

Appendix D

Traffic Impact Report Kauai Community College Resdesignation to Urban District December 2010

#### Traffic Impact Report

# Kauai Community College Redesignation to Urban District



Prepared for: University of Hawaii

Prepared by: Wilson Okamoto Corporation

December 2010

## Traffic Impact Report for Kauai Community College

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#### TRAFFIC IMPACT REPORT

#### FOR THE

#### KAUAI COMMUNITY COLLEGE

#### REDESIGNATION TO URBAN DISTRICT

#### Prepared for:

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December 2010

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#### INTRODUCTION

#### A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the implementation of Kauai Community College's Long Range Development Plan (LRDP). The LRDP includes construction of new facilities at the community college to expand existing programs.

#### Scope of Study

This report presents the findings and conclusions of the traffic study, the scope of which includes:

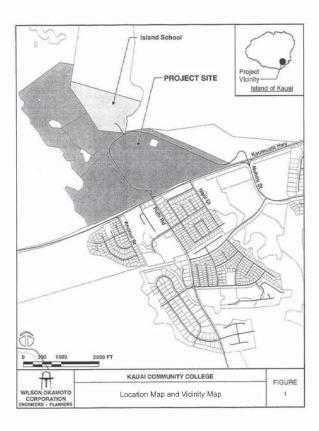
- Description of the proposed project.
- Evaluation of existing roadway and traffic operations in the vicinity.
- Analysis of future roadway and traffic conditions without the proposed project.
- Analysis and development of trip generation characteristics for the proposed project. 4.
- Superimposing site-generated traffic over future traffic conditions.
- The identification and analysis of traffic impacts resulting from the proposed 6.
- Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

#### PROJECT DESCRIPTION

#### A. Location

Kauai Community College (KCC) is located adjacent to Kaumualii Highway in Puhi on the island of Kauai, and is further identified as Tax Map Keys: 3-4-07:01, 02, 03, and 06 (see Figure 1). The project site is bounded by agricultural uses to the west and north, Island School and Gaylord's Restaurant to the east, and Kaumualii Highway to the south. Primary access to the community college is provided via an access road at the intersection of Kaumualii Highway with Puhi Road while secondary access is provided via an access road at the intersection of Kaumualii Highway with Nuhou Street.

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#### B. Project Characteristics

Kauai Community College's Long-Range Development Plan (LRDP) includes the construction of a number of new facilities to allow the expansion of existing programs. The LRDP site plan shown in Figure 2 outlines the proposed expansion areas by the following programs:

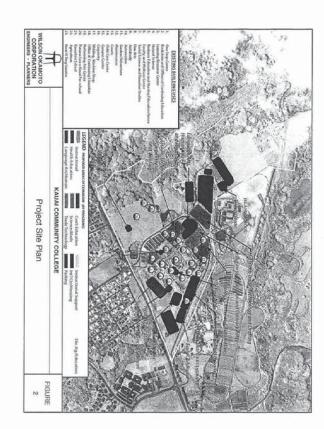
- Business, education, and culinary arts Health education and early childhood studies
- Language arts, humanities, and journalism (including Hawaiian studies and fine arts)
   Science, math, and social sciences
- Trade technology (including carpentry, welding, as well as, electrical, and automotive trades)
- International and Housing Center
   Diversified agriculture/education

In addition, the LRDP includes the expansion of existing parking areas. The implementation schedule for the LRDP is not known at this time. However, for the purpose of this report and consistency with the implementation of the master plan for the adjacent Island School, the implementation of the LRDP is assumed to be completed by the Year 2020.

#### III. EXISTING TRAFFIC CONDITIONS

#### A. Area Roadway System

The primary access for KCC is provided via an access road at the intersection of Kaumualii Highway and Puhi Road. In the vicinity of the community college, Kaumualii Highway is a predominantly two-lane, two-way roadway generally oriented in the east-west direction. At the signalized intersection with Puhi Road, both approaches of Kaumualii Highway have exclusive turning lanes and one through lane. Puhi Road is a predominantly two-lane, two-way roadway generally oriented in the north-south direction. At the intersection with Kaumualii Highway, the northbound approach of Puhi Road has a shared left-turn and through lane, and an exclusive right-turn lane. The southbound approach of the intersection is comprised of the access road for the community college which has a shared left-turn and though lane, and an exclusive right-turn lane. An additional westbound departure lane is



provided along Kaumualii Highway at this intersection to allow southbound right turning vehicles to proceed freely through the intersection.

Northeast of the intersection with Puhi Road, Kaumualii Highway intersects Nani Street. At this unsignalized T-intersection, the eastbound approach of the highway has one lane that serves through and right-turn traffic movements while the westbound approach has one lane that serves left-turn and through traffic movements Nani Street is a two-lane, two-way roadway generally oriented in the north-south direction. At the intersection with the highway, the Nani Street approach has one lane that serves left-turn and right-turn traffic movements.

Further northeast, Kaumualii Highway intersects Nuhou Street. At this signalized intersection, the eastbound approach of the highway has exclusive turning lanes and one through lane while the westbound approach has one through lane and a shared through and right-turn lane. Nuhou Street is a four-lane, two-way roadway generally oriented in the north-south direction. At the intersection with the highway, the northbound approach of Nuhou Street has a shared left-turn and through lane, and an exclusive right-turn lane. The southbound approach of the intersection is comprised of the secondary access for KCC which has one lane that serves all traffic

#### B. Traffic Volumes and Conditions

#### General

#### Field Investigation

Field investigations were conducted on September 14-16, 2010 and consisted of manual turning movement count surveys during the morning peak hours between 6:00 AM and 9:00 AM, and the afternoon peak hours between 3:00 PM and 6:00 PM at the following

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(1)

- Kaumualii Highway and Puhi Road
- Kaumualii Highway and Nani Street
- · Kaumualii Highway and Nuhou Street

In addition, a 24-hour mechanical count survey was conducted along the main access for KCC north of the Kaumualii Highway and Puhi Road intersection. Appendix A includes the existing traffic count data.

#### Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Synchro" software developed by Trafficware. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak hours of traffic.

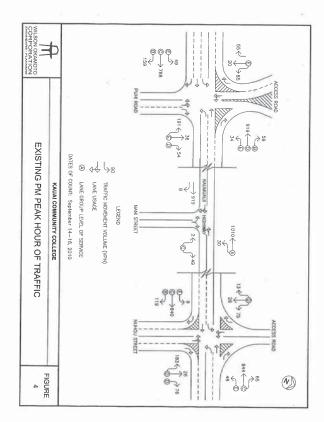
LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F"; LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

"Volume-to-Capacity" (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road's carrying capacity. The LOS definitions are included in Appendix B.

#### Existing Peak Hour Traffic

Figures 3 and 4 show the existing AM and PM peak hour traffic volumes and operating traffic conditions in the vicinity of the proposed project. The morning peak hour of traffic generally occurs between 7:15 AM and 8:15 AM in the vicinity of the project. In the afternoon, the peak hour of traffic generally occurs between the hours of 4:00 PM and 5:00 PM. The analysis is based on these commuter

EXISTING AM PEAK HOUR OF TRAFFIC @ 14 hs 5 003 KAUAI COMMUNITY COLLEGE LANE GROUP LEVEL OF SERVICE LANE USAGE TRAFFIC MOVEMENT VOLUME 14-16, 2010 FIGURE 3



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peak hour time periods to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.

#### b. Kaumualii Highway and Puhi Road

At the intersection with Puhi Road, Kaumualii Highway carries 933 vehicles eastbound and 728 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 996 vehicles traveling eastbound and 1,012 vehicles traveling westbound. The left-turn traffic movement on both approaches of the highway operate at LOS "D" and LOS "E" during the AM and PM peak periods, respectively, while the right-turn traffic movements operate at LOS "B" during both peak periods. The eastbound through traffic movement operates at LOS "C" during both peak periods while the westbound through traffic movement operates at LOS "C" and LOS "D" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the eastbound and westbound approaches of the intersection with average queue lengths of 10-12 vehicles observed on both approaches during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change

The Puhi Road approach of the intersection carries 230 vehicles and 281 vehicles northbound during the AM and PM peak periods, respectively. The northbound left-turn and through traffic movement on this approach operates at LOS "D" and LOS "E" during the AM and PM peak periods, respectively, while the right-turn traffic movement operates at LOS "C" and LOS "D" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the Puhi Road approach of the intersection with average queue lengths of 9-11 vehicles observed during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.

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and right-turn traffic movements operate at LOS "C" during both peak periods. The eastbound right-turn traffic movement along the highway operates at LOS "B" during both peak periods. Traffic queues periodically formed on the eastbound and westbound approaches of the intersection with the most significant queuing occurring on the eastbound approach of the intersection. Queue lengths in excess of 15 vehicles were observed on the eastbound approach during this peak period. Most of these queues cleared after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Nuhou Street approach of the intersection carries 283 vehicles and 285 vehicles northbound during the AM and PM peak periods, respectively. The traffic movements on this approach operate at LOS "D" during both peak periods. Traffic queues periodically formed on the Puhi Road approach of the intersection with the most significant queuing occurring during the PM peak period. Average queue lengths of 10-12 vehicles were observed during this peak period with these queues observed to clear the intersection after each traffic signal cycle change.

The southbound approach of the intersection is comprised of the access road for KCC which carries 113 vehicles and 114 vehicles southbound during the AM and PM peak periods, respectively. This approach operates at LOS "E" and LOS "D" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the access road approach of the intersection with average queue lengths of 1-3 vehicles observed during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.

The southbound approach of the intersection is comprised of the access road for KCC which carries 104 vehicles and 160 vehicles southbound during the AM and PM peak periods, respectively. The southbound left-turn and through traffic movement on this approach operates at LOS "C" and LOS "E" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the access road approach of the intersection with average queue lengths of 2-3 vehicles observed during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.

#### c. Kaumualii Highway and Nani Street

At the intersection with Nani Street, Kaumualii Highway carries 808 whicles eastbound and 766 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 927 vehicles traveling eastbound and 1,040 vehicles traveling westbound. The critical traffic movement along the highway at this intersection is the westbound approach which operates at LOS "A" during both peak periods.

The Nani Street approach of the intersection carries 95 vehicles and 51 vehicles northbound during the AM and PM peak periods, respectively. Traffic queues periodically formed on the Nani Street approach of the intersection with average queue lengths of 1-3 vehicles observed during both peak periods.

#### d. Kaumualii Highway and Nuhou Street

At the intersection with Nuhou Street, Kaumualii Highway carries 897 vehicles eastbound and 1,008 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is approximately the same with 968 vehicles traveling eastbound and 957 vehicles traveling westbound. The left-turn traffic movement on both approaches of the highway operate LOS "E" during both peak periods while the eastbound through and westbound through

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#### IV. PROJECTED TRAFFIC CONDITIONS

#### A. Site-Generated Traffic

Trip Generation Methodology

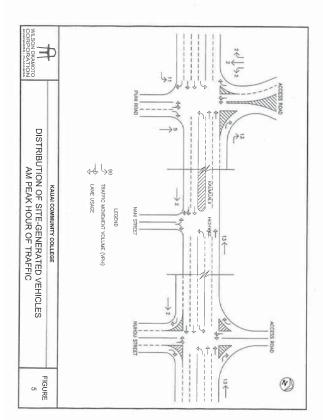
The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (TTE) and published in "Trip Generation, 8th Edition," 2008. The TTE trip generation rates are developed empirically by correlating the whole trip generation data with various land use characteristics such as the number of vehicle trips generated per student. The LRDP entails the development of new facilities that will allow the expansion of existing programs at the college. In conjunction with the expansion of these programs, enrollment at KCC is expected to increase. Enrollment projections published by the University of Hawaii for KCC currently extend only to 2015. However, in coordination with KCC and utilizing standard linear regression techniques, the enrollment projections were extended to 2020 (see Appendix D) when the full-time equivalent (FTE) course enrollment at KCC is expected to increase from 864 students to 1,038 students. Table I summarizes the project site trip generation characteristics applied to the AM and PM peak hours of traffic.

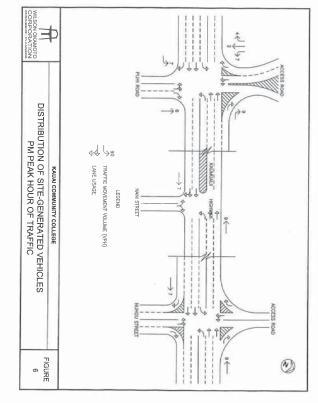
Table 1: Peak Hour Trip Generation

| NDEPENDENT VAR | IABLE: Increase | se in FTE enroll = 174 students |
|----------------|-----------------|---------------------------------|
|                | /               | PROJECTED TRIP ENDS             |
| AM PEAK        | ENTER           | 29                              |
|                | EXIT            | 6                               |
|                | TOTAL           | 35                              |
| PM PEAK        | ENTER           | 22                              |
|                | EXIT            | 13                              |
|                | TOTAL           | 35                              |

#### 2. Trip Distribution

Figures 5 and 6 show the distribution of site-generated vehicular trips at the study intersections during the AM and PM peak hours of traffic.





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Primary access to Kauai Community College will continue to be provided via the intersection of Kaumualii Highway and Puhi Road with secondary access provided via the intersection of Kaumualii Highway and Nuhou Street. For the purpose of this report, all new trips generated by the community college are conservatively assumed to utilize the primary access since most of the on-campus parking is provided off this roadway. At the intersection of Kaumualii Highway and Puhi Road, the directional distribution of site-generated vehicles is assumed to remain similar to existing conditions. At the other study intersection, all site-generated vehicles are assumed to continue through the intersections to travel to/from the community college.

#### B. Through Traffic Forecasting Methodology

The travel forecast is based upon historical traffic count data obtained from the State Department of Transportation (SDOT), Highway Division survey stations in the vicinity of the project site. The historical data indicates a stable or declining growth in traffic and, as such, an annual traffic growth rate of approximately 0.5% per year was conservatively assumed along Kaumualii Highway in the project vicinity. Using 2010 as the Base Year, a growth factor of 1.05 was applied to the existing through traffic demands along Kaumualii Highway achieve the projected Year 2020 traffic demands.

### C. Other Considerations

#### 1. Island School

Island School is a private Pre-K through 12th grade school located adjacent to Kauai Community College in Puhi on the island of Kauai. The school has a master plan that entails the expansion its campus over the next 10 years to provide additional classrooms and facilities. During this development period, enrollment at the school is expected to increase from the current enrollment of 360 students to an enrollment of 500 students. As described in the "Traffic Impact Report for the Island School Master Plan" dated December 2010, the increase in enrollment at the school is expected to result in approximately 113 new trips during the AM peak period and 24 new trips

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during the PM peak period. These trips were assigned to the street network in the study area in the Year 2020 without project scenario to account for new trips generated the implementation of the Island School master plan.

## 2. Kaumualii Highway Widening

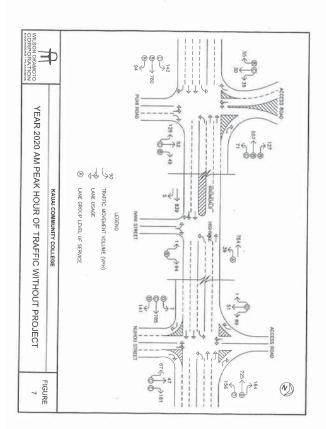
The State of Hawaii Department of Transportation is currently widening Kaumualii Highway from a two-lane undivided highway to a four-lane divided highway between Anonui Road and the Lihue Mill Bridge. The highway will have two travel lanes in each direction with auxiliary lanes provided at the intersections along this segment once construction is completed near the end of 2012.

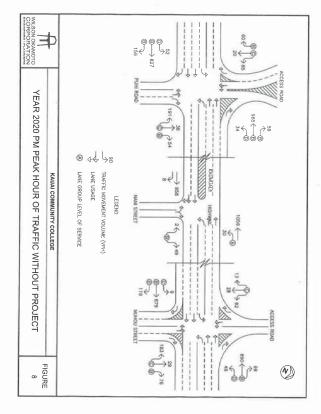
#### D. Total Traffic Volumes Without Project

The projected Year 2020 AM and PM peak hour traffic volumes and operating conditions without the implementation of Kauai Community College's Long Range Development Plan are shown on Figures 7 and 8, and summarized in Table 2. Kaumualii Highway is assumed to the widened to a four-lane divided highway by the Year 2020 with a westbound left-turn bay provided at the intersection with Nani Street. The existing levels of service are provided for comparison purposes. LOS calculations are included in Appendix E.

Table 2: Existing and Projected Year 2020 (Without Project)
Traffic Operating Conditions

| Intersection   | Critical Traffi | c Movement | A     | M                             | PM    |                               |  |
|----------------|-----------------|------------|-------|-------------------------------|-------|-------------------------------|--|
|                |                 |            | Exist | Year<br>2020<br>w/out<br>Proj | Exist | Year<br>2020<br>w/out<br>Proj |  |
| Kaumualii Hwy/ | Eastbound       | LT         | D     | C                             | E     | D                             |  |
| Puhi Rd        |                 | TH         | C     | В                             | C     | В                             |  |
|                |                 | RT         | B     | В                             | В     | В                             |  |
|                | Westbound       | LT         | D     | C                             | Е     | D                             |  |
|                |                 | TH         | C     | В                             | D     | В                             |  |
|                |                 | RT         | В     | В                             | B     | В                             |  |
|                | Northbound      | LT-TH      | D     | C                             | E     | C                             |  |
|                |                 | RT         | C     | В                             | D     | В                             |  |
|                | Southbound      | LT-TH      | C     | C                             | E     | C                             |  |
|                |                 | RT         | -     | В                             |       | В                             |  |





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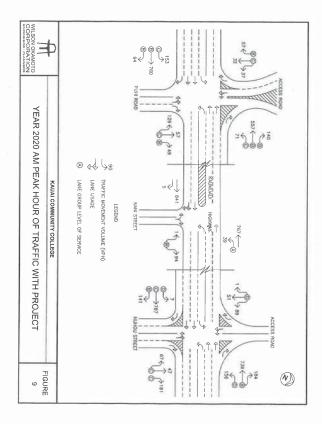
Table 2: Existing and Projected Year 2020 (Without Project)
Traffic Operating Conditions (Cont'd)

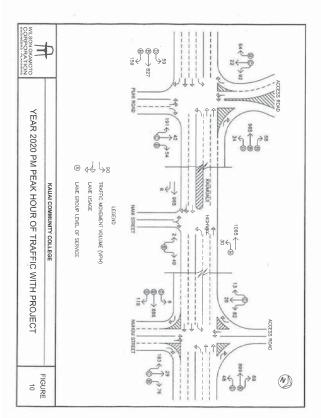
| Intersection   | Critical Traff | ic Movement | A     | M                             | P     | M                             |  |
|----------------|----------------|-------------|-------|-------------------------------|-------|-------------------------------|--|
|                |                |             | Exist | Year<br>2020<br>w/out<br>Proj | Exist | Year<br>2020<br>w/out<br>Proj |  |
| Kaumualii Hwy/ | Westbound      | LT          | A     | A                             | A     | A                             |  |
| Nani St        |                | TH          |       |                               |       |                               |  |
|                | Northbound     | LT-RT       | C     | В                             | C     | В                             |  |
| Kaumualii Hwy/ | Eastbound      | LT          | E     | D                             | E     | D                             |  |
| Nuhou St       |                | TH          | С     | С                             | C     | В                             |  |
|                |                | RT          | В     | В                             | В     | В                             |  |
|                | Westbound      | LT          | E     | D                             | E     | D                             |  |
|                |                | TH-RT       | C     | В                             | C     | В                             |  |
|                | Northbound     | LT-TH       | D     | C                             | D     | С                             |  |
|                |                | RT          | D     | С                             | D     | В                             |  |
|                | Southbound     | LT-TH-RT    | Е     | D                             | D     | C                             |  |

Traffic operations in the vicinity of KCC without the implementation of their LRDP are expected to improve during both peak hours of traffic due to the widening of Kaumualii Highway to a four-lane divided highway. The traffic movements at the intersection of Kaumualii Highway with Puhi Road are expected to operate at LOS "C" or better during the AM peak period and LOS "D" or better during the PM peak period while those at the intersection with Nani Street are expected to operate at LOS "B" or better during both peak periods. At the intersection with Nuhou Street, the traffic movements are expected to operate at LOS "D" or better during both peak periods,

#### E. Total Traffic Volumes With Project

Figures 9 and 10 show the projected Year 2020 cumulative AM and PM peak hour traffic conditions resulting from the implementation of the Long Range Development Plan for Kauai Community College. The cumulative volumes consist of site-generated traffic superimposed over Year 2020 projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.





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#### V. TRAFFIC IMPACT ANALYSIS

The Year 2020 cumulative AM and PM peak hour traffic conditions with the implementation of Kauai Community College's Long Range Development Plan are summarized in Table 3. The projected Year 2020 operating conditions without the proposed project are provided for comparison purposes. LOS calculations are included in Appendix F.

Table 3: Projected Year 2020 (Without and With Project)
Traffic Operation Conditions

| Intersection          | Critical Traf | fic Movement | A                             | М                       | I                             | PM                      |  |
|-----------------------|---------------|--------------|-------------------------------|-------------------------|-------------------------------|-------------------------|--|
|                       |               |              | Year<br>2020<br>w/out<br>Proj | Year<br>2020<br>w/ Proj | Year<br>2020<br>w/out<br>Proi | Year<br>2020<br>w/ Proj |  |
| Kaumualii Hwy/Puhi Rd | Eastbound     | LT           | C                             | C                       | D                             | D                       |  |
|                       |               | TH           | В                             | В                       | В                             | В                       |  |
|                       |               | RT           | В                             | В                       | В                             | В                       |  |
|                       | Westbound     | LT           | C                             | C                       | D                             | D                       |  |
|                       |               | TH           | В                             | В                       | В                             | В                       |  |
|                       |               | RT           | В                             | В                       | В                             | В                       |  |
|                       | Northbound    | LT-TH        | C                             | C                       | C                             | C                       |  |
|                       |               | RT           | В                             | В                       | В                             | В                       |  |
|                       | Southbound    | LT-TH        | C                             | C                       | C                             | C                       |  |
|                       |               | RT           | В                             | В                       | В                             | В                       |  |
| Kaumualii Hwy/Nani St | Westbound     | LT           | A                             | A                       | A                             | В                       |  |
|                       | Northbound    | LT-RT        | В                             | В                       | В                             | В                       |  |
| Kaumualii Hwy/Nuhou   | Eastbound     | LT           | D                             | D                       | D                             | D                       |  |
| St                    |               | TH           | С                             | C                       | В                             | В                       |  |
|                       |               | RT           | В                             | В                       | В                             | В                       |  |
|                       | Westbound     | LT           | D                             | D                       | D                             | D                       |  |
|                       |               | TH-RT        | В                             | В                       | В                             | В                       |  |
|                       | Northbound    | LT-TH        | С                             | C                       | C                             | C                       |  |
|                       |               | RT           | C                             | C                       | В                             | В                       |  |
|                       | Southbound    | LT-TH-RT     | D                             | D                       | C                             | C                       |  |

Traffic operations in the vicinity of KCC with the implementation of their LRDP are expected, in general, to operate at levels of service similar to Year 2020 without project conditions despite the addition of site-generated traffic to the surrounding roadways. The westbound left-turn traffic movement along Kaumualii Highway the intersection with Nani Street is expected to operate at a slightly lower level of service during the PM peak period.

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The remaining critical movements at this intersection, as well as, the other study intersections are expected to continue operating at levels of service similar to without project conditions. In addition, the total traffic volumes entering the study intersections are expected to increase by less than 2% during both peak periods with the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along Kaumualii Highway and represent a minimal increase in the overall traffic volumes.

#### VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study associated with the project:

- Maintain sufficient sight distance for motorists to safely enter and exit all project roadways.
- Maintain adequate on-site loading and off-loading service areas and prohibit off-site loading operations,
- Maintain adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on-site to avoid vehicle-reversing maneuvers onto public roadways.
- Maintain sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
- If the implementation of Kauai Community College's Long Range Development Plan is not completed by the Year 2020, prepare an updated Traffic Impact Report that incorporates a revised project completion year.

#### VII. CONCLUSION

Kauai Community College's Long-Range Development Plan (LRDP) includes the construction of a number of new facilities to allow the expansion of existing programs. With the implementation of the aforementioned recommendations, the implementation of the LRDP is not expected to have a significant impact on traffic operations in the vicinity. The traffic movements at the study intersections along Kaumualii Highway are expected to continue operating at levels of service similar to without project conditions. In addition, the total traffic volumes entering the study intersections are expected to increase by less than 2% during both peak periods with the proposed project. These increases in the total traffic

#### Traffic Impact Report for Kauai Community College

volumes are in the range of daily volume fluctuations along Kaumualii Highway and represent a minimal increase in the overall traffic volumes

Wilson Okamoto Corporation 1907 S. Beretania Street Suite 400 Honolulu, Hi 96826

Counter:D4-3890, D4-5677 Counted By:RY, ER Weather:Clear

File Name: KauPuhi AM Site Code: 00000001 Start Date: 9/15/2010 Page No: 1

|                           |            |            | 102774-1 |          |               |      | -1500 | 12.7330             | Group | s Printed-    | Unshilte    | d        |                      |          |               |            |              |                       |      |               |             |
|---------------------------|------------|------------|----------|----------|---------------|------|-------|---------------------|-------|---------------|-------------|----------|----------------------|----------|---------------|------------|--------------|-----------------------|------|---------------|-------------|
|                           |            |            | Southbou |          |               |      |       | nuam Mij<br>Vesthou |       |               |             |          | uhi Stre<br>lorthbou |          |               |            |              | mualii Hi<br>Eastbour |      |               |             |
| Start Time                | Left       | Thru       | Right    | Peds     | App.<br>Total | Left | Thru  | Right               | Peds  | App.<br>Total | Left        | Thru     | Right                | Peds     | App.<br>Total | Left       | Thru         | Right                 | Peds | App.<br>Total | Int         |
| 06:00 AM                  | 2          | 2          | - 1      | 0        | 5             | 14   | 99    | 2                   | 0     | 115           | 20          | 0        | - 6                  | 0        | 26            | 2          | 85           | 19                    | 0    | 116           | 240         |
| 06:15 AM                  | - 1        | 1          | 1        | 1        | 4             | 26   | 181   | 3                   | 0     | 210           | 36          | 0        | 4                    | 2        | 42            | 9          | 152          | 17                    | 2    | 180           | 438         |
| 06:30 AM                  | 1          | 0          | - 1      | 0        | 2             | 26   | 169   | 4                   | 0     | 199           | 33          | 2        | 11                   | 0        | 46            | 8          | 181          | 36                    | 0    | 225           | 472         |
| 06:45 AM                  | 3          | 2          | - 0      | .0       | 5             | 30   | 128   | 12                  | 0     | 170           | 25          | 2        | 9                    | 0        | 36            | 9          | 208          | 40                    | 9    | 257           | 1636        |
| Yotal                     | 7.         |            | 3        | 1        | 16            | 96   | 577   | 21                  |       | 694           | 114         | 4        | 30                   | 2        | 150           | 28         | 636          | 112                   | 2    | 778           | 1636        |
| 07:00 AM                  | 1          | 0          | 1        | 0        | 2             | 18   | 92    | 14                  | 0     | 124           | 29          | 5        | 3                    | 0        | 37 [          | 15         | 202          | 28                    | 6    | 251           | 414         |
| 07:15 AM                  | B          | 1          | 7        | 0        | 16            | 25   | 149   | 21                  | 0     | 195           | 28          | 11       | 19                   | 0        | 58            | 18         | 200          | 23                    | 3    | 244           | 513         |
| 07:30 AM                  | 8          | 7          | 8        | 0        | 23            | 12   | 131   | 42                  | 0     | 185           | 25          | 20       | 5                    | 0        | 50            | 52         | 171          | 24                    | 6    | 253           | 511         |
| 07:45 AM                  | .14        | 14         | 18       | 0        | 46            | 16   | 126   | 43                  | 1     | 186           | 34          | 16       | 9                    | 1        | 60            | 35         | 163          | 21                    | 4    | 223           | 515<br>1953 |
| Total                     | 31         | 22         | 34       | 0        | 87            | 71   | 498   | 120                 | 1     | 690           | 116         | 52       | 36                   | - 1      | 205           | 120        | 736          | 96                    | 19   | 971           | 1953        |
| 08:00 AM I                | 5          | 8          | 6        | 3        | 22            | 18   | 123   | 21                  | 0     | 162           | 42          | 5        | 15                   | 0        | 62            | 10         | 183          | 26                    | 3    | 222           | 468         |
| 08:15 AM                  | 7          | 2          | 0        | 0        | 9             | 20   | 126   | 26                  | 0     | 172           | 27          | 10       | 13                   | 0        | 50            | 16         | 179          | 49                    | 1    | 245           | 476         |
| 08:30 AM                  | 10         | 2          | - 1      | 0        | 13            | 19   | 132   | 44                  | 0     | 195           | 37          | 6        | 24                   | 0        | 67            | 23         | 200          | 27                    |      | 258           | 533         |
| 08:45 AM                  | 7          | - 2        | 6        | .0       | 15            | 15   | 121   | 55                  | 0     | 192           | 21          | 12       | 25                   | . 0      | 58            | 24         | 167          | 32                    | 0    | 223           | 488         |
| Total                     | 29         | 14         | 13       | 3        | 59            | 73   | 502   | 146                 | 0     | 721           | 127         | 23       | 77                   | 0        | 237           | 73         | 729          | 134                   | 12   | 948           | 1965        |
| Grand Total  <br>Approb % | 67<br>41.4 | 41<br>25.3 | 50       | 4<br>2.5 | 162           | 240  | 1577  | 287                 | 1 0   | 2105          | 357<br>60.3 | 89<br>15 | 143                  | 3<br>0.5 | 592           | 221<br>8.2 | 2101<br>77.0 | 342<br>12.7           | 33   | 2697          | 5556        |
| Total %                   | 1.2        | 0.7        | 0.9      | 0.1      | 2.0           | 4.3  | 28.4  | 5.2                 | 0     | 37.9          | 6.4         | 1.6      | 2.6                  | 0.1      | 10.7          | 4          | 37.B         | 6.2                   | 0.6  | 48.5          |             |

|                         |              | KCC Dy<br>South |             |           |      | Kaumuali<br>West | Highway<br>round |           | 525  | Puhi :<br>North |         |           |      | Kaumuali<br>Easti |       |            |            |
|-------------------------|--------------|-----------------|-------------|-----------|------|------------------|------------------|-----------|------|-----------------|---------|-----------|------|-------------------|-------|------------|------------|
| Start Time              | Left         | Thru            | Right A     |           | Left | Thru             | Flight   A       | co. Total | Left | Three           | Right / | op. Total | Left | Thru              | Right | App. Total | Int. Total |
| Peak Hour Analysis Fr   | rom 05:00    | AM to 08:4      | 45 AM - Pen | ik 1 of t |      |                  |                  |           |      |                 |         |           |      |                   |       |            |            |
| Peak Hour for Entire II | Intersection | Begins at       | 07:15 AM    |           |      |                  |                  |           |      |                 |         |           |      |                   |       |            |            |
| 07:15 AM                | - 8          | 1               | 7           | 16        | 25   | 149              | 21               | 195       | 28   | 11              | 19      | 68.1      | 18   | 200               | 23    | 241        | 510        |
| 07:30 AM                | 8            | 7               | 8           | 23        | 12   | 131              | 42               | 185       | 25   | 20              | 5       | 50        | 52   | 171               | 24    | 247        | 505        |
| 07:45 AM                | 14           | 14              | 18          | 46        | 16   | 126              | 43               | 185       | 34   | 16              | . 0     | 59        | 35   | 163               | 21    | 219        | 509        |
| 08:00 AAA               |              | . 8             | 6           | 19        | 18   | 123              | 21               | 162       | 42   | 5               | 15      | 62        | 10   | 183               | 26    | 219        | 462        |
| Total Volume            | 35           | . 30            | . 59        | 104       | 71   | 629              | 127              | 727       | 129  | 52              | .48     | 229       | .115 | 217               | 94    | 925        | 1986       |
| % Aco. Total            | 33.7         | 29.8            | 37.5        | 1000      | 9.8  | 72.6             | 17.5             |           | 58.3 | 22.7            | 21      |           | 12.4 | 77.4              | 10.2  |            |            |
| (ne                     | 626          | .636            | 542         | 565       | .710 | 600              | 738              | 939       | 768  | 650             | 632     | 923       | 553  | 894               | 654   | 5/97       | 074        |

EXISTING TRAFFIC COUNT DATA APPENDIX A

Wilson Okamoto Corporation 1907 S. Beretania Street Suite 400 Honolulu, Hi 96826

Counter:D4-5675 Counted By:TO Weather:Clear

File Name: KauNani AM Site Code: 00000001 Start Date: 9/15/2010 Page No: 1

|             |            | _      | _      | _                              | _        |           | Groups | Printed-L |                           |        | -          |      |      |                          |      |            |             |
|-------------|------------|--------|--------|--------------------------------|----------|-----------|--------|-----------|---------------------------|--------|------------|------|------|--------------------------|------|------------|-------------|
|             | Southbou   |        |        | Kaumuslil Highway<br>Westbound |          |           |        |           | lani Street<br>Iorthbound |        |            |      | Kaur | nualii High<br>Eastbound | way  |            |             |
| Start Time  | App. Total | Left ( | Thru I | Right                          | Peds [ A | po. Total | LeftT  | Thru      | Right I                   | Peds I | App. Total | Left | Thru | Right                    | Peds | App. Total | Int. Total  |
| 06:00 AM    | 0          | 0      | 110    | 0                              | 0        | 110       | 3      | . 0       | 13                        | 0      | 10         | 0    | 109  | 2                        | - 0  | 111        | 237         |
| 08:15 AM    | 0          | 3      | 210    | 0                              | D        | 213       | 1      | 0         | 11                        | 2      | 14         | 0    | 149  | 0                        | 0    | 149        | 376         |
| 08;30 AM    | 0          | 6      | 197    | 0                              | 0        | 203       | 1      | 0         | 8                         | 2      | 11         | 0    | 197  | 2                        | 0    | 199        | 413         |
| 06:45 AM    | 0          | 7      | 170    | 0                              | 0        | 177       | 0      | 0         | 14                        | 0      | 14         | 0    | 220  | Δ                        | Δ    | 220        | 411         |
| Total       | 0          | 16     | 687    | 0                              | 0        | 703       | 5      | 0         | 46                        | 4      | 14<br>55   | .0   | 675  | 4                        | 0    | 679        | 1437        |
| 07:00 AM    | 01         | 10     | 127    | 0                              | 0        | 137 [     | 0      | 0         | 19                        | 0      | 19 [       | 0    | 213  | 2                        | 0    | 215        | 371         |
| 07:15 AM    | 0          | 11     | 191    | 0                              | 0        | 202       | 0      | 0         | 28                        | 0      | 28         | 0    | 223  | 0                        | Ô    | 223        | 453         |
| 07:30 AM    | .0         | 6      | 184    | 0                              | 0        | 190       | 0      | 0         | 26                        | 0      | 26         | 0    | 192  | 2                        | 0    | 194        | 410         |
| 07:45 AM    | 0          | 10     | 178    | 0                              | 0        | 168       | 1      | 0         | 19                        | 0      | 20         | 0    | 190  | 0                        | 0    | 190        |             |
| Total       | 0          | 57     | 660    | 0                              | 0        | 717       | 1      | 0         | 92                        | 0      | 93         | 0    | 818  | - 4                      | 0    | 822        | 398<br>1632 |
| 08:00 AM    | 01         | 11     | 166    | 0                              | 0        | 177       | 0      |           | 21                        | 0      | 21 [       | 0    | 205  | 3                        | 0    | 208        | 406         |
| 08:15 AM    | 0          | 10     | 168    | 0                              | 0        | 178       | 1      | 0         | 12                        | 0      | 13         | 0    | 224  | 2                        | 0    | 226        | 417         |
| 08:30 AM    | 0          | 5      | 192    | 0                              | 0        | 197       | 0      | 0         | 17                        | 0      | 17         | 0    | 235  | 0                        | 0    | 235        | 449         |
| 08:45 AM    | 0          | 0      | 194    | 0                              | 0        | 203       | - 1    | . 0       | 16                        | 0      | 17         | 0    | 190  |                          |      | 205        | 425         |
| Total       | 0          | 35     | 720    | 0                              | 0        | 755       | 2      |           | 66                        | ō.     | 68         | 0    | 863  | - 11                     | 0    | 205<br>874 | 425<br>1697 |
| Grand Total | 0          | 88     | 2087   | 0                              | 0        | 2175      |        | 0         | 204                       | 4      | 216        | 0    | 2356 | 19                       | 0    | 2375       | 4766        |
| Approh %    |            | 4      | 96     | 9                              | 0        | 1000      | 3.7    | _0.       | 94.4                      | 1.9    |            | 0    | 99.2 | 0.8                      | 0    |            |             |
| Total %     | 0          | 1.8    | 43.8   | 0                              | 0        | 45.6      | 3.7    | 0         | 4.3                       | 0.1    | 4,5        | 0    | 49.4 | 0.4                      | 0    | 49.8       |             |

|                          | Southbound       | Longil      | Kaumusii<br>Westh |       |            | 130125 | Nani S<br>Northb | treet<br>ound |            | 386  | Kauntualii<br>Eastb |       |            |            |
|--------------------------|------------------|-------------|-------------------|-------|------------|--------|------------------|---------------|------------|------|---------------------|-------|------------|------------|
| Start Time               | App. Total       | Left        | Thru              | Right | App. Total | Laft   | Thru             | Right         | App. Total | Left | Theu                | Right | App. Total | Int. Total |
| eak Hour Analysis Fro    |                  |             |                   |       |            |        | -                |               |            |      | -                   |       | - FELLOWS  |            |
| eak Hour for Entire Inti | ersection Begins | MA 00:60 to |                   |       |            |        |                  |               |            |      |                     |       |            |            |
| 08:00 AM                 | 0                | 11          | 168               | 0     | 177        | 0      | 0                | 21            | 21         | 0    | 205                 | 3     | 208        | 406        |
| 08:15 AM                 | 0                | 10          | 168               | 0     | 178        | 1      | 0                | 12            | 13         | 0    | 224                 | 2     | 226        | 417        |
| 08:30 AM                 | 0                |             | 192               | 0     | 197        | 0      | 0                | 17            | 17         | 0    | 235                 | 0     | 235        | 449        |
| 08:45 AM                 | 0                |             | 194               | 0     | 203        | 1      | 0                | 16            | 17         | 0    | 199                 |       | 205        | 425        |
| Total Volume             | 0                | 35          | 720               | 0     | 755        | 2      | 0                | 66            | 88         | 0    | 863                 | 11    | 874        | 1697       |
| % App. Total             |                  | 4.6         | 95.4              | 0     | -          | 2.9    | 0                | 97.1          |            | 0    | 98.7                | 1.3   | 20.7       |            |
| PHF                      | .000             | .795        | ,928              | .000  | .930       | .500   | .000             | .766          | .810       | .000 | .918                | .458  | .900       | .945       |

Wilson Okamoto Corporation 1907 S. Beretania Street Suite 400 Honolulu, HI 96826

Counter:D4-3890, D4-5677 Counted By:RY, ER Weather:Clear

File Name: KauPuhi PM Site Code: 00000001 Start Date: 9/14/2010 Page No :1

|                      |      |      | C Drive<br>louthbou |      |               |      |      | ryasiv Hij<br>Vestbou |      |               |      |      | Puhi Stre<br>Iorthbou |      |               | Kaumuali Highway<br>Eastbound |                   |       |      |               |               |  |
|----------------------|------|------|---------------------|------|---------------|------|------|-----------------------|------|---------------|------|------|-----------------------|------|---------------|-------------------------------|-------------------|-------|------|---------------|---------------|--|
| Start Time           | Lah  | Thru | Right               | Peds | App.<br>Total | Left | Thru | Right                 | Peds | App.<br>Total | Left | Thru | Right                 | Peds | App.<br>Total | Left                          | Thru              | Right | Peds | App.<br>Total | Int.<br>Total |  |
| 03:00 PM             | 43   | - 6  | 21                  | 0    | 70            | 19   | 171  | . 0                   | 0    | 198           | 37   | - 4  | 22                    | 3    | 66            | - 4                           | 160               | 34    | 2    | 200           | 53            |  |
| 03:15 PM             | 16   | - 3  | - 5                 | 1    | 25            | 20   | 206  | - 3                   | 1    | 230           | 51   | 4    | 15                    | 1    | 71            | . 5                           | 177               | 46    | 1    | 229           | 55            |  |
| 03:30 PM<br>03:45 PM | 10   | - 2  |                     | 0    | 28            | 8    | 234  | 4                     | 0    | 246           | 33   |      | 17                    |      | 67            | 2                             | 193<br>206<br>736 | 30    | 0    | 225           | 50            |  |
| Total                | 98   | 19   | 41                  | - 1  | 160           | 59   | 842  | 12                    | - 0  | 255<br>929    | 167  | 19   | 9                     | -3-  | 255           | - 5                           | 206               | 155   | 1    | 257           | 225           |  |
| toras 2              | -    |      |                     |      | 1001          | 99   | 942  | 21                    | - 0  | 1459.1        | 107  | 19   | 63                    |      | 255           | 16                            | 736               | 100   | - 4  | 9111          | 552           |  |
| 04:00 PM             | 15   | 5    | 13                  | 0    | 33            | 12   | 226  | 11                    | 0    | 249           | 51   |      | 19                    | 0    | 76            | 14                            | 189               | 37    | 0    | 240           | 59            |  |
| 04:15 PM             | 18   | 5    | 11                  | . 0  | 34            | 12   | 239  | 11                    | 0    | 262           | 43   | 11   | . 9                   | 0    | 63            | 4                             | 197               | 42    | 0    | 243           | 60            |  |
| 04:30 PM             | 38   | 5    | 23                  | .0   | 66            | 4    | 228  | 17                    | 0    | 249           | 48   | 0    | . 8                   | 0    | 64            | 16                            | 198               | 44    | 1    | 259           | 63            |  |
| 04:45 PM             | 14   | - 5  | 0                   | 1    | 28            | 6    | 227  | 20                    | 0    | 253           | 49   | 11   | 17                    | . 0  | 77            | 15                            | 195               | 20    |      | 948           |               |  |
| Total                | 85   | 20   | 55                  | 1    | 161           | 34   | 920  | 59                    | 0    | 1013          | 191  | 36   | 53                    | 0    | 280           | 49                            | 780               | 150   | 2    | 990           | 244           |  |
| 05:00 PM             | 13   | 0    | 10                  | 0    | 23            | 7    | 220  | 12                    | 0    | 239           | 43   | 0    | 7                     | 0    | 59            | 10                            | 190               | 40    | 0    | 240           | 56            |  |
| 05:15 PM             | 5    | 4    | 10                  | 0    | 19            | 6    | 223  | 11                    | 0    | 240           | 55   | 4    | 12                    | 0    | 71            | 2                             | 198               | 23    | 1    | 224           | 55            |  |
| 05:30 PM             | 12   | 2    | 6                   | 1    | 21            | 5    | 222  | 6                     | 0    | 233           | 42   | 4    | 7                     | 0    | 53            | 4                             | 134               | 17    | 2    | 157           | 46            |  |
| 05:45 PM             | 2    | 0    | 6                   | 0    | - 8           | 8    | 173  | 13                    | 0    | 194           | 30   | 4    | 20                    | . 0  | 54            | 9                             | 202               | 37    | . 0  | 248           | 55            |  |
| Yotal                | 32   | 6    | 32                  | 1    | 71            | 26   | 638  | 42                    | 0    | 906           | 170  | 21   | 46                    | 0    | 237           | 25                            | 724               | 117   | 3    | 809           | 208           |  |
| Grand Total          | 215  | 45   | 120                 | 4    | 392           | 119  | 2600 | 128                   | 1    | 2840 [        | 528  | 76   | 162                   |      | 772           | 90                            | 2240              | 431   | 9    | 2770          | 678           |  |
| Approh %             | 54.8 | 11.5 | 32.7                | 1    |               | 4.2  | 91.3 | 4.5                   | 0    |               | 68.4 | 9.6  | 21                    | 0.8  | 7533          | 90                            | 80.9              | 15.6  | 0.3  | 22.3          |               |  |
| Total %              | 3.2  | 0.7  | 1.9                 | 0.1  | 5.8           | 1.8  | 38.3 | 1.0                   |      | 42            | 7.8  | 7.7  | 2.4                   | 0.1  | 11.4          | 1.5                           | 22                | 6.4   | 0.1  | 40.6          |               |  |

|                         |             | KCC De<br>South | iveway<br>lound |            |      | Kaumuali<br>West | Highway<br>ound |            |      | Publis<br>North | Street    |           |      | Kaumuak<br>Eastb | Highway |            |            |
|-------------------------|-------------|-----------------|-----------------|------------|------|------------------|-----------------|------------|------|-----------------|-----------|-----------|------|------------------|---------|------------|------------|
| Start Time              | Left        | Thru            | Flight /        | App. Total | Left | Thru             | Right           | App. Total | Lett | Thru            | Right   A | pp. Total | Left | Thru             | Right   | App. Total | Int. Total |
| Peak Hour Analysis Fi   |             |                 |                 |            |      |                  |                 |            |      |                 |           |           |      |                  | 777777  | -          |            |
| Peak Hour for Entire Is | ntersection | n Begins at     | 04:00 PM        |            |      |                  |                 |            |      |                 |           |           |      |                  |         |            |            |
| 04:00 PM                | 15          | - 5             | 13              | 33         | 12   | 226              | 11              | 249        | 51   | 6               | 19        | 76 1      | 14   | 189              | 37      | 240        | 598        |
| 04:15 PM                | 18          | 5               | 11              | 34         | 12   | 239              | 11              | 262        | 43   | 11              | 9         | 63        | 4    | 197              | 42      | 243        | 602        |
| 04:30 PM                | 38          | 5               | 23              | 66         | 4    | 228              | 17              | 249        | 48   | 8               | 8         | 64        | 16   | 196              | 44      | 258        | 637        |
| 04:45 PM                | 14          | 5               | . 8             | 27         |      | 227              | 20              | 253        | 49   | -11             | 17        | 77        | 15   | 196              | 36      | 247        | 604        |
| Total Volume            | 85          | 20              | 55              | 160        | .34  | 920              | 59              | 1013       | 191  | 36              | 53        | 280       | 49   | 780              | 159     | 998        | 2441       |
| % App. Total            | 53.1        | 12.5            | 34.4            |            | 3.4  | 90.8             | 5.6             | 100000     | 68.2 | 12.9            | 18.9      | 03.0      | - 5  | 78.9             | 16.1    | - 100      |            |
| PHF                     | .559        | 1.000           | .506            | .606       | .708 | .962             | .738            | .967       | .936 | .016            | .697      | .900      | .760 | .905             | .903    | .957       | .958       |

#### Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400 Honolulu, Hi 96826

Counter:D4-3890, D4-5677, D4-5675 Counted By:RY, ER, TO Weather:Clear

File Name : KauNuh AM Site Code : 00000002 Start Date : 9/16/2010 Page No :1

|             |        | _    |                      |                  |               |      |      |                       |      | a Printed-    | Unshifte |      |                      |      |               |      |      |                       |             |       |     |
|-------------|--------|------|----------------------|------------------|---------------|------|------|-----------------------|------|---------------|----------|------|----------------------|------|---------------|------|------|-----------------------|-------------|-------|-----|
|             | Sec    |      | rance/Ex<br>louthbou | dt From Kr<br>nd |               |      |      | mualit Hij<br>Vestbou |      |               |          |      | uhou Str<br>Iorthbau |      |               |      | Kau  | muaii Hig<br>Eastbour | jhway<br>id |       |     |
| Start Time  | Left   | Thru | Right                | Peds             | App.<br>Total | Left | Thru | Right                 | Peds | App.<br>Total | Left     | Thru | Right                | Peds | App.<br>Total | Left | Thru | Right                 | Peds        | App.  | In  |
| 06:00 AM    | 0      | 1    | 0                    | 0                | - 1           | 8    | 122  | 1                     | 0    | 131           | - 6      | . 0  | 13                   | 0    | 19            | 0    | 115  | - 6                   | .0          | 121   | 22  |
| 06:15 AM    | 0      | 0    | 1                    | 0                | 1             | 17   | 188  | 9                     | 0    | 214           | 3        | 0    | 28                   | 0    | 31            | 0    | 176  | 7                     | 0           | 183   | 43  |
| 06:30 AM    | 1      | 0    | 1                    | 0                | 2             | 15   | 175  | 5                     | 0    | 195           | 5        | 0    | 17                   | 0    | 22            | 1    | 180  | 11                    | 0           | 192   | 4   |
| 06:45 AM    | 1      | 0    | 0                    | 0                | 1             | 17   | 147  | 5                     | 0    | 169           | 6        | - 1  | 21                   | 0    | 28            | 2    | 210  | 35                    | 0.          | 247   |     |
| Total       | 2      | - 1  | 2                    | 0                | 5             | 57   | 632  | 20                    | 0    | 709           | 20       | 3    | 79                   | 0    | 100           | 3    | 681  | 59                    | 0           | 743   | 15  |
| 07:00 AM1   | 1      | 0    | 0                    | 0                | 11            | 25   | 165  | 14                    | 0    | 204           | 9        | 3    | 35                   | 0    | 47            | 1    | 210  | 24                    | 0           | 235   | 4   |
| 07:15 AM    | 11     | . 2  | . 0                  | 0                | 13            | 42   | 175  | 32                    | Ö    | 249           | 15       | 8    | 77                   | ō    | 100           | 1    | 180  | 39                    | 0           | 220   | 5   |
| 07:30 AM    | 16     | 10   | - 1                  | 0                | 27            | 49   | 181  | 59                    | 0    | 289           | 16       | 13   | 63                   | 0    | 92            | 1    | 162  | 42                    | 2           | 207   | - 6 |
| 07:45 AM    | 30     | 19   | . 0                  | 0                | 49            | 42   | 173  | 47                    | . 0  | 262           | 21       | 12   | 23                   |      | 56            | - 0  | 191  | 32                    |             | 226   |     |
| Total       | 58     | 31   | -1                   | 0                | 90            | 158  | 694  | 152                   | . 0  | 1004          | 61       | 36   | 198                  | 0    | 295           | - 5  | 743  | 137                   | 3           | 888   | 2   |
| 08:00 AM I  | 17     | 7    | 0                    | ó                | 241           | 23   | 179  | 16                    | 0    | 218           | 16       | 2    | 18                   | 0    | 36 [          | 3    | 216  | 28                    | 0           | 247 [ | 9   |
| 08:15 AM    | 7      | - 4  | - 3                  | ŏ                | 12            | 12   | 171  | 12                    | 0    | 195           | 10       | - 1  | 12                   | 0    | 23            | 1    | 215  | 16                    | 0           | 232   | - 2 |
| 08:30 AM    | 4      | 3    | - 1                  | 0                | R             | 14   | 148  | 19                    | n    | 179           | 13       | 2    | 10                   | 0    | 25            | 0    | 223  | 8                     | ň           | 233   | - 4 |
| 08:45 AM    |        | . 2  | . 0                  |                  | 7             | 7    | 154  | 21                    | . 0  | 182           | 9.5      |      | 44                   |      | 24            | - 2  | 184  | 22                    | 0           | 209   |     |
| Yotal       | 23     | 16   | 2                    | 0                | 51            | 56   | 650  | 68                    | - 0  | 774           | 51       | - 6  | 51                   | 0    | 108           | 9    | 658  | 74                    | 0           | 921   | 10  |
| Grand Total | 93 -   | 48   | 5                    | 0                | 146 T         | 271  | 1976 | 240                   | 0    | 2487          | 132      | 43   | 328                  | 0    | 503           | 17   | 2262 | 270                   | 3           | 2552  | 56  |
| Approh %    | 63.7 4 | 32.9 | 3.4                  | 0                |               | 10.9 | 79.5 | 9.7                   | ő    | 2101          | 26.2     | 8.5  | 65.2                 | ő    | 500           | 0.7  | 88.6 | 10.6                  | 0.1         | 2.502 | ~   |
| Total %     | 1.6 /  | 0.8  | 0.1                  | 0                | 2.6           | 4.8  | 34.7 | 4.2                   | ő    | 43.7          | 2.3      | 0.8  | 5.8                  | 0    | 8.8           | 0.3  | 39.8 | 4.7                   | 0.1         | 44,9  |     |
|             |        |      |                      |                  |               |      |      |                       |      |               |          |      |                      |      |               |      |      |                       |             |       |     |

|                         | Secon       | 5 Entrance<br>South | VEXIX Fro | m KCC       |       | Kaumuali<br>West | Highway |            |      | Nuhou | Street   |            |      | Kaumuali<br>Eastb | Highway |            |            |
|-------------------------|-------------|---------------------|-----------|-------------|-------|------------------|---------|------------|------|-------|----------|------------|------|-------------------|---------|------------|------------|
| Start Time              | Left        | Thru                | Right     | App. Total  | Lehil | Thru             | Right / | App. Total | Left | Thru  | Plight / | App. Total | Left | Thru              | Right   | App. Yotel | Ins. Total |
| bak Hour Analysis Fi    | 06:00 mor   | AM to 08:4          | 45 AM - F | Poak 1 of 1 |       |                  |         | -          |      |       |          |            | -    |                   |         | -          |            |
| Peak Hour for Entire In | ntersection | Begins at           | 07:15 A   | M           |       |                  |         |            |      |       |          |            |      |                   |         |            |            |
| 07:15 AM                | 11          | 2                   | 0         | 13          | 42    | 175              | 32      | 249 [      | 15   | 8     | 77       | 100.1      | - 1  | 180               | 39      | 220        | 582        |
| 07:30 AM                | 16          | 10                  | 1         | 27          | 49    | 181              | 59      | 289        | 16   | 13    | 63       | 92         | - 1  | 162               | 42      | 205        | 613        |
| 07:45 AM                | 30          | 19                  | 0         | 49          | 42    | 173              | 47      | 262        | 21   | 12    | 23       | 56         | 2    | 191               | 32      | 225        | 592        |
| 08:00 AM                | 17          | 7                   | 0         | 24          | 23    | 179              | 16      | 218        | 16   | . 2   | 18       | 36         | - 3  | 216               | 29      | 247        | 525        |
| Total Volume            | 74          | 38                  | - 1       | 113         | 156   | 708              | 154     | 1018       | 68   | - 35  | 181      | 284        | 7    | 749               | 141     | 697        | 2312       |
| % App. Total            | 65.5        | 33.6                | 0.9       | 1.00        | 15.3  | 69.5             | 15.1    | 2000       | 23.9 | 12.3  | 63.7     | -          | 0.8  | 83.5              | 15.7    |            |            |
| BUILT                   | 617         | 666                 | 960       | 677         | 756   | 0.78             | 663     | 991        | 810  | 623   | 644      | 740        | 644  | 663               | 650     | 606        | 15.41      |

Wilson Okamoto Corporation 1907 S. Beretania Street Suite 400 Honolulu, Hi 96826

Counter:D4-5675 Counted By:TO Weather:Clear

File Name : KauNani PM Site Code : 00000001 Start Date : 9/14/2010 Page No :1

|             |            |      |      | _                        |       |        | Groups | Printed-L | Inshifted                |      |            |      |      |                         |      |            |             |
|-------------|------------|------|------|--------------------------|-------|--------|--------|-----------|--------------------------|------|------------|------|------|-------------------------|------|------------|-------------|
|             | Southbou   |      | Khu  | mualii Higi<br>Nestbouro | way 5 | 3      |        |           | Nani Stree<br>Iorthbours |      |            |      | Kau  | muali High<br>Eastbound | yway |            |             |
| Start Time  | App. Total | Leit | Thru | Right                    | Peds  |        | Left   | Thru      | Right                    | Peds | App. Total | Left | Thru | Right                   | Peds | App. Total | Int. Total  |
| 03:00 PM    | 0          | 11   | 199  | 0                        | 0     | 210    | 1      | - 0       | - 1                      | 0    | 0          | 0    | 212  | 6                       | 0    | 217        | 436         |
| 03:15 PM    | 0          | 12   | 226  | 0                        | 0     | 238    | 0      | 0         | 16                       | 0    | 16         | 0    | 215  | 2                       | 0    | 217        | 471         |
| 03:30 PM    | 0          |      | 244  | 0                        | 0     | 250    | 1      | 0         | 17                       | 0    | 18         | 0    | 222  | 3                       | 0    | 223        | 491         |
| 03:45 PM    | 0          | 9    | 256  | 0                        | - 0   | 265    | 0      | 0         | 22                       | 0    | 22         | 0    | 241  | 5                       | 0    | 245        | 533         |
| Total       | 0          | 38   | 925  | 0                        | 0     | 963    | 5      | 0         | 63                       | 0    | 65         | 0    | 890  | 13                      | 0    | 903        | 533<br>1931 |
| 04:00 PM    | 01         | 7    | 244  |                          |       | 251    | 0      | 0         | 16                       | 0    | 16         | 0    | 220  |                         | 0    | 222        | 489         |
| 04:15 PM    | 0          | 7    | 247  | 0                        | 0     | 254    | 0      | 0         | 10                       | 0    | 10         | 0    | 217  | 3                       | Ď.   | 219        | 483         |
| 04:30 PM    | 0          | 11   | 242  | 0                        | 0     | 253    | 1      | 0         | 3.5                      | 0    | 12         | 0    | 235  | - 3                     | Ď.   | 238        | 503         |
| 04:45 PM    | 0          | 4    | 251  | 0                        | 0     | 255    | 1      | 0         | 11                       | 0    | 12         | . 0  | 225  | - 7                     | 0    | 226        | 493         |
| Total       | 0          | 29   | 984  | 0                        | 0     | 1013   | 2      | 0         | 48                       | 0    | 50         | 0    | 897  | 8                       | 0    | 905        | 1968        |
| 05:00 PM    | 01         | 7    | 230  | 0                        | 0     | 237    | 0      | 0         | 19                       | 0    | 19         | 0    | 214  |                         |      | 214        | 470         |
| 05:15 PM    | 0          | 8    | 235  | 1                        | 0     | 244    | 0      | 0         | 13                       | 0    | 13         | 0    | 225  | 3                       |      | 228        | 485         |
| 05:30 PM    | 0          | 11   | 235  | 0                        | 0     | 246    | 5      | 0         | 9                        | 1    | 12         | 0    | 166  |                         | 0    | 168        | 426         |
| 05:45 PM    | 0          | 3    | 196  | 0                        |       | 199    |        | 0         | 11                       | 0    | 11         | 0    | 222  | - 5                     | 0    | 994        | 434         |
| Total       | 0          | 29   | 896  | - 1                      | 0     | 926    | 2      | 0         | 52                       | - 1  | 55         | 0    | 827  | 7                       | 0    | 224<br>834 | 1815        |
| Grand Total | 0          | 96   | 2805 | 1                        | 0     | 2902 ] | 6      | 0         | 163                      | 4    | 170        | 0    | 2614 | 28                      | 0    | 2642       | 5714        |
| Apprch %    | , ,        | 3.3  | 96.7 | 0                        | n     | 2002   | 3.5    | 0         | 95.9                     | 0.6  | 170        | 0    | 98.9 | 1.1                     | 0    | 2042       | 5714        |
| Total %     | 0          | 1.7  | 49.1 | o o                      | 0     | 50.8   | 0.1    | 0         | 2.0                      | 0,0  | 9          | 0    | 46.7 | 0.5                     | U    | 40.0       |             |

| The second second second | Southbound      |               | Kaumusii<br>West | Highway<br>ound |            |      | Nani 5<br>Norshb |       |            |      | Kaumuali<br>Eastb | Highway |            |          |
|--------------------------|-----------------|---------------|------------------|-----------------|------------|------|------------------|-------|------------|------|-------------------|---------|------------|----------|
| Start Time               |                 | Left          | Thru             | Bight           | App. Total | Left | Thru             | Right | App. Total | Left | Thru              | Right I | App. Total | int Yess |
| eak Hour Analysis Fre    | m 03:00 PM to   | 05:45 PM - Pe | ak 1 of 1        |                 |            |      | -                |       |            |      |                   |         |            | THE CASE |
| eak Hour for Entire Int- | ersection Begin | s at 03:45 PM |                  |                 |            |      |                  |       |            |      |                   |         |            |          |
| 03:45 PM                 | 0               | 9             | 256              | 0               | 265        | 0    | 0                | 22    | 22         | 0    | 241               |         | 246 [      | 551      |
| 04:00 PM                 | 0               | 7             | 244              | 0               | 251        | 0    | 0                | 16    | 16         | 0    | 220               | 2       | 222        | 460      |
| 04:15 PM                 | 0               | 7             | 247              |                 | 254        | 0    | 0                | 10    | 10         | Ó    | 217               | 2       | 219        | 481      |
| 04:30 PM                 | 0               | - 11          | 242              | 0               | 253        | 1    | 0                | - 11  | 12         | 0    | 235               | - 3     | 236        | 503      |
| Total Volume             | 0               | - 34          | 989              | 0.              | 1023       | 1    | 0                | 59    | 60         | 0    | 913               | 15      | 925        | 2008     |
| % App. Total             |                 | 3.3           | 96.7             | 0               |            | 1.7  | 0                | 98.3  | 111        | 0    | 96.7              | 1.3     |            |          |
|                          |                 |               |                  |                 |            |      |                  |       |            |      |                   |         |            |          |

|  |  | SERVICE STATEMENT OF THE PARTY  |  |
|--|--|--|--|
|  |  | CONTRACTOR  | CADINOSTIC CONTRACTOR CONTRACTOR   |
|  |  | SCHOOLS OF STREET, SCHOOL ST   | STATE OF THE PERSON AND ADDRESS OF THE PERSO |
|  |  | SCHOOL STANSSON STANS | STREET, STREET, SAN  |
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|  |  | 日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日   | Medical participation  |
|  |  | THE PERSON OF TH | STREET, STREET, STREET   |
|  |  | The second second second   |  |
|  | A TOTAL CONTRACTOR OF THE PARTY | STREET, WAS SOURCE TO  | PETEROPEN NUMBER   |
|  | STATISTICAL STATES   | STATES SENSO STATES CHARLES  | SPECIAL DESIGNATION OF SERVICE |
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|  | HARMANISCHOL CHICAN  | SWICHSTER STRUCTURE  | 4575360955003-4-   |
|  |  |  |  |
|  | CONTRACTOR CONTRACTOR  | O TOTAL SECTION OF THE PROPERTY OF THE PROPERT | 2013/12/2013/10/2010/00/2010/2010/2010/2   |
|  | STATES STATES TO SERVICE   | 発展的なないのかのは、行政  | PROGRAMMA STREET   |
|  | SERVICE SERVIC | BOLL TOCK TOCK TOCK THE TAKE THE   | Section of the Party Country Party   |
|  | C. NO. CO. CO. CO. CO. CO. CO. CO. CO. CO. C   | 7  | ACTION STATEMENT   |
|  | STATES STATES STATES AND ADDRESS OF THE PARTY  | 日本のでは、日本には、日本のでは、日本のでは、日本のでは、日本には、日本には、日本には、日本には、日本には、日本には、日本には、日本に  | <b>光路的技術報</b>  |
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|  | 3  | A CHARLES CONTRACTOR C | Appropriate Control of the Control o |
|  | STATE SAME SHOWING THE   | STORESTON STREET   | <b>第15年のことの関係に対</b>  |
|  | CONTRACTOR DESCRIPTION DE  | DECONOCIO DE L'ESTADORNOS DE L | STREET, SEASON STREET,   |
|  | SCHOOL SECTION OF STREET, STRE | STATE  | OSTERNIST CONTROLS   |
| 22   | <b>国的一种公司的企业公司的公司</b>  | SECOND CONTRACTOR  | STREET, STREET |
| A STATE OF THE STA | and broad control of the last  | Control of  |  |
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| Percent 23.0% 75.4%  | 11.9% 88.1%  |  | 352 1748<br>16.8% 83.2%  |

# Wilson Okamoto Corporation 1907 S. Beretania Street Suite 400 Honolulu, HI 96826

Counter: D4-3890, D4-5677 Counted By: RY, ER Weather: Clear

File Name : KauNuh PM Site Code : 00000002 Start Date : 9/15/2010 Page No : 1

|             |      | _    |                       |                 |               |      |      |                      |      | is Printed-   | Unshilbs |      |                      |      |               |      |      |                       |      |               |   |
|-------------|------|------|-----------------------|-----------------|---------------|------|------|----------------------|------|---------------|----------|------|----------------------|------|---------------|------|------|-----------------------|------|---------------|---|
|             | Sec  |      | trance/Ex<br>Southbou | nt From K<br>nd |               |      |      | nualii Hi<br>Vestbou |      |               |          |      | uhou Sir<br>Iorthbau |      |               |      |      | nuali Hig<br>Eastbour |      |               |   |
| Start Time  | Left | Thru | Right                 | Peds            | App.<br>Total | Left | Thru | Right                | Peds | App.<br>Total | Left     | Thru | Right                | Peds | App.<br>Total | Lelt | Thru | Right                 | Peds | App.<br>Total | Ī |
| 03:00 PM    | 34   | 12   | 3                     | 0               | 49            | 16   | 179  | 26                   | Ü    | 152           | 42       | 4    | 18                   | - 0  | 64            | 2    | 192  | 30                    | 0    | 224           | Т |
| 03/15 PM    | 29   | 14   | 1                     | 0               | 44            | 27   | 214  | 11                   | 0    | 252           | 55       | 3    | 19                   | 0    | 77            | 0    | 185  | 32                    | 0    | 217           |   |
| 03/30 PM    | 9    | 4    | 2                     | 0               | 15            | 18   | 209  | 9                    | 0    | 236           | 51       | 8    | 26                   | 0    | 85            | 2    | 208  | 21                    | 0    | 231           |   |
| 03:45 PM    | 13   | 7    | - 5                   | 0               | 25            | 19   | 220  | 17                   | 0    | 256           | 43       | 2    | 24                   | - 0  | 69            | - 1  | 211  | 31                    | 0    |               |   |
| Yotal       | 85   | 37   | 11                    | 0               | 133           | 80   | 822  | 63                   | .0   | 965           | 191      | 17   | 07                   | .0   | 295           | - 5  | 796  | 114                   | 0    | 915           |   |
| 04:00 PM [  | 17   | 4    | 1                     | 0               | 22            | 13   | 225  | 10                   | 0    | 248           | 45       | 4    | 20                   | 0    | 60 [          | 1    | 238  | 24                    | 0    | 265           |   |
| 04:15 PM [  | 21   | 10   | - 5                   | 0               | 34            | 16   | 210  | 19                   | 0    | 245           | 42       |      | 22                   | 0    | 72            | - 1  | 198  | 36                    | 4    | 235           |   |
| 04:30 PM    | 22   | 9    | 2                     | 0               | 33            | 11   | 208  | 12                   | 0    | 231           | 55       | 7    | 18                   | 0    | 80            | Fi.  | 219  | 37                    | 0    | 261           |   |
| 04:45 PM    | 15   |      | 7                     | . 0             | 25            | a    | 222  | 24                   | 0    | 254           | 48       | 7    | 16                   | . 0  | 69            |      | 215  | 26                    | 4    | 244           |   |
| Total       | 75   | 26   | 13                    | 0               | 114           | 40   | 865  | 65                   | 0    | 978           | 188      | 26   | 76                   |      | 290           | 9    | 670  | 123                   | 2    | 1004          | i |
| 05:00 PM [  | 17   | 7    | 1                     | 0               | 25            | 21   | 204  | 11                   | 0    | 236 [         | 42       | 12   | 10                   | 0    | 721           | 3    | 204  | 29                    |      | 236           |   |
| 05:15 PM    | 8    | 9    | 2                     | 0               | 19            | 15   | 233  | B                    | 0    | 256           | 43       | 3    | 10                   | ٥    | 64            | 1    | 168  | 26                    | 0    | 105           |   |
| 05:30 PM    | 6    | 3    | 0                     | 0               | 9             | 23   | 176  | 4                    | - 0  | 203           | 41       | . 2  | 21                   | 0    | 64            | 1    | 196  | 24                    | ó    | 221           |   |
| 05:45 PM    | - 8  | - 4  | 2                     | 0               | 14            | 28   | 189  | - 11                 | 0    | 228           | 25       |      | 16                   | 0    | 43            | - 0  | 183  | 15                    | 0    | 198           |   |
| Total       | 39   | 23   | 5                     | 0               | 67            | 87   | 802  | 34                   | 0    | 923           | 151      | 18   | 74                   | 0    | 243           | 5    | 751  | 94                    | 0    | 850           | ľ |
| Grand Total | 199  | 86   | 29                    | 0               | 314           | 215  | 2489 | 162                  | 0    | 2866          | 530      | 61   | 237                  | 0    | 828 [         | 19   | 2417 | 331                   | 2    | 2769          |   |
| Approh %    | 63.4 | 27.4 | 9.2                   | 0               |               | 7.5  | 86.8 | 5.7                  | 0    | _ 500         | 64       | 7.4  | 28.6                 | 0    | -             | 0.7  | 87.3 | 12                    | 0.1  | 2.00          |   |
| Total %     | 2.9  | 1.3  | 0.4                   | 0               | 4.6           | 3.2  | 36.7 | 2.4                  | 0    | 42.3          | 7.8      | 0.9  | 3.5                  |      | 12.2          | 0.3  | 35.7 | 4.0                   | -0.0 | 40.9          |   |

|                        | Secon      | Southt     | VExit From<br>bound | n KCC      |      | Kaumuoli<br>Westi | Highway<br>ound | '          |      | Nuhou |       |            |      | Kaumusii<br>Eastb |          |            |            |
|------------------------|------------|------------|---------------------|------------|------|-------------------|-----------------|------------|------|-------|-------|------------|------|-------------------|----------|------------|------------|
| Start Time             | tett       | Thru       | Right               | App. Yotal | Left | Thru              | Right           | App. Total | Left | Thru  | Right | App. Total | Left | Thru              | Flight / | App. Total | Int. Total |
| eak Hour Analysis Fr   | om 03:00   | PM to 05:4 | 15 PM - P           | eak t of t |      |                   |                 |            |      |       |       |            | -    |                   |          |            |            |
| eak Hour for Entire In | tersection | Begins at  | 03:45 PM            | A          |      |                   |                 |            |      |       |       |            |      |                   |          |            |            |
| 03:45 PM               | 13         | 7          | 5                   | 25 1       | 19   | 220               | 17              | 256 ]      | 43   | 2     | 24    | 60 [       |      | 211               | 31       | 243        | 555        |
| 04:00 PM               | 17         | 4          | 1                   | 22         | 13   | 225               | 10              | 246        | 45   | 4     | 20    | 69         | 1    | 238               | 24       | 263        | 602        |
| 04:15 PM               | 21         | 10         | 3                   | 34         | 16   | 210               | 19              | 245        | 42   |       | 22    | 72         | 1    | 150               | 36       | 235        | 586        |
| 04:30 PM               | 22         |            | 2                   | 33         | 11   | 208               | 12              | 231        | 55   | 7     | 18    | 80         | - 5  | 210               | 37       | 261        | 605        |
| Total Volume           | 73         | 30         | - 11                | 114        | 59   | 663               | 58              | 960        | 185  | 21    | 84    | 290        |      | 664               | 128      | 1002       | 2386       |
| % App. Total           | 64         | 26.5       | 9.6                 | 2333       | - 6  | 88.1              | 5.9             | - 173576   | 63.0 | 7.2   | 29    | -          | 0.0  | 56.4              | 12.8     | - 0.00     | - 700      |
| PHF                    | .830       | .760       | .650                | 838        | .776 | .050              | .763            | .957       | .841 | .056  | 875   | .600       | 400  | 950               | A65      | 943        | 686        |

