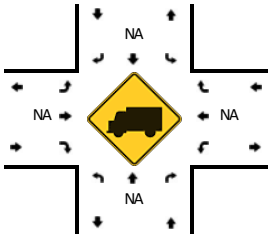

Quality Counts
DATA THAT DRIVES COMMUNITIES



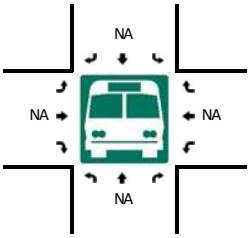












| 15-Min Count Period Beginning At | Queen Kaahumanu Hwy (Northbound) | | | | Queen Kaahumanu Hwy (Southbound) | | | | Hualalai Rd (Eastbound) | | | | Hualalai Rd (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 3:00 PM | 23 | 237 | 0 | 0 | 0 | 237 | 6 | 0 | 1 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 528 | |
| 3:15 PM | 14 | 218 | 0 | 0 | 0 | 251 | 3 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 509 | |
| 3:30 PM | 23 | 227 | 0 | 0 | 0 | 245 | 2 | 0 | 4 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 524 | |
| 3:45 PM | 32 | 236 | 0 | 0 | 0 | 241 | 6 | 0 | 2 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 542 | 2103 |
| 4:00 PM | 20 | 224 | 0 | 0 | 0 | 254 | 8 | 0 | 8 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 548 | 2123 |
| 4:15 PM | 26 | 219 | 0 | 0 | 0 | 217 | 2 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 488 | 2102 |
| 4:30 PM | 22 | 198 | 0 | 0 | 0 | 240 | 5 | 0 | 4 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 487 | 2065 |
| 4:45 PM | 13 | 203 | 0 | 0 | 0 | 244 | 4 | 0 | 4 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 492 | 2015 |
| 5:00 PM | 11 | 163 | 0 | 0 | 0 | 237 | 4 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 446 | 1913 |
| 5:15 PM | 7 | 175 | 0 | 0 | 0 | 235 | 3 | 0 | 3 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 440 | 1865 |
| 5:30 PM | 13 | 155 | 0 | 0 | 0 | 235 | 3 | 0 | 2 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 429 | 1807 |
| 5:45 PM | 12 | 170 | 0 | 0 | 0 | 240 | 7 | 0 | 1 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 445 | 1760 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 80 | 896 | 0 | 0 | 0 | 1016 | 32 | 0 | 32 | 0 | 136 | 0 | 0 | 0 | 0 | 0 | 2192 |
| Heavy Trucks | 4 | 16 | 0 | | 0 | 16 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 36 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 1 | 0 | | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 2 |
| Railroad Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

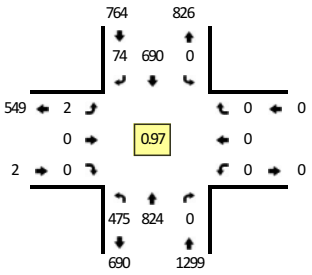
Type of peak hour being reported: System Peak

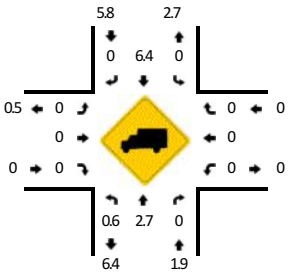
Method for determining peak hour: Total Entering Volume

**LOCATION:** Queen Kaahumanu Hwy -- Kuakini Hwy
**CITY/STATE:** Holualoa, HI

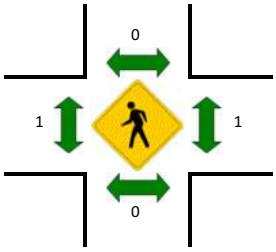
**QC JOB #:** 15036049
**DATE:** Tue, Oct 1 2019

**Peak-Hour: 7:15 AM -- 8:15 AM**
**Peak 15-Min: 7:15 AM -- 7:30 AM**

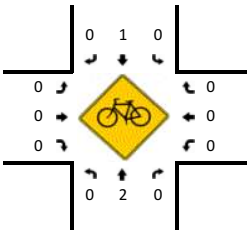


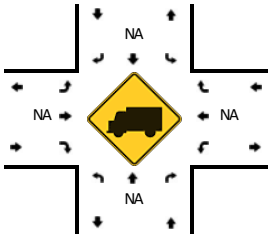




Quality Counts
DATA THAT DRIVES COMMUNITIES

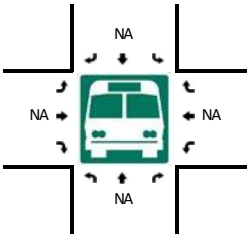











| 15-Min Count Period Beginning At | Queen Kaahumanu Hwy (Northbound) | | | | Queen Kaahumanu Hwy (Southbound) | | | | Kuakini Hwy (Eastbound) | | | | Kuakini Hwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 6:00 AM | 38 | 171 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 299 | |
| 6:15 AM | 49 | 189 | 0 | 0 | 0 | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 355 | |
| 6:30 AM | 60 | 230 | 0 | 0 | 0 | 121 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 414 | |
| 6:45 AM | 71 | 254 | 0 | 0 | 0 | 167 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 494 | 1562 |
| 7:00 AM | 71 | 234 | 0 | 0 | 0 | 184 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 497 | 1760 |
| 7:15 AM | 74 | 248 | 0 | 0 | 0 | 198 | 13 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 534 | 1939 |
| 7:30 AM | 110 | 216 | 0 | 0 | 0 | 182 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 531 | 2056 |
| 7:45 AM | 159 | 161 | 0 | 0 | 0 | 173 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 521 | 2083 |
| 8:00 AM | 132 | 199 | 0 | 0 | 0 | 137 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 479 | 2065 |
| 8:15 AM | 89 | 236 | 0 | 0 | 0 | 176 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 510 | 2041 |
| 8:30 AM | 74 | 244 | 0 | 0 | 0 | 151 | 6 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 476 | 1986 |
| 8:45 AM | 63 | 228 | 0 | 0 | 0 | 173 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 476 | 1941 |

| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 296 | 992 | 0 | 0 | 0 | 792 | 52 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2136 |
| Heavy Trucks | 0 | 28 | 0 | | 0 | 20 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 48 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 4 | | | 4 |
| Bicycles | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

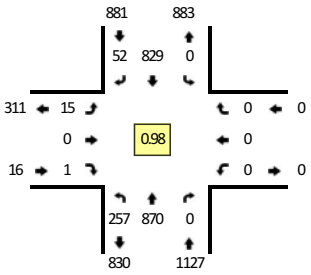
Type of peak hour being reported: System Peak

Method for determining peak hour: Total Entering Volume

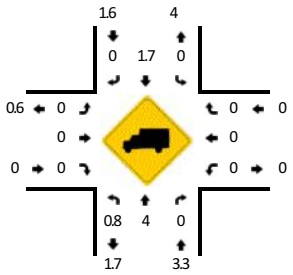
**LOCATION:** Queen Kaahumanu Hwy -- Kuakini Hwy
**CITY/STATE:** Holualoa, HI

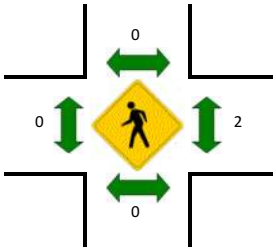
**QC JOB #:** 15036050
**DATE:** Tue, Oct 1 2019

**Peak-Hour: 3:15 PM -- 4:15 PM**
**Peak 15-Min: 3:30 PM -- 3:45 PM**

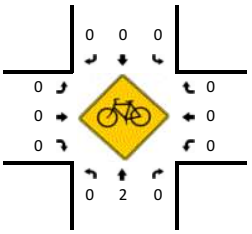


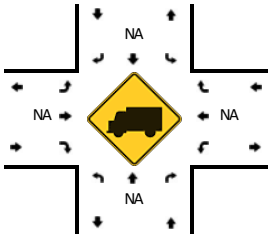




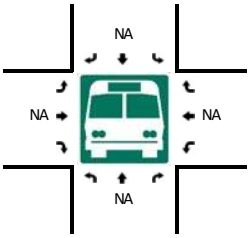












| 15-Min Count Period Beginning At | Queen Kaahumanu Hwy (Northbound) | | | | Queen Kaahumanu Hwy (Southbound) | | | | Kuakini Hwy (Eastbound) | | | | Kuakini Hwy (Westbound) | | | | Total | Hourly Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 3:00 PM | 47 | 218 | 0 | 0 | 0 | 224 | 12 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 505 | |
| 3:15 PM | 63 | 207 | 0 | 0 | 0 | 219 | 10 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 502 | |
| 3:30 PM | 77 | 223 | 0 | 0 | 0 | 190 | 20 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 515 | |
| 3:45 PM | 61 | 210 | 0 | 0 | 0 | 214 | 12 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 503 | 2025 |
| 4:00 PM | 56 | 230 | 0 | 0 | 0 | 206 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 504 | 2024 |
| 4:15 PM | 76 | 220 | 0 | 0 | 0 | 176 | 11 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 487 | 2009 |
| 4:30 PM | 75 | 167 | 0 | 0 | 0 | 189 | 14 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 449 | 1943 |
| 4:45 PM | 60 | 192 | 0 | 0 | 0 | 210 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 481 | 1921 |
| 5:00 PM | 55 | 150 | 0 | 0 | 0 | 192 | 15 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 416 | 1833 |
| 5:15 PM | 52 | 164 | 0 | 0 | 0 | 191 | 13 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 423 | 1769 |
| 5:30 PM | 39 | 136 | 0 | 0 | 0 | 197 | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 386 | 1706 |
| 5:45 PM | 54 | 172 | 0 | 0 | 0 | 169 | 12 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 410 | 1635 |

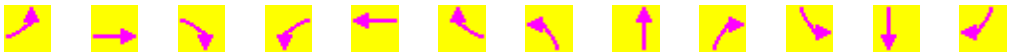
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | |
| All Vehicles | 308 | 892 | 0 | 0 | 0 | 760 | 80 | 0 | 12 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 2060 |
| Heavy Trucks | 0 | 40 | 0 | | 0 | 16 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 56 |
| Pedestrians | | 0 | | | | 0 | | | | 0 | | | | 0 | | | 0 |
| Bicycles | 0 | 1 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 1 |
| Railroad | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | |

*Comments: Conduct TMC on 10/1 and 2/2019*

Report generated on 10/14/2019 2:35 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

# APPENDIX B: LOS WORKSHEETS



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 184 | 41 | 15 | 63 | 34 | 198 | 19 | 606 | 50 | 131 | 362 | 163 |
| Future Volume (veh/h) | 184 | 41 | 15 | 63 | 34 | 198 | 19 | 606 | 50 | 131 | 362 | 163 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.98 | | 0.99 | 0.99 | | 0.94 | 0.99 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 211 | 47 | 8 | 72 | 39 | 79 | 22 | 697 | 0 | 151 | 416 | 72 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 534 | 412 | 70 | 514 | 105 | 213 | 343 | 1045 | | 386 | 656 | 549 |
| Arrive On Green | 0.14 | 0.26 | 0.24 | 0.08 | 0.20 | 0.17 | 0.05 | 0.29 | 0.00 | 0.10 | 0.35 | 0.35 |
| Sat Flow, veh/h | 1781 | 1555 | 265 | 1781 | 528 | 1069 | 1781 | 3647 | 0 | 1781 | 1870 | 1567 |
| Grp Volume(v), veh/h | 211 | 0 | 55 | 72 | 0 | 118 | 22 | 697 | 0 | 151 | 416 | 72 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1819 | 1781 | 0 | 1597 | 1781 | 1777 | 0 | 1781 | 1870 | 1567 |
| Q Serve(g_s), s | 5.2 | 0.0 | 1.4 | 1.9 | 0.0 | 4.0 | 0.5 | 10.5 | 0.0 | 3.3 | 11.3 | 1.9 |
| Cycle Q Clear(g_c), s | 5.2 | 0.0 | 1.4 | 1.9 | 0.0 | 4.0 | 0.5 | 10.5 | 0.0 | 3.3 | 11.3 | 1.9 |
| Prop In Lane | 1.00 | | 0.15 | 1.00 | | 0.67 | 1.00 | | 0.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 534 | 0 | 482 | 514 | 0 | 318 | 343 | 1045 | | 386 | 656 | 549 |
| V/C Ratio(X) | 0.40 | 0.00 | 0.11 | 0.14 | 0.00 | 0.37 | 0.06 | 0.67 | | 0.39 | 0.63 | 0.13 |
| Avail Cap(c_a), veh/h | 1183 | 0 | 1222 | 989 | 0 | 811 | 875 | 3843 | | 818 | 2022 | 1694 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 14.1 | 0.0 | 17.1 | 16.9 | 0.0 | 21.6 | 14.2 | 18.9 | 0.0 | 12.9 | 16.6 | 13.5 |
| Incr Delay (d2), s/veh | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 | 0.0 | 0.2 | 0.6 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.0 | 0.0 | 0.6 | 0.7 | 0.0 | 1.4 | 0.2 | 4.1 | 0.0 | 1.2 | 4.6 | 0.6 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 14.6 | 0.0 | 17.1 | 16.9 | 0.0 | 21.9 | 14.2 | 19.2 | 0.0 | 13.1 | 17.1 | 13.6 |
| LnGrp LOS | B | A | B | B | A | C | B | B | | B | B | B |
| Approach Vol, veh/h | | 266 | | | 190 | | | 719 | A | | 639 | |
| Approach Delay, s/veh | | 15.1 | | | 20.0 | | | 19.0 | | | 15.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 6.8 | 25.4 | 12.7 | 16.1 | 10.2 | 22.0 | 8.7 | 20.2 |
| Change Period (Y+Rc), s | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 |
| Max Green Setting (Gmax), s | * 20 | 64.5 | * 30 | 29.5 | * 20 | 64.5 | * 20 | 39.5 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 13.3 | 7.2 | 6.0 | 5.3 | 12.5 | 3.9 | 3.4 |
| Green Ext Time (p_c), s | 0.0 | 2.3 | 0.6 | 0.4 | 0.1 | 3.1 | 0.0 | 0.1 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 17.4 |
| HCM 6th LOS | B |

**Notes**

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 10 | 54 | 620 | 77 | 107 | 304 |
| Future Vol, veh/h | 10 | 54 | 620 | 77 | 107 | 304 |
| Conflicting Peds, #/hr | 1 | 1 | 0 | 1 | 1 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 40 | - | - | 120 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 81 | 81 | 81 | 81 | 81 | 81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 67 | 765 | 95 | 132 | 375 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1454 | 815 | 0 | 0 | 861 | 0 |
| Stage 1 | 814 | - | - | - | - | - |
| Stage 2 | 640 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 143 | 377 | - | - | 781 | - |
| Stage 1 | 436 | - | - | - | - | - |
| Stage 2 | 525 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 119 | 376 | - | - | 780 | - |
| Mov Cap-2 Maneuver | 119 | - | - | - | - | - |
| Stage 1 | 436 | - | - | - | - | - |
| Stage 2 | 436 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 20.1 | 0 | 2.7 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 119 | 376 | 780 | - |
| HCM Lane V/C Ratio | - | - | 0.104 | 0.177 | 0.169 | - |
| HCM Control Delay (s) | - | - | 38.7 | 16.6 | 10.6 | - |
| HCM Lane LOS | - | - | E | C | B | - |
| HCM 95th %tile Q(veh) | - | - | 0.3 | 0.6 | 0.6 | - |

