



KŌ'ŪLA

LAND BLOCK 1, PROJECT 4
HCDA PLANNED DEVELOPMENT
PERMIT APPLICATION

APRIL 2018

APPENDICES

Howard Hughes


WARD VILLAGE

APPENDICES

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APPENDIX A

LEED CHECKLIST



LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: Victoria Ward Block I

Date: 07/24/17

Y ? N

1 0 0

D Credit Integrative Process 1

16 0 0 Location and Transportation 16

16	0	0	D Credit 1	LEED for Neighborhood Development Location	16
0	0	0	D Credit 2	Sensitive Land Protection	1
0	0	0	D Credit 3	High Priority Site	2
0	0	0	D Credit 4	Surrounding Density and Diverse Uses	5
0	0	0	D Credit 5	Access to Quality Transit	5
0	0	0	D Credit 6	Bicycle Facilities	1
0	0	0	D Credit 7	Reduced Parking Footprint	1
0	0	0	D Credit 8	Green Vehicles	1

5 4 1 Sustainable Sites 10

Y			C Prereq 1	Construction Activity Pollution Prevention	Required
1	0	0	D Credit 1	Site Assessment	1
0	2	0	D Credit 2	Site Development - Protect or Restore Habitat	2
1	0	0	D Credit 3	Open Space	1
0	2	1	D Credit 4	Rainwater Management	3
2	0	0	C Credit 5	Heat Island Reduction	2
1	0	0	D Credit 6	Light Pollution Reduction	1

4 4 3 Water Efficiency 11

Y			D Prereq 1	Outdoor Water Use Reduction	Required
Y			D Prereq 2	Indoor Water Use Reduction	Required
Y			D Prereq 3	Building-Level Water Metering	Required
1	1	0	D Credit 1	Outdoor Water Use Reduction	2
2	1	3	D Credit 2	Indoor Water Use Reduction	6
0	2	0	D Credit 3	Cooling Tower Water Use	2
1	0	0	D Credit 4	Water Metering	1

12 7 14 Energy and Atmosphere 33

Y			C Prereq 1	Fundamental Commissioning and Verification	Required
Y			D Prereq 2	Minimum Energy Performance	Required
Y			D Prereq 3	Building-Level Energy Metering	Required
Y			D Prereq 4	Fundamental Refrigerant Management	Required
3	1	2	C Credit 1	Enhanced Commissioning	6
9	2	7	D Credit 2	Optimize Energy Performance	18
0	1	0	D Credit 3	Advanced Energy Metering	1
0	0	2	D Credit 4	Demand Response	2
0	0	3	D Credit 5	Renewable Energy Production	3
0	1	0	D Credit 6	Enhanced Refrigerant Management	1
0	2	0	D Credit 7	Green Power and Carbon Offsets	2

3 5 5 Materials and Resources 13

Y			D Prereq 1	Storage and Collection of Recyclables	Required
Y			C Prereq 2	Construction and Demolition Waste Management Planning	Required
0	3	2	D Credit 1	Building Life-Cycle Impact Reduction	5
0	1	1	C Credit 2	Building Product Disclosure and Optimization - Environmental Product Declaration	2
1	0	1	C Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
0	1	1	C Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2
2	0	0	C Credit 5	Construction and Demolition Waste Management	2

9 5 2 Indoor Environmental Quality 16

Y			D Prereq 1	Minimum Indoor Air Quality Performance	Required
Y			D Prereq 2	Environmental Tobacco Smoke Control	Required
2	0	0	D Credit 1	Enhanced Indoor Air Quality Strategies	2
2	1	0	D Credit 2	Low-Emitting Materials	3
1	0	0	C Credit 3	Construction Indoor Air Quality Management Plan	1
1	1	0	C Credit 4	Indoor Air Quality Assessment	2
1	0	0	D Credit 5	Thermal Comfort	1
1	1	0	D Credit 6	Interior Lighting	2
0	1	2	D Credit 7	Daylight	3
1	0	0	D Credit 8	Quality Views	1
0	1	0	D Credit 9	Acoustic Performance	1

3 3 0 Innovation 6

2	3	0	D Credit 1	Innovation	5
1	0	0	C Credit 2	LEED Accredited Professional	1

1 2 1 Regional Priority 4

1			D Credit 1	Regional Priority Credit: Construction and Demolition Waste Management	1
	1		D Credit 2	Regional Priority Credit: Optimize Energy Performance	1
	1		D Credit 3	Regional Priority Credit: Indoor Water Use Reduction	1
		1	D Credit 4	Regional Priority Credit: Building Lifecycle Impact Reduction	1

54 30 26 TOTALS Possible Points: 110

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

APPENDIX B

SHPD LETTER





STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
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SUZANNE D. CASE
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DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Mr. Souki and Mr. Randle
September 6, 2017
Page 2

- (1) 50-80-14-7429: a subsurface cultural layers and related features, including burial sites, associated with pre- and post-Contact habitation and land use (originally documented during the Honolulu Rail Transit Project City Center Section 4 survey [Hammatt 2013] and by the Block M survey);
- (2) 50-80-14-7655: a subsurface historic salt pan remnants and related features including human burials sites (originally documented during the Block B East and Block C West surveys); and
- (3) 50-80-14-7659: a historic concretized Ward Estate 'auwai (irrigation ditch) (originally documented during the Block B East survey).