Hour Tetals

15-Sep-10

Site Code: Station ID: KCC Driveway At Kaumualii Highway Latitude: 0' 0.000 Undefined

|                                | ep-10 N<br>hu Momina   | Alternoon                               | Hour Totals<br>Moming Afferno                 | on Morning   | B<br>Aftermoon  | Hour Total<br>Morning Alt  | ls Com<br>emoon Momin  | owed Totals<br>g Afternoon   |
|--------------------------------|--|---|---|--|---|--|--|--|
| 12:00                          | nu Morning   | Attempon                                | Morning America                               | Morning 2  | Attemoon  | Morning All  | emoon Morrer   | g Atternoon  |
| 12:30                          | STREET WEST CONTROLS   | 120000000000000000000000000000000000000 | er veresta                                    | SERVICE  | 93566   | AESTERIO   | OCH REAL PROPERTY.   |  |
| 01:00                          | SERVICE CONTRACT   | NAME OF STREET                          | 3200015920                                    | STATE OF THE PARTY | RESIDE S  | THE PARTY OF   | 079 03535000   | HEREST !   |
| 01:30                          |  | 0200000000                              | WINDOWSKI                                     | 260202000  | ASSESSED.   | NAMES AND ADDRESS OF   | OPPORTUGATES   | 12009120000  |
| 02:00                          | 24024  | 82558 <b>8</b> 886                      | 0 0   | DESCRIPTION OF THE PARTY OF THE | RESERVE   | er 350 m/s   | <b>30</b> 100 3000   | 5000000  |
| OP THURSDAY                    | TO SHARE THE TREE TO   | E 100 100                               | 0700/10908036                                 | THE PROPERTY.  | D-101/12/2016   | SOCIETA SECURI   | THE REPORT OF  | 485T2678   |
| 02:30                          | autoria come   | ESSENCE FIGS                            | 9 9   | MINE PROPERTY.   | 2000  | autilia de la composição  | 30 130030  | 200720   |
| 03.00                          |  | SECTION SEES                            | MARK SPERMIN                                  | E 1000   | 55,540,5  | STACKSHES  | ACCESSABLE OF  | AND DESCRIPTION  |
| 03:30                          | 0  | SCHOOL SEC                              | ET 00:00 TR00                                 | DIVERSIONS   | 11/20/2004  | 5000 6400  | NEW PROPERTY.  | Name of the  |
| 04:00<br>10/02/08/15 (29/V)    | 0  | RECEIPT FOR                             | HUNTOM SENSO                                  | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | 20.5137819  | PL 2010 PLA 1.00   | VERTICAL CAND  | 059459550  |
| 04:30<br>(4) 3.00 (4) 3.00     | SERVED SERVERSE  | COLUMN PARTIES DE                       | STATE STREET                                  | DECEMBER OF THE PARTY OF THE PA | DOMESTIC OF   | SATURNATURE OF STREET  | AND DESCRIPTION OF THE PARTY OF | DELCHEROS TO   |
| 05:00<br>05:00                 | DESCRIPTION OF THE PERSON OF T | masmon o                                | SHAPETER                                      | OSCHOOLSEN   | V4500   | OKONOSO O  | 36 00 E E  | entrance of  |
| 05:30                          |  | 107-10 NO.                              | 00.071071600                                  | 0  | 0.00548120  |  | una Terrenora  | V  |
| 06:00<br>100 K 1000 15 F 10:00 | 5  | Date: 100                               | CONTRACTOR AND SE                             | 3  | 100000  | P4Q8427572745  | STATE OF STATE   | MINE PROPERTY.   |
| 06:30<br>STUMBORSESSESSESSES   | essolation pro-  | unsame eras                             | in avioletation                               | 2<br>2004/14/2004/0  | of calestonics  | 50058W0950   | 190 NO.000-1743  | operation of   |
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| 07:30<br>30:50/85 4007         | 104  | etero-inecional                         | 284   | 26   | CONTRACTOR OF   | otron <b>100</b> 00 v.com  | 200 2122 2000  | ALTERNATION NAMED IN   |
| 08:00                          | - 51   | enthacher.                              | NUMBER OF SERVICE                             | 28   | NAME OF THE OWNER, OF THE OWNER, OF THE OWNER, OF THE OWNER, OWNER, OWNER, OWNER, OWNER, OWNER, OWNER, OWNER, | NEW STONES   | Designation of the second  | 21000125330  |
| 08:30                          | 28   | phones are                              | MISSION COLOR                                 | CENTROLS   | - According   | enterioristica de la composición de la<br>La composición de la | CONTRACTOR OF STREET   | erediochere.   |
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| 09:30<br>523/03/299453/4/50/20 |  | AT HERE BUT                             | egrapisky rezverada<br>Nazarowa con were      | CONTRACTOR OF THE  |   |  | STREET, STREET | ANTERIOR STATE   |
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| 12:30  | E-SOTOGRAPHICS   | ALTERSECTION OF | 24   | 2007 1 Jan   | (Classical State)   | 0            | 22                | THE PARTY  | conce                  | ALEGE GRADE  | NOW YOUR       |
| 01:00  | 10H243016  | STATES OF       | 31   | FEET 0.55  | NAME OF             | 27-53        |                   | SERVICE CREEK  | 272.760                | 1077193132   | 5507 7258      |
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| 05.00  | SELECTION OF THE   | 2.17700.24      | UT188 13   | 500 100 10   | THE SH              | SHOW.        | 7171,50100        | MARKET STATES  | 52968                  | E-17474-1613   | 1247/4890      |
| STREET,  | 195027080500   | 5 (T351)34      | 5/40 <b>22</b> 00  | 000 VERS   | 12 55 50            | 15.5Y.20     | DE LIES S (24)    | ACEDIAGES  | 10/81/350              | EPOLISHOESES   | METORS -       |
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| 06:00  |  | A               | 14   |  |                     | 4            | 35                | PARTICIPATION OF THE PARTICIPA | S. S. S. S. S.         |  |                |
| 06:30  | STREET, ST.  | 12              | 16   | VERTINANA  | ne years            | C SIR        | 12                | 27-890729  | Service.               | FARRIAGE ST  | \$20,000       |
| 07:00  | der destroy  | 1200            | 100 TO 10 | THE PARTY  | 學問問                 | UNITED BY    | 77-71-22          | W 17900  | 1000                   | S10.7500000  | 101/107        |
| SCHOOL STREET  | TRACTICAL PROPERTY.  | 38.00           | 39178  | Covenageo  | 15/08/88            | 23.28        |                   | of the book of   | NATIONAL PROPERTY.     | 18350643887  | 58/25/1941     |
| 07:30  | danien men   | 59<br>532000    | 6  | C 500 <b>200</b> C C   | SW 520 4/5          | 21           | 24                | CITATION PROPERTY.   | CS-1780                | 10040 <b>308</b> 000   | G55 598        |
| 08:00  |  | 42              | 3  |  | 264 53 11           | 20           | 50                |  |                        |  | -              |
| 08:30  | DAME CALL  | 51              | SHAPE OF   | 7,000,000  | 10000               | MAI 32       | 20                |  | 204/2004               | - Constant   | 3605000        |
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| REN - 19215  | ENHIPED  |                 | 250000   | 5008,0883.1  | 99069               | 14<br>150508 | 10                | DECEMBER 2   | NAME OF TAXABLE PARTY. | DESCRIPTION  | MET COLOR      |
| 09:30  | ot/mineten/v   | 41              | SUBJECTION OF  | alle as villa  | ecc103 (32)         | 10           | 8                 | 201/19/00/00/00  | -00.000                | enstananista   | SUPERIOR S     |
| 10:00  |  | 30              | 0  |  |                     | 28           | 5                 | P.1012-99600   | CIEDING!               | new MARKET   | Martin         |
| 10:30  | STEEL STEEL  | 27<br>27        | STATE OF   | SEES ASS   | 171-201 BB          | STREET, S    | SEPARATE SE       | Telephonesis   | 2299655                |  | SECURITY OF    |
| AS 100 00 00 00 00 00 00 00 00 00 00 00 00   | ENSEMPRESEN  | 54年100年10日      | SERVE S  | 907107.99  | SOCIETY PR          | 3158         |                   | HATCH BRIDE  | COS-THE                | ADDRESS OF THE PARTY OF THE PAR | 100            |
| 11:00<br>Envision 134:15   | PROMETE STATE  | 26              | S CONTRACTOR   | SANSTE   | H80300140           | 52           | 0                 | E-CENTRAL  | 50000                  | M-000-0000   | Server .       |
| 11:30<br>PE-/HD4E45  |  | 24              | 0  | in a real ways on  | 63.000 June         | 22           | 0                 | 100000000000000000000000000000000000000  | 2000                   |  |                |
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| Percent  |  | 55.0%           | 44.0%  |  |                     | 26.8%        | 73.2%             |  |                        | 42.3%  | 57.7%          |

#### APPENDIX B

LEVEL OF SERVICE DEFINITIONS

#### LEVEL OF SERVICE DEFINITIONS

#### LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table,

Table 1: Level-of-Service Criteria for Signalized Intersections

| Level of Service | Control Delay per Vehicle<br>(sec/veh) |
|------------------|--|
| A                | ≤10.0                                  |
| В                | >10.0 and ≤20.0                        |
| C                | >20.0 and ≤35.0                        |
| D                | >35.0 and ≤55.0                        |
| E                | >55.0 and ≤80.0                        |
| F                | >80.0                                  |

Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high /vc ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 see per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high Nv cratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

"Highway Capacity Manual," Transportation Research Board, 2000.

APPENDIX C

CAPACITY ANALYSIS CALCULATIONS EXISTING PEAK HOUR TRAFFIC ANALYSIS

#### LEVEL OF SERVICE DEFINITIONS

#### LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

Table 1: Level-of-Service Criteria for Unsignalized Intersections

| Level of Service | Average Control Delay<br>(Sec/Veh) |
|------------------|------------------------------------|
| A                | ≤10.0                              |
| В                | >10.0 and ≤15.0                    |
| C                | >15.0 and ≤25.0                    |
| D                | >25.0 and ≤35.0                    |
| E                | >35.0 and ≤50.0                    |
| F                | >50.0                              |

"Highway Capacity Manual," Transportation Research Board, 2000,

HCM Signalized Intersection Capacity Analysis 3: Puhi & Kaumualii

|                          | *              | -        | *         | 1        | <b>←</b>  | *         | 4        | 1                      | -      | 1       | 1         | 4      |
|--------------------------|----------------|----------|-----------|----------|-----------|-----------|----------|------------------------|--------|---------|-----------|--------|
| ASSESSMENT OF THE        | n Cost         | THE S    |           |          |           | 235       | TO BELLE | 7.9                    | (Seat) | Cost    | 6412      | NS ST  |
| Lane Configurations      | 7              | +        | 1         | 7        | +         |           |          | 4                      | 1      |         | 4         | 7      |
| Volume (vph)             | 115            | 724      | 94        | 71       | 530       | 127       | 129      | 52                     | 49     | 35      | 30        | 39     |
| Ideal Flow (vphpl)       | 1900           | 1900     | 1900      | 1900     | 1900      | 1900      | 1900     | 1900                   | 1900   | 1900    | 1900      | 1900   |
| Total Lost time (s)      | 5.0            | 5.0      | 5.0       | 5.0      | 5.0       | 5.0       |          | 5.0                    | 5.0    | 0.000   | 50        | 4.0    |
| Lane Util. Factor        | 1.00           | 1.00     | 1.00      | 1.00     | 1.00      | 1.00      |          | 1.00                   | 1.00   |         | 1.00      | 1.00   |
| Fit of the second second | 1.00           | 1.00     | 0.85      | 1,00     | 1.00      | 0.65      |          | 1.00                   | 0.85   |         | 1.00      | 0.85   |
| Fit Protected            | 0.95           | 1,00     | 1.00      | 0.95     | 1.00      | 1.00      |          | 0.97                   | 1.00   |         | 0.97      | 1.00   |
| Satd. Flow (prot)        | 1770           | 1863     | 1683      | 1770     | 1863      | 1583      | ME.      | 1799                   | 1583   |         | -1814     | 1583   |
| Fit Permitted            | 0.95           | 1.00     | 1.00      | 0.95     | 1.00      | 1.00      |          | 0.71                   | 1.00   |         | 0.68      | 1.00   |
| Satd. Flow (perin)       | 1770           | 1863     | 1583      | 1770     | 1863      | 1583      | 5550     | . 1317                 | 1583   | 2000    | 1276      | 1583   |
| Peak-hour factor, PHF    | 0.94           | 0.94     | 0.94      | 0.93     | 0.93      | 0.93      | 0.92     | 0.92                   | 0.92   | 0.57    | 0.57      | 0.57   |
| Adi Flow (vph):          | 122            | 770      | 100       | 76       | 570       | 137       | 140      | 57                     | 53:    | 61      | 53        | 68     |
| RTOR Reduction (vph)     | 0              | 0        | 19        | 0        | 0         | 36        | 0        | 0                      | 40     | . 0     | 0         | 0      |
| Lane Group Flow (vph)    | 122            | 770      | . 81      | 76       | 570       | 101       | 0        | 197                    | 13     | . 0     | . 114     | - 68   |
| Tum Type                 | Prot           | NA.      | Perm      | Prot     | NA:       | Perm      | Penn     | NA.                    | Perm   | Perm    | NA.       | Free   |
| Protected Phases         | 7              | 4        |           | 3        | 8         |           |          | 2                      |        |         | - 6       |        |
| Permitted Phases         |                |          | 4         |          |           | . 8       | 2        |                        | 2      | 6       |           | Free   |
| Actuated Green, G (s)    | 144            | 56.2     | 56.2      | 8.6      | 50.4      | 50.4      |          | 25.4                   | 25.4   |         | 25.4      | 105.2  |
| Effective Green, q (s)   | 14.4           | 56.2     | 56.2      | 8.6      | 50.4      | 50.4      |          | 25.4                   | 25.4   |         | 25.4      | 105.2  |
| Actualed o/C Ratio       | 0.14           | 0.53     | 0.53      | 0.08     | 0.48      | 0.48      |          | 0.24                   | 0.24   | 360     | 0.24      | 1.00   |
| Clearance Time (s)       | 5.0            | 5.0      | 5.0       | 5.0      | 5.0       | 5.0       |          | 5.0                    | 5.0    |         | 5.0       |        |
| Vehicle Extension (s)    | 30             | 3.0      | 3.0       | 3.0      | 30        | 3.0       | 35.2     | 3.0                    | 3.0    |         | 3.0       | Em     |
| Lane Grp Cap (vph)       | 242            | 995      | 846       | 145      | 893       | 758       |          | 318                    | 382    |         | 308       | 1583   |
| ws Ratio Prot            | c0.07          | c0.41    | lealing   | 0.04     | 0.31      | 900000    |          |                        | 1000   | DH45h   |           |        |
| v/s Ratio Perm           | a proper       | 1        | 0.05      |          |           | 0.06      |          | c0.15                  | 0,01   |         | 0.09      | 0.04   |
| we Bato                  | 0.50           | 0.77     | 0.10      | 0.52     | 0.64      | 0.13      | Switz.   | 0.62                   | 0.03   | 1900    | 0.37      | 0.04   |
| Uniform Delay, d1        | 42.1           | 19.5     | 12.0      | 46.3     | 20.6      | 15.2      |          | 35.6                   | 30.5   |         | 33.2      | 0.0    |
| Progression Ractor       | 1.00           | 1.00     | 100       | 1.00     | 1,00      | 1.00      |          | 1.00                   | 1.00   | 845750  | 1.00      | 1.00   |
| Incremental Delay, d2    | 1.7            | 3.8      | 0.0       | 3.4      | 1.5       | 0.1       |          | 3.6                    | 0.0    |         | 0.8       | 0.1    |
| Delay (s)                | 43.7           | 23.3     | 12.1      | 49.T     | 22.1      | 15.3      | 120,400  | 39.2                   | 30.5   | otismi. | 34.0      | 0.7    |
| Level of Service         | D              | C        | В         | D        | C         | B         |          | D                      | C      |         | C         | A      |
| Approach Delay (s)       | ARCHITECH      | 24.7     | 364900    | smens    | 23.50     | SECOND.   | 6925600  | 37.3                   | CHECK! |         | 21.3      | (2553) |
| Approach LOS             | a stronger     | C        | - men     |          | C         | - NAS     | CIA-CE-  | D                      |        |         | C         |        |
| PROPERTY AND PROPERTY.   | NAME OF STREET | 90000504 | THE WATER | NULS THE | MARKET ST | SECTION . | DESCRIP  | NAME OF TAXABLE PARTY. | 1.00   | herstra | EMEMBER S | 120225 |

|                                   | THE PERSON NAMED IN |  |
|-----------------------------------|---------------------|--|
| HCM Average Control Delay         | 25.4                | HCM Level of Service C   |
| HCM Volume to Capacity ratio      | 0.72                |  |
| Actuated Cycle Length (s)         | 105.2               | Sum of lost time (s) 15.0  |
| Intersection Capacity Utilization | 100 TONE            | ICU Lavel of Service C   |
| Analysis Period (min)             | 15                  |  |
| e Cetical Lane Group              | 11.136.25.00        | PARTICIPATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PARTY OF THE P |

AM Peak 10/19/2010 Baseline Synchro 7 - Report Page 1

7/6/2012

|                                | 1      | -      | *     | 1     | -          | 4         | 1            | 1               | 1         | 1        | 1        | 1        |
|--------------------------------|--------|--------|-------|-------|------------|-----------|--------------|-----------------|-----------|----------|----------|----------|
| Manual Date (DA)               |        | X to E |       | N.    | 0.10       | HADE:     | 1000         | 150.55          |           | 9        |          |          |
| Lane Configurations            | 7      | +      | 7     | 7     | +          | 7         |              | 4               | . 7       |          | 4        |          |
| Volume (vph)                   | 49     | . 788  | 159   | 34.   | 919        | -51       | 191          | 35              | 54        | 85       | 20       | - 55     |
| Ideal Flow (vphpl)             | 1900   | 1900   | 1900  | 1900  | 1900       | 1900      | 1900         | 1900            | 1900      | 1900     | 1900     | 1900     |
| Total Lost time (s)            | 5.0    | 5.0    | - 5.0 | 5.0   | - 5.0      | 5.0       |              | 5.0             | -50       |          | 5.0      | 4.0      |
| Lane Util. Factor              | 1.00   | 1.00   | 1.00  | 1.00  | 1.00       | 1.00      |              | 1.00            | 1.00      |          | 1.00     | 1.00     |
| Free                           | 1,00   | 1.00   | 0.85  | 1.00  | 1.00       | 0.85      | SINE NA      | 1.00            | 0.85      | 19,1798  | 1,00     | 0.85     |
| Fit Protected                  | 0.95   | 1,00   | 1,00  | 0.95  | 1.00       | 1.00      |              | 0.96            | 1.00      |          | 0.96     | 1.00     |
| Satd. Flow (prot)              | 1770 - | 1863   | 1583  | 1770  | 1863       | 1583      |              | 1788            | 1583      |          | 1790     | 4580     |
| Fit Permitted                  | 0.95   | 1,00   | 1.00  | 0.95  | 1,00       | 1_00      |              | 0.56            | 1.00      |          | 0.44     | 1,00     |
| Satd. Flow (perm)              | 1770   | 1863   | 1583  | 1770  | -1863      | 1583      | 10 156       | 1035            | 1583      | 31.352.2 | 823      | 1583     |
| Peak-hour factor, PHF          | 0.96   | 0.96   | 0.96  | 0.97  | 0.97       | 0.97      | 0.91         | 0.91            | 0.91      | 0.61     | 0.61     | 0.6      |
| Adi: Flow (yph)                | 51     | 821    | 166   | 35    | 947        | 61        | 210          | 40.             |           | 139      | 33       | (3) N    |
| RTOR Reduction (vph)           | 0      | 0      | 28    | 0     | 0          | 9         | 0            | 0               | 42        | 0        | 0        |          |
| Lane Group Flow (vph)          | 51     | 821    | 138   | 35    | 947        | . 52      | 0            | 250             | 17        | 0        | 172      | 9        |
| Turn Type                      | Prot   | NA.    | Penn  | Prot  | NA.        | Perm      | Penn         | NA.             | Perm      | Perm     | NA       | Fre      |
| Protected Phases               | 7      | 4      |       | 3     | 8          | 4311      |              | 2               |           |          | 6        | W.E.     |
| Permitted Phases               |        |        | 4     |       |            | 8         | 2            |                 | 2         | 6        |          | Fre      |
| Actuated Green, G (s)          | 72     | 84.8   | 84.8  | 5.6   | 83.2       | 83.2      |              | 43.4            | 43.4      |          | 43.4     | 148      |
| Effective Green, g (s)         | 7.2    | 84.8   | 84.8  | 5.6   | 83.2       | 83.2      |              | 43.4            | 43.4      |          | 43.4     | 148.     |
| Actuated o/C Ratio             | 0.05   | 0.57   | 0.57  | 0.04  | 0.56       | 0.56      |              | 0.29            | 0.29      |          | 0.29     | 1.0      |
| Clearance Time (s)             | 5.0    | 5.0    | 5.0   | 5.0   | 5.0        | 5.0       |              | 5.0             | 5.0       |          | 5.0      |          |
| Venicle Extension (s)          | 3.0    | 3.0    | 3.0   | -3.0  | 3.0        | 3.0       | 18 P.O.S.    | 3.0             | 3.0       | 17/14/45 | 3.0      |          |
| Lane Grp Cap (vph)             | 86     | 1062   | 902   | 67    | 1042       | 885       |              | 302             | 462       |          | 240      | 158      |
| v/s Ratio Prot                 | 60.03  | 0.44   |       | 0.02  | c0.51      |           | 重罗的          | S. S. S. S.     | OHE !     | C. V.S.  | 10.000   | 495      |
| v/s Ratio Perm                 |        |        | 0.09  |       |            | 0.03      |              | c0.24           | 0.01      |          | 0.21     | 60.0     |
| vic Ratio                      | 0.59   | 0.77   | 0.15  | 0.52  | 0,91       | 0.06      |              | 0,63            | 0.04      |          | 0.72     | 900      |
| Uniform Delay, d1              | 69.4   | 24.6   | 15.1  | 70.3  | 29.4       | 15.0      |              | 49.2            | 37.7      |          | 47.2     | 0.       |
| Progression Factor             | 1.00   | 1,00   | 1.00  | 1.00  |            | 1.00      | ersans       | 1,00            | 1.00      |          | 100      |          |
| Incremental Delay, d2          | 10.5   | 3.6    | 0.1   | 7.2   | 11.3       | 0.0       | mark to come | 16.8            | 0.0       |          | 9.8      | 0.       |
| Delay (s)                      | 79.9   | 282    | 15.2  | 77.5  |            | 15.0      |              | 66.0            | 37,8      |          | 57.0     | 1000     |
| Level of Service               | 3      | C      | 8     | E     | D          | В         | admin a      | E               | D         |          | E        | SKEWE    |
| Approach Delay (3)             |        | . 28.6 |       |       | 40.5       | SHA       |              | 60,6            |           | 0450     |          | ROW      |
| Approach LOS                   |        | C      |       |       | D          |           |              | E               | iv-scus   | PE-260   | D        |          |
| SEATON SECTION SECTION         |        | 25344  |       |       | CHARLE     | ES##      | PER MISS     | Fachiy          |           | W. 10    | er ex di |          |
| HCM Average Control Delay      |        |        | 37.9  |       | ICM Leve   | of Servi  | CB           | private chartes | O CONTROL |          | LICHNOS  | 100000   |
| HCM Volume to Capacity rat     | to     |        | 0.87  |       | 13212      |           | 1092         | DE187           |           |          |          | N-COL    |
| Actuated Cycle Length (s)      |        |        | 148.8 |       | Sum of los |           |              | (E. 190)        | 15.0      |          |          | Joseph S |
| Intersection Capacity Utilizal | tion   |        | 75.8% | 0.794 | CU Level   | d Service | \$570 G      |                 | 160       |          | 1000     | 11.4500  |
| Analysis Period (min)          |        |        | 15    |       |            |           | or Bright    |                 |           |          | 1011000  |          |
| e Critical Lane Group          |        |        |       |       |            |           |              |                 |           |          |          | 1000     |