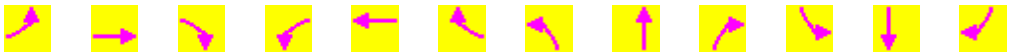
| Intersection | |
|---|---|
| Int Delay, s/veh | 3.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 72 | 73 | 198 | 12 | 12 | 105 |
| Future Vol, veh/h | 72 | 73 | 198 | 12 | 12 | 105 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 120 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 78 | 79 | 215 | 13 | 13 | 114 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 228 | 0 | - | 0 | 457 | 222 |
| Stage 1 | - | - | - | - | 222 | - |
| Stage 2 | - | - | - | - | 235 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1340 | - | - | - | 562 | 818 |
| Stage 1 | - | - | - | - | 815 | - |
| Stage 2 | - | - | - | - | 804 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1340 | - | - | - | 529 | 818 |
| Mov Cap-2 Maneuver | - | - | - | - | 529 | - |
| Stage 1 | - | - | - | - | 768 | - |
| Stage 2 | - | - | - | - | 804 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.9 | 0 | 10.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1340 | - | - | - | 775 |
| HCM Lane V/C Ratio | 0.058 | - | - | - | 0.164 |
| HCM Control Delay (s) | 7.9 | - | - | - | 10.6 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.6 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 54 | 20 | 17 | 54 | 48 | 204 | 24 | 952 | 32 | 69 | 671 | 70 |
| Future Volume (veh/h) | 54 | 20 | 17 | 54 | 48 | 204 | 24 | 952 | 32 | 69 | 671 | 70 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 56 | 21 | 0 | 56 | 50 | 0 | 25 | 992 | 0 | 72 | 699 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 221 | 58 | | 165 | 82 | | 522 | 1176 | | 355 | 1228 | |
| Arrive On Green | 0.11 | 0.11 | 0.00 | 0.10 | 0.10 | 0.00 | 0.05 | 0.63 | 0.00 | 0.07 | 0.66 | 0.00 |
| Sat Flow, veh/h | 1121 | 518 | 1585 | 826 | 850 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 77 | 0 | 0 | 106 | 0 | 0 | 25 | 992 | 0 | 72 | 699 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1638 | 0 | 1585 | 1676 | 0 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.3 | 27.2 | 0.0 | 0.8 | 13.3 | 0.0 |
| Cycle Q Clear(g_c), s | 2.6 | 0.0 | 0.0 | 3.8 | 0.0 | 0.0 | 0.3 | 27.2 | 0.0 | 0.8 | 13.3 | 0.0 |
| Prop In Lane | 0.73 | | 1.00 | 0.53 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 280 | 0 | | 247 | 0 | | 522 | 1176 | | 355 | 1228 | |
| V/C Ratio(X) | 0.28 | 0.00 | | 0.43 | 0.00 | | 0.05 | 0.84 | | 0.20 | 0.57 | |
| Avail Cap(c_a), veh/h | 598 | 0 | | 809 | 0 | | 891 | 2648 | | 675 | 2648 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 26.7 | 0.0 | 0.0 | 28.2 | 0.0 | 0.0 | 4.8 | 9.5 | 0.0 | 9.8 | 6.1 | 0.0 |
| Incr Delay (d2), s/veh | 0.5 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 | 0.3 | 0.4 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.1 | 7.2 | 0.0 | 0.4 | 3.1 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 27.3 | 0.0 | 0.0 | 29.3 | 0.0 | 0.0 | 4.8 | 11.3 | 0.0 | 10.1 | 6.5 | 0.0 |
| LnGrp LOS | C | A | | C | A | | A | B | | B | A | |
| Approach Vol, veh/h | | 77 | A | | 106 | A | | 1017 | A | | 771 | A |
| Approach Delay, s/veh | | 27.3 | | | 29.3 | | | 11.1 | | | 6.9 | |
| Approach LOS | | C | | | C | | | B | | | A | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.0 | 46.7 | | 11.3 | 8.8 | 44.8 | | 11.3 | | | | |
| Change Period (Y+Rc), s | * 5.2 | 6.0 | | * 5.5 | * 5.2 | 6.0 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | * 15 | 90.0 | | * 29 | * 15 | 90.0 | | 20.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.3 | 15.3 | | 5.8 | 2.8 | 29.2 | | 4.6 | | | | |
| Green Ext Time (p_c), s | 0.0 | 5.1 | | 0.5 | 0.1 | 9.6 | | 0.3 | | | | |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 11.1 |
| HCM 6th LOS | B |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 75 | 8 | 6 | 166 | 3 | 41 | 0 | 5 | 0 | 0 | 3 |
| Future Vol, veh/h | 2 | 75 | 8 | 6 | 166 | 3 | 41 | 0 | 5 | 0 | 0 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 120 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 3 | 96 | 10 | 8 | 213 | 4 | 53 | 0 | 6 | 0 | 0 | 4 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 217 | 0 | 0 | 106 | 0 | 0 | 340 | 340 | 101 | 341 | 343 | 215 |
| Stage 1 | - | - | - | - | - | - | 107 | 107 | - | 231 | 231 | - |
| Stage 2 | - | - | - | - | - | - | 233 | 233 | - | 110 | 112 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1353 | - | - | 1485 | - | - | 614 | 582 | 954 | 613 | 579 | 825 |
| Stage 1 | - | - | - | - | - | - | 898 | 807 | - | 772 | 713 | - |
| Stage 2 | - | - | - | - | - | - | 770 | 712 | - | 895 | 803 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1353 | - | - | 1485 | - | - | 608 | 578 | 954 | 606 | 575 | 825 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 608 | 578 | - | 606 | 575 | - |
| Stage 1 | - | - | - | - | - | - | 896 | 805 | - | 770 | 709 | - |
| Stage 2 | - | - | - | - | - | - | 762 | 708 | - | 887 | 801 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0.3 | 11.3 | 9.4 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 633 | 1353 | - | - | 1485 | - | - | 825 |
| HCM Lane V/C Ratio | 0.093 | 0.002 | - | - | 0.005 | - | - | 0.005 |
| HCM Control Delay (s) | 11.3 | 7.7 | 0 | - | 7.4 | - | - | 9.4 |
| HCM Lane LOS | B | A | A | - | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | 0 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.4 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 33 | 50 | 168 | 1033 | 746 | 24 |
| Future Vol, veh/h | 33 | 50 | 168 | 1033 | 746 | 24 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | 130 | 0 | 420 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 36 | 55 | 185 | 1135 | 820 | 26 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2325 | - | 820 | 0 | - | 0 |
| Stage 1 | 820 | - | - | - | - | - |
| Stage 2 | 1505 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 41 | 0 | 809 | - | - | - |
| Stage 1 | 433 | 0 | - | - | - | - |
| Stage 2 | 203 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 32 | - | 809 | - | - | - |
| Mov Cap-2 Maneuver | 165 | - | - | - | - | - |
| Stage 1 | 334 | - | - | - | - | - |
| Stage 2 | 203 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 32.9 | 1.5 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 809 | - | 165 | - | - | - |
| HCM Lane V/C Ratio | 0.228 | - | 0.22 | - | - | - |
| HCM Control Delay (s) | 10.8 | - | 32.9 | 0 | - | - |
| HCM Lane LOS | B | - | D | A | - | - |
| HCM 95th %tile Q(veh) | 0.9 | - | 0.8 | - | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.2 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 2 | 0 | 475 | 824 | 690 | 74 |
| Future Vol, veh/h | 2 | 0 | 475 | 824 | 690 | 74 |
| Conflicting Peds, #/hr | 1 | 1 | 1 | 0 | 0 | 1 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | - | - | 450 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 0 | 490 | 849 | 711 | 76 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2542 | - | 712 | 0 | - | 0 |
| Stage 1 | 712 | - | - | - | - | - |
| Stage 2 | 1830 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 30 | 0 | 888 | - | - | - |
| Stage 1 | 486 | 0 | - | - | - | - |
| Stage 2 | 140 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 13 | - | 887 | - | - | - |
| Mov Cap-2 Maneuver | 110 | - | - | - | - | - |
| Stage 1 | 218 | - | - | - | - | - |
| Stage 2 | 140 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 38.4 | 5.1 | 0 |
| HCM LOS | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 887 | - | 110 | - | - |
| HCM Lane V/C Ratio | 0.552 | - | 0.019 | - | - |
| HCM Control Delay (s) | 13.9 | - | 38.4 | - | - |
| HCM Lane LOS | B | - | E | - | - |
| HCM 95th %tile Q(veh) | 3.5 | - | 0.1 | - | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 205 | 43 | 50 | 69 | 43 | 217 | 28 | 568 | 89 | 179 | 632 | 313 |
| Future Volume (veh/h) | 205 | 43 | 50 | 69 | 43 | 217 | 28 | 568 | 89 | 179 | 632 | 313 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.99 | | 0.99 | 0.98 | | 0.97 | 1.00 | | 1.00 | 0.99 | | 0.95 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 218 | 46 | 27 | 73 | 46 | 113 | 30 | 604 | 0 | 190 | 672 | 221 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 440 | 266 | 156 | 432 | 79 | 194 | 245 | 1323 | | 474 | 801 | 647 |
| Arrive On Green | 0.14 | 0.24 | 0.22 | 0.07 | 0.17 | 0.15 | 0.05 | 0.37 | 0.00 | 0.10 | 0.43 | 0.43 |
| Sat Flow, veh/h | 1781 | 1099 | 645 | 1781 | 471 | 1156 | 1781 | 3647 | 0 | 1781 | 1870 | 1512 |
| Grp Volume(v), veh/h | 218 | 0 | 73 | 73 | 0 | 159 | 30 | 604 | 0 | 190 | 672 | 221 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1744 | 1781 | 0 | 1627 | 1781 | 1777 | 0 | 1781 | 1870 | 1512 |
| Q Serve(g_s), s | 6.9 | 0.0 | 2.5 | 2.4 | 0.0 | 6.8 | 0.7 | 9.6 | 0.0 | 4.5 | 23.9 | 7.3 |
| Cycle Q Clear(g_c), s | 6.9 | 0.0 | 2.5 | 2.4 | 0.0 | 6.8 | 0.7 | 9.6 | 0.0 | 4.5 | 23.9 | 7.3 |
| Prop In Lane | 1.00 | | 0.37 | 1.00 | | 0.71 | 1.00 | | 0.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 440 | 0 | 422 | 432 | 0 | 273 | 245 | 1323 | | 474 | 801 | 647 |
| V/C Ratio(X) | 0.50 | 0.00 | 0.17 | 0.17 | 0.00 | 0.58 | 0.12 | 0.46 | | 0.40 | 0.84 | 0.34 |
| Avail Cap(c_a), veh/h | 926 | 0 | 958 | 812 | 0 | 676 | 662 | 3143 | | 792 | 1654 | 1337 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 19.5 | 0.0 | 22.6 | 22.9 | 0.0 | 29.2 | 15.7 | 17.7 | 0.0 | 11.7 | 19.0 | 14.3 |
| Incr Delay (d2), s/veh | 0.9 | 0.0 | 0.1 | 0.1 | 0.0 | 0.7 | 0.1 | 0.1 | 0.0 | 0.2 | 1.3 | 0.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.9 | 0.0 | 1.0 | 1.0 | 0.0 | 2.7 | 0.3 | 3.8 | 0.0 | 1.7 | 9.9 | 2.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 20.4 | 0.0 | 22.7 | 23.0 | 0.0 | 29.9 | 15.8 | 17.8 | 0.0 | 11.9 | 20.4 | 14.5 |
| LnGrp LOS | C | A | C | C | A | C | B | B | | B | C | B |
| Approach Vol, veh/h | | 291 | | | 232 | | | 634 | A | | 1083 | |
| Approach Delay, s/veh | | 21.0 | | | 27.7 | | | 17.7 | | | 17.7 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.5 | 35.9 | 14.6 | 16.5 | 11.7 | 31.8 | 9.1 | 22.1 |
| Change Period (Y+Rc), s | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 |
| Max Green Setting (Gmax), s | * 20 | 64.5 | * 30 | 29.5 | * 20 | 64.5 | * 20 | 39.5 |
| Max Q Clear Time (g_c+I1), s | 2.7 | 25.9 | 8.9 | 8.8 | 6.5 | 11.6 | 4.4 | 4.5 |
| Green Ext Time (p_c), s | 0.0 | 4.5 | 0.6 | 0.5 | 0.1 | 2.6 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 19.2 |
| HCM 6th LOS | B |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.9 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 33 | 88 | 410 | 27 | 53 | 743 |
| Future Vol, veh/h | 33 | 88 | 410 | 27 | 53 | 743 |
| Conflicting Peds, #/hr | 6 | 5 | 0 | 6 | 5 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 40 | - | - | 120 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 34 | 91 | 423 | 28 | 55 | 766 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1325 | 448 | 0 | 0 | 457 | 0 |
| Stage 1 | 443 | - | - | - | - | - |
| Stage 2 | 882 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 172 | 611 | - | - | 1104 | - |
| Stage 1 | 647 | - | - | - | - | - |
| Stage 2 | 405 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 162 | 605 | - | - | 1098 | - |
| Mov Cap-2 Maneuver | 162 | - | - | - | - | - |
| Stage 1 | 643 | - | - | - | - | - |
| Stage 2 | 383 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 17.7 | 0 | 0.6 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 162 | 605 | 1098 | - |
| HCM Lane V/C Ratio | - | - | 0.21 | 0.15 | 0.05 | - |
| HCM Control Delay (s) | - | - | 33 | 12 | 8.4 | - |
| HCM Lane LOS | - | - | D | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.8 | 0.5 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 123 | 98 | 106 | 9 | 21 | 147 |
| Future Vol, veh/h | 123 | 98 | 106 | 9 | 21 | 147 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 120 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 134 | 107 | 115 | 10 | 23 | 160 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 125 | 0 | - | 0 | 495 | 120 |
| Stage 1 | - | - | - | - | 120 | - |
| Stage 2 | - | - | - | - | 375 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1462 | - | - | - | 534 | 931 |
| Stage 1 | - | - | - | - | 905 | - |
| Stage 2 | - | - | - | - | 695 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1462 | - | - | - | 485 | 931 |
| Mov Cap-2 Maneuver | - | - | - | - | 485 | - |
| Stage 1 | - | - | - | - | 822 | - |
| Stage 2 | - | - | - | - | 695 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 4.3 | 0 | 10.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1462 | - | - | - | 835 |
| HCM Lane V/C Ratio | 0.091 | - | - | - | 0.219 |
| HCM Control Delay (s) | 7.7 | - | - | - | 10.5 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.3 | - | - | - | 0.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 69 | 50 | 12 | 30 | 40 | 90 | 31 | 866 | 38 | 126 | 964 | 68 |
| Future Volume (veh/h) | 69 | 50 | 12 | 30 | 40 | 90 | 31 | 866 | 38 | 126 | 964 | 68 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 70 | 51 | 0 | 31 | 41 | 0 | 32 | 884 | 0 | 129 | 984 | 0 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 203 | 84 | | 145 | 120 | | 332 | 1107 | | 416 | 1179 | |
| Arrive On Green | 0.12 | 0.12 | 0.00 | 0.10 | 0.10 | 0.00 | 0.05 | 0.59 | 0.00 | 0.09 | 0.63 | 0.00 |
| Sat Flow, veh/h | 922 | 705 | 1585 | 591 | 1172 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 121 | 0 | 0 | 72 | 0 | 0 | 32 | 884 | 0 | 129 | 984 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1626 | 0 | 1585 | 1763 | 0 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 22.3 | 0.0 | 1.5 | 25.1 | 0.0 |
| Cycle Q Clear(g_c), s | 4.1 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 0.4 | 22.3 | 0.0 | 1.5 | 25.1 | 0.0 |
| Prop In Lane | 0.58 | | 1.00 | 0.43 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 287 | 0 | | 265 | 0 | | 332 | 1107 | | 416 | 1179 | |
| V/C Ratio(X) | 0.42 | 0.00 | | 0.27 | 0.00 | | 0.10 | 0.80 | | 0.31 | 0.83 | |
| Avail Cap(c_a), veh/h | 646 | 0 | | 876 | 0 | | 718 | 2817 | | 733 | 2817 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 25.4 | 0.0 | 0.0 | 25.6 | 0.0 | 0.0 | 8.7 | 9.6 | 0.0 | 8.7 | 8.8 | 0.0 |
| Incr Delay (d2), s/veh | 1.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.1 | 1.4 | 0.0 | 0.4 | 1.6 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.1 | 6.1 | 0.0 | 0.5 | 6.2 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 26.4 | 0.0 | 0.0 | 26.1 | 0.0 | 0.0 | 8.8 | 11.0 | 0.0 | 9.1 | 10.4 | 0.0 |
| LnGrp LOS | C | A | | C | A | | A | B | | A | B | |
| Approach Vol, veh/h | | 121 | A | | 72 | A | | 916 | A | | 1113 | A |
| Approach Delay, s/veh | | 26.4 | | | 26.1 | | | 10.9 | | | 10.3 | |
| Approach LOS | | C | | | C | | | B | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.3 | 42.5 | | 11.3 | 9.6 | 40.2 | | 11.3 | | | | |
| Change Period (Y+Rc), s | * 5.2 | 6.0 | | * 5.5 | * 5.2 | 6.0 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | * 15 | 90.0 | | * 29 | * 15 | 90.0 | | 20.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.4 | 27.1 | | 4.2 | 3.5 | 24.3 | | 6.1 | | | | |
| Green Ext Time (p_c), s | 0.0 | 9.5 | | 0.3 | 0.2 | 7.6 | | 0.5 | | | | |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 11.9 |
| HCM 6th LOS | B |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 104 | 13 | 13 | 100 | 4 | 13 | 0 | 4 | 3 | 0 | 2 |
| Future Vol, veh/h | 2 | 104 | 13 | 13 | 100 | 4 | 13 | 0 | 4 | 3 | 0 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 2 | 3 | 0 | 1 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 120 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 125 | 16 | 16 | 120 | 5 | 16 | 0 | 5 | 4 | 0 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 128 | 0 | 0 | 143 | 0 | 0 | 296 | 299 | 138 | 301 | 305 | 127 |
| Stage 1 | - | - | - | - | - | - | 139 | 139 | - | 158 | 158 | - |
| Stage 2 | - | - | - | - | - | - | 157 | 160 | - | 143 | 147 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1458 | - | - | 1440 | - | - | 656 | 613 | 910 | 651 | 608 | 923 |
| Stage 1 | - | - | - | - | - | - | 864 | 782 | - | 844 | 767 | - |
| Stage 2 | - | - | - | - | - | - | 845 | 766 | - | 860 | 775 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1454 | - | - | 1437 | - | - | 646 | 603 | 906 | 638 | 598 | 919 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 646 | 603 | - | 638 | 598 | - |
| Stage 1 | - | - | - | - | - | - | 861 | 780 | - | 841 | 756 | - |
| Stage 2 | - | - | - | - | - | - | 833 | 755 | - | 852 | 773 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.1 | 0.8 | 10.4 | 10 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 693 | 1454 | - | - | 1437 | - | - | 727 |
| HCM Lane V/C Ratio | 0.03 | 0.002 | - | - | 0.011 | - | - | 0.008 |
| HCM Control Delay (s) | 10.4 | 7.5 | 0 | - | 7.5 | - | - | 10 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | 0 | - | - | 0 | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 14 | 105 | 89 | 905 | 991 | 19 |
| Future Vol, veh/h | 14 | 105 | 89 | 905 | 991 | 19 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | 130 | 0 | 420 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 14 | 108 | 92 | 933 | 1022 | 20 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2139 | - | 1022 | 0 | - | 0 |
| Stage 1 | 1022 | - | - | - | - | - |
| Stage 2 | 1117 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 54 | 0 | 679 | - | - | - |
| Stage 1 | 347 | 0 | - | - | - | - |
| Stage 2 | 313 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 47 | - | 679 | - | - | - |
| Mov Cap-2 Maneuver | 209 | - | - | - | - | - |
| Stage 1 | 300 | - | - | - | - | - |
| Stage 2 | 313 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 23.5 | 1 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 679 | - | 209 | - | - | - |
| HCM Lane V/C Ratio | 0.135 | - | 0.069 | - | - | - |
| HCM Control Delay (s) | 11.1 | - | 23.5 | 0 | - | - |
| HCM Lane LOS | B | - | C | A | - | - |
| HCM 95th %tile Q(veh) | 0.5 | - | 0.2 | - | - | - |