September 6, 2017

Jesse Souki, Executive Director
Hawaii Community Development Authority
461 Cooke Street
Honolulu, HI 96813

Race Randle, Senior Director of Development
The Howard Hughes Corporation
1240 Ala Moana Blvd., Suite 200
Honolulu, HI 96814

Dear Mr. Souki and Mr. Randle:

SUBJECT: **HRS §6E-42 and 6E-43 and HAR §13-284 Historic Preservation Review —
Compliance for the Block I Project
Honolulu Ahupua'a, Honolulu (Kona) District, Island of O'ahu
TMK: (1) 2-3-002: 001 por.**

IN REPLY REFER TO:
Log No.: 2017.01722
Doc. No.: 1709KM01
Archaeology

Thank you for the opportunity to comment on the letter dated August 1, 2017, in which Victoria Ward Limited (VWL) states that the State Historic Preservation Division (SHPD) (1) has had an opportunity to review and comment on the effect of the proposed Ward Village Block I project on historic properties (pursuant to HRS §6E-42) and burial sites (pursuant to HRS §6E-43); and requests that SHPD (2) make a determination that VWL has met the respective requirements as set forth in HRS §6E-42 and HRS §6E-43 and HAR §13-284-3(b) Steps 1-5, and has set forth a process to comply with Step 6, pursuant to HAR §13-284-3(b)(6) and HAR §13-284-9(d). The SHPD received this submittal on August 8, 2017.

The 5.8-acre Block I project is located within Ward Village and is part of the Ward Neighborhood Master Plan. The Block I archaeological inventory survey (AIS) report (Sroat et al. 2015) was accepted by SHPD on June 12, 2015 (Log No. 2015.02101, Doc. No. 1505SL25).

Pursuant to HRS §6E-42 and HAR §13-284-3(b)(1-5), Victoria Ward Limited (VWL) has completed the following five of the six historic preservation review procedural steps:

- (1) Identification and inventory to determine if historic properties are present and, if so, to identify and document them;
- (2) Evaluation of significance;
- (3) Effect determination;
- (4) Mitigation commitments; and
- (5) Detailed mitigation plan(s).

(1) Identification and inventory. Pursuant to HAR §13-284-3(b)(1), the Block I AIS identified and documented additional portions of the following three previously identified historic properties:

(2) Evaluation of Significance. Historic properties were assessed as significant per HAR §13-284-6 based on the following criteria: (a) Historic property reflects major trends or events in the history of the state of nation, (b) Historic property is associated with the lives of persons significant in our past, (c) Historic property is an excellent example of a site type, (d) Historic property has yielded or may be likely to yield information important in prehistory or history, and (e) Historic property has cultural significance to an ethnic group, including, but not limited to, religious structures, burials, and traditional cultural properties.

Pursuant to HAR §13-284-3(b)(2), VWL provided the following site significance evaluations for the historic properties within the Block I project:

Site 7429 is assessed as significant under Criteria d (information potential) and e (important to a particular group). Site 7655 is significant under Criteria c (distinctive type), d, and e. Site 7659 is significant under Criterion d only. SHPD concurred with the site significance assessments on June 12, 2015 (Log No. 2015.02101, Doc. No. 1505SL25).

(3) Effect Determination. Pursuant to HAR §13-284-3(b)(3), VWL provided the following project effect recommendation, which SHPD concurred with on June 12, 2015 (Log No. 2015.02101, Doc. No. 1505SL25):

The project effect determination is "effect, with agreed upon mitigation commitments."

(4) Mitigation Commitments. Pursuant to HAR §13-284-3(b)(4), VWL proposed the following mitigation commitments:

The mitigation recommendations were data recovery in the form of archaeological monitoring for the proposed tower area per HAR §13-284-8(a)(1)C). Elsewhere within the Block I AIS study area, the agreed-upon mitigation was research-defined data recovery for Site 7655 and Site 7429; on-site archaeological monitoring of Sites 7429, 7655, and 7659; and submittal of a burial treatment plan for all burials and/or displaced human skeletal remains identified during the AIS within Sites 7429 and 7655. SHPD concurred with the mitigation commitments on June 12, 2015 (Log No. 2015.02101, Doc No. 1505SL25).

A burial treatment plan exists for the Block I project and the OIBC burial treatment determination for the HHC's Block I BTP pertains to all the burial sites addressed in the redesigned Block N East burial site component (BSC) of a data recovery and preservation plan (Log No. 2015.03320, Doc. No. 1512.RKH09; December 9, 2015 OIBC Minutes). The burial treatment measures for the sites are outlined as follows:

- The Site 7429 burial sites (Block I Trenches 3, 7, 8, 13, 17, 24, 57, 69, 70) and the Site 7655 burial site (Block I Trench 35) are addressed within the BSC of a data recovery and preservation plan for the redesigned Block N East;
- The more southwestern (*makai*) Site 7655 Feature 6 burial site (Block I Trench 38, and expansion Trenches 61 and 66) is addressed within the BSC of a preservation plan for Block I; and
- The Site 7429 burial sites (original Block N East Trenches 10 and 14-14G) are outside of the redesigned Block N East project area and shall be addressed in a burial treatment plan for the future Block N West project.

(5) Mitigation Plans. Pursuant to HAR §13-284-3(b)(5), VWL has completed, and SHPD has reviewed and accepted the following agreed-upon mitigation plans:

- (1) *Archaeological Monitoring Plan (“AMP”) for Block I, Kaka’ako, Honolulu Ahupua’a, Honolulu (Kona) District, O’ahu, TMK (1) 2-3-002:001 (portion) (Sroat et al. 2015) (August 18, 2015; Log No. 2015.02451, Doc. No. 1508SL16);*
- (2) *Archaeological Data Recovery Plan (“ADRP”) for SIHP #s 50-80-14-7429 and 50-80-14-7655, Block I, Kaka’ako, Honolulu Ahupua’a, Honolulu (Kona) District, O’ahu, TMK (1) 2-3-002:001 (portion) (Sroat and McDermott 2017) (June 30, 2017; Log No. 2017.00480, Doc. No. 1706JA03);*
- (3) *Burial Treatment Plan (“BTP”) for SIHP #s 50-80-14-7429 and 50-80-14-7655, Block I, Kaka’ako, Honolulu Ahupua’a, Honolulu (Kona) District, O’ahu, TMK (1) 2-3-002:001 (portion) (Reveal et al. 2015) (December 3, 2015; Log No. 2015.03320, Doc. No. 1512RKH09);*
- (4) *Burial Site Component of a Data Recovery and Preservation Plan for portions of SIHP #s 50-80-14-7429 and 50-80-14-7655, Howard Hughes Corporation’s Redesigned Block N East Project, Kaka’ako, Honolulu Ahupua’a, Honolulu (Kona) District, O’ahu, TMK (1) 2-3-002:001 (portion) (McDermott and Yucha 2016) (March 24, 2017; Log No. 2016.01900, Doc. No. 1609RKH01); and*
- (5) *Burial Site Component and Preservation Plan for Burial Site SIHP # 50-80-14-7655, Feature 6, Howard Hughes Corporation’s Block I Project, Kaka’ako, Honolulu Ahupua’a, Honolulu (Kona) District, O’ahu, TMK (1) 2-3-002:001 (portion) (Welser and McDermott 2017) (March 24, 2017; Log No. 2017.00446, Doc. No. 1703RKH05).*