|  | -     | ₹    | 4           |          | -/     | 1          |                        |                       |           |
|--|-------|------|-------------|----------|--------|------------|------------------------|-----------------------|-----------|
|  | 4     |      | SHIES.      | 2000     | 486    | - APER     | SECURITIES NOT THE     |                       |           |
| Lane Configurations  | 4     |      |             | 4        | A      |            |                        |                       |           |
| Volume (veh/h)   | 803   | 5    | 39          | 727      | 1      | 94         |                        |                       |           |
| Sign Control   | Free  |      |             | Free     | Stop   |            |                        |                       |           |
| Grade  | 0%    |      |             | .0%      | 0%     |            |                        |                       |           |
| Peak Hour Factor   | 0,91  | 0,91 | 0.94        | 0,94     | 0,85   | 0.85       |                        |                       |           |
| Hourly flow rate (vph)<br>Pedestrians  | 882   | 5    | 41          | 773      | 1      | 111        |                        |                       |           |
| Lane Width (ft)<br>Walking Speed (ft/s)  |       |      |             |          |        |            |                        |                       |           |
| Percent Blockage   |       |      |             |          |        |            |                        |                       |           |
| Right turn flare (veh)   |       |      |             |          |        |            |                        |                       |           |
| Median type  | None  |      |             | None     |        |            |                        |                       |           |
| Median storage veh)  |       |      |             |          |        |            |                        |                       |           |
| Upstream signal (ft)   | 1175  |      |             |          |        |            |                        |                       |           |
| pX, platoon unblocked  |       |      | 0.60        |          | 0,60   | 0.60       |                        |                       |           |
| vC, conflicting volume   |       |      | 888         |          | 1742   | 885        |                        |                       |           |
| vC1, stage 1 conf vol  |       |      |             |          |        |            |                        |                       |           |
| vC2, stage 2 conf vol  |       |      |             |          |        |            |                        |                       |           |
| vCu, unblocked vol   |       |      | 484         |          | 1901   | 479        |                        |                       |           |
| tC, single (s)   |       |      | 4.1         |          | *5.4   | *5.2       |                        |                       |           |
| tC, 2 stage (s)  |       |      |             |          |        |            |                        |                       |           |
| tF (s):  |       |      | 2.2         |          | 3.5    | 3.3        |                        |                       |           |
| p0 queue free %  |       |      | 94          |          | 98     | 73         |                        |                       |           |
| cM capacity (veh/h)  |       | 13.9 | 650         | 100      | 73     | 405        |                        | 4                     | -         |
|  |       | SALE | <b>2000</b> | STATE OF |        |            |                        | <b>EXPERIMENT</b>     | SECTION 1 |
| Volume Total   | 888   | 815  | 112         |          |        |            |                        | State of the state of |           |
| Volume Left  | 0     | 41   | -300        |          |        |            | endireign ner          |                       |           |
| Volume Right   | 5     |      |             |          |        |            |                        |                       |           |
| cSH  | 1700  | 650  | 386         |          |        |            | Charles and the little |                       |           |
| Volume to Capacity   | 0.52  | 0.06 | 0.29        |          |        |            |                        |                       |           |
| Queue Length 95th (ft)   | 0     | 5    | 30          |          |        |            |                        |                       | Section 1 |
| Control Delay (s)  | 0.0   | 1.8  |             |          |        | 10.34      |                        |                       |           |
| Lane LOS   | -     | A    | C           |          |        |            |                        |                       |           |
| Approach Delay (s)   | 0.0   | 1.8  | C           | No.      |        |            | rain helf-enri         |                       |           |
| Year or negligible and   | 125   | GO e | NOTE OF     | V1785    | 61280  |            | TERRETAIN OF THE PARTY | 125011                | NO SE     |
| Average Delay  |       |      | 1.9         |          |        |            |                        |                       |           |
| Intersection Capacity Utilizatio   | 0 111 |      | 82.6%       | 10       | ULevel | of Service | 0                      | E                     |           |
| Analysis Period (min)  |       |      | 15          |          |        |            |                        |                       |           |
| THE RESERVE OF THE PARTY OF THE |       |      | 250         |          |        |            | Take to the second     |                       |           |
| * User Entered Value   |       |      |             |          |        |            |                        |                       |           |

Synchro 7 - Report Page 1 PM Peak 10/19/2010 Baseline

AM Peak 10/19/2010 Baseline

Synchro 7 - Report Page 3

HCM Unsignalized Intersection Capacity Analysis 9: Kaumualii & Nani

8 30 1010 Free 0% 0.95 0.99 0.99 8 30 1020 Lane Configurations
Volume (vehil)
Sign Control
Grade
Peak Hour Factor
Hourly flow rate (vph)
Pedestrans
Lane Width (If ye)
Waking Spead (If ye)
Percent Blockage
Pright tum flare (veh)
Median storage veh)
Upstream signal (If ye)
Median storage veh)
Upstream signal (If ye)
Volume Late
Volume Control
Volume Late
Volume Late
Volume Late
Volume Late
Volume Control
Volume Late
Vol 49 None 1175 2.2 95 577 3.3 82 350 Off Capacity (reight)

Volume Tatal

Volume Tatal

Volume Lett

0 0 0 3 6 5 Volume Lett

0 0 0 5 7 6 65 Volume Lett

0 0 0 3 6 5 65 Volume Lett

0 0 0 5 7 6 65 Volume Lett

Volume Lett

0 0 0 4 23 Contect Delay (8) 0.57 0.55 0.24 Contect Letty (8) 0.57 0.57 0.22 Contect Delay (8) 0.0 1.8 22.4 Late LOS

Approach Tollay (8) 0.0 1.8 22.4 Contect Delay (8) 0.0 1.8 22.4 Cont in the state of \$100.

1.6 87.3% ICU Level of Service 15

Average Delay Intersection Capacity Utilization Analysis Period (min) \* User Entered Value

HCM Signalized Intersection Capacity Analysis 6: Nuhou & Kaumualii

7/6/2012

|                                  | *                | -      | 7                      | 1   | <b>←</b>          | *          | 1            | 1                  | 1        | 1        | +                             | 4          |
|----------------------------------|------------------|--------|------------------------|---|-------------------|------------|--------------|--------------------|----------|----------|-------------------------------|------------|
|                                  | ELECTRIC SECTION | NA BE  | S 6980                 | West  | COLUMN TO SERVICE | ave v      |              | Till!              | (ALCO    |          | Single Property of the Parket |            |
| Lane Configurations              | 7                | 1      | 7                      | 7   | 4                 |            |              | 4                  |          | 40       | 4                             |            |
| Volume (vph)                     | 7                | 7.49   | 141                    | 156   | 698               | 154        | 57           | - 35               | 181      | -74      | 38                            | 1          |
| deal Flow (vphpl)                | 1900             | 1900   | 1900                   | 1900  | 1900              | 1900       | 1900         | 1900               | 1900     | 1900     | 1900                          | 190        |
| Total Lost time (s)              | 5.0              | 5.0    | 5.0                    | 5.0   | 5.0               |            |              | 5.0                | 5.0      |          | 5.0                           | HAT        |
| Lane Util, Factor                | 1.00             | 1.00   | 1.00                   | 1.00  | 1.00              |            |              | 1.00               | 1.00     | THENDRE  | 1,00                          |            |
| Entropy Selection (Co.)          | 1.00             | 1:00   | 0.85                   | 1,00  | 0,97              |            |              | 1.00               | 0.85     |          | 1.00                          | Ja - 200   |
| Fit Protected                    | 0.95             | 1.00   | 1,00                   | 0.95  | 1,00              |            |              | 0.97               | 1.00     |          | 0.97                          |            |
| Satd: Flow (prof)                | 1770             | 1863   | 1583                   | 1770  | 1812              |            |              | 1803               | 1583     |          | 1801                          |            |
| Fit Permitted                    | 0.95             | 1.00   | 1,00                   | 0.95  | 1.00              |            |              | 0.71               | 1,00     |          | 0.62                          |            |
| Satd Flow (perm)                 | 1770             | 1863   | 1583                   | .1770   | 1812              | name.      | 35E-12       | 1323               | 1583     | W.500.5  | 1147                          | Janes.     |
| Peak-hour factor, PHF            | 0.91             | 0.91   | 0.91                   | 0.88  | 6.88              | 0.88       | 0.71         | 0.71               | 0.71     | 0.58     | 0.58                          | 0.5        |
| Adj. Flow (xph)                  | 8                | 823    | 155                    | 177   | 793               | 175        | 94           | 49                 | 255      | 128      | 杨                             | 380        |
| RTOR Reduction (vph)             | 0                | 0      | 26                     | 0   | 4                 | 0          | 0            | 0                  | 199      | 0        | 0                             |            |
| Lane Group Flow (vph)            | 8                | 823    | 129                    | 177   | 964               | . 0        | . 0          | 143                | - 56     | 0        | 195                           | 21-20      |
| Turn Type                        | Prot             | NA.    | Perm                   | Prot  | NA.               | -          | Perm         | NA:                | Perm     | Perm     | NA.                           |            |
| Professed Phases                 | Liberty          | 4      | 200                    | 3   | 8                 | 7 (4-1)    |              | 2                  |          |          | 6                             |            |
| Permitted Phases                 | 40.0             |        | 4                      |   |                   |            | 2            |                    | 2        | 6        |                               |            |
| Actuated Green, G (s)            | SOUTH B          | 72.9   | 72.9                   | 19.5  | 90.6              | W21.1      |              | 30.2               | 30.2     |          | 30,2                          |            |
| Effective Green, g (s)           | 1.8              | 72.9   | 72.9                   | 19.5  | 90.6              |            |              | 30.2               | 30.2     |          | 30.2                          |            |
| Actualed a C Ratio               | 0.01             | 0.53   |                        | 0.14  | 0.66              | 13211      |              | 0.22               | 0.22     |          | 0.22                          |            |
| Clearance Time (s)               | 5.0              | 5.0    | 5.0                    | 5.0   | 5.0               |            |              | 5.0                | 5.0      |          | 5.0                           |            |
| Vehicle Extension is             | 3.0              | 3.0    | 3.0                    | 3.0   | 3.0               | 1          | visit house  | 3.0                | 3.0      |          | 30                            |            |
| Lane Grp Cap (vph)               | 23               | 987    | 839                    | 251   | 1193              |            |              | 290                | 347      |          | 252                           | DOS.       |
| vis Ratio Prot                   | 0.00             | 0.44   |                        | c0.10   | 20.53             |            | 5064/309     | C12-015            | 80.0PK2  | 2005     | H1396                         | \$930      |
| vis Ratio Perm                   | A D CANADA       |        | 0.08                   | and a   |                   |            |              | 0.11               | 0.04     |          | c0.17                         |            |
| vic Patie                        | 0.35             | 0.83   | 0.15                   | 0.71  | 0.81              | 30         | 1000         | 0.49               | 0.16     | F(41)3   | 0.78                          |            |
| Uniform Delay, d1                | 67.3             | 27.2   | 16.6                   | 56.3  | 17.2              |            | Harrier.     | 47.0               | 43.5     |          | 50.5                          | VU         |
| Progression Fector               | 1.00             | 1.00   | 1.00                   | 1.00  | 1.00              | SHOW SHIP  |              | 1.00               | 1200     | STATE OF | F.00                          |            |
| Incremental Delay, d2            | 8.9              | 6.2    | 0.1                    | 8.7   | 4.1               |            | Spinette s   | 1.3                | 0.2      |          | 14.0                          |            |
|                                  | 762              | 334    | 16.6                   | 65.0  | 213               | - Table    | 2000         | 48.3               | 43.7     |          | 645                           | Kes        |
| Dosty (s)                        |                  | -014   | 8                      | E   | r. ette           | WASH.      | and the same | D                  | D        | MODELL . | E                             | -          |
| Level of Service                 | Ε                | P-31.1 | 100                    | CONTRACTOR OF THE PARTY OF THE | 28.0              | #12500/ED  | SSMAGE       | 45.3               | 0.0000   |          | S-A480                        | 2500       |
| Approach Delay (s). Approach LOS | 120 (NS)         | C      | Service Annual Control | and the   | C                 | and the co | 20000000     | D                  | 4, 334,0 |          | E                             | 17700      |
| STEEL CONTRACTOR                 | S/10/25          | 10.89± | MIN                    | NAME OF   | ICM Leve          | E SUS      | 01200        | 18026              | C        | No.      | NO.                           | 99         |
| HCM Average Control Deli         | ly               | -      | 34.3                   | and the   | IUM Lew           | N OF Serv  | AND STATE OF | metrus.            | neisuon  | #GE TO 0 | CHIMES                        | esses      |
| HCM Volume to Capacity r         | 350 y            | 900    | 0.81                   | 20.00   | SEC. 12.05        | 51-17-50   | O. Wilder    | HH(C)              | 15.0     | 25-76-0  | CATTERNO                      | 1120       |
| Actuated Cycle Length (s)        |                  |        | 137.6                  |   | ium of lo         |            |              | COMPANIES NAMED IN | 13.0     |          | SHARE                         | ruthrick f |

| HCM Average Control Delay<br>HCM Volume to Capacity ratio      | 34.3  | HCM Level of Service   |
|--|-------|--|
| Actuated Cycle Length (s)<br>Intersection Capacity Utilization | 137.6 | Sum of lost time (s) 15.0 ICU Level of Service D   |
| Analysis Period (min)  | 15    | COLUMN DECEMBER 1980 (1980) COLUMN CO |
| c. Criscal Lane Group  |       |  |

E

12/3/2010

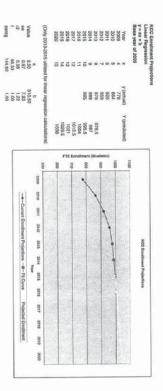
HCM Signalized Intersection Capacity Analysis

|  | *                                    | -          | 7       | 1          | -          | 1          | 1               | 1              | 1                         | 1                | ţ        | 4         |
|--|--------------------------------------|------------|---------|------------|------------|------------|-----------------|----------------|---------------------------|------------------|----------|-----------|
| West Control                                     | 調整接換                                 |            | (EWO)   | W3 5       | F112276    |            | 34 2 m          | No.            | all the                   |                  | P. DIE   |           |
| Lane Configurations                              | 7                                    | +          | 14      | 7          | P          | all and    | Male:           | 4              |                           | -                | 4        | 13        |
| Volume (vph)                                     | 9                                    | 840        | 119     | 48         | 844        | 65         | 1.83            | 26             | 76                        | 75               |          |           |
| Ideal Flow (vphpl)                               | 1900                                 | 1900       | 1900    | 1900       | 1900       | 1900       | 1900            | 1900           | 1900                      | 1900             | 1900     | 1900      |
| Total Lost time (s)                              | 5.0                                  | 5.0        | 5.0     | 5.0        | 5.0        |            |                 |                | 5.0                       |                  | 5.0      | 0.200     |
| Lane Util. Factor                                | 1.00                                 | 1.00       | 1,00    | 1.00       | 1.00       |            |                 | 1.00           | 1.00                      |                  | 1.00     | w Charles |
| Fd In committee Assessment                       | 1.00                                 | 1.00       | 0.85    | 1.00       | 0.99       |            |                 | 1.00           | 0.85                      | - 15             | 0.98     | DAR IS    |
| Fit Protected                                    | 0.95                                 | 1.00       | 1.00    | 0.95       | 1.00       |            |                 | 0.96           | 1.00                      |                  | 0.97     |           |
| Satd, Flow (prot)                                | 1770                                 | 1863       | 1583    | 1770       | 1843       |            |                 | 1785           | 1583                      |                  | 1776     |           |
| Fit Permitted                                    | 0.95                                 | 1.00       | 1.00    | 0.95       | 1.00       |            |                 | 0.67           | 1.00                      |                  | 0.50     |           |
| Satd. Flow (perm)                                | 1770                                 | 1863       | 1583    | 1770       | 1843       | 0.487.5    | 1 Was           | 1249           | 1583                      | Section 2        | 920      | (A)       |
| Peak-hour factor, PHF                            | 0.95                                 | 0.95       | 0.95    | 0.96       | 0.96       | 0.96       | 0.91            | 0.91           | 0.91                      | 0.84             | 0.84     | 0.8       |
| Adj. Flow (vph)                                  | 1 9                                  | 884        | 125     | 50         | 879        | 68         | 201             | 29             | 84                        | 39.              | 31       | 1         |
| RTOR Reduction (vph)                             | 0                                    | 0          | 21      | 0          | 2          | 0          | . 0             | 0              | 63                        | 0                | 2        |           |
| Lane Group Flow (vph)                            | 9                                    | 884        | 104     | 50         | 945        | -0         | . 0             | 230            | 21                        | 0                | 133      | 2.00      |
| Turn Type  | Prol                                 | NA         | Perm    | Prot       | NA.        |            | Perm            | NA.            | Perm                      | Perm             | NA.      |           |
| Protected Phases                                 | 200000                               | 4          |         | 3          | . 8        | 3-869      | 7. SE           | F. 72          |                           |                  | . 6      |           |
| Permitted Phases                                 | account.                             |            | 4       |            |            |            | 2               |                | 2                         | 6                |          |           |
| Actuated Green, G (s)                            | 1.5                                  | 70.8       | 70.8    | 6.7        | 76.0       |            |                 | 31.2           | 31,2                      |                  | 31.2     |           |
| Effective Green, g (s)                           | 1.5                                  | 70.8       | 70.8    | 5.7        | 76.0       |            | 1000            | 31.2           | 31.2                      |                  | 31.2     |           |
| Actuated of C Ratio                              |                                      | 0.57       | 0.57    | 0.05       |            |            |                 | 0.25           | 0.25                      |                  | 0.25     |           |
| Clearance Time (s)                               | 5.0                                  | 5.0        | 5.0     | 5.0        | 5.0        |            |                 | 5.0            | 5.0                       |                  | 5.0      |           |
|  | 3.0                                  | 30         | 3.0     | 30         | 3.0        |            |                 | 3.0            | 3.0                       |                  | 3.0      |           |
| Vehicle Extension (s)                            |                                      | 1066       | 906     | 56         | 1132       | -          |                 | 315            | 399                       |                  | 232      |           |
| Lane Grp Cap (vph)                               | 21                                   | 0.47       |         | c0.03      | 60.51      | 41000      |                 | 10000          | 12555                     |                  |          | .04       |
| ws Ratio Prot                                    | 0.01                                 | 9.47       | 0.07    | 00,00      | 1,00,01    |            |                 | c0.16          | 0.01                      |                  | 0.14     | *****     |
| vis Ratio Perm                                   | 0.157250                             |            |         |            | 0.84       |            | ALC: N          | 0.73           | 3.05                      |                  |          | 14/2      |
| vic Ratio  | 0.43                                 | 0.83       | 0.12    | 0.52       | 18.9       |            |                 | 42.4           | 35.1                      | DIM TO           | 40.4     |           |
| Uniform Delay, d1                                | 60.7                                 | 21.5       | 12.1    | 56.9       | 1:00       |            |                 | 1.00           | 1.00                      |                  |          |           |
| Progression Eactor                               | 100                                  | 1.00       | 1,00    | 1.00       |            | B10000     |                 | 8.4            | 0.1                       | MINE THE         | 3.4      |           |
| Incremental Delay, d2                            | 13.4                                 | 5.5        | 0.1     | 5.0        | 5.5        |            | STOCK OF        | 50.8           | 35.1                      |                  | 43.8     | dicto     |
| Delay (s)  | 1274                                 | 27,0       |         | 62.0       | 24.4       | をはない       | <b>Philip</b>   | D              | D                         |                  | D        |           |
| Level of Service                                 | E                                    | C          | В       | E          | C          | na biotemp | time.           | 46.6           | 4.0e0an                   | Caterior Section |          | 25000     |
| Approach Delay (s)                               |                                      | 25,6       | 23592   | 15 pg      | 26.2       | SPASSED.   | -               |                |                           | MANAGE.          | D        | N-H-PRIN  |
| Approach LOS                                     |                                      | C          |         |            | C          |            |                 | D              |                           |                  |          | 30-9      |
| COMMUNICATION OF THE PERSON NAMED OF             | WIGHTSON !                           | NOT HELD   | 0.07659 | SECTION .  | S2-25 (47  | TOWNS IN   | TH 2018         | BESTER         | APPLICATION OF THE PARTY. |                  |          | 200       |
| HCM Average Control Delic                        | Name and Address of the Owner, where | No.        | 29.5    |            | ICM Leve   | of Servi   | ce              |                | C                         |                  |          |           |
| HCM Volume to Capacity 7                         |                                      | COCUSED    | 0.81    | 2025 89    | 925652     | 8715355    | STREET, STREET, | 27012          | ZHE SEX                   |                  |          |           |
| Actuated Cycle Length (s)                        | BOX STORY                            | the of the | 123.7   | Der Little | Sum of lot | d time (s) | W-98-20-20      | Contraction of |                           |                  |          |           |
| Intersection Capacity Utiliz                     | 1902-10-0                            |            | HZ10780 |            | CU Cavel   |            |                 | SHOW !         | Sin C                     |                  |          | 1         |
| Analysis Period (min)                            | #199.763/G                           | CARAGOS.   | 15      | 200        | KA-92438   | Mindel Th  | -               | Transfer or .  |                           |                  |          |           |
| Analysis Period (min)<br>c - Critical Lane Group |                                      |            | 10      |            | Limiter    | -          | -               | mann of        | and the                   | 4343616          | \$65.96E |           |