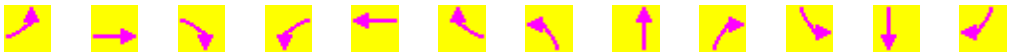
| Intersection | |
|---|---|
| Int Delay, s/veh | 1.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 15 | 0 | 257 | 870 | 829 | 52 |
| Future Vol, veh/h | 15 | 0 | 257 | 870 | 829 | 52 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | - | - | 450 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 15 | 0 | 262 | 888 | 846 | 53 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2258 | - | 846 | 0 | - | 0 |
| Stage 1 | 846 | - | - | - | - | - |
| Stage 2 | 1412 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 45 | 0 | 791 | - | - | - |
| Stage 1 | 421 | 0 | - | - | - | - |
| Stage 2 | 225 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 30 | - | 791 | - | - | - |
| Mov Cap-2 Maneuver | 167 | - | - | - | - | - |
| Stage 1 | 282 | - | - | - | - | - |
| Stage 2 | 225 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 28.7 | 2.7 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 791 | - | 167 | - | - |
| HCM Lane V/C Ratio | 0.332 | - | 0.092 | - | - |
| HCM Control Delay (s) | 11.8 | - | 28.7 | - | - |
| HCM Lane LOS | B | - | D | - | - |
| HCM 95th %tile Q(veh) | 1.5 | - | 0.3 | - | - |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 210 | 50 | 20 | 80 | 40 | 230 | 30 | 720 | 60 | 150 | 430 | 190 |
| Future Volume (veh/h) | 210 | 50 | 20 | 80 | 40 | 230 | 30 | 720 | 60 | 150 | 430 | 190 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.98 | | 0.99 | 0.99 | | 0.94 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 241 | 57 | 13 | 92 | 46 | 139 | 34 | 828 | 0 | 172 | 494 | 101 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 489 | 426 | 97 | 511 | 85 | 256 | 298 | 1109 | | 348 | 682 | 572 |
| Arrive On Green | 0.15 | 0.29 | 0.27 | 0.07 | 0.22 | 0.20 | 0.05 | 0.31 | 0.00 | 0.10 | 0.36 | 0.36 |
| Sat Flow, veh/h | 1781 | 1471 | 335 | 1781 | 392 | 1184 | 1781 | 3647 | 0 | 1781 | 1870 | 1568 |
| Grp Volume(v), veh/h | 241 | 0 | 70 | 92 | 0 | 185 | 34 | 828 | 0 | 172 | 494 | 101 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1806 | 1781 | 0 | 1576 | 1781 | 1777 | 0 | 1781 | 1870 | 1568 |
| Q Serve(g_s), s | 7.0 | 0.0 | 2.1 | 2.8 | 0.0 | 7.7 | 0.9 | 15.2 | 0.0 | 4.4 | 16.6 | 3.2 |
| Cycle Q Clear(g_c), s | 7.0 | 0.0 | 2.1 | 2.8 | 0.0 | 7.7 | 0.9 | 15.2 | 0.0 | 4.4 | 16.6 | 3.2 |
| Prop In Lane | 1.00 | | 0.19 | 1.00 | | 0.75 | 1.00 | | 0.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 489 | 0 | 524 | 511 | 0 | 341 | 298 | 1109 | | 348 | 682 | 572 |
| V/C Ratio(X) | 0.49 | 0.00 | 0.13 | 0.18 | 0.00 | 0.54 | 0.11 | 0.75 | | 0.49 | 0.72 | 0.18 |
| Avail Cap(c_a), veh/h | 985 | 0 | 1019 | 893 | 0 | 672 | 722 | 3227 | | 679 | 1699 | 1424 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.6 | 0.0 | 19.2 | 19.5 | 0.0 | 25.8 | 16.4 | 22.4 | 0.0 | 15.5 | 19.9 | 15.7 |
| Incr Delay (d2), s/veh | 0.8 | 0.0 | 0.0 | 0.1 | 0.0 | 0.5 | 0.1 | 0.4 | 0.0 | 0.4 | 0.8 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.8 | 0.0 | 0.9 | 1.1 | 0.0 | 2.9 | 0.4 | 6.1 | 0.0 | 1.7 | 7.0 | 1.1 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 17.3 | 0.0 | 19.2 | 19.6 | 0.0 | 26.3 | 16.5 | 22.8 | 0.0 | 15.9 | 20.7 | 15.8 |
| LnGrp LOS | B | A | B | B | A | C | B | C | | B | C | B |
| Approach Vol, veh/h | | 311 | | | 277 | | | 862 | A | | 767 | |
| Approach Delay, s/veh | | 17.7 | | | 24.1 | | | 22.5 | | | 19.0 | |
| Approach LOS | | B | | | C | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.7 | 30.5 | 14.8 | 19.7 | 11.5 | 26.7 | 9.4 | 25.1 |
| Change Period (Y+Rc), s | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 |
| Max Green Setting (Gmax), s | * 20 | 64.5 | * 30 | 29.5 | * 20 | 64.5 | * 20 | 39.5 |
| Max Q Clear Time (g_c+I1), s | 2.9 | 18.6 | 9.0 | 9.7 | 6.4 | 17.2 | 4.8 | 4.1 |
| Green Ext Time (p_c), s | 0.0 | 2.8 | 0.7 | 0.6 | 0.1 | 3.9 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 20.8 |
| HCM 6th LOS | C |

**Notes**

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 10 | 54 | 740 | 77 | 107 | 360 |
| Future Vol, veh/h | 10 | 54 | 740 | 77 | 107 | 360 |
| Conflicting Peds, #/hr | 1 | 1 | 0 | 1 | 1 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 40 | - | - | 120 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 81 | 81 | 81 | 81 | 81 | 81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 67 | 914 | 95 | 132 | 444 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1672 | 964 | 0 | 0 | 1010 | 0 |
| Stage 1 | 963 | - | - | - | - | - |
| Stage 2 | 709 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 105 | 310 | - | - | 686 | - |
| Stage 1 | 370 | - | - | - | - | - |
| Stage 2 | 488 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 85 | 309 | - | - | 685 | - |
| Mov Cap-2 Maneuver | 85 | - | - | - | - | - |
| Stage 1 | 370 | - | - | - | - | - |
| Stage 2 | 393 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 25.2 | 0 | 2.6 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 85 | 309 | 685 | - |
| HCM Lane V/C Ratio | - | - | 0.145 | 0.216 | 0.193 | - |
| HCM Control Delay (s) | - | - | 54.4 | 19.8 | 11.5 | - |
| HCM Lane LOS | - | - | F | C | B | - |
| HCM 95th %tile Q(veh) | - | - | 0.5 | 0.8 | 0.7 | - |

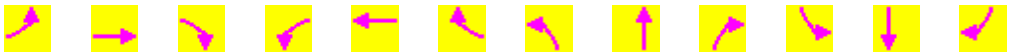
| Intersection | |
|---|---|
| Int Delay, s/veh | 4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 90 | 100 | 230 | 20 | 20 | 120 |
| Future Vol, veh/h | 90 | 100 | 230 | 20 | 20 | 120 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 120 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 98 | 109 | 250 | 22 | 22 | 130 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 272 | 0 | - | 0 | 566 | 261 |
| Stage 1 | - | - | - | - | 261 | - |
| Stage 2 | - | - | - | - | 305 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1291 | - | - | - | 486 | 778 |
| Stage 1 | - | - | - | - | 783 | - |
| Stage 2 | - | - | - | - | 748 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1291 | - | - | - | 449 | 778 |
| Mov Cap-2 Maneuver | - | - | - | - | 449 | - |
| Stage 1 | - | - | - | - | 723 | - |
| Stage 2 | - | - | - | - | 748 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.8 | 0 | 11.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1291 | - | - | - | 704 |
| HCM Lane V/C Ratio | 0.076 | - | - | - | 0.216 |
| HCM Control Delay (s) | 8 | - | - | - | 11.5 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.8 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 70 | 30 | 30 | 70 | 60 | 260 | 30 | 1250 | 40 | 90 | 890 | 90 |
| Future Volume (veh/h) | 70 | 30 | 30 | 70 | 60 | 260 | 30 | 1250 | 40 | 90 | 890 | 90 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 73 | 31 | 0 | 73 | 62 | 0 | 31 | 1302 | 0 | 94 | 927 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 162 | 54 | | 138 | 85 | | 417 | 1364 | | 193 | 1389 | |
| Arrive On Green | 0.12 | 0.12 | 0.00 | 0.11 | 0.11 | 0.00 | 0.04 | 0.73 | 0.00 | 0.05 | 0.74 | 0.00 |
| Sat Flow, veh/h | 922 | 448 | 1585 | 821 | 758 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 104 | 0 | 0 | 135 | 0 | 0 | 31 | 1302 | 0 | 94 | 927 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1370 | 0 | 1585 | 1579 | 0 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.5 | 74.1 | 0.0 | 1.5 | 30.2 | 0.0 |
| Cycle Q Clear(g_c), s | 8.9 | 0.0 | 0.0 | 9.9 | 0.0 | 0.0 | 0.5 | 74.1 | 0.0 | 1.5 | 30.2 | 0.0 |
| Prop In Lane | 0.70 | | 1.00 | 0.54 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 216 | 0 | | 223 | 0 | | 417 | 1364 | | 193 | 1389 | |
| V/C Ratio(X) | 0.48 | 0.00 | | 0.61 | 0.00 | | 0.07 | 0.95 | | 0.49 | 0.67 | |
| Avail Cap(c_a), veh/h | 303 | 0 | | 434 | 0 | | 598 | 1440 | | 350 | 1440 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 50.1 | 0.0 | 0.0 | 51.5 | 0.0 | 0.0 | 7.1 | 14.4 | 0.0 | 31.6 | 7.9 | 0.0 |
| Incr Delay (d2), s/veh | 1.7 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 0.1 | 14.0 | 0.0 | 1.9 | 1.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.1 | 0.0 | 0.0 | 4.1 | 0.0 | 0.0 | 0.2 | 28.6 | 0.0 | 2.0 | 9.6 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 51.7 | 0.0 | 0.0 | 54.1 | 0.0 | 0.0 | 7.2 | 28.3 | 0.0 | 33.5 | 9.0 | 0.0 |
| LnGrp LOS | D | A | | D | A | | A | C | | C | A | |
| Approach Vol, veh/h | | 104 | A | | 135 | A | | 1333 | A | | 1021 | A |
| Approach Delay, s/veh | | 51.7 | | | 54.1 | | | 27.9 | | | 11.2 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.4 | 92.7 | | 18.3 | 10.0 | 91.1 | | 18.3 | | | | |
| Change Period (Y+Rc), s | * 5.2 | 6.0 | | * 5.5 | * 5.2 | 6.0 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | * 15 | 90.0 | | * 29 | * 15 | 90.0 | | 20.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.5 | 32.2 | | 11.9 | 3.5 | 76.1 | | 10.9 | | | | |
| Green Ext Time (p_c), s | 0.0 | 8.3 | | 0.6 | 0.1 | 9.1 | | 0.3 | | | | |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 23.6 |
| HCM 6th LOS | C |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 10 | 100 | 10 | 10 | 190 | 10 | 50 | 0 | 10 | 0 | 0 | 10 |
| Future Vol, veh/h | 10 | 100 | 10 | 10 | 190 | 10 | 50 | 0 | 10 | 0 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 120 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 13 | 128 | 13 | 13 | 244 | 13 | 64 | 0 | 13 | 0 | 0 | 13 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 257 | 0 | 0 | 141 | 0 | 0 | 444 | 444 | 135 | 444 | 444 | 251 |
| Stage 1 | - | - | - | - | - | - | 161 | 161 | - | 277 | 277 | - |
| Stage 2 | - | - | - | - | - | - | 283 | 283 | - | 167 | 167 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1308 | - | - | 1442 | - | - | 524 | 508 | 914 | 524 | 508 | 788 |
| Stage 1 | - | - | - | - | - | - | 841 | 765 | - | 729 | 681 | - |
| Stage 2 | - | - | - | - | - | - | 724 | 677 | - | 835 | 760 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1308 | - | - | 1442 | - | - | 508 | 498 | 914 | 509 | 498 | 788 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 508 | 498 | - | 509 | 498 | - |
| Stage 1 | - | - | - | - | - | - | 832 | 757 | - | 721 | 675 | - |
| Stage 2 | - | - | - | - | - | - | 706 | 671 | - | 814 | 752 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.6 | 0.4 | 12.6 | 9.6 |
| HCM LOS | | | B | A |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 549 | 1308 | - | - | 1442 | - | - | 788 |
| HCM Lane V/C Ratio | 0.14 | 0.01 | - | - | 0.009 | - | - | 0.016 |
| HCM Control Delay (s) | 12.6 | 7.8 | 0 | - | 7.5 | - | - | 9.6 |
| HCM Lane LOS | B | A | A | - | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.5 | 0 | - | - | 0 | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 40 | 60 | 190 | 1360 | 980 | 30 |
| Future Vol, veh/h | 40 | 60 | 190 | 1360 | 980 | 30 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | 130 | 0 | 420 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 44 | 66 | 209 | 1495 | 1077 | 33 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2990 | - | 1077 | 0 | - | 0 |
| Stage 1 | 1077 | - | - | - | - | - |
| Stage 2 | 1913 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | ~ 15 | 0 | 647 | - | - | - |
| Stage 1 | 327 | 0 | - | - | - | - |
| Stage 2 | 127 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 10 | - | 647 | - | - | - |
| Mov Cap-2 Maneuver | 102 | - | - | - | - | - |
| Stage 1 | 221 | - | - | - | - | - |
| Stage 2 | 127 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 64.7 | 1.6 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 647 | - | 102 | - | - | - |
| HCM Lane V/C Ratio | 0.323 | - | 0.431 | - | - | - |
| HCM Control Delay (s) | 13.2 | - | 64.7 | 0 | - | - |
| HCM Lane LOS | B | - | F | A | - | - |
| HCM 95th %tile Q(veh) | 1.4 | - | 1.8 | - | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 10 | 0 | 560 | 1090 | 910 | 90 |
| Future Vol, veh/h | 10 | 0 | 560 | 1090 | 910 | 90 |
| Conflicting Peds, #/hr | 1 | 1 | 1 | 0 | 0 | 1 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | - | - | 450 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 10 | 0 | 577 | 1124 | 938 | 93 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 3218 | - | 939 | 0 | - | 0 |
| Stage 1 | 939 | - | - | - | - | - |
| Stage 2 | 2279 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 11 | 0 | 730 | - | - | - |
| Stage 1 | 380 | 0 | - | - | - | - |
| Stage 2 | 83 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 2 | - | 729 | - | - | - |
| Mov Cap-2 Maneuver | 52 | - | - | - | - | - |
| Stage 1 | 79 | - | - | - | - | - |
| Stage 2 | 83 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 90.6 | 8.8 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 729 | - | 52 | - | - |
| HCM Lane V/C Ratio | 0.792 | - | 0.198 | - | - |
| HCM Control Delay (s) | 26 | - | 90.6 | - | - |
| HCM Lane LOS | D | - | F | - | - |
| HCM 95th %tile Q(veh) | 8 | - | 0.7 | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 230 | 50 | 60 | 80 | 50 | 250 | 40 | 670 | 100 | 200 | 750 | 350 |
| Future Volume (veh/h) | 230 | 50 | 60 | 80 | 50 | 250 | 40 | 670 | 100 | 200 | 750 | 350 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 0.99 | | 0.98 | 1.00 | | 1.00 | 1.00 | | 0.96 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 245 | 53 | 42 | 85 | 53 | 164 | 43 | 713 | 0 | 213 | 798 | 259 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 382 | 249 | 197 | 412 | 71 | 221 | 196 | 1517 | | 445 | 890 | 722 |
| Arrive On Green | 0.14 | 0.26 | 0.24 | 0.06 | 0.18 | 0.17 | 0.05 | 0.43 | 0.00 | 0.09 | 0.48 | 0.48 |
| Sat Flow, veh/h | 1781 | 961 | 761 | 1781 | 395 | 1221 | 1781 | 3647 | 0 | 1781 | 1870 | 1516 |
| Grp Volume(v), veh/h | 245 | 0 | 95 | 85 | 0 | 217 | 43 | 713 | 0 | 213 | 798 | 259 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1722 | 1781 | 0 | 1615 | 1781 | 1777 | 0 | 1781 | 1870 | 1516 |
| Q Serve(g_s), s | 10.9 | 0.0 | 4.5 | 3.9 | 0.0 | 13.2 | 1.4 | 14.8 | 0.0 | 6.5 | 40.3 | 11.1 |
| Cycle Q Clear(g_c), s | 10.9 | 0.0 | 4.5 | 3.9 | 0.0 | 13.2 | 1.4 | 14.8 | 0.0 | 6.5 | 40.3 | 11.1 |
| Prop In Lane | 1.00 | | 0.44 | 1.00 | | 0.76 | 1.00 | | 0.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 382 | 0 | 446 | 412 | 0 | 292 | 196 | 1517 | | 445 | 890 | 722 |
| V/C Ratio(X) | 0.64 | 0.00 | 0.21 | 0.21 | 0.00 | 0.74 | 0.22 | 0.47 | | 0.48 | 0.90 | 0.36 |
| Avail Cap(c_a), veh/h | 663 | 0 | 684 | 660 | 0 | 485 | 477 | 2273 | | 638 | 1196 | 970 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 27.5 | 0.0 | 30.3 | 31.1 | 0.0 | 40.6 | 21.4 | 21.2 | 0.0 | 14.4 | 24.7 | 17.1 |
| Incr Delay (d2), s/veh | 1.8 | 0.0 | 0.1 | 0.1 | 0.0 | 1.4 | 0.2 | 0.1 | 0.0 | 0.3 | 6.3 | 0.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.8 | 0.0 | 1.9 | 1.7 | 0.0 | 5.4 | 0.6 | 6.2 | 0.0 | 2.6 | 18.8 | 3.9 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 29.3 | 0.0 | 30.4 | 31.2 | 0.0 | 42.0 | 21.6 | 21.3 | 0.0 | 14.7 | 31.1 | 17.3 |
| LnGrp LOS | C | A | C | C | A | D | C | C | | B | C | B |
| Approach Vol, veh/h | | 340 | | | 302 | | | 756 | A | | 1270 | |
| Approach Delay, s/veh | | 29.6 | | | 39.0 | | | 21.3 | | | 25.5 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.7 | 53.1 | 18.7 | 22.6 | 13.8 | 48.0 | 10.6 | 30.7 |
| Change Period (Y+Rc), s | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 |
| Max Green Setting (Gmax), s | * 20 | 64.5 | * 30 | 29.5 | * 20 | 64.5 | * 20 | 39.5 |
| Max Q Clear Time (g_c+I1), s | 3.4 | 42.3 | 12.9 | 15.2 | 8.5 | 16.8 | 5.9 | 6.5 |
| Green Ext Time (p_c), s | 0.0 | 5.4 | 0.6 | 0.7 | 0.1 | 3.2 | 0.0 | 0.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 26.4 |
| HCM 6th LOS | C |