VWL provided in their letter dated August 1, 2017 (Log No. 2017.01722) a plan that specifies the process to be implemented to comply with HAR §13-284-3(b)(6), verification of the detailed mitigation plans.

(6) Verification of Completion. Pursuant to HAR §13-284-3(b)(6), VWL proposes the following procedures and schedules to verify completion of the historic preservation review process:

- (1) VWL will conduct the data recovery fieldwork in accordance with the SHPD-accepted archaeological data recovery plan (DRP) prior to any project construction. Following completion of the data recovery fieldwork (anticipated to be October 2017), an end-of-fieldwork-letter report (anticipated to be November 2017) will be submitted to the SHPD for review and anticipated acceptance;
- (2) If the end-of-fieldwork letter is accepted by the SHPD, and if the SHPD deems appropriate, VWL will submit to the SHPD a request for the accelerated, 2-step verification process outlined in HAR §13-284-9(d);
- (3) Upon initiation of the accelerated 2-step verification process and receipt of a letter from the SHPD agreeing that HAR §13-284-9(d) Step 1 has been completed, that construction may proceed, VWL will implement all pre-construction provisions of the SHPD-accepted Block I AMP and BSCPP, with the understanding that HAR §13-284-9(d) Step 2 must be completed to conclude the historic preservation process;
- (4) VWL will implement the required burial treatment measures for the Block I SHPD-accepted BSCPP. This pre-construction implementation will include the establishment of an interim construction buffer measuring 15 ft. by 15 ft. square and consisting of a 4-ft high plywood barricade around the SIHP # 50-80-14-7655, Feature 6 burial. This construction buffer will be recorded on all construction plans and pre-construction meetings with the contractors will be conducted in order to ensure that all contractors are aware of the BSCPP’s requirements.
- (5) During the pre-construction period, VWL will implement the archaeological monitoring plan pre-construction meetings so that all contractors are aware of the plan’s requirements;
- (6) Construction for the Block I is anticipated to commence on the portion of area designated as the “Ward Village Central Plaza” in December 2017. Approval for permits for demolition and grading is

anticipated in September 2017. The application for a Planned Development Permit [“PDP”] for the portion of the project designated as the “Block I Tower” is pending; the forecast for PDP Permit approval, detailed design, project sales, and tower building permits, anticipates construction on the “Block I Tower” occurring from calendar years 2019 to 2022. During all construction activities the VWL will ensure compliance with all provisions of the SHPD-accepted Block I AMP and BSCPP;

- (7) Upon completion of construction on both the “Ward Village Central Plaza” and “Block I Tower” portions of the site, VWL will submit within 6 months an archaeological monitoring report for SHPD review and acceptance. Additionally, the VWL will ensure the long-term protection measures stipulated in the BSCPP will be implemented and a verification letter report will be prepared and submitted to the SHPD for review; and
- (8) VWL will consult regularly throughout this process with SHPD and the recognized cultural descendants and provide project updates to the O’ahu Island Burial Council, as appropriate.

Based on the above, SHPD indicates that it has reviewed and commented on the effect of the proposed project pursuant to HRS §6E-42 and HAR §13-284-3. The SHPD’s determination is that VWL has completed Steps 1 through 5 pursuant to HAR §13-284-3(b)(1-5). Furthermore, the SHPD concurs with the procedures and schedule VWL has proposed to complete Step 6 (verification of completion) per HAR §13-284-3(b).

Please contact Kimi Matsushima at (808) 692-8027 or at Kimi.R.Matsushima@hawaii.gov for questions regarding archaeological resources or this letter.

Aloha,



Susan A. Lebo, PhD
Archaeology Branch Chief

cc: Matt McDermott, mmcdermott@culturalsurveys.com
Race Randle, race.randle@howardhughes.com
John Whalen, jpwhalen@live.com

APPENDIX C

TRAFFIC IMPACT REPORT



Traffic Impact Report

Block I



Prepared for:
The Howard Hughes Corporation

Prepared by:
Wilson Okamoto Corporation

March 2017

TRAFFIC IMPACT REPORT

FOR

BLOCK I

Prepared for:

The Howard Hughes Corporation
1240 Ala Moana Blvd., Suite 200
Honolulu, HI 96813

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC Ref #8206-37

March 2017

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the potential traffic impacts resulting from the Block I development of the Ward Village Master Plan in Kakaako on the island of Oahu. The Block I development entails the replacement of existing uses and parking areas with new residential and commercial/retail uses.