PM Peak 10/19/2010 Baseline

ro 7 - Repo

# APPENDIX D KCC ENROLLMENT PROJECTIONS



# ENROLLMENT PROJECTIONS UNIVERSITY OF HAWAI'I FALL 2010 TO FALL 2015

Institutional Research Office University of Hawai'i July 2010

File Reference: Management and Planning Support, Projections

Report available at: http://www.hawaii.edu/iro

#### APPENDIX E

CAPACITY ANALYSIS CALCULATIONS PROJECTED YEAR 2020 PEAK HOUR TRAFFIC ANALYSIS WITHOUT PROJECT

#### UH AT HILO UH COMMUNITY COLLEGES. UH-WEST O'AHU. UH SYSTEM TOTAL Leeward Community College . Kaua'i Community College Honolulu Community College dawai'i Community College ... olani Community College 16,326 3,453 730 18,479 2,071 2,571 5,035 778 4,339 2,419 38,988 2009 16,498 3,865 815 19,662 2,324 2,688 5,282 5,282 4,334 4,334 1,465 40,640 2010 41,947 16,658 2011 3,773 904 43,047 21,336 16,802 1,059 3,850 2012 2,606 43,862 16,914 1,193 3,926 2013 17,007 44,386 2,728 1,305 3,988 2014 17,072 4,045 1,400 22,153 2,737 3,057 5,790 995 4,656 3,202 44,670

TABLE 6
FULL-TIME EQUIVALENT COURSE ENROLLMENT SERVED BY CAMPUS
UNIVERSITY OF HAWAI'I
FALL 2009 TO FALL 2015

|                                | *  | -      | *        | 1      | 4-        | *           | 1         | 1       | 1                   | 1       | ļ        | 1     |
|--------------------------------|--|--------|----------|--------|-----------|-------------|-----------|---------|---------------------|---------|----------|-------|
| VINESTRATION STATES            | Description of the last of the | SIEUDI | (B.175)  | STATE  | SHOW.     | NESS.       | 1815.S    |         | W 32                | ORF.    |          | SINS  |
| Lane Configurations            | 7  | 44     | 7        | 7      | 11        | 1           |           | 4       |                     |         | 4        |       |
| Volume (vph)                   | 142  | 760    | 94       | 71     | 557       | 127         | 129       | 52      |                     | 35      | 30       | 55    |
| Ideal Flow (vphpl)             | 1900   | 1900   | 1900     | 1900   | 1900      | 1900        | 1900      | 1900    | 1900                | 1900    | 1900     | 1900  |
| Total Lost time (s)            | 5.0  | 5.0    | 5.0      | 5.0    | 5.0       | 5.0         |           |         | 5.0                 |         | 5.0      | 5.0   |
| Lane Util, Factor              | 1.00   | 0.95   | 1.00     | 1.00   | 0.95      | 1.00        |           | 1.00    | 1.00                |         | 1,00     | 1,00  |
| Fit                            | 1,00   | 1.00   | 0.85     | 1.00   | 1.00      | 0.85        |           |         | 0.85                |         | 1.00     | 0.85  |
| Fit Protected                  | 0.95   | 1.00   | 1.00     | 0.95   | 1.00      | 1,00        |           | 0.97    | 1.00                |         | 0.97     | 1.00  |
| Satd. Flow (prot)              | 1770   | 3539   | 1583     | 1770   | 3539      | 1583        |           | 1799    | 1583                |         | 1814     | 1583  |
| Fit Permitted                  | 0.95   | 1.00   | 1.00     | 0.95   | 1,00      | 1.00        |           | 0.72    | 1.00                |         | 0.75     | 1.00  |
| Satd. Flow (perm)              | 1770   | 3539   | 1583     | 1770   | 3539      | 1583        | 180       | 1338    | 1583                | MERSIS. | 1405     | 1583  |
| Peak-hour factor, PHF          | 0.94   | 0.94   | 0.94     | 0.93   | 0.93      | 0.93        | 0.92      | 0.92    | 0.92                | 0.57    | 0.57     | 0.57  |
| Adl. Flow (voh)                | 151  | 809    | 100      | 76     | 599       | = 137       | 140       | 57      | 53                  | 61      | 53       | 96    |
| RTOR Reduction (vph)           | 0  | 0      | 49       | 0      | 0         | 90          | 0         | 0       | 40                  | 0       | 0        | 72    |
| Lane Group Flow (vph)          | 151  | 809    | 51       | 76     | 599       | 47          | 200       | 197     | 13                  | 0       | 114      | 24    |
| Tum Type                       | Prot   | NA.    | Perm     | Prot   | NA        | Perm        | Perm      | NA.     | Perm                | Perm    | NA.      | Perm  |
| Protected Phases               | . 7  | 4      |          | 73     | 8         |             |           | 2       |                     |         | 6        |       |
| Permitted Phases               |  |        | 4        |        |           | 8           | 2         |         | 2                   | - 6     |          | 6     |
| Actuated Green, G (s)          | 11.9   | 27.0   | 27.0     | 7.1    | 22.2      | 22.2        |           | 16.2    | 16.2                |         | 16.2     | 162   |
| Effective Green, g (s)         | 11.9   | 27.0   | 27.0     | 7.1    | 22.2      | 22.2        |           | 16.2    | 16.2                |         | 16.2     | 15.2  |
| Actuated g/C Ratio             | 0.18   | 0.41   | 0.41     | 0.11   | 0.34      | 0.34        |           | 0.25    | 0.25                |         | 0.25     | 0.25  |
| Clearance Time (s)             | 5.0  | 5.0    | 5.0      | 5.0    | 5.0       | 5.0         |           | 5.0     | 5.0                 |         | 5.0      | 5.0   |
| Vehicle Extension (s)          | 3.0  | 3.0    | 3.0      | 3.0    | 3.0       | 3.0         | Siessa.   | 3.0     | 3.0                 |         | 3.0      |       |
| Lane Grp Cap (vph)             | 323  | 1463   | 655      | 192    | 1203      | 538         | trong on  | 332     | 393                 |         | 349      | 393   |
| ws Ratio Prot                  | c0.09  | c0.23  |          | 0.04   | 0.17      |             |           |         |                     |         | 3000     | 2000  |
| v/s Ratio Perm                 |  |        | 0.03     |        |           | 0.03        |           | c0.15   | 0.01                |         | 0.08     | 0.02  |
| wc Ratio                       | 0.47   | 0.55   | 0.08     | 0.40   | 0.50      | 0.09        | 他施证       | 0.59    | 0.03                |         | 0.33     | 0.06  |
| Uniform Delay, d1              | 23.9   | 14.6   | 11.6     | 27.1   | 17.1      | 14.7        |           | 21.6    | 18.6                |         | 20.1     | 18.7  |
| Progression Factor             | 1.00   | 1.00   | 1.00     | 1.00   | 1,00      | 1.00        |           | 1.00    | 1.00                |         | 1.00     | 1.00  |
| Incremental Delay, d2          | 1.1  | 0.5    | 0.1      | 1.3    | 0.3       | 0.1         |           | 2.8     | 0.0                 |         | 0.5      | 0.1   |
| Delay(s)                       | 24.9   | 15.0   | 11.7     | 28.4   | 17.4      | 14.7        | person,   | 24.5    | 18.6                |         | 20.6     | 188   |
| Level of Service               | C  | В      | 8        | C      | 8         | В           |           | C       | В                   |         | C        | B     |
| Approach Delay (s)             |  | 16.1   | 15000    |        | 18.0      | 1500        |           | 232     |                     |         | 19.8     |       |
| Approach LOS                   |  | 8      |          |        | В         |             |           | C       |                     |         | 8        |       |
| THE SHARE SHOWING              |  |        | Sphares. | 1000   |           | 2878E       | N 50 0    | DARKS.  |                     |         | RHS56    |       |
| HCM Average Control Delay      | 1  |        | 17.9     |        | CM Leve   | of Servi    | 00        | - 50.00 | 8                   | 5115329 | 8.000.60 | never |
| HCM Volume to Capacity ray     | tio .  |        | 0.58     | 111111 | RUS (F)   |             | ALC: NO   |         | 15.0                | 270.184 | -000     | Carre |
| Actuated Cycle Length (s)      |  |        | 65.3     |        | um of los |             |           |         | 15.0                | week    | W. 75045 | REAL  |
| Intersection Capacity Utilizal | Sino"  |        | 54.0%    |        | CU Level- |             |           |         | Positidi <b>A</b> 3 |         |          |       |
| Analysis Period (min)          |  |        | 15       |        | Spirit of | or or other | Section 1 |         |                     | 245.00  |          |       |

|                           | *                   | $\rightarrow$ | *           | 1         | <b>←</b>   | *                | 1         | 1       | 1         | 1            | ţ            | 1       |
|---------------------------|---------------------|---------------|-------------|-----------|------------|------------------|-----------|---------|-----------|--------------|--------------|---------|
| ANTERNOON TO THE          | SEREN PE            | (等為16)        | 200         | (WBS      | TIES !     | W.L.             | LA BE     |         | HERE      |              | WEEKS.       |         |
| Lane Configurations       | 7                   | 11            |             | . 1       | 11         | - L              | mark-u    | 4       | 54        | 85           | 4            | 60      |
| Volume (vph)              | 52                  | 827           | 159         | 34        | 965        | 59               | 191       | 36      | 1900      | 1900         | 1900         | 1900    |
| ideal Flow (vphpl)        | 1900                | 1900          | 1900        | 1900      | 1900       | 1900             | 1900      | 1900    | 1900      | 1900         | 5.0          |         |
| Total Lost time (s)       | 5.0                 | 5.0           | 5.0         | 5.0       | 5.0        | 5.0              | 1000      |         |           | Design       | 1.00         | 1.00    |
| Lane Util. Factor         | 1.00                | 0.95          | 1.00        | 1.00      | 0.95       | 1.00             |           | 1.00    | 1.00      |              | 1.00         | 0.85    |
| Prince of the land        | 1,00                | 0.1,00        | 0.85        | 1.00      | 100        | 0.85             | 日本が       | 1.00    | 0.85      | A 10000      |              | 1.00    |
| Fit Protected             | 0.95                | 1.00          | 1.00        | 0.95      | 1.00       | 1.00             |           | 0.96    | 1.00      |              | 0.96         | 1583    |
| Sand, Flow (prot)         | 1770                | 3539          | 1583        | 1770      | 3539       | 1583             |           | 1788    | 1583      | String.      | 1790         |         |
| Fit Permitted             | 0.95                | 1.00          | 1.00        | 0.95      | 1.00       | 1.00             | ALL COMMO | 0.64    | 1,00      | at a company | 0.53         | 1,00    |
| Sand Flow (penn)          | 1770                | 3539          | 1583        | 1770      | 3539       | 1583             | SAN DE    | 1185    | 1583      | Writes       | 987          | -1583   |
| Peak-hour factor, PHF     | 0.96                | 0.96          | 0.96        | 0.97      | 0.97       | 0.97             | 0.91      | 0.91    | 0.91      | 0.61         | 0.61         | 0.61    |
| Add Flow (vph)            | 54                  | 861           | 166         | 35        | 995        | 61               | 210       | 40      | 59        | 139          | 33           | 95      |
| RTCR Reduction (vph)      | 0                   | 0             | 75          | 0         | 0          | 24               | 0         | 0       | 40        | 0            | 0            | 66      |
| Lane Group Flow (vph)     | 54                  | 861           | 33 Miles    | 35        | 995        | 37               | 0         | 250     | 19        |              | 172          | 32      |
| Turn Type                 | Prot                | NA.           | Perm        | Prot      | NA:        | Perm             | Perm      | NA.     | Perm      | Permi        | NA.          | Pern    |
| Protected Phases          | MERCHEN             | 200542        | STATE OF    | 500530    | 1          |                  |           | 2       |           |              | 6            |         |
| Permitted Phases          | AND ACT OF          | -             | 4           |           |            | 8                | 2         |         | 2         | - 6          |              | - 1     |
| Actuated Green, G (s)     | 5205420             | 33.5          | 33.3        | 29        | 32.0       | 32.0             |           | 24.6    | 24.6      |              | 24.6         | 24.6    |
| Effective Green, g (s)    | 4.2                 | 33.3          | 33.3        | 2.9       | 32.0       | 32.0             |           | 24.6    | 24.6      |              | 24.6         | 24.8    |
| Actuated n/G Ratio        | 0.06                | 0.44          | 0.44        | 0.04      | 0.42       | 0.42             |           | 0.32    | 0.32      |              | 0.32         | 0.3     |
| Clearance Time (s)        | 5.0                 | 5.0           | 5.0         | 5.0       | 5.0        | 5.0              |           | 5.0     | 5.0       |              | 5.0          | 5.6     |
| Vehicle Extension (s)     | 53.0                | 3.0           | 00307       | 3.0       | 3.0        | 30               |           | 3.0     | 3.0       | 100          | 3.0          | 30      |
| Lane Gro Cap (vph)        | 98                  | 1555          | 695         | 68        | 1494       | 668              | NELTON O  | 385     | 514       |              | 320          | 51-     |
| vs Bato Piot              | 60.03               | 0.24          | oragene     | 0.02      | 100.28     | 90,75645         | 100000    | NAME OF |           | 9666         | 20 TH        | 8(23)   |
| v/s Ratio Perm            | Transfer C          | ST SHAPE      | 0.06        | Lineson.  | - CONTRACT | 0.02             |           | c0.21   | 0.01      |              | 0.17         | 0.0     |
| WoRatio Perm              | 0.55                | 0.55          | 0.13        | 0.51      | 0.67       | 0.06             | Market.   | 1 0.65  | 0.04      |              | 0.54         | 0.0     |
| Uniform Delay, d1         | 34.9                | 15.7          | 12.6        | 35.8      | 17.6       | 13.0             |           | 21.9    | 17.5      |              | 20.9         | 173     |
| Progression Factor        | 1.00                | 3.00          |             | 1.00      | 1,00       | 1.00             |           | 1.00    | 1.00      |              | 1,00         | 1.0     |
| Incremental Delay, d2     | 6.6                 | 0.4           | 0.1         | 6.4       | 1.1        | 0.0              |           | 3.8     | 0.0       | 101200       | 1.7          | 0.      |
|                           | 414                 | 162           | 31270       | 422       | 0987       | 130              | E-255.2   | 25.7    | 175       |              | 22.7         | 17.     |
| Delay (s) Service         | D                   | B.            | B           | D         | B          | В                |           | C       | В         |              | C            |         |
|                           | Trum contents       | 16.9          | ericzniczen | areadas   | 192        | UNITED S         |           | 24.1    | 1.00      | E STANIS     | 20.9         | Reside. |
| Approach LOS              | Server Colonial Co. | B             | 0.349494    | ar series | В          | Mark of the last | raneo, vi | C       |           |              | C            |         |
| GENERAL 1869              | PERO!               | OF SE         | Miles III   | 69/8/8    |            | 100              | 968       | ned)    | Texas.    | 3327         |              |         |
| HCM Average Control Dela  | ty                  |               | 19.0        |           | ICM Leve   | I of Servi       | CB        | *****   | B         | HE-1256      | 7525 AV 50   | and V   |
| HCM Volume to Capacity is | atio                |               | 0.65        | 0.73090   | ACADEM.    | THE STATE OF     | SALV.     | THY I   | 15.0      | 10.000       | BIL 1501.197 | green.  |
| Actuated Cycle Length (s) |                     |               | 75.8        |           | Sum of los | t time (s)       |           |         | 15.0<br>B | a least week | -            | -       |

↑1> 839 Free 0% 0.91 922

1175

0 1700 0.36 0 0.0

0.0

0.91 0.94 5 41

0.90 927 690 4.1

2.2 95 808

0 808 0.05 4 9.7 A 0,5 1700 0.18 0 0.0

0,9 42.6% 15

0 1700 0.24 0 0.0 0 1700 0.24 0 0.0

V + 4

754 Free 0% 0.94 802

1226 6.8 173 6.9

3.3 85 754 3.5 99 145

1 111 722 0,15 14 16.9 B 10.9

ICU Level of Service

94 Stop 0% 0.85 0.85 111

Lane Configurations
Lane Configurations
Volume (vehih)
Sign Control Grade
Grade Teach Peak Horn Fator
Houly flow rate (vph)
Pedestrians
Lane Configuration States
Walking Sead (file)
Percent Blockape
Hight tum Bras (veh)
Median Storage wh)
Upstream signal (fil)
Median type
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Volume Lea
Lo
Caprosob Delay (fil)
Lane Lo
Caprosob (fil)
Approach Lo
S

HCM Unsignalized Intersection Capacity Analysis

| 9: Kaumualii & Nani | 9: Kai | ımualii | & | Nani |
|---------------------|--------|---------|---|------|
|---------------------|--------|---------|---|------|

|   |                | *        | 1     | 4-            | 4         | 1         |           |       |              |       |          |         |              |
|---|----------------|----------|-------|---------------|-----------|-----------|-----------|-------|--------------|-------|----------|---------|--------------|
|   | STREET,        | SEL SE   | BW215 | 25/4/2        |           | 124       | 2000      | 833   |              | 186   | 109E     |         |              |
| Lane Configurations                               | <b>1</b>       | -        | 7     | **            | A         |           |           |       |              |       |          |         |              |
| Volume (veh/h)                                    | 958            | 8        | 30    | 1056          | 2         | 49        |           |       |              |       |          |         |              |
| Sign Control                                      | Free           |          |       | Free          | Stop      |           |           |       |              |       |          |         |              |
| Grade -   | 0%             |          |       | 0%            | 0%        | 0.70      |           |       |              |       |          |         |              |
| Peak Hour Factor                                  | 0.95           | 0.95     | 0,99  | 0.99          | 0.78      | 0.78      |           |       |              |       |          |         |              |
| Hourly flow rate (viph)<br>Pedestrians            | 1008           | 8        | 30    | 1067          | 3         | 63        |           |       |              |       |          |         |              |
| Lane Width (ft)                                   |                |          |       |               |           |           |           |       |              |       |          |         |              |
| Walking Speed (ft/s)                              |                |          |       |               |           |           |           |       |              |       |          |         |              |
| Percent Blockage                                  |                |          |       |               |           |           |           |       |              |       |          |         |              |
| Right turn flare (veh)<br>Median type             | None           |          |       | None          |           |           |           |       |              |       |          |         |              |
| Median storage veh)                               | None           |          |       | recite        |           |           |           |       |              |       |          |         |              |
| Upstream signal (ft)                              | 1175           |          |       |               |           |           |           |       |              |       |          |         |              |
| pX, platoon unblocked                             | 1110           |          | 0.88  |               | 0.88      | 0.88      |           |       |              |       |          |         |              |
| vC, conflicting volume                            |                |          | 1017  |               | 1607      | 508       |           |       |              |       |          |         |              |
| vC1, stage 1 conf vol                             |                |          |       |               |           |           |           |       |              |       |          |         |              |
| vC2, stage 2 conf vol                             |                |          |       |               |           |           |           |       |              |       |          |         |              |
| vCu, unblocked vol                                |                |          | 743   |               | 1414      | 164       |           |       |              |       |          |         |              |
| tC, single (s)                                    |                |          | 4.1   |               | 6.8       | 6.9       |           |       |              |       |          |         |              |
| IC, 2 stage (s)                                   |                |          |       |               |           |           |           |       |              |       |          |         |              |
| tF(s)   |                |          | 2.2   |               | 3.5       | 3.3       |           | . 1   |              |       |          |         |              |
| p0 queue free %                                   |                |          | 96    |               | 98        | 92        |           |       |              |       |          |         |              |
| cM capacity (vehich)                              |                |          | 756   |               | 108       | 748       |           |       | 1000         |       | 500      | Pin's   |              |
|   |                | 345      | 30    | 533           | 533       | 65        | 902       |       |              |       |          |         | 6500         |
| Volume Total<br>Volume Left                       | 672            |          | 30    | 0             | 233       | 3         |           |       |              |       |          |         |              |
|   | 0              | 0        | 30    | 0             | - 0       | 63        |           |       |              |       |          |         |              |
| Volume Right                                      | 1700           | 1700     | 756   | 1700          | 1700      | 608       |           |       |              |       |          |         |              |
| Volume to Capacity                                | 0.40           | 0.20     | 0.04  | 0.31          | 0.31      | 0.11      |           |       |              |       |          |         |              |
| Queue Length 95th (ft)                            | 0.40           | 0.20     | 3     | 0.31          | 0         | 0         |           |       |              |       |          |         |              |
| Control Delay (s)                                 | - 0.0          | 0.0      | 10.0  | 0.0           | 0.0       | 150       |           | 478   |              | à.    |          | 100     |              |
| Lane LOS  | 0.0            | 0,0      | A     | 9.0           | 0.9       | 8         | 4411      | 1.74  |              | 180   |          |         |              |
| Approach Delay (s)                                | 0.0            | 3 T      | 0.3   | 100           | V. of the | 11.6      |           |       | 445803       | ii to | dian     |         | S. Papie     |
| Approach LOS                                      | 4.4            |          | 100   |               |           | В         |           | 1100  |              |       |          | 7-7-1   |              |
| DESCRIPTION OF THE PERSON NAMED IN COLUMN         | SCHOOL SECTION | CHICAGO. | unist | SERVICE SALES | COLUMN    | GATE OF   | SECON     | MERCE | TISSIS       | anne  | STREET,  | 10000   | 9000         |
| Average Delay                                     |                | 100000   | 0.5   |               | BROOK TO  | S15- 20   | 100000    | -     | the later of |       | Station? | and the | and the last |
| Average Delay<br>Intersection Capacity Littizatio |                |          | 39.2% | 10            | U Level o | y Sanin   | Section 1 |       |              | A     |          |         |              |
| Analysis Period (min)                             | MI.            |          | 15    | 16            | - LOVE    | - College |           |       |              |       |          |         |              |
|   |                |          |       |               |           |           |           |       |              |       |          |         |              |

AM Peak 10/19/2010 Year 2020 w/out project

Average Delay intersection Capacity Utilization Analysis Period (min)