**Notes**

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 33 | 88 | 490 | 27 | 53 | 880 |
| Future Vol, veh/h | 33 | 88 | 490 | 27 | 53 | 880 |
| Conflicting Peds, #/hr | 6 | 5 | 0 | 6 | 5 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 40 | - | - | 120 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 34 | 91 | 505 | 28 | 55 | 907 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1548 | 530 | 0 | 0 | 539 | 0 |
| Stage 1 | 525 | - | - | - | - | - |
| Stage 2 | 1023 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 126 | 549 | - | - | 1029 | - |
| Stage 1 | 593 | - | - | - | - | - |
| Stage 2 | 347 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 118 | 543 | - | - | 1023 | - |
| Mov Cap-2 Maneuver | 118 | - | - | - | - | - |
| Stage 1 | 589 | - | - | - | - | - |
| Stage 2 | 327 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 22.4 | 0 | 0.5 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 118 | 543 | 1023 | - |
| HCM Lane V/C Ratio | - | - | 0.288 | 0.167 | 0.053 | - |
| HCM Control Delay (s) | - | - | 47.4 | 13 | 8.7 | - |
| HCM Lane LOS | - | - | E | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 1.1 | 0.6 | 0.2 | - |

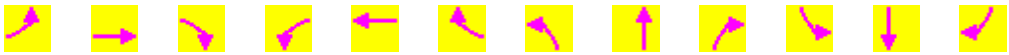
| Intersection | |
|---|---|
| Int Delay, s/veh | 5.6 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 140 | 120 | 130 | 20 | 30 | 170 |
| Future Vol, veh/h | 140 | 120 | 130 | 20 | 30 | 170 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 120 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 152 | 130 | 141 | 22 | 33 | 185 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 163 | 0 | - | 0 | 586 | 152 |
| Stage 1 | - | - | - | - | 152 | - |
| Stage 2 | - | - | - | - | 434 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1416 | - | - | - | 473 | 894 |
| Stage 1 | - | - | - | - | 876 | - |
| Stage 2 | - | - | - | - | 653 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1416 | - | - | - | 422 | 894 |
| Mov Cap-2 Maneuver | - | - | - | - | 422 | - |
| Stage 1 | - | - | - | - | 782 | - |
| Stage 2 | - | - | - | - | 653 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 4.2 | 0 | 11.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1416 | - | - | - | 766 |
| HCM Lane V/C Ratio | 0.107 | - | - | - | 0.284 |
| HCM Control Delay (s) | 7.8 | - | - | - | 11.6 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.4 | - | - | - | 1.2 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 90 | 70 | 20 | 40 | 50 | 120 | 40 | 1140 | 50 | 160 | 1270 | 90 |
| Future Volume (veh/h) | 90 | 70 | 20 | 40 | 50 | 120 | 40 | 1140 | 50 | 160 | 1270 | 90 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 92 | 71 | 0 | 41 | 51 | 0 | 41 | 1163 | 0 | 163 | 1296 | 0 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 163 | 90 | | 114 | 127 | | 173 | 1333 | | 266 | 1355 | |
| Arrive On Green | 0.14 | 0.14 | 0.00 | 0.13 | 0.13 | 0.00 | 0.04 | 0.71 | 0.00 | 0.05 | 0.72 | 0.00 |
| Sat Flow, veh/h | 857 | 667 | 1585 | 561 | 998 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 163 | 0 | 0 | 92 | 0 | 0 | 41 | 1163 | 0 | 163 | 1296 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1524 | 0 | 1585 | 1559 | 0 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 57.2 | 0.0 | 2.9 | 75.2 | 0.0 |
| Cycle Q Clear(g_c), s | 12.6 | 0.0 | 0.0 | 6.3 | 0.0 | 0.0 | 0.7 | 57.2 | 0.0 | 2.9 | 75.2 | 0.0 |
| Prop In Lane | 0.56 | | 1.00 | 0.45 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 253 | 0 | | 241 | 0 | | 173 | 1333 | | 266 | 1355 | |
| V/C Ratio(X) | 0.64 | 0.00 | | 0.38 | 0.00 | | 0.24 | 0.87 | | 0.61 | 0.96 | |
| Avail Cap(c_a), veh/h | 318 | 0 | | 426 | 0 | | 344 | 1423 | | 415 | 1423 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 50.7 | 0.0 | 0.0 | 48.7 | 0.0 | 0.0 | 28.8 | 13.2 | 0.0 | 24.2 | 14.9 | 0.0 |
| Incr Delay (d2), s/veh | 3.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.7 | 6.0 | 0.0 | 2.3 | 14.4 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.0 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.8 | 21.0 | 0.0 | 3.2 | 29.5 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.7 | 0.0 | 0.0 | 49.7 | 0.0 | 0.0 | 29.5 | 19.2 | 0.0 | 26.5 | 29.3 | 0.0 |
| LnGrp LOS | D | A | | D | A | | C | B | | C | C | |
| Approach Vol, veh/h | | 163 | A | | 92 | A | | 1204 | A | | 1459 | A |
| Approach Delay, s/veh | | 53.7 | | | 49.7 | | | 19.5 | | | 29.0 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.9 | 91.6 | | 20.4 | 10.4 | 90.2 | | 20.4 | | | | |
| Change Period (Y+Rc), s | * 5.2 | 6.0 | | * 5.5 | * 5.2 | 6.0 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | * 15 | 90.0 | | * 29 | * 15 | 90.0 | | 20.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.7 | 77.2 | | 8.3 | 4.9 | 59.2 | | 14.6 | | | | |
| Green Ext Time (p_c), s | 0.0 | 8.5 | | 0.4 | 0.3 | 11.8 | | 0.4 | | | | |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 27.1 |
| HCM 6th LOS | | C |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 10 | 120 | 20 | 20 | 120 | 10 | 20 | 0 | 10 | 10 | 0 | 10 |
| Future Vol, veh/h | 10 | 120 | 20 | 20 | 120 | 10 | 20 | 0 | 10 | 10 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 2 | 3 | 0 | 1 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 120 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 145 | 24 | 24 | 145 | 12 | 24 | 0 | 12 | 12 | 0 | 12 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 160 | 0 | 0 | 171 | 0 | 0 | 389 | 391 | 162 | 392 | 397 | 155 |
| Stage 1 | - | - | - | - | - | - | 183 | 183 | - | 202 | 202 | - |
| Stage 2 | - | - | - | - | - | - | 206 | 208 | - | 190 | 195 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1419 | - | - | 1406 | - | - | 570 | 545 | 883 | 567 | 540 | 891 |
| Stage 1 | - | - | - | - | - | - | 819 | 748 | - | 800 | 734 | - |
| Stage 2 | - | - | - | - | - | - | 796 | 730 | - | 812 | 739 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1415 | - | - | 1403 | - | - | 549 | 528 | 879 | 545 | 523 | 888 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 549 | 528 | - | 545 | 523 | - |
| Stage 1 | - | - | - | - | - | - | 810 | 740 | - | 790 | 719 | - |
| Stage 2 | - | - | - | - | - | - | 771 | 715 | - | 791 | 731 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.5 | 1 | 11.1 | 10.5 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 628 | 1415 | - | - | 1403 | - | - | 675 |
| HCM Lane V/C Ratio | 0.058 | 0.009 | - | - | 0.017 | - | - | 0.036 |
| HCM Control Delay (s) | 11.1 | 7.6 | 0 | - | 7.6 | - | - | 10.5 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | 0.1 | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 20 | 120 | 100 | 1190 | 1310 | 30 |
| Future Vol, veh/h | 20 | 120 | 100 | 1190 | 1310 | 30 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | 130 | 0 | 420 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 21 | 124 | 103 | 1227 | 1351 | 31 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2784 | - | 1351 | 0 | - | 0 |
| Stage 1 | 1351 | - | - | - | - | - |
| Stage 2 | 1433 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 21 | 0 | 509 | - | - | - |
| Stage 1 | 241 | 0 | - | - | - | - |
| Stage 2 | 220 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 17 | - | 509 | - | - | - |
| Mov Cap-2 Maneuver | 135 | - | - | - | - | - |
| Stage 1 | 192 | - | - | - | - | - |
| Stage 2 | 220 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 36.4 | 1.1 | 0 |
| HCM LOS | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 509 | - | 135 | - | - | - |
| HCM Lane V/C Ratio | 0.203 | - | 0.153 | - | - | - |
| HCM Control Delay (s) | 13.9 | - | 36.4 | 0 | - | - |
| HCM Lane LOS | B | - | E | A | - | - |
| HCM 95th %tile Q(veh) | 0.8 | - | 0.5 | - | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 20 | 0 | 310 | 1150 | 1090 | 70 |
| Future Vol, veh/h | 20 | 0 | 310 | 1150 | 1090 | 70 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | - | - | 450 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 20 | 0 | 316 | 1173 | 1112 | 71 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2917 | - | 1112 | 0 | - | 0 |
| Stage 1 | 1112 | - | - | - | - | - |
| Stage 2 | 1805 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | ~ 17 | 0 | 628 | - | - | - |
| Stage 1 | 315 | 0 | - | - | - | - |
| Stage 2 | 144 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 8 | - | 628 | - | - | - |
| Mov Cap-2 Maneuver | 98 | - | - | - | - | - |
| Stage 1 | 157 | - | - | - | - | - |
| Stage 2 | 144 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 51.1 | 3.5 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 628 | - | 98 | - | - |
| HCM Lane V/C Ratio | 0.504 | - | 0.208 | - | - |
| HCM Control Delay (s) | 16.4 | - | 51.1 | - | - |
| HCM Lane LOS | C | - | F | - | - |
| HCM 95th %tile Q(veh) | 2.8 | - | 0.7 | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 210 | 50 | 25 | 74 | 40 | 230 | 32 | 747 | 58 | 150 | 496 | 190 |
| Future Volume (veh/h) | 210 | 50 | 25 | 74 | 40 | 230 | 32 | 747 | 58 | 150 | 496 | 190 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 0.98 | | 0.99 | 0.99 | | 0.94 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 241 | 57 | 16 | 85 | 46 | 120 | 37 | 859 | 0 | 172 | 570 | 123 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 495 | 398 | 112 | 495 | 91 | 237 | 261 | 1140 | | 346 | 693 | 581 |
| Arrive On Green | 0.15 | 0.28 | 0.26 | 0.07 | 0.21 | 0.19 | 0.05 | 0.32 | 0.00 | 0.10 | 0.37 | 0.37 |
| Sat Flow, veh/h | 1781 | 1402 | 393 | 1781 | 439 | 1144 | 1781 | 3647 | 0 | 1781 | 1870 | 1568 |
| Grp Volume(v), veh/h | 241 | 0 | 73 | 85 | 0 | 166 | 37 | 859 | 0 | 172 | 570 | 123 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1795 | 1781 | 0 | 1583 | 1781 | 1777 | 0 | 1781 | 1870 | 1568 |
| Q Serve(g_s), s | 7.1 | 0.0 | 2.2 | 2.6 | 0.0 | 6.8 | 1.0 | 15.8 | 0.0 | 4.3 | 20.1 | 3.9 |
| Cycle Q Clear(g_c), s | 7.1 | 0.0 | 2.2 | 2.6 | 0.0 | 6.8 | 1.0 | 15.8 | 0.0 | 4.3 | 20.1 | 3.9 |
| Prop In Lane | 1.00 | | 0.22 | 1.00 | | 0.72 | 1.00 | | 0.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 495 | 0 | 509 | 495 | 0 | 328 | 261 | 1140 | | 346 | 693 | 581 |
| V/C Ratio(X) | 0.49 | 0.00 | 0.14 | 0.17 | 0.00 | 0.51 | 0.14 | 0.75 | | 0.50 | 0.82 | 0.21 |
| Avail Cap(c_a), veh/h | 989 | 0 | 1012 | 880 | 0 | 674 | 681 | 3224 | | 677 | 1697 | 1422 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.8 | 0.0 | 19.6 | 20.0 | 0.0 | 26.0 | 16.7 | 22.1 | 0.0 | 15.4 | 20.7 | 15.6 |
| Incr Delay (d2), s/veh | 0.7 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 0.1 | 0.4 | 0.0 | 0.4 | 1.4 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.8 | 0.0 | 0.9 | 1.1 | 0.0 | 2.6 | 0.4 | 6.3 | 0.0 | 1.7 | 8.5 | 1.4 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 17.6 | 0.0 | 19.6 | 20.1 | 0.0 | 26.5 | 16.8 | 22.5 | 0.0 | 15.8 | 22.1 | 15.7 |
| LnGrp LOS | B | A | B | C | A | C | B | C | | B | C | B |
| Approach Vol, veh/h | | 314 | | | 251 | | | 896 | A | | 865 | |
| Approach Delay, s/veh | | 18.1 | | | 24.3 | | | 22.3 | | | 19.9 | |
| Approach LOS | | B | | | C | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 7.8 | 31.0 | 14.9 | 19.1 | 11.5 | 27.3 | 9.3 | 24.6 |
| Change Period (Y+Rc), s | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 |
| Max Green Setting (Gmax), s | * 20 | 64.5 | * 30 | 29.5 | * 20 | 64.5 | * 20 | 39.5 |
| Max Q Clear Time (g_c+I1), s | 3.0 | 22.1 | 9.1 | 8.8 | 6.3 | 17.8 | 4.6 | 4.2 |
| Green Ext Time (p_c), s | 0.0 | 3.4 | 0.7 | 0.6 | 0.1 | 4.0 | 0.0 | 0.2 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 21.1 |
| HCM 6th LOS | C |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 7 | 80 | 740 | 69 | 172 | 360 |
| Future Vol, veh/h | 7 | 80 | 740 | 69 | 172 | 360 |
| Conflicting Peds, #/hr | 1 | 1 | 0 | 1 | 1 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 40 | - | - | 120 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 81 | 81 | 81 | 81 | 81 | 81 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 99 | 914 | 85 | 212 | 444 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1827 | 959 | 0 | 0 | 1000 | 0 |
| Stage 1 | 958 | - | - | - | - | - |
| Stage 2 | 869 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 84 | 312 | - | - | 692 | - |
| Stage 1 | 373 | - | - | - | - | - |
| Stage 2 | 410 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 58 | 311 | - | - | 691 | - |
| Mov Cap-2 Maneuver | 58 | - | - | - | - | - |
| Stage 1 | 373 | - | - | - | - | - |
| Stage 2 | 284 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 26.4 | 0 | 4 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 58 | 311 | 691 | - |
| HCM Lane V/C Ratio | - | - | 0.149 | 0.318 | 0.307 | - |
| HCM Control Delay (s) | - | - | 77.6 | 21.9 | 12.5 | - |
| HCM Lane LOS | - | - | F | C | B | - |
| HCM 95th %tile Q(veh) | - | - | 0.5 | 1.3 | 1.3 | - |