B. Scope of Study

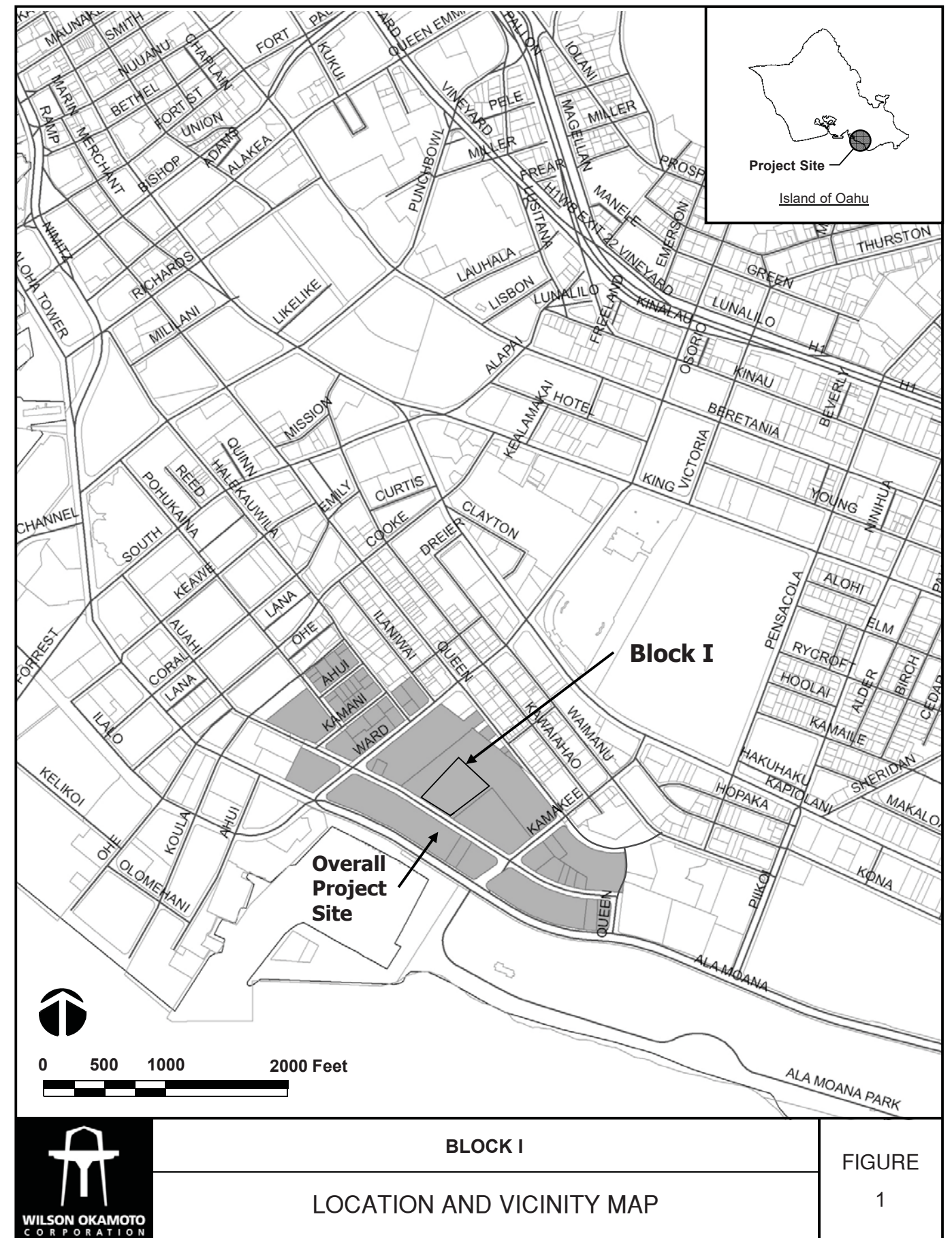
This report presents the findings and conclusions of the traffic study, the scope of which includes:

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

II. PROJECT DESCRIPTION

A. Location

The project site for the proposed Block I development is located adjacent to Auahi Street in Kakaako on the island of Oahu (see Figure 1). Primary access is expected to be provided via the north-south connector road (referred to as “Private Drive”) between Queen Street and Auahi Street. The project site is anticipated to be bounded by the future Halekauwila Street Extension to the north, Private Drive to the east, Auahi Street to the south, and park uses to the west.