Synchro 7 - Report Page 1

7/6/2012

PM Peak 10/19/2010 Year 2020 w/out project

Synchro 7 - Report Page 1

12/3/2010

HCM Signalized Intersection Capacity Analysis 6: Nuhou & Kaumualii

|                                 | ۶         | <b>→</b>     | •        | 1      | <b>—</b>           | 4              | 1        | 1           | 1        | 1                    | ţ        | 4         |
|---------------------------------|-----------|--------------|----------|--------|--------------------|----------------|----------|-------------|----------|----------------------|----------|-----------|
|                                 | 1517      | Shall        | Reien    |        | 308391             | STREET         | PX5:08   |             | 5798     | MARKS                |          |           |
| ane Configurations              | 7         | **           | 7        | 7      | <b>†</b> I+        |                |          | 4           |          |                      | 4        |           |
| Yolame (vph)                    | 7         | 785          | 141      | 158    | 725                | 184            | 67       | 47          | 181      | 89                   | 51       |           |
| ideal Flow (vphpl)              | 1900      | 1900         | 1900     | 1900   | 1900               | 1900           | 1900     | 1900        | 1900     | 1900                 | 1900     | 1900      |
| Total Lost time (s)             | 5,0       | 5.0          | 5.0      | 5.0    | 5.0                |                |          | 5.0         | 5.0      |                      | 5.0      |           |
| ane Util. Factor                | 1.00      | 0.95         | 1.00     | 1.00   | 0.95               |                |          | 1.00        | 1.00     |                      | 1.00     |           |
| A STATE OF THE PARTY OF         | 1.00      | 1.00         | 0.85     | 1.00   | 0.97               | 73857E         |          | 1.00        | 0.85     |                      | 1.00     |           |
| Fit Protected                   | 0.95      | 1.00         | 1.00     | 0.95   | 1.00               |                |          | 0.97        | 1.00     |                      | 0.97     |           |
| Satd Flow (prot)                | 1770      | 3539         | 1583     | 1770   | 3432               |                |          | 1810        | 1583     | 32 352               | 1804     |           |
| Fit Permitted                   | 0.95      | 1.00         | 1.00     | 0.95   | 1.00               |                |          | 0.72        | 1.00     |                      | 0.68     |           |
| Satd, Flow (perm)               | 1770      | 3539         | 1583     | 1770   | 3432               |                |          | 1335        | 1583     |                      | 1263     | 300       |
| Peak-hour factor, PHF           | 0.91      | 0.91         | 0.91     | 0.88   | 0.88               | 0.88           | 0.71     | 0.71        | 0.71     | 0.58                 | 0.58     | 0.5       |
| Adi. Flow (vph)                 | 8         | 863          | 155      | 177    | 824                | 209            | 94       | 66          | 255      | 153                  | 88       | 514       |
| RTOR Reduction (vph)            | 0         | 0            | 66       | 0      | 16                 | 0              | 0        | 0           | 188      | 0                    | 0        |           |
| Lane Group Flow (vph)           | 8         | 863          | 89.      | 177    | 1017               | - 0            | 0        | 160         | 67       | 0.                   | 243      | 001       |
| Turn Type                       | Prot      | NA.          | Perm     | Pret   | NA                 |                | Parm     | NA:         | Perm     | Perm                 | NA:      |           |
| Protected Phases                | 7         | 4            | - A1000  | 3      | 2                  |                |          | 10.0        |          |                      | - A      |           |
| Permitted Phases                |           |              | 4        |        |                    |                | 2        | 110         | 2        | - 6                  |          |           |
| Actuated Green, G (s)           | 1.0       | 34.0         | 34.0     | 514.5  | 47.5               |                | 1234     | 22.8        | 22.8     |                      | 1228     |           |
| Effective Green, g (s)          | 1.0       | 34.0         | 34.0     | 14.5   | 47.5               |                |          | 22.8        | 22.8     |                      | 22.8     |           |
| Actuated of C Ratio             | 0.01      | 0.39         | 0,39     | 0.17   | 0.55               | 100            |          | 0.26        | 0.26     |                      | 0.26     | 05274     |
| Clearance Time (s)              | 5.0       | 5.0          | 5.0      | 5.0    | 5.0                |                |          | 5.0         | 5.0      |                      | 5.0      |           |
| Vehicle Extension (s)           | 30        | 3.0          | 3.0      | 3.0    | 3.0                | 200.10         |          | 3.0         | 3.0      |                      | 330      |           |
|                                 | 21        | 1394         | 624      | 297    | 1889               | 2000           | 0.100011 | 353         | 418      | O PERSONAL PROPERTY. | 334      | -         |
| Lane Grp Cap (vph)              | 0.00      | 1394         |          | 60.10  | 6.30               | 945 E I VA     |          | 303         | STONESS: | 4409090              | NAMES OF | (5)(2)(2) |
| vis Ratio Prot                  | 2.000     | 47.54        | 7600     | -67.10 | 0.30               | Street A       |          | 0.12        | 0.04     | 011 1260×            | c0.19    |           |
| vis Ratio Perm                  |           |              | 0.06     | -      | - eee              |                |          | 0.12        | 0.16     | SHOUTH               | 0.73     |           |
| vic Ratio                       | 0.38      | 0.62         | 0.14     | 0.60   | 0.54               |                | 11/250   |             |          | NEW CO               | 28.9     | MIT A     |
| Uniform Delay, d1               | 42.3      | 21.0         | 16.8     | 33.2   | 12.4               | MATERIAL STATE |          | 26.5        | 24.4     | and the state of     |          | 040.044   |
| Progression Factor              | 1.00      | 1,00         | 1.00     | 1.00   | 1,00               | BALLY ST       | 2500     | 1.00        |          | 18072                | 1.00     | STAR!     |
| incremental Delay, d2           | 11.2      | 0.8          | 0.1      | 3.2    | 0.3                |                |          | 0.9         | 0.2      |                      | 7.7      |           |
| Delay (s)                       | 53,5      | 21.8         | 16.9     |        | 12.7               |                | 7 (2%)   | 27.5        | 246      | 9580060              | 31,6     | (201      |
| Level of Service                | D         | C            | В        | D      | В                  | Maria Villa    |          | C           | C        | NOTICE OF            | D        | 151.590   |
| Approach Belay (5)              | 22.82     | 213:         | <b>1</b> | 3944   | 162                | BE OF          | 2000     | 257         | 4        | 02350                |          | 25,75     |
| Approach LOS                    |           | C            |          |        | В                  |                |          | C           |          |                      | D        |           |
| stand or water between          | Section 1 | G106.5       | No.      | 1      | 100 miles          | 47650E         | 4 -4     | F. S. S. S. | 53333    | 1000                 | DEATH    | ACC 10    |
| HCM Average Control Delay       |           |              | 21.1     | Н      | CM Leve            | of Service     | 0        |             | C        |                      |          | avas.     |
| HCM Volume to Daplacity rati    | SPANIE S  | 2570317      | 150,631  | 2500F  | THE REAL PROPERTY. | E24070         |          | 1990        | 100      |                      |          |           |
| Actuated Cycle Length (s)       | -         |              | 86.3     | S      | um of los          | time (s)       |          |             | 15.0     |                      |          |           |
| Intersection Capacity Utilizati | Will be   |              | 57.2%    |        |                    | of Service     | 34541.9  | S.A.Well    | B        |                      | LEE B    | 1820      |
| Analysis Period (min)           | M354+95   | Deliver of a | 15       | 1000   | No. CO.            | 1000           | - 11/1/2 |             |          |                      |          |           |
| Analysis Period (min)           | 9955-550  | divize:      | 15       | elviso | HOLDS PAR          | authorized     |          | 20000       | DIR SOID | NECOSTAL             | 20035    | 197       |

HCM Signalized Intersection Capacity Analysis

| 100<br>100<br>100<br>100<br>100<br>100<br>100<br>3539<br>100<br>3539<br>0.95<br>925<br>0.925<br>NA | 119<br>1900<br>5,0<br>1,00<br>0,85<br>1,00<br>1583<br>1,00<br>1583<br>0,95<br>125<br>51<br>74 | 48<br>1900<br>5.0<br>1.00<br>0.95<br>1770<br>0.95<br>1770<br>0.96<br>50<br>0   | \$10<br>1900<br>5.0<br>0.95<br>0.99<br>1.00<br>3501<br>1.00<br>3501<br>0.96<br>927<br>5 | 69<br>1900<br>0.96<br>72<br>0<br>0      | 183<br>1900<br>0.91<br>- 201<br>0                                  | 29<br>1900<br>5.0<br>1.00<br>4.00<br>0.96<br>1766<br>0.69<br>1276<br>0.91<br>32<br>0 | 76-<br>1900<br>5.0<br>1.00<br>0.85<br>1.00<br>1983<br>1.00<br>1583<br>0.91<br>84<br>60 | 82<br>1900                                 | 28<br>1900<br>5.0<br>1.00<br>0.99<br>0.97<br>1777<br>0.61<br>1123<br>0.84<br>33 | 0.84                                    |
|--|---|--|---|---|--|--|--|--|---|---|
| 879<br>1900<br>5.0<br>0.95<br>1.00<br>1.00<br>3539<br>1.00<br>3539<br>0.95<br>925<br>0             | 1900<br>5,0<br>1,00<br>0,85<br>1,00<br>1583<br>1,00<br>1583<br>0,95<br>1,25<br>51<br>74       | 1900<br>5.0:<br>1.00<br>1.00<br>0.95<br>1770<br>0.95<br>1770<br>0.96<br>50<br>0  | 890<br>1900<br>5.0<br>0.95<br>40.99<br>1.00<br>3501<br>1.00<br>3501<br>0.96<br>927<br>5 | 0.96<br>72<br>0                         | 0.91<br>- 201<br>0   | 29<br>1900<br>5.0<br>1.00<br>1.00<br>0.96<br>1766<br>0.69<br>1276<br>0.91            | 1900<br>\$.0<br>1.00<br>0.85<br>1.00<br>1583<br>1.00<br>1583<br>0.91<br>84             | 0.84                                       | 28<br>1900<br>5.0<br>1.00<br>0.99<br>0.97<br>1777<br>0.61<br>1123               | 1900                                    |
| 1900<br>5.00<br>0.95<br>1.00<br>1.00<br>3539<br>1.00<br>3539<br>0.95<br>925<br>0                   | 1900<br>5,0<br>1,00<br>0,85<br>1,00<br>1583<br>1,00<br>1583<br>0,95<br>1,25<br>51<br>74       | 1900<br>5.0:<br>1.00<br>1.00<br>0.95<br>1770<br>0.95<br>1770<br>0.96<br>50<br>0  | 1900<br>5.0<br>0.95<br>-0.99<br>1.00<br>3501<br>1.00<br>3501<br>0.96<br>927<br>5        | 0.96<br>72<br>0                         | 0.91<br>- 201<br>0   | 1900<br>-5,0<br>1,00<br>1,00<br>0,96<br>1786<br>0,69<br>1276<br>0,91<br>32<br>0      | 1900<br>\$.0<br>1.00<br>0.85<br>1.00<br>1583<br>1.00<br>1583<br>0.91<br>84             | 0.84                                       | 1900<br>5.0<br>1.00<br>0.99<br>0.97<br>1777<br>0.61<br>1123<br>0.84             | 1900                                    |
| 5.0<br>0.95<br>1.00<br>1.00<br>3539<br>1.00<br>3539<br>0.95<br>925<br>0                            | 5,0<br>1,00<br>0,85<br>1,00<br>1583<br>1,00<br>1583<br>0,95<br>1,25<br>51<br>74               | 5.0<br>1.00<br>1.00<br>0.95<br>1770<br>0.95<br>1770<br>0.96<br>50<br>0   | 5.0<br>0.95<br>0.99<br>1.00<br>3501<br>1.00<br>3501<br>0.96<br>927<br>5                 | 0.96<br>72<br>0                         | 0.91<br>- 201<br>0   | 5.0<br>1.00<br>1.00<br>0.96<br>1766<br>0.69<br>1276<br>0.91<br>32<br>0               | \$.0<br>1.00<br>0.85<br>1.00<br>1583<br>1.00<br>1583<br>0.91<br>84                     | 0.84                                       | 5.0<br>1.00<br>0.99<br>0.97<br>1777<br>0.61<br>1123                             | 0.84                                    |
| 0.95<br>1.00<br>1.00<br>3539<br>1.00<br>3539<br>0.95<br>925<br>0                                   | 1.00<br>0.85<br>1.00<br>1583<br>1.00<br>1583<br>0.95<br>1.25<br>51<br>74                      | 1.00<br>1.00<br>0.95<br>1770<br>0.95<br>1770<br>0.96<br>50<br>0  | 0.95<br>0.99<br>1.00<br>3501<br>1.00<br>3501<br>0.96<br>927<br>5                        | 72                                      | - 201  | 1.00<br>1.00<br>0.96<br>1786<br>0.69<br>1276<br>0.91<br>32<br>0                      | 1.00<br>0.85<br>1.00<br>1583<br>1.00<br>1583<br>0.91<br>84                             |  | 1.00<br>0.99<br>0.97<br>1777<br>0.61<br>1123                                    | 0.8                                     |
| 1:00<br>1:00<br>3539<br>1:00<br>3538<br>0:95<br>925<br>0   | 0.85<br>1.00<br>1583<br>1.00<br>1583<br>0.95<br>1.25<br>51<br>74                              | 1,00<br>0.95<br>1770<br>0.95<br>1770<br>0.96<br>50<br>0  | 0.99<br>1.00<br>3501<br>1.00<br>3501<br>0.96<br>927<br>5                                | 72                                      | - 201  | 1.00<br>0.96<br>1786<br>0.69<br>1276<br>0.91<br>02<br>0                              | 0.85<br>1.00<br>1583<br>1.00<br>1583<br>0.91<br>84                                     |  | 0.99.<br>0.97<br>1777<br>0.61<br>1123<br>0.84                                   | 0.84                                    |
| 1.00<br>3539<br>1.00<br>3538<br>0.95<br>925<br>0   | 1.00<br>1583<br>1.00<br>1583<br>0.95<br>125<br>51<br>74                                       | 0.95<br>1770<br>0.95<br>1770<br>0.96<br>50<br>0  | 1.00<br>3501<br>1.00<br>3501<br>0.96<br>927<br>5  | 72                                      | - 201  | 0,96<br>1786<br>0,69<br>1276<br>0,91<br>02<br>0                                      | 1,00<br>1583<br>1,00<br>1583<br>0,91<br>84   |  | 0.97<br>1777<br>0.61<br>1123<br>0.84  | 0.84                                    |
| 3539<br>1,00<br>3539<br>0,95<br>925<br>0<br>925  | 1583<br>1.00<br>1583<br>0.95<br>125<br>51<br>74   | 1770<br>0.95<br>1770<br>0.96<br>50<br>0  | 3501<br>1.00<br>3501<br>0.96<br>927<br>5  | 72                                      | - 201  | 1786<br>0.69<br>1276<br>0.91<br>32<br>0  | 1583<br>1.00<br>1583<br>0.91<br>84   |  | 0.61<br>(123<br>0.84  | 0.84                                    |
| 1.00<br>3539<br>0.95<br>925<br>0<br>925  | 1.00<br>1583<br>0.95<br>125<br>51<br>74   | 0.95<br>1770<br>0.96<br>50<br>0  | 1.00<br>3501<br>0.96<br>927<br>5  | 72                                      | - 201  | 0.69<br>1276<br>0.91<br>0.2<br>0   | 1.00<br>1583<br>0.91<br>84   |  | 0.61<br>1123<br>0.84  | 0.84                                    |
| 3539<br>0.95<br>925<br>0<br>925  | 0.95<br>1.25<br>51<br>74  | 0.96<br>50<br>0<br>50  | 0.96<br>927<br>5<br>994   | 72                                      | - 201  | 0.91<br>0.2<br>0   | 1583<br>0.91<br>84   |  | 0.84  | 0.84                                    |
| 0.95<br>925<br>0<br>925  | 0.95<br>1,25<br>51<br>74  | 0.96<br>50<br>0  | 0.96<br>927<br>5<br>994   | 72                                      | - 201  | 0.91<br>- 32<br>- 0  | 0.91<br>84   |  | 0.84  | 0.84                                    |
| 925<br>0<br>925  | 125<br>51<br>74   | 50<br>0<br>50  | 927<br>5<br>994   | 72                                      | - 201  | 0  | 84   |  |   | 16                                      |
| 925  | 51<br>74  | 0<br>50  | 5<br>994  | 0                                       | 0  | 0  |  | .98  | 33  | 2000                                    |
| 925  | 74  | 50   | 994   |   |  |  | 60   | - 8  | 4   |   |
|  |   |  |   | . 0                                     |  |  |  |  | 71475420  | - 1                                     |
| NA.  | Dorm  |  |   |   |  | 233  | 24   | 0  | 142   | 100                                     |
|  |   | Prot   | NA  |   | Perm   | NA   | Perm   | Penn                                       | NA  |   |
| 4  |   | 3  | 8   |   |  | 2  |  |  | 6   |   |
|  | 4   |  |   |   | 2  |  | 2  | - 6  | District of   |   |
| 31.7   | 31.7  | 4.4  | 35.3  | 10 7                                    |  | 21:0   | 21.0   |  | 21.0  |   |
| 31.7   | 31.7  | 4.4  | 35.3  |   |  | 21.0   | 21.0   |  | 21.0  |   |
| 0.44   | 0.64  | 0.05   | 0.49  |   |  | 0.29   | 0.29   |  | 0.29  |   |
| 5.0  | 5.0   | 5.0  | 5.0   |   |  |  |  |  |   |   |
| 3.0  | 3.0   | 3.0  | 3.0   |   | 100  |  |  | Chica                                      |   | 100                                     |
| 1556   | 696   | 108  | 1714  |   |  | 372  |  |  | 327   |   |
| 0.26   |   | c0.03  | c0.28   |   |  |  |  | 186  |   |   |
|  | 0.05  |  |   |   |  |  |  |  |   |   |
| 0.59   | 0.11  | 0.46   | 0.58  |   | 100  |  |  |  |   |   |
| 15.3   | 11.9  | 32.7   | 13.1  |   |  |  |  |  |   |   |
|  |   | 1.00   | 1,00  |   |  |  |  |  |   |   |
| 0.6  | 0.1   | 3.1  | 0.5   |   |  | 3.3  | 0.0  |  | 0.9   |   |
|  | 11.9  | 35.8   | 13.6  |   |  | 25.4   | 18,4   |  | 21.7  | 223                                     |
| В  | В   | D  | В   |   |  | C  | 8  |  | C   |   |
|  | Mediana   | SECURE OF THE PARTY OF THE PART | 35647   |   | 100 E  | 23.6   |  |  | 21.7  | <b>强性的</b>                              |
| В  |   | - and the same   | 8   | DC. T                                   |  | C  |  |  | C   |   |
|  | 5.0<br>3.0<br>1556<br>0.26<br>0.59<br>15.3<br>1.00<br>0.6<br>15.9<br>B                        | 5.0 5.0<br>3.0 3.0<br>1556 696<br>0.26<br>0.59 0.11<br>153 11.9<br>1.00 180<br>0.6 0.1<br>159 11.9<br>B B  | \$0.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0   | 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 | \$0 50 50 50 50<br>\$0 30 30 30 30 30<br>1556 696 106 1714<br>\$28 | 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0  | \$0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.   | \$0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5. | 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0   | 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 |

#### APPENDIX F

# CAPACITY ANALYSIS CALCULATIONS PROJECTED YEAR 2020 PEAK HOUR TRAFFIC ANALYSIS WITH PROJECT

HCM Signalized Intersection Capacity Analysis 3: Puhi & Kaumualii

4 **←** 4 1 > 1 Lane Configurations

Valorier (right)

158-at From (yorkpit)

158-at 6 16.7 16.7 16.7 16.7 0.25 0.25 5.0 5.0 20 3.0 353 401 C B C B

| HCM Average Control Delay         | 18.2 | HCM Level of Service B  |
|-----------------------------------|------|---|
| HCM Volume to Capacity ratio      | 0.58 |   |
| Actuated Cycle Length (s)         | 66.0 | Sum of lost time (s) 15.0   |
| Intersection Capacity Utilization | 542% | ICU Level of Service  |
| Analysis Period (min)             | 15   |   |
| c - Critical Lane Group           |      | 2. 10 CO 10 |

AM Peak 10/19/2010 Year 2020 w/ project

HCM Signalized Intersection Capacity Analysis

7/6/2012

Synchro 7 - Report Page 1

Sum of lost time (s) 20.0 ICU Level of Service B

**加州人建长的自然,但**是10世纪的第三人称形式的基础程度

|                         | ,                    | -         | *       | 1  | 4           | 4           | 4        | †          | 1       | 1         | <b>\</b>   | 4           |
|-------------------------|----------------------|-----------|---------|--|-------------|-------------|----------|------------|---------|-----------|--|-------------|
| Secretary Section       | NO HELD              | ES 100    | E I     | NAME OF THE OWNER, OWNE | 9000        | W. 12 1     |          | 22.00      | 26 165  | (Select   | ALC: U   | 草田          |
| Lane Configurations     | 7                    | 11        | 1       | 7  | 11          | 7"          |          | 4          | 54      | 92        | 4  | 64          |
| Volume (vph)            | 59                   | 827       | 159     | . 34   | 965         | 68          | 191      | 42         |         | 1900      | 1900   | 1900        |
| deal Flow (vphpl)       | 1900                 | 1900      | 1900    | 1900   | 1900        | 1900        | 1900     | 1900       | 1900    | 1900      | 5.0  | 5.0         |
| Total Lost time (s)     | 5.0                  | 5.0       | 5.0     | 5.0  |             | 5.0         |          | 5.0        | 5.0     |           | 1.00   | 1.00        |
| Lane Util. Factor       | 1,00                 | 0,95      | 1,00    | 1,00   | 0.95        | 1,00        |          | 1,00       | 1.00    |           | 1.00   | 0.85        |
| Fit P. QUARTER ST.      | 1,00                 | 1.00      | 0.85    | 1.00   | 1.00        | 0.85        |          | 1.00       | 0.85    |           | 0.96   | 1.00        |
| Fit Protected           | 0.95                 | 1.00      | 1,00    | 0,95   | 1,00        | 1,00        |          | 0,96       | 1,00    |           | 1790   |             |
| Satd-Flow (prof)        | 1770                 | 3539      | 1583    | 1770   | 3539        | 1583        |          | 1789       | 1583    |           |  | 1583        |
| Fit Permitted           | 0.95                 | 1.00      | 1.00    | 0,95   | 1,00        | 1.00        |          | 0,61       | 1,00    |           | 0.51   | 1,00        |
| Satd. Flow (point)      | 1770                 | 3539      | 1583    | 1770.  | 3539        | 1583        | 7-1      | 1140       | 1583    | 2007      | 957  |             |
| Peak-hour factor, PHF   | 0.96                 | 0.95      | 0.96    | 0.97   | 0.97        | 0.97        | 0.91     | 0.91       | 0.91    | 0.61      | 0.61   | 0.61        |
| Adi: Flow (vph)         | 61                   | 861       | 166     | 35   | 995         | 70          | 210      | 45         | 59      | 151       | 36   | 105         |
| RTOR Reduction (vph)    | 0                    | 0         | 72      | 0  | 0           | 27          | 0        | 0          | 40      | 0         | 0  | .71         |
| Lane Group Flow (vph)   | 61                   | '861      | 94      | 35   | 995         | / 43        | . 0      | 256        | 19.     | 0         | 187  | 34          |
| Tum Type                | Prot                 | NA.       | Perm    | Prot   | NA          | Perm        | Perm     | NA         | Perm    | Perm      | NA   | Penn        |
| Protected Phases        | 16.00075             | 230140    | HI Ye   | 3:   | 8           |             |          | . 2        |         |           | 6  |             |
| Permitted Phases        |                      |           | 4       |  |             | 8           | 2        |            | 2       | 6         |  |             |
| Achiated Green, G (6)   | 5.7                  | 35.8      | 35.8    | 3.0  | 33.1        | 33.1        |          | 25.3       | 25.3    |           | 25.3   | 25          |
| Effective Green, g (s)  | 5.7                  | 35.8      | 35.8    | 3.0  | 33.1        | 33.1        |          | 25.3       | 25.3    |           | 25.3   | 25.3        |
| Actuated of C Basic     | 0.07                 | 0.45      | 0.45    | 0.04   | 0.42        | 0.42        |          | 0.32       | 0.32    | KD#4.5    | 0.32   | 0.33        |
| Cleurance Time (s)      | 5.0                  | 5.0       | 5.0     | 5.0  | 5.0         | 5.0         |          | 5.0        | 5.0     |           | 5.0  | 5.          |
| Vehicle Extension (s)   | 3.0                  | 3.0       | 3.0     | 3.0  | 3.0         | 3.0         | 225.5    | 3.0        | 3.0     | 1000      | 3.0  | 31          |
| Lane Grp Cap (vph)      | 128                  | 1602      | 716     | 67   | 1481        | 662         | 9116     | 365        | 506     |           | 306  | 50          |
| vis Ratio Prot          | 00.03                | c0.24     | 1000    | 0.02   | 00.28       |             | ASSIT    |            | 62,75   |           |  | MED I       |
| vis Ratio Perm          | - white              | - No lead | 0.05    | -  |             | 0.03        |          | c0.22      | 0.01    |           | 0.20   | 0.0         |
| vic Ratio               | 0.48                 | 0.54      | 0.13    | 0.52   | 0.67        | 0.06        | E480VP   | 0.70       | 0.04    | FLASH!    | 0.61   | 0,0         |
| Uniform Delay, d1       | 35.3                 | 15.7      | 12.6    | 37.3   | 18.6        | 13.7        |          | 23.6       | 18.5    |           | 22.7   | 18.         |
| Progressor Factor       | 1.00                 | 1.00      | 1.00    | 1.00   | 1.00        | 4.00        | 3.753    | 1.00       | 1.00    |           | 1.00   | 1.0         |
| Incremental Delay, d2   | 2.8                  | 0.3       | 0.1     | 7.2  | 1.2         | 0.0         |          | 6.0        | 0,0     |           | 3.6  | 0.          |
| Delay (s)               | 36.4                 | 16.0      | (2.7    | 446  | 19.8        | 13.8        |          | 29.6       | 18.5    |           | 26.3   | 3.1度        |
| Level of Service        | D                    | В         | 8       | D  | В           | В           |          | C          | В       |           | C  |             |
| Approach Delay is       | AGUS-1657)           | 3167      | BULLING | 33,480   | S1202       | SHOW!       | GION IS  | 27.5       | 101100  | WATE TO   | 23.6   | 200         |
| Approach LOS            | 12/10/25             | R R       | 41.42   | LANGE TO SERVICE STATE OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE  | C           |             |          | C          |         |           | C  |             |
| Administra crop         |                      |           |         |  |             |             |          | ********** | NEIDER  | EDITOR OF | DATE OF THE PARTY.   | OTHERS.     |
| PARTY AND ALAST         | WESTERN .            | MIDE.     | 20.0    | GE CA  | ACM Law     | el of Serv  | CO.      | 393533     | C       | STEEL SEE | CONTRACTOR OF THE PARTY OF THE  | -           |
| HCM Average Control Del | ay<br>Specialization | manage    | 0.72    | 2005575  | SHOW DOWN   | TO USE      | SOUTH OF | 95/30/05   | H457898 | SERVE     | MESSAGE AND ADDRESS OF THE PARTY OF THE PART | <b>AD12</b> |
| HCM Volume to Dapacity  | Man .                | 0.00      | 79.1    | The said   | Name of the | st time (s) | 1100     |            | 20.0    |           |  |             |