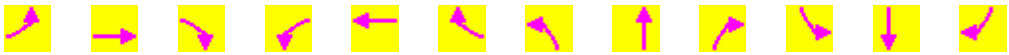
| Intersection | |
|---|---|
| Int Delay, s/veh | 4.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 88 | 100 | 230 | 34 | 55 | 114 |
| Future Vol, veh/h | 88 | 100 | 230 | 34 | 55 | 114 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 120 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 96 | 109 | 250 | 37 | 60 | 124 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 287 | 0 | - | 0 | 570 | 269 |
| Stage 1 | - | - | - | - | 269 | - |
| Stage 2 | - | - | - | - | 301 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1275 | - | - | - | 483 | 770 |
| Stage 1 | - | - | - | - | 776 | - |
| Stage 2 | - | - | - | - | 751 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1275 | - | - | - | 447 | 770 |
| Mov Cap-2 Maneuver | - | - | - | - | 447 | - |
| Stage 1 | - | - | - | - | 718 | - |
| Stage 2 | - | - | - | - | 751 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 3.8 | 0 | 13.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1275 | - | - | - | 623 |
| HCM Lane V/C Ratio | 0.075 | - | - | - | 0.295 |
| HCM Control Delay (s) | 8.1 | - | - | - | 13.2 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 1.2 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 80 | 32 | 30 | 70 | 65 | 260 | 30 | 1250 | 40 | 90 | 890 | 114 |
| Future Volume (veh/h) | 80 | 32 | 30 | 70 | 65 | 260 | 30 | 1250 | 40 | 90 | 890 | 114 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 83 | 33 | 0 | 73 | 68 | 0 | 31 | 1302 | 0 | 94 | 927 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 166 | 48 | | 136 | 92 | | 414 | 1361 | | 189 | 1385 | |
| Arrive On Green | 0.12 | 0.12 | 0.00 | 0.12 | 0.12 | 0.00 | 0.04 | 0.73 | 0.00 | 0.05 | 0.74 | 0.00 |
| Sat Flow, veh/h | 927 | 386 | 1585 | 784 | 799 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 116 | 0 | 0 | 141 | 0 | 0 | 31 | 1302 | 0 | 94 | 927 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1313 | 0 | 1585 | 1584 | 0 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 75.4 | 0.0 | 1.5 | 30.8 | 0.0 |
| Cycle Q Clear(g_c), s | 10.7 | 0.0 | 0.0 | 10.4 | 0.0 | 0.0 | 0.5 | 75.4 | 0.0 | 1.5 | 30.8 | 0.0 |
| Prop In Lane | 0.72 | | 1.00 | 0.52 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 213 | 0 | | 228 | 0 | | 414 | 1361 | | 189 | 1385 | |
| V/C Ratio(X) | 0.54 | 0.00 | | 0.62 | 0.00 | | 0.07 | 0.96 | | 0.50 | 0.67 | |
| Avail Cap(c_a), veh/h | 292 | 0 | | 431 | 0 | | 592 | 1426 | | 344 | 1426 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 51.0 | 0.0 | 0.0 | 51.8 | 0.0 | 0.0 | 7.3 | 14.8 | 0.0 | 32.2 | 8.1 | 0.0 |
| Incr Delay (d2), s/veh | 2.1 | 0.0 | 0.0 | 2.7 | 0.0 | 0.0 | 0.1 | 14.5 | 0.0 | 2.0 | 1.2 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.5 | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | 0.2 | 29.4 | 0.0 | 2.0 | 9.9 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 53.2 | 0.0 | 0.0 | 54.5 | 0.0 | 0.0 | 7.4 | 29.3 | 0.0 | 34.2 | 9.2 | 0.0 |
| LnGrp LOS | D | A | | D | A | | A | C | | C | A | |
| Approach Vol, veh/h | | 116 | A | | 141 | A | | 1333 | A | | 1021 | A |
| Approach Delay, s/veh | | 53.2 | | | 54.5 | | | 28.8 | | | 11.5 | |
| Approach LOS | | D | | | D | | | C | | | B | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.4 | 93.4 | | 18.9 | 10.0 | 91.8 | | 18.9 | | | | |
| Change Period (Y+Rc), s | * 5.2 | 6.0 | | * 5.5 | * 5.2 | 6.0 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | * 15 | 90.0 | | * 29 | * 15 | 90.0 | | 20.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.5 | 32.8 | | 12.4 | 3.5 | 77.4 | | 12.7 | | | | |
| Green Ext Time (p_c), s | 0.0 | 8.3 | | 0.6 | 0.1 | 8.4 | | 0.3 | | | | |

| Intersection Summary | | |
|---|---|---|
| HCM 6th Ctrl Delay | | 24.5 |
| HCM 6th LOS | | C |

**Notes**

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 10 | 125 | 10 | 10 | 252 | 10 | 50 | 0 | 10 | 0 | 0 | 10 |
| Future Vol, veh/h | 10 | 125 | 10 | 10 | 252 | 10 | 50 | 0 | 10 | 0 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 120 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 13 | 160 | 13 | 13 | 323 | 13 | 64 | 0 | 13 | 0 | 0 | 13 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 336 | 0 | 0 | 173 | 0 | 0 | 555 | 555 | 167 | 555 | 555 | 330 |
| Stage 1 | - | - | - | - | - | - | 193 | 193 | - | 356 | 356 | - |
| Stage 2 | - | - | - | - | - | - | 362 | 362 | - | 199 | 199 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1223 | - | - | 1404 | - | - | 442 | 440 | 877 | 442 | 440 | 712 |
| Stage 1 | - | - | - | - | - | - | 809 | 741 | - | 661 | 629 | - |
| Stage 2 | - | - | - | - | - | - | 657 | 625 | - | 803 | 736 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1223 | - | - | 1404 | - | - | 427 | 431 | 877 | 428 | 431 | 712 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 427 | 431 | - | 428 | 431 | - |
| Stage 1 | - | - | - | - | - | - | 799 | 732 | - | 653 | 623 | - |
| Stage 2 | - | - | - | - | - | - | 639 | 619 | - | 782 | 727 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.5 | 0.3 | 14.2 | 10.1 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 467 | 1223 | - | - | 1404 | - | - | 712 |
| HCM Lane V/C Ratio | 0.165 | 0.01 | - | - | 0.009 | - | - | 0.018 |
| HCM Control Delay (s) | 14.2 | 8 | 0 | - | 7.6 | - | - | 10.1 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.6 | 0 | - | - | 0 | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 40 | 85 | 252 | 1360 | 980 | 30 |
| Future Vol, veh/h | 40 | 85 | 252 | 1360 | 980 | 30 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | 130 | 0 | 420 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 44 | 93 | 277 | 1495 | 1077 | 33 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 3126 | - | 1077 | 0 | - | 0 |
| Stage 1 | 1077 | - | - | - | - | - |
| Stage 2 | 2049 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | ~ 12 | 0 | 647 | - | - | - |
| Stage 1 | 327 | 0 | - | - | - | - |
| Stage 2 | 108 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 7 | - | 647 | - | - | - |
| Mov Cap-2 Maneuver | 86 | - | - | - | - | - |
| Stage 1 | 187 | - | - | - | - | - |
| Stage 2 | 108 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 84.3 | 2.3 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 647 | - | 86 | - | - | - |
| HCM Lane V/C Ratio | 0.428 | - | 0.511 | - | - | - |
| HCM Control Delay (s) | 14.7 | - | 84.3 | 0 | - | - |
| HCM Lane LOS | B | - | F | A | - | - |
| HCM 95th %tile Q(veh) | 2.1 | - | 2.2 | - | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 8 | 0 | 551 | 1145 | 932 | 86 |
| Future Vol, veh/h | 8 | 0 | 551 | 1145 | 932 | 86 |
| Conflicting Peds, #/hr | 1 | 1 | 1 | 0 | 0 | 1 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | - | - | 450 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 8 | 0 | 568 | 1180 | 961 | 89 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 3279 | - | 962 | 0 | - | 0 |
| Stage 1 | 962 | - | - | - | - | - |
| Stage 2 | 2317 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 10 | 0 | 715 | - | - | - |
| Stage 1 | 371 | 0 | - | - | - | - |
| Stage 2 | 79 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 2 | - | 714 | - | - | - |
| Mov Cap-2 Maneuver | 50 | - | - | - | - | - |
| Stage 1 | 76 | - | - | - | - | - |
| Stage 2 | 79 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 90.7 | 8.7 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 714 | - | 50 | - | - |
| HCM Lane V/C Ratio | 0.796 | - | 0.165 | - | - |
| HCM Control Delay (s) | 26.7 | - | 90.7 | - | - |
| HCM Lane LOS | D | - | F | - | - |
| HCM 95th %tile Q(veh) | 8.1 | - | 0.5 | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.7 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 120 | 35 | 62 | 250 | 14 | 25 |
| Future Vol, veh/h | 120 | 35 | 62 | 250 | 14 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 130 | 38 | 67 | 272 | 15 | 27 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 168 | 0 | 555 | 149 |
| Stage 1 | - | - | - | - | 149 | - |
| Stage 2 | - | - | - | - | 406 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1410 | - | 493 | 898 |
| Stage 1 | - | - | - | - | 879 | - |
| Stage 2 | - | - | - | - | 673 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1410 | - | 465 | 898 |
| Mov Cap-2 Maneuver | - | - | - | - | 465 | - |
| Stage 1 | - | - | - | - | 879 | - |
| Stage 2 | - | - | - | - | 635 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.5 | 10.7 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 673 | - | - | 1410 | - |
| HCM Lane V/C Ratio | 0.063 | - | - | 0.048 | - |
| HCM Control Delay (s) | 10.7 | - | - | 7.7 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0.1 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 230 | 50 | 62 | 78 | 50 | 250 | 43 | 712 | 96 | 200 | 778 | 350 |
| Future Volume (veh/h) | 230 | 50 | 62 | 78 | 50 | 250 | 43 | 712 | 96 | 200 | 778 | 350 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 0.98 | | 0.98 | 1.00 | | 1.00 | 1.00 | | 0.96 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 245 | 53 | 37 | 83 | 53 | 146 | 46 | 757 | 0 | 213 | 828 | 278 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 382 | 254 | 178 | 395 | 73 | 201 | 192 | 1578 | | 438 | 916 | 743 |
| Arrive On Green | 0.14 | 0.25 | 0.24 | 0.06 | 0.17 | 0.16 | 0.05 | 0.44 | 0.00 | 0.09 | 0.49 | 0.49 |
| Sat Flow, veh/h | 1781 | 1020 | 712 | 1781 | 432 | 1189 | 1781 | 3647 | 0 | 1781 | 1870 | 1517 |
| Grp Volume(v), veh/h | 245 | 0 | 90 | 83 | 0 | 199 | 46 | 757 | 0 | 213 | 828 | 278 |
| Grp Sat Flow(s),veh/h/ln | 1781 | 0 | 1731 | 1781 | 0 | 1621 | 1781 | 1777 | 0 | 1781 | 1870 | 1517 |
| Q Serve(g_s), s | 11.3 | 0.0 | 4.4 | 4.0 | 0.0 | 12.4 | 1.4 | 15.9 | 0.0 | 6.4 | 42.9 | 12.1 |
| Cycle Q Clear(g_c), s | 11.3 | 0.0 | 4.4 | 4.0 | 0.0 | 12.4 | 1.4 | 15.9 | 0.0 | 6.4 | 42.9 | 12.1 |
| Prop In Lane | 1.00 | | 0.41 | 1.00 | | 0.73 | 1.00 | | 0.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 382 | 0 | 432 | 395 | 0 | 275 | 192 | 1578 | | 438 | 916 | 743 |
| V/C Ratio(X) | 0.64 | 0.00 | 0.21 | 0.21 | 0.00 | 0.72 | 0.24 | 0.48 | | 0.49 | 0.90 | 0.37 |
| Avail Cap(c_a), veh/h | 648 | 0 | 670 | 635 | 0 | 474 | 463 | 2215 | | 627 | 1166 | 946 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.9 | 0.0 | 31.7 | 33.0 | 0.0 | 42.2 | 21.8 | 20.8 | 0.0 | 14.2 | 24.7 | 16.9 |
| Incr Delay (d2), s/veh | 1.8 | 0.0 | 0.1 | 0.1 | 0.0 | 1.4 | 0.2 | 0.1 | 0.0 | 0.3 | 7.6 | 0.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.0 | 0.0 | 1.9 | 1.7 | 0.0 | 5.1 | 0.6 | 6.6 | 0.0 | 2.6 | 20.3 | 4.2 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 30.7 | 0.0 | 31.8 | 33.0 | 0.0 | 43.5 | 22.0 | 20.9 | 0.0 | 14.5 | 32.4 | 17.0 |
| LnGrp LOS | C | A | C | C | A | D | C | C | | B | C | B |
| Approach Vol, veh/h | | 335 | | | 282 | | | 803 | A | | 1319 | |
| Approach Delay, s/veh | | 31.0 | | | 40.5 | | | 21.0 | | | 26.3 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 8.9 | 55.9 | 19.2 | 21.9 | 13.8 | 51.0 | 10.7 | 30.4 |
| Change Period (Y+Rc), s | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 | * 5.2 | 5.5 |
| Max Green Setting (Gmax), s | * 20 | 64.5 | * 30 | 29.5 | * 20 | 64.5 | * 20 | 39.5 |
| Max Q Clear Time (g_c+I1), s | 3.4 | 44.9 | 13.3 | 14.4 | 8.4 | 17.9 | 6.0 | 6.4 |
| Green Ext Time (p_c), s | 0.0 | 5.5 | 0.6 | 0.6 | 0.1 | 3.4 | 0.0 | 0.3 |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 26.7 |
| HCM 6th LOS | C |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.4 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 28 | 129 | 490 | 23 | 80 | 880 |
| Future Vol, veh/h | 28 | 129 | 490 | 23 | 80 | 880 |
| Conflicting Peds, #/hr | 6 | 5 | 0 | 6 | 5 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 40 | - | - | 120 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 29 | 133 | 505 | 24 | 82 | 907 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1600 | 528 | 0 | 0 | 535 | 0 |
| Stage 1 | 523 | - | - | - | - | - |
| Stage 2 | 1077 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 117 | 550 | - | - | 1033 | - |
| Stage 1 | 595 | - | - | - | - | - |
| Stage 2 | 327 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 106 | 544 | - | - | 1027 | - |
| Mov Cap-2 Maneuver | 106 | - | - | - | - | - |
| Stage 1 | 591 | - | - | - | - | - |
| Stage 2 | 299 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 20.4 | 0 | 0.7 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 106 | 544 | 1027 | - |
| HCM Lane V/C Ratio | - | - | 0.272 | 0.244 | 0.08 | - |
| HCM Control Delay (s) | - | - | 51.2 | 13.7 | 8.8 | - |
| HCM Lane LOS | - | - | F | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 1 | 1 | 0.3 | - |

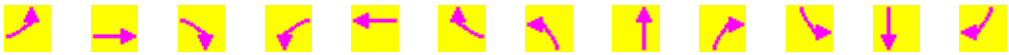
| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 136 | 120 | 130 | 42 | 44 | 168 |
| Future Vol, veh/h | 136 | 120 | 130 | 42 | 44 | 168 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 120 | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 148 | 130 | 141 | 46 | 48 | 183 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 187 | 0 | - | 0 | 590 | 164 |
| Stage 1 | - | - | - | - | 164 | - |
| Stage 2 | - | - | - | - | 426 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1387 | - | - | - | 470 | 881 |
| Stage 1 | - | - | - | - | 865 | - |
| Stage 2 | - | - | - | - | 659 | - |
| Platoon blocked, % | | | - | - | - | |
| Mov Cap-1 Maneuver | 1387 | - | - | - | 420 | 881 |
| Mov Cap-2 Maneuver | - | - | - | - | 420 | - |
| Stage 1 | - | - | - | - | 772 | - |
| Stage 2 | - | - | - | - | 659 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 4.2 | 0 | 12.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1387 | - | - | - | 718 |
| HCM Lane V/C Ratio | 0.107 | - | - | - | 0.321 |
| HCM Control Delay (s) | 7.9 | - | - | - | 12.4 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.4 | - | - | - | 1.4 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 105 | 73 | 20 | 40 | 52 | 120 | 40 | 1140 | 50 | 160 | 1270 | 100 |
| Future Volume (veh/h) | 105 | 73 | 20 | 40 | 52 | 120 | 40 | 1140 | 50 | 160 | 1270 | 100 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Adj Sat Flow, veh/h/ln | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h | 107 | 74 | 0 | 41 | 53 | 0 | 41 | 1163 | 0 | 163 | 1296 | 0 |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 176 | 90 | | 119 | 139 | | 159 | 1317 | | 253 | 1341 | |
| Arrive On Green | 0.15 | 0.15 | 0.00 | 0.14 | 0.14 | 0.00 | 0.04 | 0.70 | 0.00 | 0.05 | 0.72 | 0.00 |
| Sat Flow, veh/h | 885 | 612 | 1585 | 557 | 995 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Grp Volume(v), veh/h | 181 | 0 | 0 | 94 | 0 | 0 | 41 | 1163 | 0 | 163 | 1296 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1498 | 0 | 1585 | 1552 | 0 | 1585 | 1781 | 1870 | 1585 | 1781 | 1870 | 1585 |
| Q Serve(g_s), s | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 61.0 | 0.0 | 3.2 | 80.1 | 0.0 |
| Cycle Q Clear(g_c), s | 14.8 | 0.0 | 0.0 | 6.6 | 0.0 | 0.0 | 0.8 | 61.0 | 0.0 | 3.2 | 80.1 | 0.0 |
| Prop In Lane | 0.59 | | 1.00 | 0.44 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 267 | 0 | | 258 | 0 | | 159 | 1317 | | 253 | 1341 | |
| V/C Ratio(X) | 0.68 | 0.00 | | 0.36 | 0.00 | | 0.26 | 0.88 | | 0.64 | 0.97 | |
| Avail Cap(c_a), veh/h | 303 | 0 | | 410 | 0 | | 322 | 1373 | | 394 | 1373 | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 51.9 | 0.0 | 0.0 | 49.1 | 0.0 | 0.0 | 31.6 | 14.5 | 0.0 | 26.6 | 16.4 | 0.0 |
| Incr Delay (d2), s/veh | 5.1 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.9 | 7.0 | 0.0 | 2.7 | 16.8 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.9 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.9 | 23.3 | 0.0 | 3.5 | 32.9 | 0.0 |
| Unsig. Movement Delay, s/veh | | | | | | | | | | | | |
| LnGrp Delay(d),s/veh | 57.0 | 0.0 | 0.0 | 49.9 | 0.0 | 0.0 | 32.5 | 21.5 | 0.0 | 29.3 | 33.2 | 0.0 |
| LnGrp LOS | E | A | | D | A | | C | C | | C | C | |
| Approach Vol, veh/h | | 181 | A | | 94 | A | | 1204 | A | | 1459 | A |
| Approach Delay, s/veh | | 57.0 | | | 49.9 | | | 21.9 | | | 32.7 | |
| Approach LOS | | E | | | D | | | C | | | C | |

| Timer - Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phs Duration (G+Y+Rc), s | 9.0 | 93.8 | | 22.5 | 10.6 | 92.2 | | 22.5 | | | | |
| Change Period (Y+Rc), s | * 5.2 | 6.0 | | * 5.5 | * 5.2 | 6.0 | | 5.5 | | | | |
| Max Green Setting (Gmax), s | * 15 | 90.0 | | * 29 | * 15 | 90.0 | | 20.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.8 | 82.1 | | 8.6 | 5.2 | 63.0 | | 16.8 | | | | |
| Green Ext Time (p_c), s | 0.0 | 5.7 | | 0.4 | 0.3 | 11.2 | | 0.3 | | | | |

| Intersection Summary | |
|---|---|
| HCM 6th Ctrl Delay | 30.3 |
| HCM 6th LOS | C |