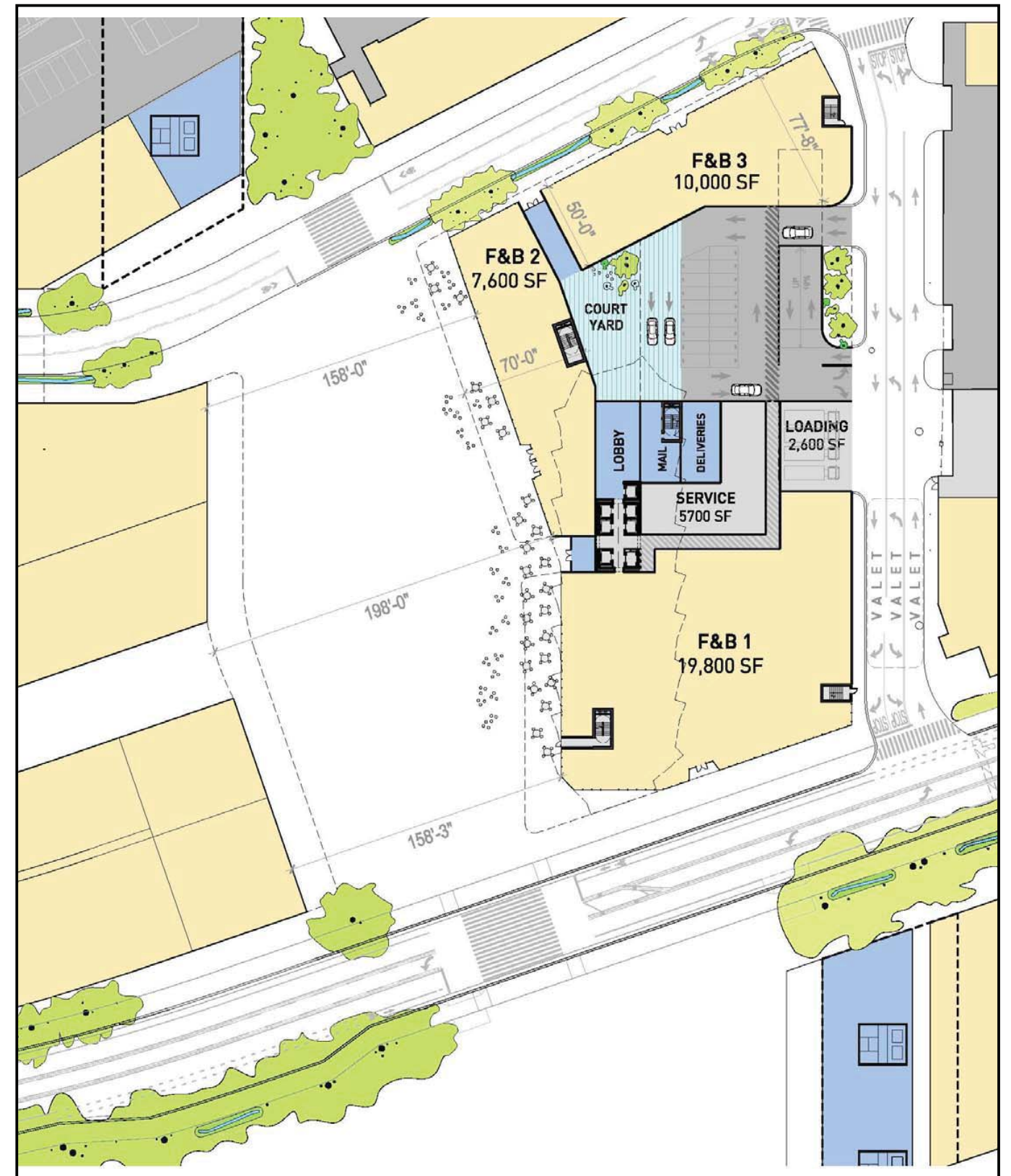
B. Project Characteristics


The Block I development is included in Phase 2 of the overall Ward Village Master Plan. The overall Ward Village Master Plan entails the future redevelopment of Ward Warehouse, Ward Center, Ward Village Shops, and other surrounding commercial and office buildings in five (5) phases over the next 10-15 years. Phases 1A, 1B, and the Block N East portion of Phase 2 are currently under design or construction and are expected to be completed by the Year 2020. The remaining portion of Phase 2 includes the development of Block I which is expected to include approximately 37,500 square feet of retail space, 37,500 square feet for restaurants, 700 residential units, and an on-site parking garage for residents. This proposed development is expected to be completed by the Year 2021 with primary access anticipated to be provided via two driveways off Private Drive between Queen Street and Auahi Street. Figure 2 shows the proposed project site plan.

III. EXISTING TRAFFIC CONDITIONS

A. Area Roadway System

East-west traffic flow through the Kakaako area is served by a number of existing major roadways which include Ala Moana Boulevard, Queen Street, and Kapiolani Boulevard that provide continuous east-west mobility through the project vicinity. These major roadways are supported by a network of connector roadways including Auahi Street, Pohukaina Street, and Halekauwila Street that provide alternate east-west routes through the surrounding areas. North-south traffic through the Kakaako area is served by a number of existing major roadways including Ward Avenue and Piikoi Street that support either one-way or two-way travel through the project vicinity. These major roadways are supported by a network of connector roadways including Cooke Street and Kamakee Street that provide alternate north-south routes through the surrounding areas. Figure 3 shows the existing lane use at key locations within the study area.