HCM Unsignalized Intersection Capacity Analysis 9: Kaumualii & Nani

12/3/2010

|  | -      | 7      | 1                  | -     | 4        | 1           |                   |               |                 |
|--|--------|--------|--------------------|-------|----------|-------------|-------------------|---------------|-----------------|
| STORM THE  | 100 mg | GE 028 | ON THE             | WARD  |          | <b>美国政治</b> | SECTION SELECTION | CATALOG STATE |                 |
| Lane Configurations  | 47.    |        | 7                  | 11    | Y        |             |                   |               |                 |
| Volume (veh/h)   | 841    | 5      | 39                 | 767   | - 1      | 94          |                   |               |                 |
| Sign Control   | Free   |        |                    | Free  | Stop     |             |                   |               |                 |
| Grade  | 0%     |        |                    | 0%    | 0%       |             |                   |               |                 |
| Peak Hour Factor   | 0,91   | 0,91   | 0.94               | 0.94  | 0,85     | 0.85        |                   |               |                 |
| fourly flow rate (vph)<br>redestrians  | 924    | 5      | 41                 | 816   | 1        | 111         |                   |               |                 |
| ane Width (ft)<br>Valking Speed (ft/s)                                       |        |        |                    |       |          |             |                   |               |                 |
| Percent Blockage<br>Right turn flare (veh)                                   |        |        |                    |       |          |             |                   |               |                 |
| Median type<br>Median storage veh)   | None   |        |                    | None  |          |             |                   |               |                 |
| Jostream signal (ft)   | 1175   |        |                    |       |          |             |                   |               |                 |
| X, platoon unblocked   |        |        | 0.89               |       | 0.89     | 0.89        |                   |               |                 |
| C, conflicting volume  |        |        | 930                |       | 1418     | 485         |                   |               |                 |
| C1, stage 1 conf vol   |        |        |                    |       |          |             |                   |               |                 |
| C2; stage 2 conf vol   |        |        |                    |       |          |             |                   |               |                 |
| Cu, unblocked vol  |        |        | 686                |       | 1231     | 166         |                   |               |                 |
| C, single (s)  |        |        | 4.1                |       | 6.8      | 6.9         |                   |               |                 |
| C, 2 stage (s)   |        |        |                    |       |          |             |                   |               |                 |
| F (s)  |        |        | - 22               |       | - 3.5    | 33          |                   |               |                 |
| 0 queue free %   |        |        | 95                 |       | 99       | 85          |                   |               |                 |
| M capacity (veh/h)   |        |        | 809                |       | 144      | 760         |                   |               |                 |
| 在自己的自己的  |        |        | 200                | A 500 | NAME OF  | 1207.00     | Erral W.          |               |                 |
| olume Total  | 616    | 314    | 41                 | 408   | 408      | 112         |                   |               |                 |
| olume Left   | 0      | 0      | 41                 | 0     | 0        | 1           |                   |               |                 |
| olume Right  | 0      | 5      | :0                 | 0     | . 0      | 111         |                   |               |                 |
| SH   | 1700   | 1700   | 809                | 1700  | 1700     | 727<br>0.15 |                   |               |                 |
| olume to Capacity  | 0.36   | 0,18   | 0.05               | 0.24  | 0.24     | 14          |                   |               |                 |
| lueue Length 95th (ft)   | 0      | 0      | 9.7                |       |          |             |                   |               |                 |
| Control Dielay (s)   | 0,0    | 0,0    | 9.7                | 0:0   | - 0.0    | 10.8        |                   |               |                 |
| ane LOS  |        |        | 0.5                |       |          | В           |                   |               |                 |
| pproach Delay (s)<br>pproach LOS   | 0.0    |        | 0.5                |       | 06/1/1/8 | 10.8<br>B   |                   |               |                 |
| 的名词复数使多数   | EN AL  | \$50 F | (488)S             | 200   |          | WAR.        |                   |               | SECTION SECTION |
| liverage Delay<br>intersection Capacity Utilization<br>(nalysis Period (min) |        |        | 0.9<br>42.6%<br>15 | 10    | U Levelo | Service     |                   | A -           |                 |
| 4.1  |        |        |                    | 1000  | THE WAY  |             |                   |               |                 |

HCM Average Control Delay 20.0
FCM Notifies to Bissisch rabb 0.72
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FCM Notifies Period (min) 15
FC Office Lines (Robu)

|                                       | umualii & Nani |                    |             |         |           |          |         | 12/5     |   |                 |  |  |  |
|---------------------------------------|----------------|--------------------|-------------|---------|-----------|----------|---------|----------|---|-----------------|--|--|--|
|                                       | -              | *                  | 1           | -       | 4         | 1        |         |          |   |                 |  |  |  |
| ASSESSED ASSESSED                     | SEE SE         | THE STATE          | SUPE        | 15.99   |           |          | 2000    | DENIES I | 100000000000000000000000000000000000000 | SELVEN COME     |  |  |  |
| ane Configurations                    | 47             |                    | 7           | ++      | phe       |          |         |          |   |                 |  |  |  |
| /olume (veh/h)                        | 965            | 8                  | 30          | 1065    | 2         | 49       |         |          |   |                 |  |  |  |
| Sign Control                          | Free           |                    |             | Free    | Stop      |          |         |          |   |                 |  |  |  |
| Grade                                 | 0%             |                    |             | 0%      | 0%        |          |         |          |   |                 |  |  |  |
| Peak Hour Factor                      | 0.95           | 0.95               | 0,99        | 0.99    | 0.78      | 0,78     |         |          |   |                 |  |  |  |
| Hourly flow rate (vph)<br>Pedestrians | 1016           | 8                  | 30          | 1076    | 3         | 63       |         |          |   |                 |  |  |  |
| ane Width (ft)                        |                |                    |             |         |           |          |         |          |   |                 |  |  |  |
| Nalking Speed (ft/s)                  |                |                    |             |         |           |          |         |          |   |                 |  |  |  |
| Percent Blockage                      |                |                    |             |         |           |          |         |          |   |                 |  |  |  |
| Right turn flare (veh)                |                |                    |             |         |           |          |         |          |   |                 |  |  |  |
| Median type                           | None           |                    |             | None    |           |          |         |          |   |                 |  |  |  |
| Median storage veh)                   | None           |                    |             | 19619   |           |          |         |          |   |                 |  |  |  |
| Jostream signal (ft)                  | 1175           |                    |             |         |           |          |         |          |   |                 |  |  |  |
| X, platoon unblocked                  |                |                    | 0.88        |         | 0.88      | 0.88     |         |          |   |                 |  |  |  |
| C, conflicting volume                 |                |                    | 1024        |         | 1618      | 512      |         |          |   |                 |  |  |  |
| C1, stage 1 conf vol                  |                |                    |             |         |           |          |         |          |   |                 |  |  |  |
| C2, stage 2 conf vol                  |                |                    |             |         |           |          |         |          |   |                 |  |  |  |
| Cu, unblocked vol                     |                |                    | 754         |         | 1429      | 171      |         |          |   |                 |  |  |  |
| C, single (s)                         |                |                    | 4.1         |         | 6.8       | 6.9      |         |          |   |                 |  |  |  |
| C, 2 stage (s)                        |                |                    |             |         |           |          |         |          |   |                 |  |  |  |
| F(s)                                  |                |                    | 2.2         |         | 3.5       | 3.3      |         |          |   |                 |  |  |  |
| 00 queue free %                       |                |                    | 96          |         | 98        | 92       |         |          |   |                 |  |  |  |
| :M capacity (veh/h)                   |                |                    | 750         |         | 106       | 741      |         |          |   |                 |  |  |  |
|                                       |                | 100                |             | 200     | 75943     |          |         |          |   |                 |  |  |  |
| Volume Total                          | 677            | 347                | 30          | 538     | 538       | 65       |         |          |   |                 |  |  |  |
| /olume Left                           | 0              | 0                  | 30          | 0       | . 0       | 3        |         |          |   |                 |  |  |  |
| Volume Right<br>SH                    | 0              | 8                  | 0           | 0       |           | 63       |         |          |   |                 |  |  |  |
| foliume to Capacity                   | 1700           | 1700<br>0.20       | 750<br>0.04 | 1700    | 1700      | 0.11     |         |          |   |                 |  |  |  |
| Dueue Length 95th (ft)                | 0.40           | 0.20               | 0.04        | 0.32    | .0.32     | 9        |         |          |   |                 |  |  |  |
| Control Delay (s)                     | 0.0            | 0.0                | 10.0        | 0.0     |           | 11.7     |         |          |   |                 |  |  |  |
| ane LOS                               | 0,0            | U,U                | 10.0<br>B   | 0.0     | 0,0       | B        |         |          |   |                 |  |  |  |
| Approach Delay (s)                    | 0.0            |                    | 0.3         |         |           | 11.7     |         |          |   |                 |  |  |  |
| Approach LOS                          | 0.0            |                    | 0.0         |         |           | 8        |         |          |   |                 |  |  |  |
| Designation of the                    | NUMBER         | THE REAL PROPERTY. | Eb 5798     | STORES! | SEE SE    | WANTS OF | HOTEL A | SERVES.  |   | STEER SEPTEMBER |  |  |  |
| iverage Delay                         |                |                    | 0,5         | 000     |           |          | 20      |          | 1000                                    |                 |  |  |  |
| stersection Capacity Utiliza          | Rtion          |                    | 39.4%       | 10      | U Level o | Service  |         |          | A                                       |                 |  |  |  |

| PM Peak | 10/19/2010 | Year 2020 | w/ project |
|---------|------------|-----------|------------|

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HCM Signalized Intersection Capacity Analysis

6: Nuhou & Kaumualii

|  |           | 1         | -              | •                       | 1           | T                    | 1                                     | -   | +                                  | 4   |
|--|-----------|-----------|----------------|-------------------------|-------------|----------------------|---------------------------------------|---|------------------------------------|---|
| PARK   | SP.       | Mary      | W. 15          |                         | V QUE       | NS IN                |                                       |   | 4                                  |   |
| r  |           | -7        | 410            | -                       |             | 4                    | - L                                   | - 89  | 51                                 |   |
| 141  |           | 156       | 738            | 184                     | 1900        | 1900                 | 1900                                  | 1900  | 1900                               | 1900  |
| 1900   |           | 1900      | 1900           | 1900                    | 1900        | 5.0                  | 5.0                                   | 1900  | 5.0                                | 1300  |
| 5.0  |           | 5.0       | 5,0            | 200                     | 25520       | 1.00                 | 1.00                                  | Maria.  | 1.00                               |   |
| 1.00   |           | 1.00      | 0.95           | de west                 | ros-corto d | 1.00                 | 0.85                                  |   | 1.00                               | 100   |
| 0.85   | 13        | 1,00      | 0.97           | and our                 | W-235       | 0.97                 | 1.00                                  |   | 0.97                               |   |
| 1.00   |           | 0.95      | 1.00           | NAME OF                 | anamini     |                      |                                       |   | 1804                               |   |
| 1583   | 34        | 1770      | 3433           | 是都2次                    | 25°00       | 1810                 | 1583                                  |   |                                    |   |
| 1.00   |           | 0.95      | 1.00           | -                       |             | 0.72                 | 1.00                                  |   | 0.68                               | -   |
| 1583   | OLX.      | 1770      | 3430           | 200                     | 347,518     | 1335                 | 1583                                  | 1536  | 1263                               | -1-50   |
| 0.91   |           | 0.88      | 0.88           | 88.0                    | 0.71        | 0.71                 | 0.71                                  | 0.58  | 0.58                               | 0.58  |
| 155  |           | 177       | 639            | 209                     | 94          | 66                   | 255                                   | 153   | 88                                 | 2   |
| 66   |           | 0         | 15             | 0                       | 0           | 0                    | 188                                   | 0   | 0                                  | 0   |
| 89   | 85        | 177       | 1033           | 0.                      | 0           | 160                  | 67                                    | 0   | 243                                | 1-1-0   |
| Perm   |           | Prot      | NA.            |                         | Perm        | NA.                  | Perm                                  | Perm  | NA.                                |   |
| de la constante de la constant |           | 3         | 8              |                         |             | 2                    |                                       | 10172   | 6                                  |   |
| 4  |           |           |                |                         | 2           |                      | 2                                     | 6   |                                    |   |
| 34.0   |           | (4.5      | 47.5.          |                         |             | 22,8                 | 28                                    | 254115  | 22.8                               |   |
| 34.0   |           | 14.5      | 47.5           |                         |             | 22.8                 | 22.8                                  |   | 22.8                               |   |
| 0.39.  |           | 0.17      | 0.55           | 60.44                   | 75,175      | 0.26                 | 0.25                                  | N. Land                                       | 0.26                               |   |
| 5.0  |           | 5.0       | 5.0            |                         |             | 5.0                  | 5.0                                   |   | 5.0                                |   |
| 3.0  |           | 3.0       | 3.0            |                         | urilen.     | 3.0                  | - 3.0                                 |   | 3.0                                | 250   |
| 624  |           | 297       | 1890           |                         |             | 353                  | 418                                   |   | 334                                |   |
|  |           | c0.10     | 0.30           | 望器为约                    |             | F888                 |                                       |   |                                    |   |
| 0.06   |           |           |                |                         |             | 0.12                 | 0.04                                  |   | c0.19                              |   |
| 0.14   |           | 0.60      | -0.55          |                         |             | 0,45                 | 0.16                                  |   | 0.78                               | MASS.   |
| 16.8   |           | 33.2      | 12.5           |                         |             | 26.5                 | 24,4                                  |   | 28.9                               |   |
| 100  |           | 1.00      | 1.00           |                         |             | 1500                 | S-51:00                               |   | 7.00                               |   |
| 0.1  |           | 3.2       | 0.3            |                         |             | 0.9                  | 0.2                                   |   | 7.7                                |   |
| 169  | 63        | 36.4      | 12.8           | 35-27-07                | (E)(S)      | 27.5                 | 24.6                                  |   |                                    |   |
| В  |           | D         | 8              |                         |             | C                    | C                                     |   | . 0                                |   |
| SH-19860   | 25        | 35536     | 15.2           | 55:53                   | 35357F      | 257                  | 27年以                                  | Markey  | 36.6                               | 1524  |
| STOP SOUTH   | 100       | e-chieco. | 8              | 40-400                  |             | C                    |                                       |   | D                                  |   |
| 1000110011   | 16.9<br>E | 16.9<br>B | 169 364<br>B D | 16.9 36.4 12.8<br>B D B | 8 D B       | 169 364 128<br>B D B | 163 364 128 275<br>6 D 8 C<br>162 257 | 169 364 128 275 246<br>B D B C C C<br>162 257 | 163 364 128 275 246<br>6 D 8 C C C | 163 364 128 274 246 366<br>B B B C C D<br>162 267 366 |

| HCM Average Control Delay          | 21.1 | HCM Level of Service C   |
|------------------------------------|------|--|
| HCM Volume to Capacity tatio       | 0.65 |  |
| Actuated Cycle Length (s)          | 86.3 | Sum of lost time (s) 15.0  |
| Intersection Capacity Utilization  | 572% | ICU Level of Service   |
| Analysis Period (min)              | 15   | The second secon |
| p-regranderstoness representations |      |  |

AM Peak 10/19/2010 Year 2020 w/ project

| 0 1101111111111111111111111111111111111 | 1       | -  | 7      | 1          | 4          | 4           | 1    | †     | 1            | 1           | †        | 4                    |
|---|---------|--|--------|------------|------------|-------------|------|-------|--------------|-------------|----------|----------------------|
| VERNO VENEZA DE LA                      | 10 H    | SERVICE SERVIC | NESS.  | No.        | West.      | STATE OF    |      | 4     |              | 2000        |          | 200                  |
| ane Configurations                      | 7       | 11   | 1      | 7          | 41+        |             |      | 4     | 1            |             | 4        | 13                   |
| Volume (voh)                            | . 9     | 636  | 119    | .48        | 899        | 69          | 183  | 29    | 76           | 82          | 28       | 1900                 |
| Ideal Flow (vphpl)                      | 1900    | 1900   | 1900   | 1900       | 1900       | 1900        | 1900 | 1900  | 1900         | 1900        | 1900     | 190                  |
| Total Lost time (s)                     | 5.0     | 5.0  | 5.0    | 5.0        | 5.0        |             |      | 5.0   | 5.0          |             | 5,0      |                      |
| Lane USI. Factor                        | 1.00    | 0.95   | 1.00   | 1.00       | 0.95       |             |      | 1.00  | 1.00         |             | 1.00     |                      |
| Fit                                     | 1.00    | 1,00   | 0.85   | 1.00       | 0.99       |             |      | 1,00  | 0.85         |             | 0.99     |                      |
| Fit Protected                           | 0.95    | 1.00   | 1.00   | 0.95       | 1,00       |             |      | 0.96  | 1.00         |             | 0.97     |                      |
| Satd. Flow (prof)                       | 1770    | 3539   | 1583   | 1770       | 3501       |             |      | 1786  | 1583         | 200         | 1777     |                      |
| Fit Permitted                           | 0.95    | 1.00   | 1.00   | 0.95       | 1.00       |             |      | 0.68  | 1.00         |             | 0.61     |                      |
| Satd Flow (perm)                        | 1770    | 3539   | 1583   | 1770       | 3501       |             |      | 1276  | 1583         | 1000        | 1121     | 163                  |
| Peak-hour factor, PHF                   | 0.95    | 0.95   | 0.95   | 0.96       | 0.96       | 0.96        | 0.91 | 0.91  | 0.91         | 0.84        | 0.84     | 0.8                  |
| Adi. Flow (vph)                         | 9       | 933  | 125    | 50         | 936        | 72          | 201  | - 32  | 84           | .98         | 33       |                      |
| RTOR Reduction (vph)                    | 0       | 0  | 50     | 0          | 5          | 0           | 0    | 0     | 60           | 0           | 4        | -                    |
| Lane Group Flow (vph)                   | 9       | 933  | 75     | 50         | 1003       | 0           | 0    | 233   | 24           | .0          | 142      | 95                   |
| Tam Type                                | Prot    | NA.  | Perm   | Prot       | NA.        |             | Perm | NA.   | Perm         | Perm        | NA       |                      |
| Protected Phases                        | 7       | - 4  | 1000   | . 3        | 8          |             |      | 2     |              |             | 6        |                      |
| Permitted Phases                        |         |  | 4      |            |            |             | 2    |       | 2            | 6           |          |                      |
|   | 0.8     | 32.0   | 32.0   | 4.4        | 35.6       |             |      | 21.1  | 21.1         | F8 (5.3)    | 21.1     |                      |
| Actuated Green; G.(s).                  | 0.8     | 32.0   | 32.0   | 4.4        | 35.5       |             |      | 21.1  | 21.1         |             | 21.1     |                      |
| Effective Green, g (s)                  | 0.01    | 0.44   | 0:44   | 0.06       | 0.49       |             |      | 0.29  | 0.29         | Sec. 355    | 0.29     | 1250<br>1250<br>1250 |
| Actuated g/C Ratio                      | 5.0     | 5.0  | 5.0    | 5.0        | 5.0        |             |      | 5.0   | 5.0          |             | 5.0      |                      |
| Clearance Time (s)                      | 3.0     | 3.0  | 3.0    | 3.0        | 3.0        |             |      | 3.0   | 3.0          |             | 3.0      |                      |
| Vehicle Extension (s)                   |         | 1562   | 699    | 107        | 1719       |             |      | 371   | 461          |             | 326      |                      |
| Lane Grp Cap (vph)                      | 20      | 0.26   |        | c0.03      | c0.29      |             |      |       |              |             | 30,5745  |                      |
| vis Ratio Prot                          | 0.01    | 0.20   | 0.05   | - 00,00    | 00.22      |             |      | c0.18 | 0.02         | COMMISSION  | 0.13     | -                    |
| v/s Ratio Perm                          |         |  | 0.05   | 0.42       | 0.58       |             |      | 0.63  | 0.05         |             | 0.44     | 60000                |
| vio Ratio                               | 0.45    | 0.60   | 11.9   | 32.9       | 13.2       |             |      | 22.3  | 18.5         | 41.146.00   | 20.9     |                      |
| Uniform Delay, d1                       | 35.5    | 15.4   |        |            | 1.00       |             |      | 1.00  |              |             | 21.00    | and.                 |
| Progression Factor                      | 1,00    | 1.00   | 1:00   | 1.00       | 0.5        |             |      | 3.3   | 0.0          | MICHOLD CO. | 0.9      | and the              |
| incremental Delay, d2                   | 15.3    | 0.6  | 0.1    | 3.2        |            |             |      | 25.6  | 18.6         | H05585.7    |          | 325                  |
| Delay.(s)                               | 50.9    | 160  | 11.9   | 30.1<br>D  | 13.7.<br>B |             |      | C     | B            | Accessor.   | C        | Digres.              |
| Level of Service                        | D       | В  | 8      | D          | 147        |             |      | 23.7  | - child      | 943UTIN     | (1298)   | Solds                |
| Approach Delay (s)                      | 2000000 | 15.8   |        | a collegie | 197        | 9928        |      | C     | 125456       | de acto     | C        | runco                |
| Approach LOS                            |         | 8  |        |            | В          |             |      |       | de la secono |             |          | _                    |
| Water or the party                      | 65816   |  | 13 DV2 | 1000       | 1000       | (September) |      | 10000 |              |             | 9868     | 66/05                |
| HCM Average Control Delay               | STON    | Total Control  | 16.7   | 1          | ICM Levi   | t of Sen    | rice | 20000 | В            | annianes    | acesses. | 5000                 |
| HCM Volume to Capacity (a)              | 0 1     |  | 0.62   |            |            |             |      | PRINT | 79           | EST ST      | 224507   | 100                  |
| Actuated Ovcle Length (s)               |         |  | 72.5   |            | Sum of for |             |      |       | 15.0         | unit const  | New York | HE CALL              |
| Intersection Capacity Uslizal           | ion - S |  | 57.8%  |            | CU Level   | of Servi    | 08   |       | 100          | THE PARTY   | 01、南海田   | 55-634               |