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 10 | 159 | 20 | 20 | 146 | 10 | 20 | 0 | 10 | 10 | 0 | 10 |
| Future Vol, veh/h | 10 | 159 | 20 | 20 | 146 | 10 | 20 | 0 | 10 | 10 | 0 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 2 | 3 | 0 | 1 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | 120 | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 192 | 24 | 24 | 176 | 12 | 24 | 0 | 12 | 12 | 0 | 12 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 191 | 0 | 0 | 218 | 0 | 0 | 467 | 469 | 209 | 470 | 475 | 186 |
| Stage 1 | - | - | - | - | - | - | 230 | 230 | - | 233 | 233 | - |
| Stage 2 | - | - | - | - | - | - | 237 | 239 | - | 237 | 242 | - |
| Critical Hdwy | 4.12 | - | - | 4.12 | - | - | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.12 | 5.52 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.218 | - | - | 2.218 | - | - | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 |
| Pot Cap-1 Maneuver | 1383 | - | - | 1352 | - | - | 506 | 492 | 831 | 504 | 488 | 856 |
| Stage 1 | - | - | - | - | - | - | 773 | 714 | - | 770 | 712 | - |
| Stage 2 | - | - | - | - | - | - | 766 | 708 | - | 766 | 705 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1379 | - | - | 1349 | - | - | 487 | 476 | 827 | 483 | 472 | 853 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 487 | 476 | - | 483 | 472 | - |
| Stage 1 | - | - | - | - | - | - | 764 | 705 | - | 760 | 697 | - |
| Stage 2 | - | - | - | - | - | - | 741 | 693 | - | 745 | 697 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0.9 | 11.8 | 11.1 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 564 | 1379 | - | - | 1349 | - | - | 617 |
| HCM Lane V/C Ratio | 0.064 | 0.009 | - | - | 0.018 | - | - | 0.039 |
| HCM Control Delay (s) | 11.8 | 7.6 | 0 | - | 7.7 | - | - | 11.1 |
| HCM Lane LOS | B | A | A | - | A | - | - | B |
| HCM 95th %tile Q(veh) | 0.2 | 0 | - | - | 0.1 | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 20 | 159 | 126 | 1190 | 1310 | 30 |
| Future Vol, veh/h | 20 | 159 | 126 | 1190 | 1310 | 30 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | 130 | 0 | 420 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 97 | 97 | 97 | 97 | 97 | 97 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 21 | 164 | 130 | 1227 | 1351 | 31 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2838 | - | 1351 | 0 | - | 0 |
| Stage 1 | 1351 | - | - | - | - | - |
| Stage 2 | 1487 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | ~ 19 | 0 | 509 | - | - | - |
| Stage 1 | 241 | 0 | - | - | - | - |
| Stage 2 | 207 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 14 | - | 509 | - | - | - |
| Mov Cap-2 Maneuver | 126 | - | - | - | - | - |
| Stage 1 | 180 | - | - | - | - | - |
| Stage 2 | 207 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 39.1 | 1.4 | 0 |
| HCM LOS | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 509 | - | 126 | - | - | - |
| HCM Lane V/C Ratio | 0.255 | - | 0.164 | - | - | - |
| HCM Control Delay (s) | 14.5 | - | 39.1 | 0 | - | - |
| HCM Lane LOS | B | - | E | A | - | - |
| HCM 95th %tile Q(veh) | 1 | - | 0.6 | - | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 18 | 0 | 306 | 1173 | 1125 | 68 |
| Future Vol, veh/h | 18 | 0 | 306 | 1173 | 1125 | 68 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Free | - | None | - | Yield |
| Storage Length | - | - | 450 | - | - | 500 |
| Veh in Median Storage, # | 2 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 98 | 98 | 98 | 98 | 98 | 98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 0 | 312 | 1197 | 1148 | 69 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 2969 | - | 1148 | 0 | - | 0 |
| Stage 1 | 1148 | - | - | - | - | - |
| Stage 2 | 1821 | - | - | - | - | - |
| Critical Hdwy | 6.42 | - | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | - | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | ~ 16 | 0 | 609 | - | - | - |
| Stage 1 | 302 | 0 | - | - | - | - |
| Stage 2 | 141 | 0 | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | ~ 8 | - | 609 | - | - | - |
| Mov Cap-2 Maneuver | 94 | - | - | - | - | - |
| Stage 1 | 147 | - | - | - | - | - |
| Stage 2 | 141 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 52.4 | 3.5 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 609 | - | 94 | - | - |
| HCM Lane V/C Ratio | 0.513 | - | 0.195 | - | - |
| HCM Control Delay (s) | 17 | - | 52.4 | - | - |
| HCM Lane LOS | C | - | F | - | - |
| HCM 95th %tile Q(veh) | 2.9 | - | 0.7 | - | - |

| Notes | | | |
|---|---|---|---|
| ~: Volume exceeds capacity | $: Delay exceeds 300s | +: Computation Not Defined | *: All major volume in platoon |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 150 | 14 | 26 | 150 | 22 | 39 |
| Future Vol, veh/h | 150 | 14 | 26 | 150 | 22 | 39 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 163 | 15 | 28 | 163 | 24 | 42 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | 178 | 0 | 390 | 171 |
| Stage 1 | - | - | - | - | 171 | - |
| Stage 2 | - | - | - | - | 219 | - |
| Critical Hdwy | - | - | 4.12 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.218 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1398 | - | 614 | 873 |
| Stage 1 | - | - | - | - | 859 | - |
| Stage 2 | - | - | - | - | 817 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1398 | - | 600 | 873 |
| Mov Cap-2 Maneuver | - | - | - | - | 600 | - |
| Stage 1 | - | - | - | - | 859 | - |
| Stage 2 | - | - | - | - | 799 | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 1.1 | 10.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 750 | - | - | 1398 | - |
| HCM Lane V/C Ratio | 0.088 | - | - | 0.02 | - |
| HCM Control Delay (s) | 10.3 | - | - | 7.6 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.3 | - | - | 0.1 | - |

# APPENDIX C: 4-HOUR SIGNAL WARRANT WORKSHEETS

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | 0 |
| Minor Street | Project Driveway | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 242 | 0 | 110 |
| Through | 1,715 | 2,770 | 0 | 0 |
| Right | 83 | 0 | 0 | 276 |
| Total | 450 | 753 | 0 | 97 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 38.7 |
| Approach with Worst Case Delay | WB |
| Total Vehicles on Approach | 97 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Existing** | **1** | **97** | **1,299** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

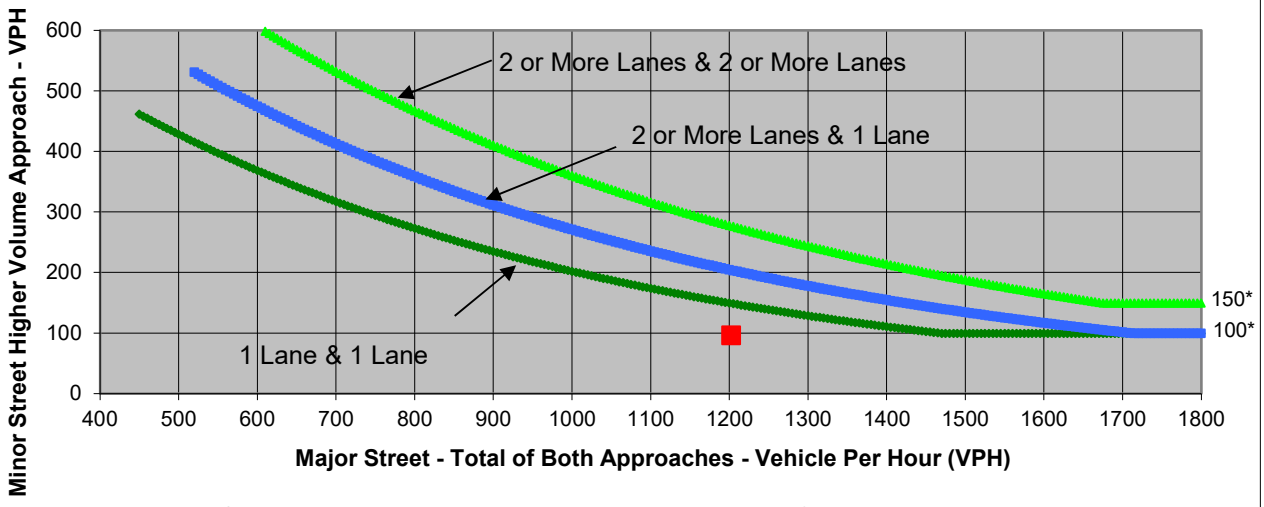
| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | |
| Minor Street | Project Driveway | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 242 | 0 | 110 |
| Through | 1,715 | 2,770 | 0 | 0 |
| Right | 83 | 0 | 0 | 276 |
| Total | 450 | 753 | 0 | 97 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Kuakini Hwy | Project Driveway | |
| **Number of Approach Lanes** | **1** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,203** | **97** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Hualalai Rd | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 486 | 0 | 61 | 0 |
| Through | 3,857 | 3,419 | 0 | 0 |
| Right | 0 | 71 | 291 | 0 |
| Total | 1,086 | 873 | 88 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 32.9 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 88 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Existing** | **0.8** | **88** | **2,046** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

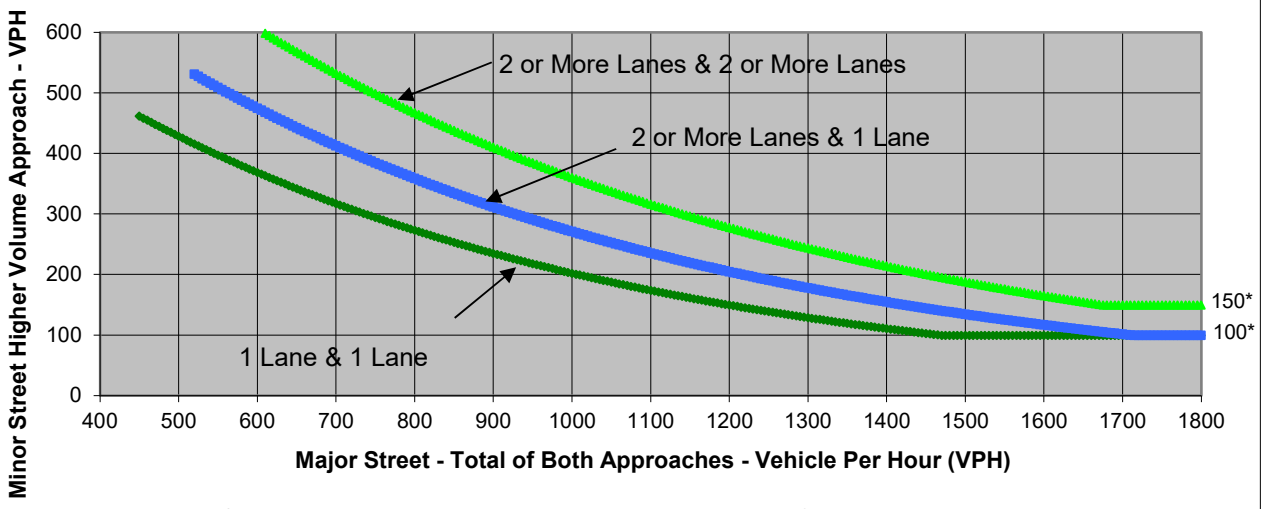
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Hualalai Rd | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 486 | 0 | 61 | 0 |
| Through | 3,857 | 3,419 | 0 | 0 |
| Right | 0 | 71 | 291 | 0 |
| Total | 1,086 | 873 | 88 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Hualalai Rd | |
| **Number of Approach Lanes** | **2** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,958** | **88** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Kuakini Hwy | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1,295 | 0 | 29 | 0 |
| Through | 3,459 | 2,996 | 0 | 0 |
| Right | 0 | 202 | 2 | 0 |
| Total | 1,189 | 800 | 8 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 1 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 38.4 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 8 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Existing** | **0.1** | **8** | **1,996** |
| **Limiting Value** | **4** | **100** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

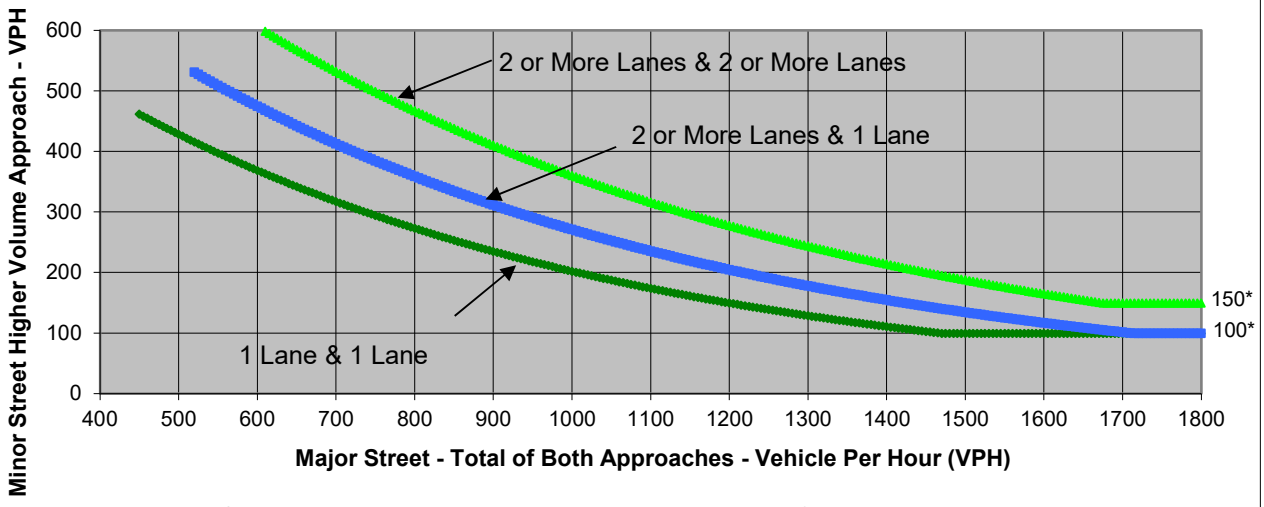
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Kuakini Hwy | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1,295 | 0 | 29 | 0 |
| Through | 3,459 | 2,996 | 0 | 0 |
| Right | 0 | 202 | 2 | 0 |
| Total | 1,189 | 800 | 8 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Kuakini Hwy | |
| **Number of Approach Lanes** | **2** | **1** | **NO** |
| **Traffic Volume (VPH) *** | **1,988** | **8** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| | | Project | 0 |
| Major Street | Kuakini Hwy | Scenario | Phase 1 |
| Minor Street | Project Driveway | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 242 | 0 | 110 |
| Through | 2,030 | 3,270 | 0 | 0 |
| Right | 83 | 0 | 0 | 276 |
| Total | 528 | 878 | 0 | 97 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 54.4 |
| Approach with Worst Case Delay | WB |
| Total Vehicles on Approach | 97 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline** | **1.5** | **97** | **1,503** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

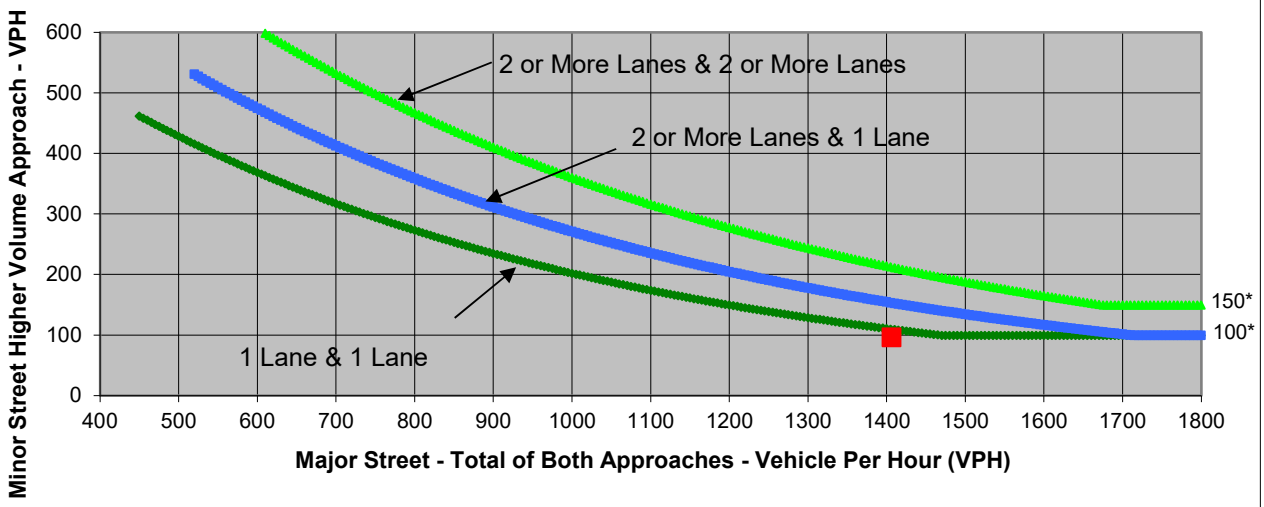
| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | 0 |
| Minor Street | Project Driveway | Scenario | Phase 1 |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 242 | 0 | 110 |
| Through | 2,030 | 3,270 | 0 | 0 |
| Right | 83 | 0 | 0 | 276 |
| Total | 528 | 878 | 0 | 97 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Kuakini Hwy | Project Driveway | |
| **Number of Approach Lanes** | **1** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,406** | **97** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Hualalai Rd | Scenario | Phase 1 |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 550 | 0 | 70 | 0 |
| Through | 5,070 | 4,490 | 0 | 0 |
| Right | 0 | 80 | 330 | 0 |
| Total | 1,405 | 1,143 | 100 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 64.7 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 100 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline** | **1.8** | **100** | **2,648** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