	BLOCK I	FIGURE
	SITE PLAN	2

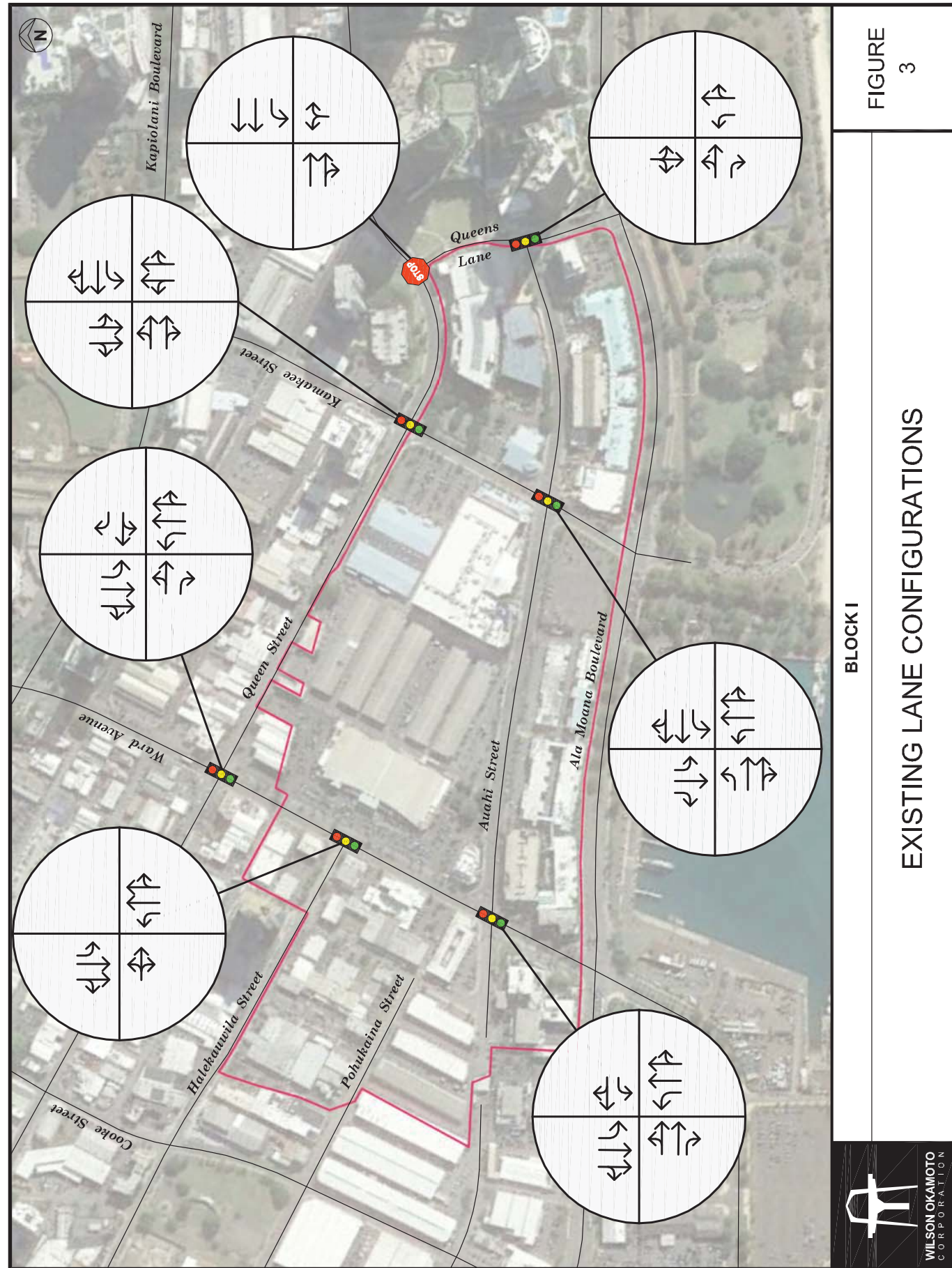


FIGURE 3

BLOCK I
EXISTING LANE CONFIGURATIONS

B. Traffic Volumes and Conditions

1. General

a. Field Investigation

The existing traffic count data utilized for this study consisted of turning movement count surveys at approximately 46 locations during the weekday morning peak hours of 6:00 AM and 9:00 AM and afternoon peak hours of 3:00 PM and 6:00 PM. The surveys were conducted during March and April 2015 at the intersections along the following roadways:

- Kapiolani Boulevard between Cooke Street and Piikoi Street
- Kona Street between Kamakee Street and Piikoi Street
- Waimanu Street between Ward Avenue and Piikoi Street
- Kawaiahao Street between Cooke Street and Kamakee Street
- Queen Street between Cooke Street and Waimanu Street
- Ward Avenue with Ilaniwai Street
- Halekauwila Street between Cooke Street and Ward Avenue
- Pohukaina Street between Cooke Street and Kamani Street
- Auahi Street between South Street and Queens Lane
- Ala Moana Boulevard between Cooke Street and Piikoi Street

Appendix A includes the existing traffic count data.

b. 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 periods 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.

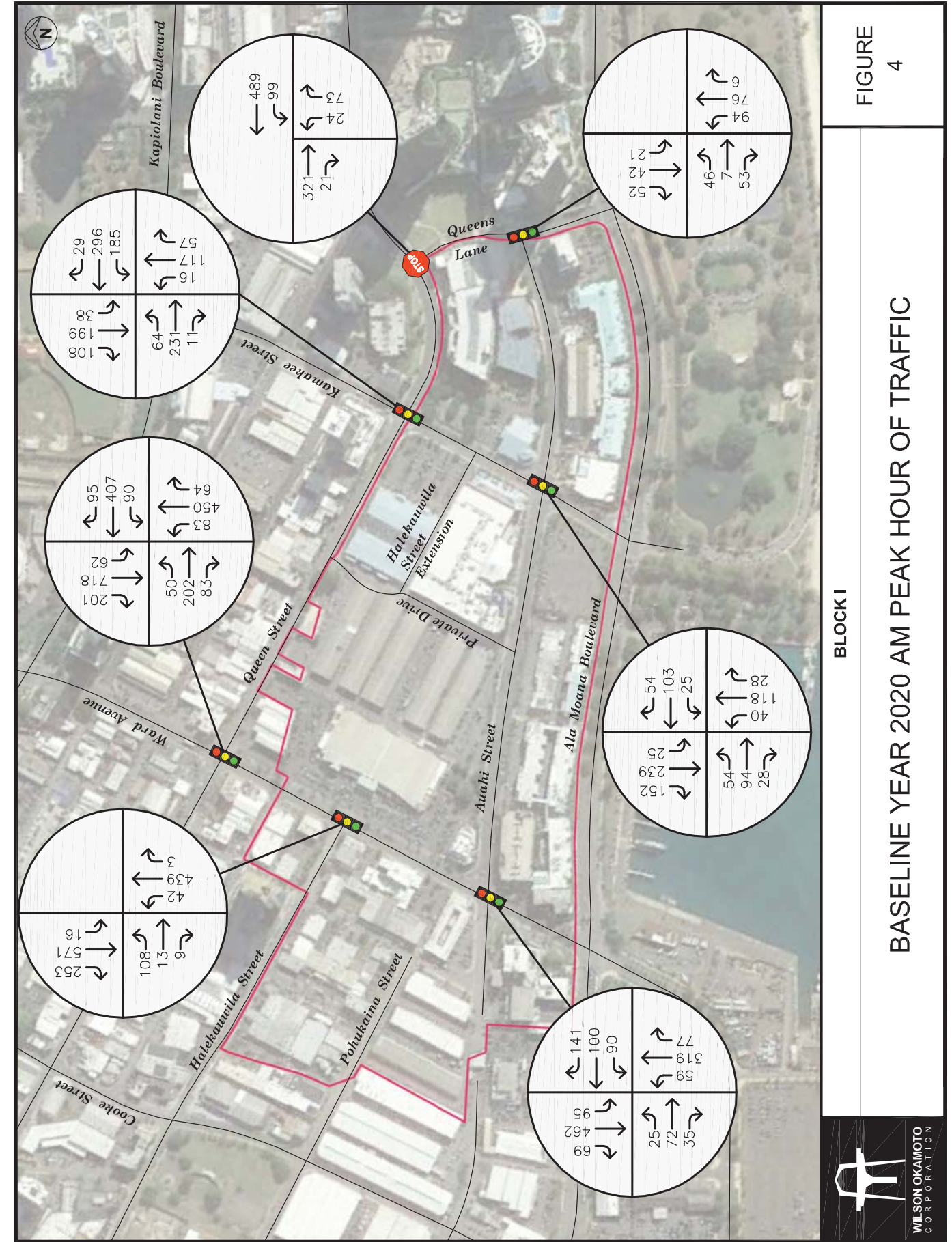
“Volume-to-Capacity” (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road’s carrying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

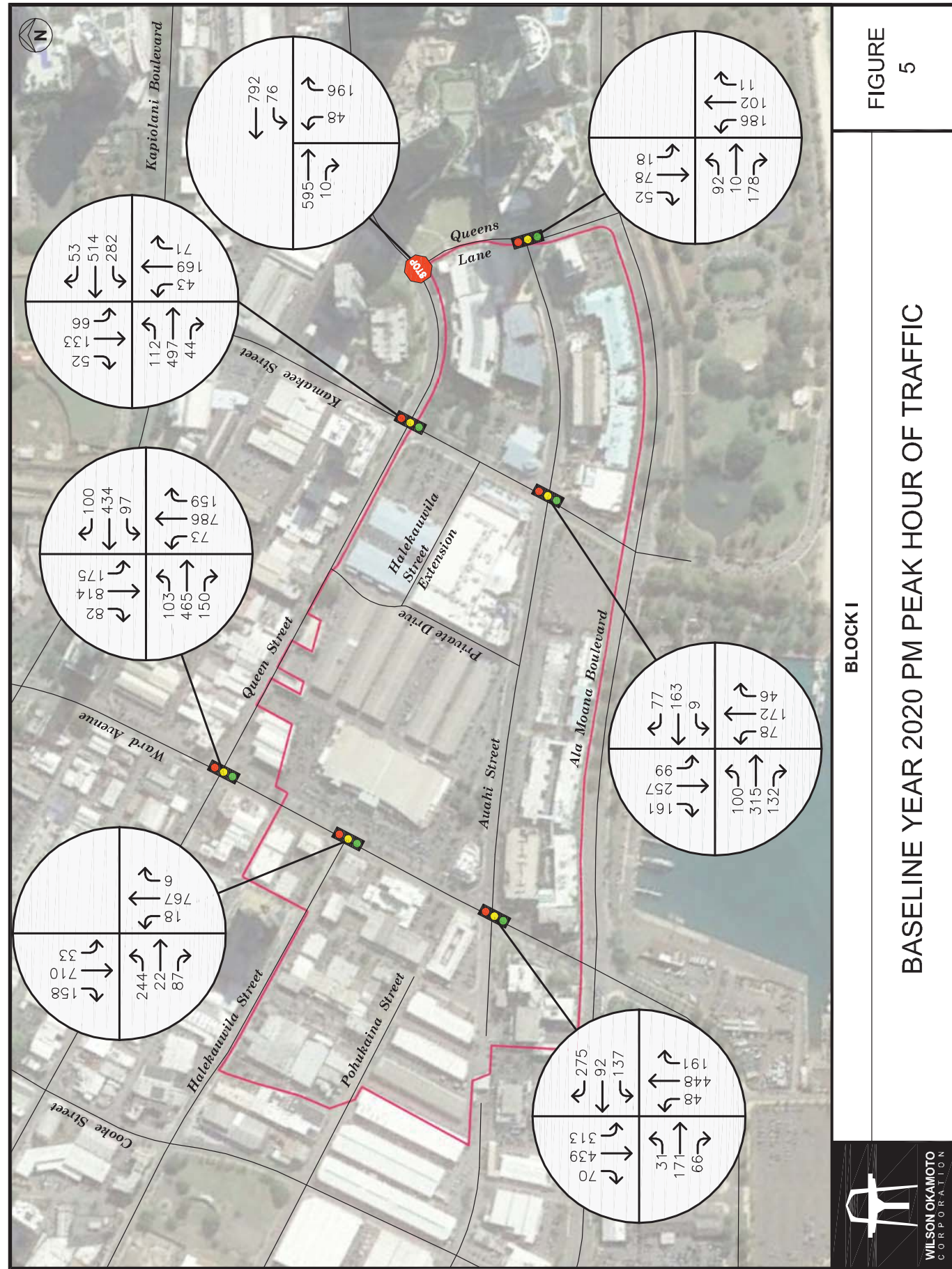
2. Baseline Peak Hour Traffic

a. General

Figures 4 and 5 show the baseline Year 2020 AM and PM peak hour traffic volumes at key locations within the study area which includes the development of other projects in the vicinity, as well as, Phases 1A, 1B, and a portion of Phase 2 of the Ward Village Master Plan. Those phases are expected to include residential and commercial/retail uses for Blocks C East, K, M, O, and N East. The baseline traffic conditions are based on the projected Year 2020 conditions included in the “Traffic Impact Report for Block N East,” dated August 2016. It should be noted that in conjunction with the development of Block N East, that project is expected to improve the intersection of Ward Avenue and Queen Street to provide an exclusive left-turn lane and a shared through and right-turn lane along both approaches of Queen Street.

The AM peak hour of traffic generally occurs between 7:15 AM and 8:15 AM while the PM peak hour of traffic generally occurs between 4:30 PM and 5:30 PM. Although the peak hours of traffic generally occur around the same time periods at each of the study intersections, the absolute commuter peak hour time periods for each intersection may differ slightly. The analysis is based on these absolute commuter peak hour time periods to identify the traffic impacts resulting from the proposed project. LOS calculations for the core intersections are included in Appendix C.





b. Ward Avenue and Queen Street

At the intersection with Queen Street, Ward Avenue carries 597 vehicles northbound and 981 vehicles southbound during the AM peak hour of traffic. During the PM peak period, traffic volumes are higher with 1,018 vehicles traveling northbound and 1,071 vehicles traveling southbound. Both approaches of Ward Avenue operate at LOS “C” during the AM peak period and LOS “D” during the PM peak period.