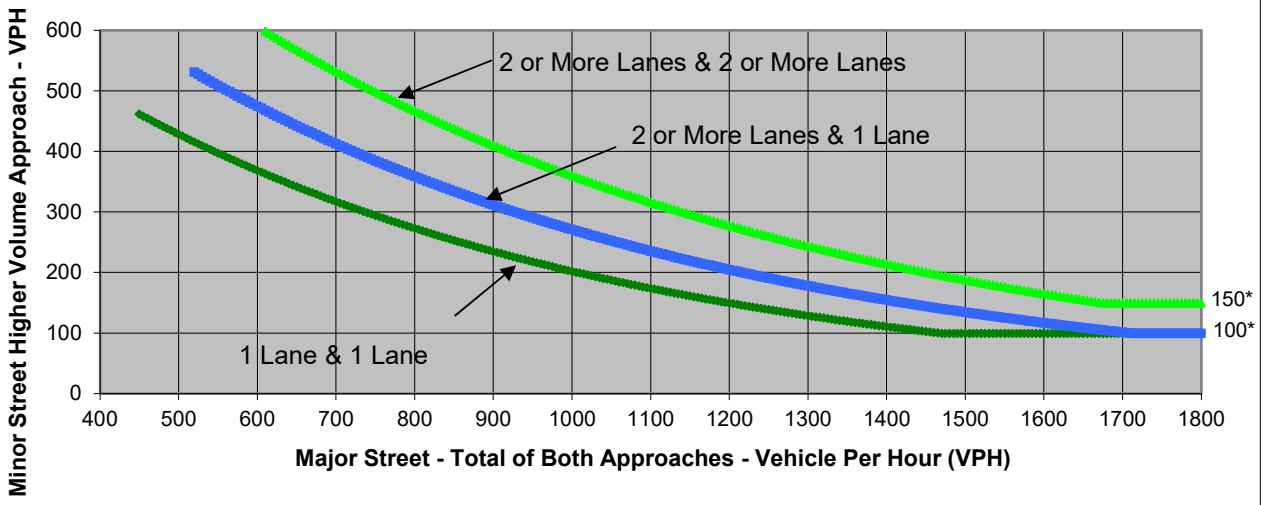
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Hualalai Rd | Scenario | Phase 1 |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 550 | 0 | 70 | 0 |
| Through | 5,070 | 4,490 | 0 | 0 |
| Right | 0 | 80 | 330 | 0 |
| Total | 1,405 | 1,143 | 100 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Hualalai Rd | |
| **Number of Approach Lanes** | **2** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **2,548** | **100** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | |
| Minor Street | Project Driveway | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 427 | 0 | 93 |
| Through | 2,030 | 3,270 | 0 | 0 |
| Right | 59 | 0 | 0 | 411 |
| Total | 522 | 924 | 0 | 126 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 77.6 |
| Approach with Worst Case Delay | WB |
| Total Vehicles on Approach | 126 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline +P** | **2.7** | **126** | **1,572** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

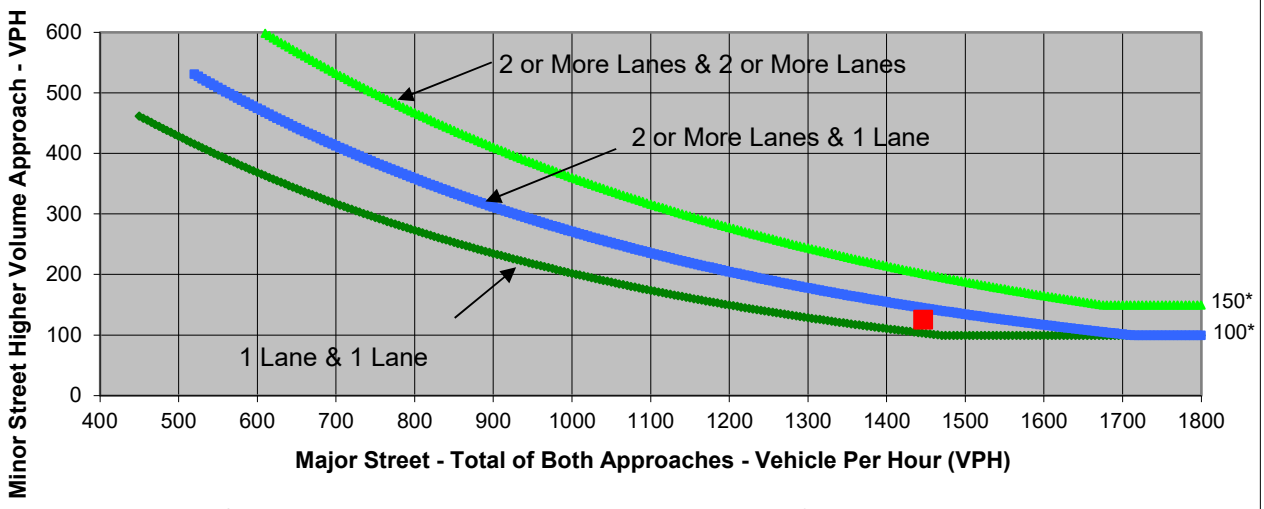
| | | | |
|---|---|---|---|
| | | Project | |
| Major Street | Kuakini Hwy | Scenario | Phase 1 +P |
| Minor Street | Project Driveway | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 427 | 0 | 93 |
| Through | 2,030 | 3,270 | 0 | 0 |
| Right | 59 | 0 | 0 | 411 |
| Total | 522 | 924 | 0 | 126 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Kuakini Hwy | Project Driveway | |
| **Number of Approach Lanes** | **1** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,447** | **126** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Hualalai Rd | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 726 | 0 | 70 | 0 |
| Through | 5,070 | 4,490 | 0 | 0 |
| Right | 0 | 80 | 458 | 0 |
| Total | 1,449 | 1,143 | 132 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 89.3 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 132 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline +P** | **3.3** | **132** | **2,724** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

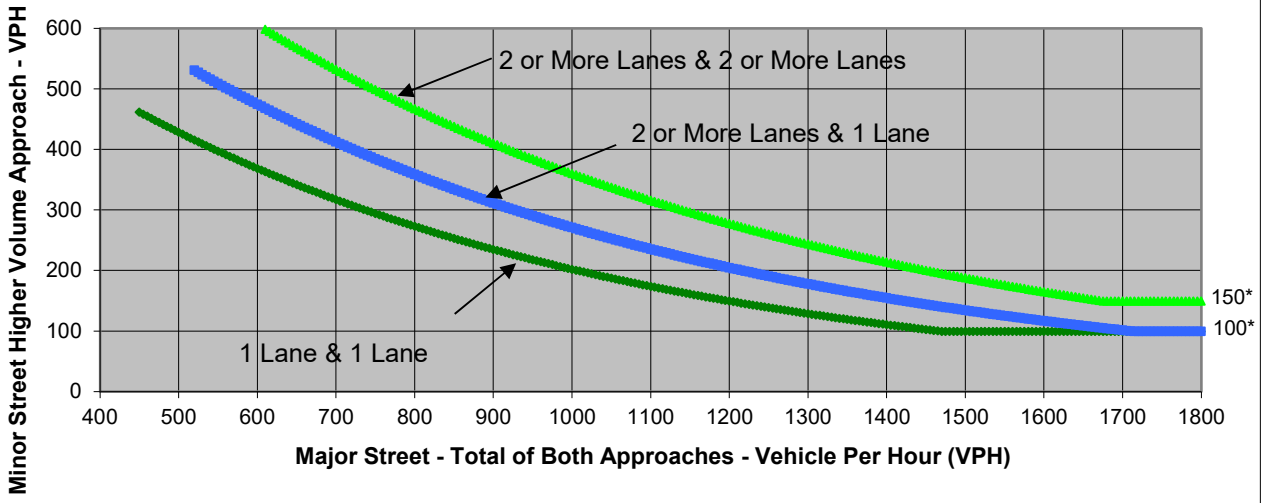
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Hualalai Rd | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 726 | 0 | 70 | 0 |
| Through | 5,070 | 4,490 | 0 | 0 |
| Right | 0 | 80 | 458 | 0 |
| Total | 1,449 | 1,143 | 132 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Hualalai Rd | |
| **Number of Approach Lanes** | **2** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **2,592** | **132** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Kuakini Hwy | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1,504 | 0 | 32 | 0 |
| Through | 4,697 | 4,054 | 0 | 0 |
| Right | 0 | 229 | 10 | 0 |
| Total | 1,550 | 1,071 | 11 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 1 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 99.6 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 11 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline +P** | **0.3** | **11** | **2,631** |
| **Limiting Value** | **4** | **100** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

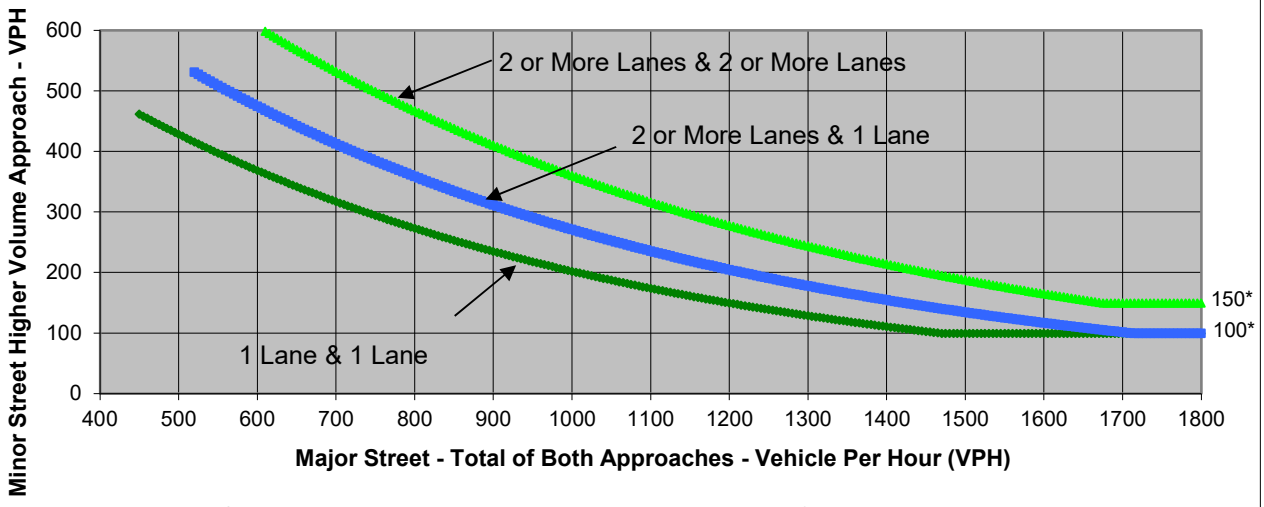
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Kuakini Hwy | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1,504 | 0 | 32 | 0 |
| Through | 4,697 | 4,054 | 0 | 0 |
| Right | 0 | 229 | 10 | 0 |
| Total | 1,550 | 1,071 | 11 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Kuakini Hwy | |
| **Number of Approach Lanes** | **2** | **1** | **NO** |
| **Traffic Volume (VPH) *** | **2,621** | **11** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

# APPENDIX D: 8-HOUR SIGNAL WARRANT WORKSHEETS

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | 0 |
| Minor Street | Project Driveway | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 530 | 0 | 209 |
| Through | 3,618 | 4,894 | 0 | 0 |
| Right | 219 | 0 | 0 | 595 |
| Total | 959 | 1,356 | 0 | 201 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 38.7 |
| Approach with Worst Case Delay | WB |
| Total Vehicles on Approach | 101 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Existing** | **1.1** | **201** | **2,516** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

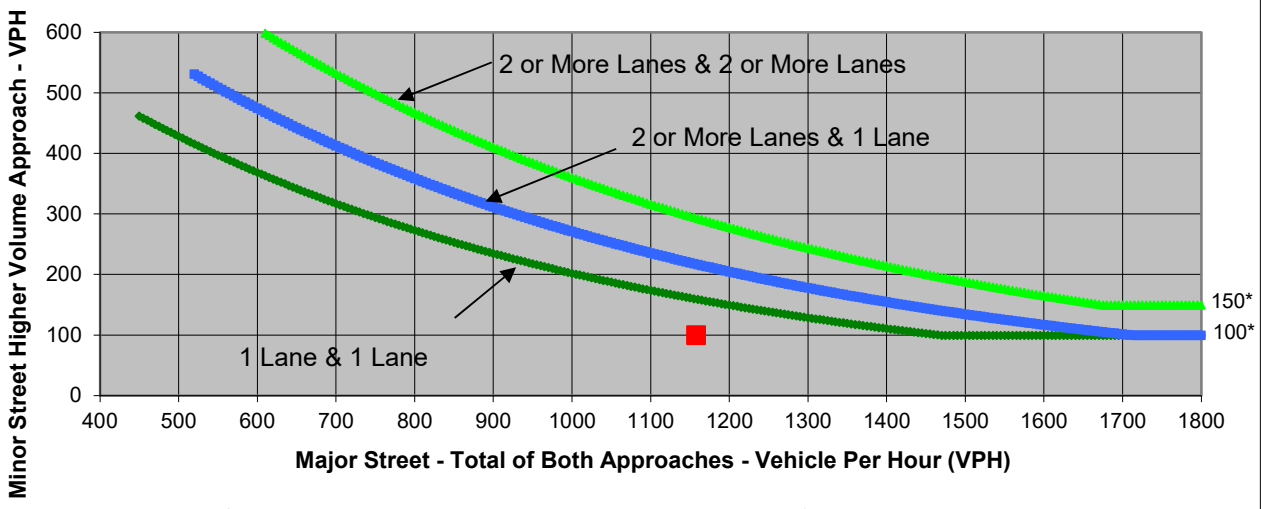
| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | |
| Minor Street | Project Driveway | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 530 | 0 | 209 |
| Through | 3,618 | 4,894 | 0 | 0 |
| Right | 219 | 0 | 0 | 595 |
| Total | 480 | 678 | 0 | 101 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Kuakini Hwy | Project Driveway | |
| **Number of Approach Lanes** | **1** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,158** | **101** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Hualalai Rd | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 698 | 0 | 85 | 0 |
| Through | 7,019 | 6,337 | 0 | 0 |
| Right | 0 | 123 | 517 | 0 |
| Total | 965 | 808 | 75 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 32.9 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 75 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Existing** | **0.7** | **75** | **1,847** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

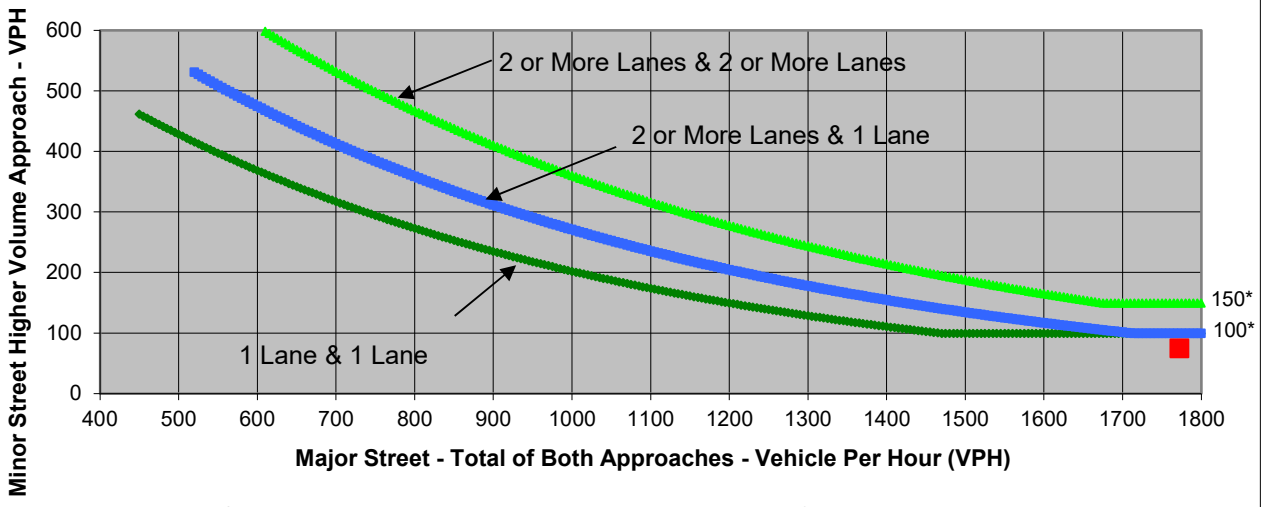
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Hualalai Rd | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 698 | 0 | 85 | 0 |
| Through | 7,019 | 6,337 | 0 | 0 |
| Right | 0 | 123 | 517 | 0 |
| Total | 965 | 808 | 75 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Hualalai Rd | |
| **Number of Approach Lanes** | **2** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,772** | **75** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Kuakini Hwy | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 2,123 | 0 | 57 | 0 |
| Through | 6,365 | 5,490 | 0 | 0 |
| Right | 0 | 320 | 2 | 0 |
| Total | 1,061 | 726 | 7 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 1 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 38.4 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 7 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Existing** | **0.1** | **7** | **1,795** |
| **Limiting Value** | **4** | **100** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

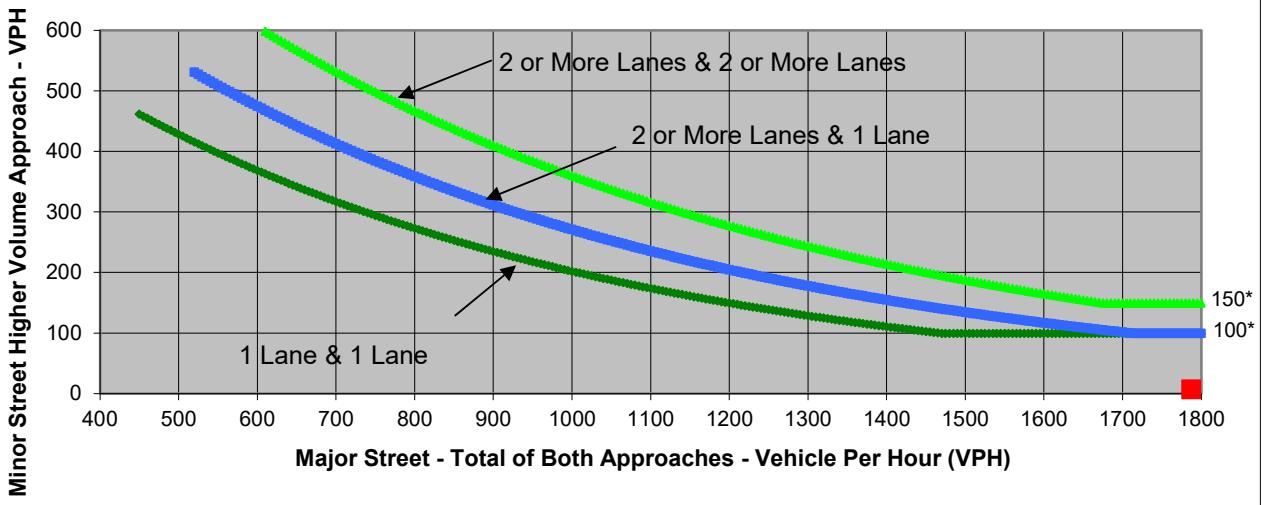
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Kuakini Hwy | Scenario | Existing |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 2,123 | 0 | 57 | 0 |
| Through | 6,365 | 5,490 | 0 | 0 |
| Right | 0 | 320 | 2 | 0 |
| Total | 1,061 | 726 | 7 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Kuakini Hwy | |
| **Number of Approach Lanes** | **2** | **1** | **NO** |
| **Traffic Volume (VPH) *** | **1,787** | **7** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| | | Project | 0 |
| Major Street | Kuakini Hwy | Scenario | Phase 1 |
| Minor Street | Project Driveway | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 530 | 0 | 209 |
| Through | 4,270 | 5,770 | 0 | 0 |
| Right | 219 | 0 | 0 | 595 |
| Total | 1,122 | 1,575 | 0 | 201 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 54.4 |
| Approach with Worst Case Delay | WB |
| Total Vehicles on Approach | 101 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline** | **1.5** | **201** | **2,898** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

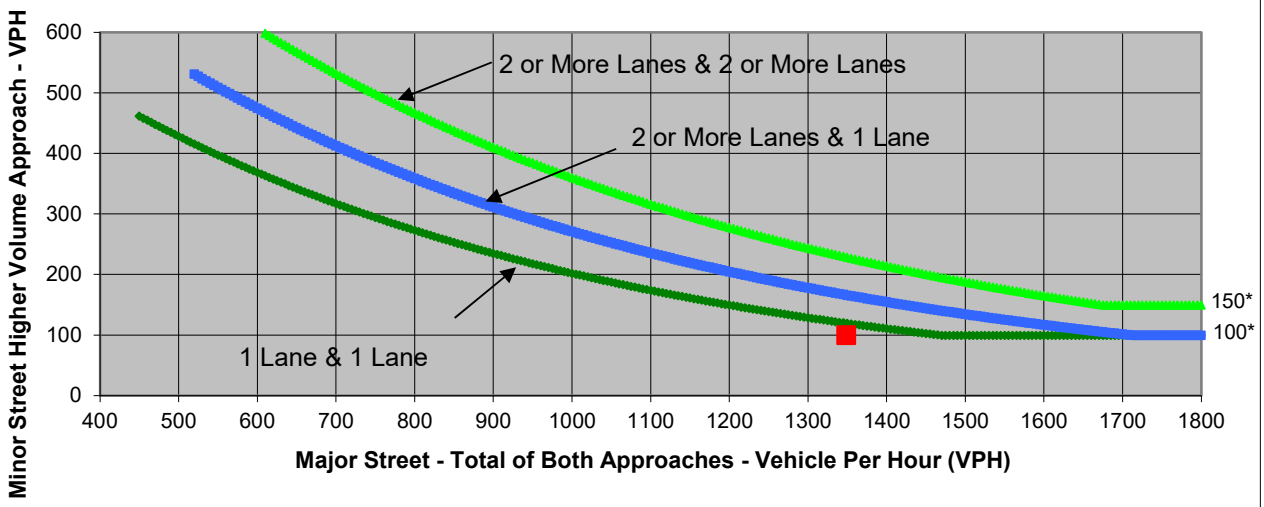
| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | 0 |
| Minor Street | Project Driveway | Scenario | Phase 1 |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 530 | 0 | 209 |
| Through | 4,270 | 5,770 | 0 | 0 |
| Right | 219 | 0 | 0 | 595 |
| Total | 561 | 788 | 0 | 101 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Kuakini Hwy | Project Driveway | |
| **Number of Approach Lanes** | **1** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,349** | **101** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Hualalai Rd | Scenario | Phase 1 |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 780 | 0 | 100 | 0 |
| Through | 9,210 | 8,320 | 0 | 0 |
| Right | 0 | 140 | 580 | 0 |
| Total | 1,249 | 1,058 | 85 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 64.7 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 85 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline** | **1.5** | **85** | **2,391** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

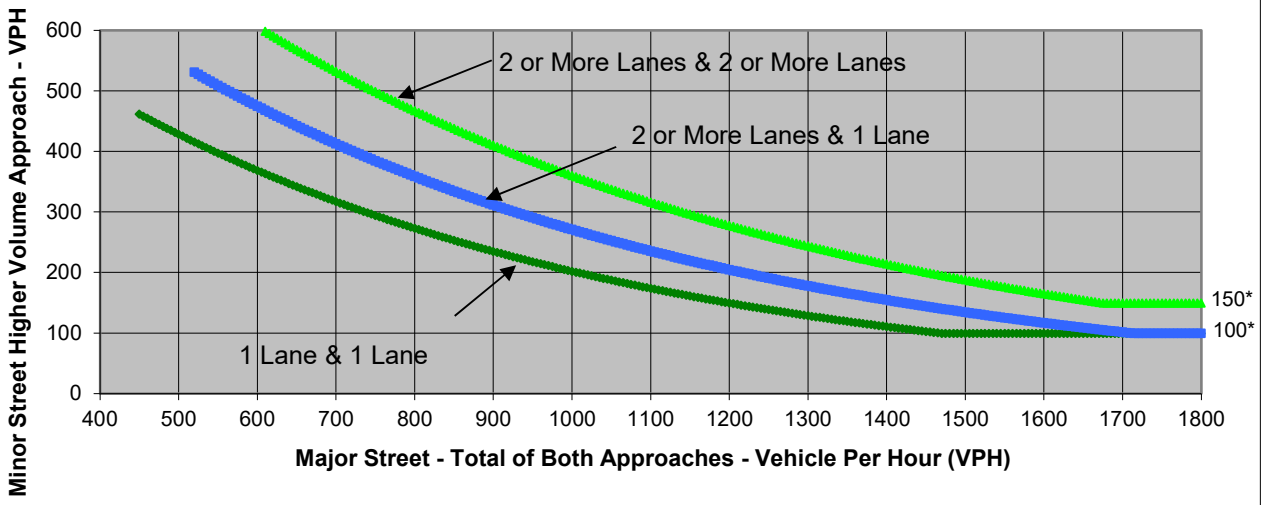
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | 0 |
| Minor Street | Hualalai Rd | Scenario | Phase 1 |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 780 | 0 | 100 | 0 |
| Through | 9,210 | 8,320 | 0 | 0 |
| Right | 0 | 140 | 580 | 0 |
| Total | 1,249 | 1,058 | 85 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Hualalai Rd | |
| **Number of Approach Lanes** | **2** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **2,306** | **85** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project Scenario | Phase 1 +P |
| Minor Street | Project Driveway | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 900 | 0 | 174 |
| Through | 4,270 | 5,770 | 0 | 0 |
| Right | 171 | 0 | 0 | 864 |
| Total | 1,110 | 1,667 | 0 | 260 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 77.6 |
| Approach with Worst Case Delay | WB |
| Total Vehicles on Approach | 130 |

| **Warrant 3A, Peak Hour** | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline +P** | **2.8** | **260** | **3,037** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

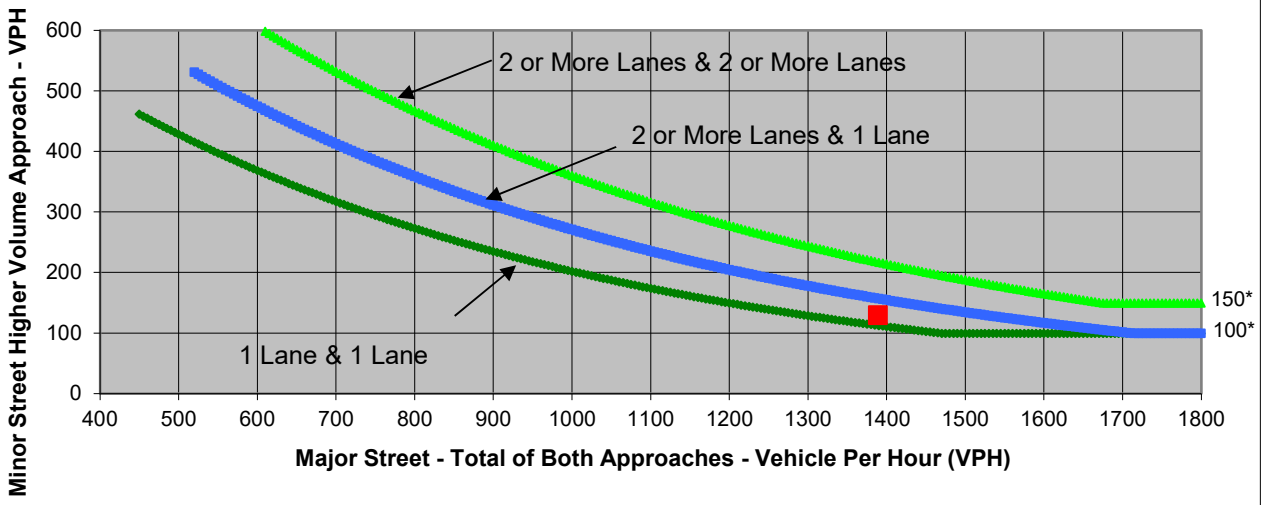
| | | | |
|---|---|---|---|
| Major Street | Kuakini Hwy | Project | |
| Minor Street | Project Driveway | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 900 | 0 | 174 |
| Through | 4,270 | 5,770 | 0 | 0 |
| Right | 171 | 0 | 0 | 864 |
| Total | 555 | 834 | 0 | 130 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Kuakini Hwy | Project Driveway | |
| **Number of Approach Lanes** | **1** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **1,389** | **130** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Hualalai Rd | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1,133 | 0 | 100 | 0 |
| Through | 9,210 | 8,320 | 0 | 0 |
| Right | 0 | 140 | 837 | 0 |
| Total | 1,293 | 1,058 | 117 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 2 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 89.3 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 117 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Baseline +P** | **2.9** | **117** | **2,467** |
| **Limiting Value** | **5** | **150** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

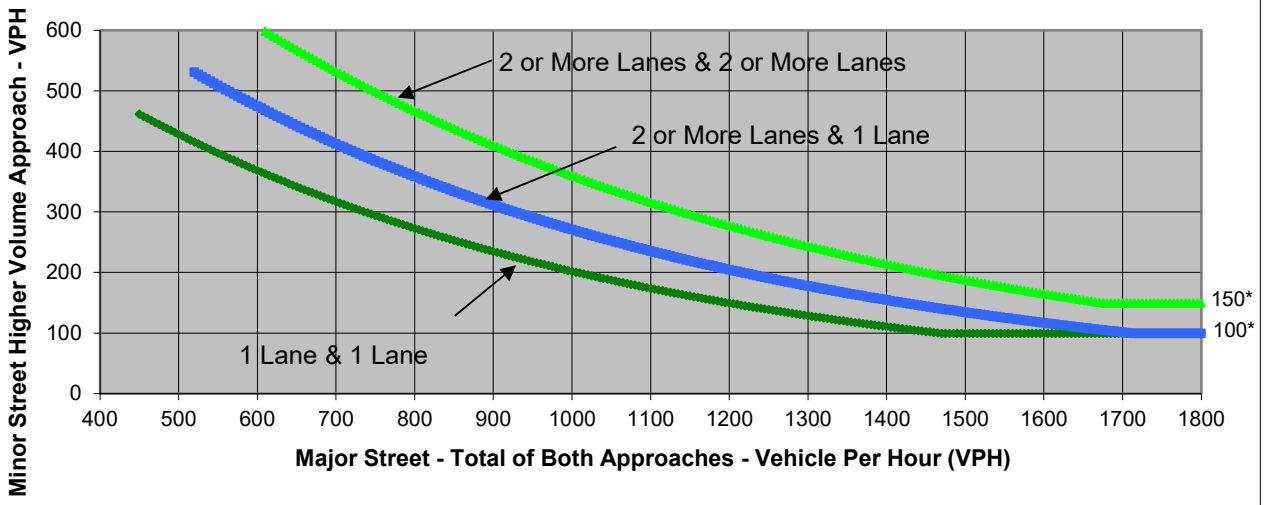
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Hualalai Rd | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1,133 | 0 | 100 | 0 |
| Through | 9,210 | 8,320 | 0 | 0 |
| Right | 0 | 140 | 837 | 0 |
| Total | 1,293 | 1,058 | 117 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Hualalai Rd | |
| **Number of Approach Lanes** | **2** | **2** | **NO** |
| **Traffic Volume (VPH) *** | **2,350** | **117** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Kuakini Hwy | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 2,458 | 0 | 54 | 0 |
| Through | 8,673 | 7,438 | 0 | 0 |
| Right | 0 | 358 | 10 | 0 |
| Total | 1,391 | 975 | 8 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

Intersection Geometry

| | |
|---|---|
| Number of Approach Lanes for Minor Street | 1 |
| Total Approaches | 3 |

Worst Case Delay for Minor Street

| | |
|---|---|
| Stopped Delay (seconds per vehicle) | 99.6 |
| Approach with Worst Case Delay | EB |
| Total Vehicles on Approach | 8 |

| Warrant 3A, Peak Hour | | | |
|---|---|---|---|
| | **Peak Hour Delay on Minor Approach (vehicle-hours)** | **Peak Hour Volume on Minor Approach (vph)** | **Peak Hour Entering Volume Serviced (vph)** |
| **Phase1 +P** | **0.2** | **8** | **2,374** |
| **Limiting Value** | **4** | **100** | **650** |
| **Condition Satisfied?** | **Not Met** | **Not Met** | **Met** |
| **Warrant Met** | **NO** | | |

FEHR & PEERS

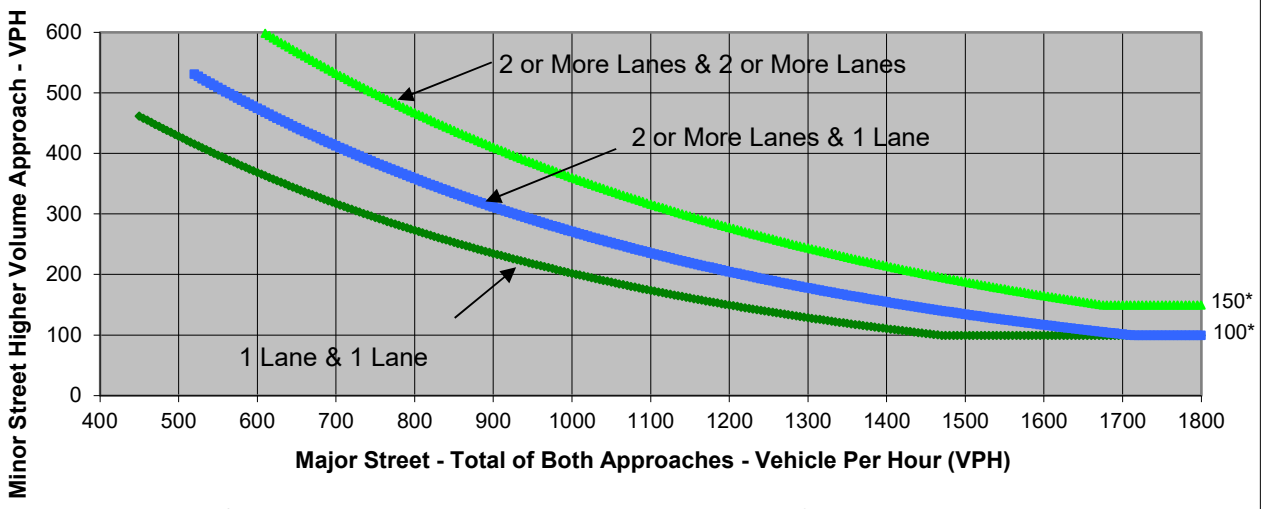
| | | | |
|---|---|---|---|
| Major Street | Queen Kaahumanu Hwy | Project | |
| Minor Street | Kuakini Hwy | Scenario | Phase 1 +P |
| | | Peak Hour | AM+PM Peak Periods |

Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 2,458 | 0 | 54 | 0 |
| Through | 8,673 | 7,438 | 0 | 0 |
| Right | 0 | 358 | 10 | 0 |
| Total | 1,391 | 975 | 8 | 0 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |




* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Queen Kaahumanu Hwy | Kuakini Hwy | |
| **Number of Approach Lanes** | **2** | **1** | **NO** |
| **Traffic Volume (VPH) *** | **2,366** | **8** | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.