The Queen Street approaches of the intersection carry 335 vehicles eastbound and 592 vehicles westbound during the AM peak hour of traffic. During the PM peak period, traffic volumes are higher with 718 vehicles traveling eastbound and 631 vehicles traveling westbound. The eastbound approach of Queen Street operates at LOS “B” and LOS “D” during the AM and PM peak periods, respectively, while the westbound approach operates at LOS “C” and LOS “D” during the AM and PM peak periods, respectively.

c. Queen Street and Kamakee Street

At the intersection with Kamakee Street, Queen Street carries 306 vehicles eastbound and 510 vehicles westbound during the AM peak hour of traffic. During the PM peak period, traffic volumes are higher with 653 vehicles traveling eastbound and 849 vehicles traveling westbound. The eastbound approach of Queen Street operates at LOS “B” and LOS “C” during the AM and PM peak periods, respectively, while the westbound approach operates at LOS “B” during both peak periods.

The Kamakee Street approaches carry 190 vehicles northbound and 345 vehicles southbound during the AM peak hour of traffic. During the PM peak period, the overall traffic volume is similar with 283 vehicles traveling northbound and 251 vehicles traveling southbound. Both approaches of Kamakee Street operate at LOS “B” during the AM peak period and LOS “C” during the PM peak period.

d. Queen Street and Queens Lane

At the intersection with Queens Lane, Queen Street carries 342 vehicles eastbound and 588 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 605 vehicles traveling eastbound and 868 vehicles traveling westbound. The westbound left-turn traffic movement operates at LOS “A” during both peak periods.

Queens Lane carries 97 vehicles northbound during the AM peak period and 244 vehicles during the PM peak period. The Queens Lane approach operates at LOS “B” during both peak periods.

e. Ward Avenue and Halekauwila Street

At the intersection with Halekauwila Street, Ward Avenue carries 484 vehicles northbound and 840 vehicles southbound during the AM peak hour of traffic. During the PM peak period, traffic volumes are higher with 791 vehicles traveling northbound and 901 vehicles traveling southbound. Both approaches of Ward Avenue operate at LOS “A” during the AM peak period and LOS “B” during the PM peak period.

The Halekauwila Street approach of the intersection carries 130 vehicles eastbound during the AM peak period and 353 vehicles during the PM peak period. The eastbound approach of Halekauwila Street operates at LOS “B” during both peak periods.

f. Ward Avenue and Auahi Street

At the intersection with Auahi Street, Ward Avenue carries 455 vehicles northbound and 626 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 687 vehicles traveling northbound and 822 vehicles traveling southbound. The northbound approach of Ward Avenue operates at LOS “A” during both peak periods, while the southbound approach operates at LOS “A” and LOS “B” during the AM and PM peak periods, respectively.

The Auahi Street approaches of the intersection carry 132 vehicles eastbound and 331 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 268 vehicles traveling eastbound and 504 vehicles traveling westbound. The eastbound approach of Auahi Street operates at LOS “B” during both peak periods, while the westbound approach operates at LOS “B” and LOS “C” during the AM and PM peak periods, respectively.

g. Kamakee Street and Auahi Street

At the intersection with Auahi Street, Kamakee Street carries 186 vehicles northbound and 416 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 296 vehicles traveling northbound and 517 vehicles traveling southbound. Both approaches of Kamakee Street operate at LOS “A” during the AM peak period and LOS “C” during the PM peak period.

Auahi Street carries 176 vehicles eastbound and 182 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 547 vehicles traveling eastbound and 249 vehicles traveling westbound. The eastbound approach of Auahi Street operates at LOS “C” and LOS “B” during the AM and PM peak periods, respectively, while the westbound approach operates at LOS “B” during both peak periods.

h. Auahi Street, Queens Lane, and Queen Street

At the intersection with Queens Lane and Queen Street, Auahi Street carries 106 vehicles eastbound during the AM peak period and 280 vehicles during the PM peak period. The eastbound approach of Auahi Street operates at LOS “B” during both peak periods.

The Queens Lane approach carries 115 vehicles southbound during the AM peak period and 148 vehicles during the PM peak period. The Queens Lane approach operates at LOS “B” during both peak periods. The northbound approach is comprised of

Queen Street which carries 176 vehicles during the AM peak period and 299 vehicles during the PM peak period. The Queen Street approach also operates at LOS “B” during both peak periods.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in “Trip Generation, 9th Edition,” 2012. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per dwelling unit or 1,000 square feet of development. The trip generation methodology developed by ITE also includes provisions for pass-by trips, internal capture of trips, and multi-modal trips. Pass-by trips are generated when vehicles that would be traveling through the area, whether or not the project was developed and make an intermediate stop at the project site between their origin and primary destination. Internal capture of trips accounts for vehicles that visit more than one destination within the same area without adding external vehicular trips to the surrounding major roadways. Multi-modal trips are trips made utilizing non-motorized modes of travel such as walking and biking, as well as trips made using transit. The project site is currently served by established, convenient transit routes that may reduce the number of vehicular trips added to the surrounding major roadways. In addition, the City and County of Honolulu is currently developing a fixed guideway transit system that will extend from Kapolei to potentially the central Honolulu area thereby providing an alternate mode of travel through the Kakaako area. However, the planned system is not expected to be completed prior to the completion of the Block I development and, as such, trip reductions associated with the fixed guideway transit system were not incorporated into projected conditions. The trip generation characteristics for the proposed project were adjusted,

however, to account for the influence of the other factors, as well as, to account for the trip generation characteristics of the existing uses that will be replaced by the new development. Table 1 summarizes the adjusted trip generation characteristics of the new development that incorporates the influence of the aforementioned factors. Appendix D includes a detailed trip generation worksheet for the Block I development.

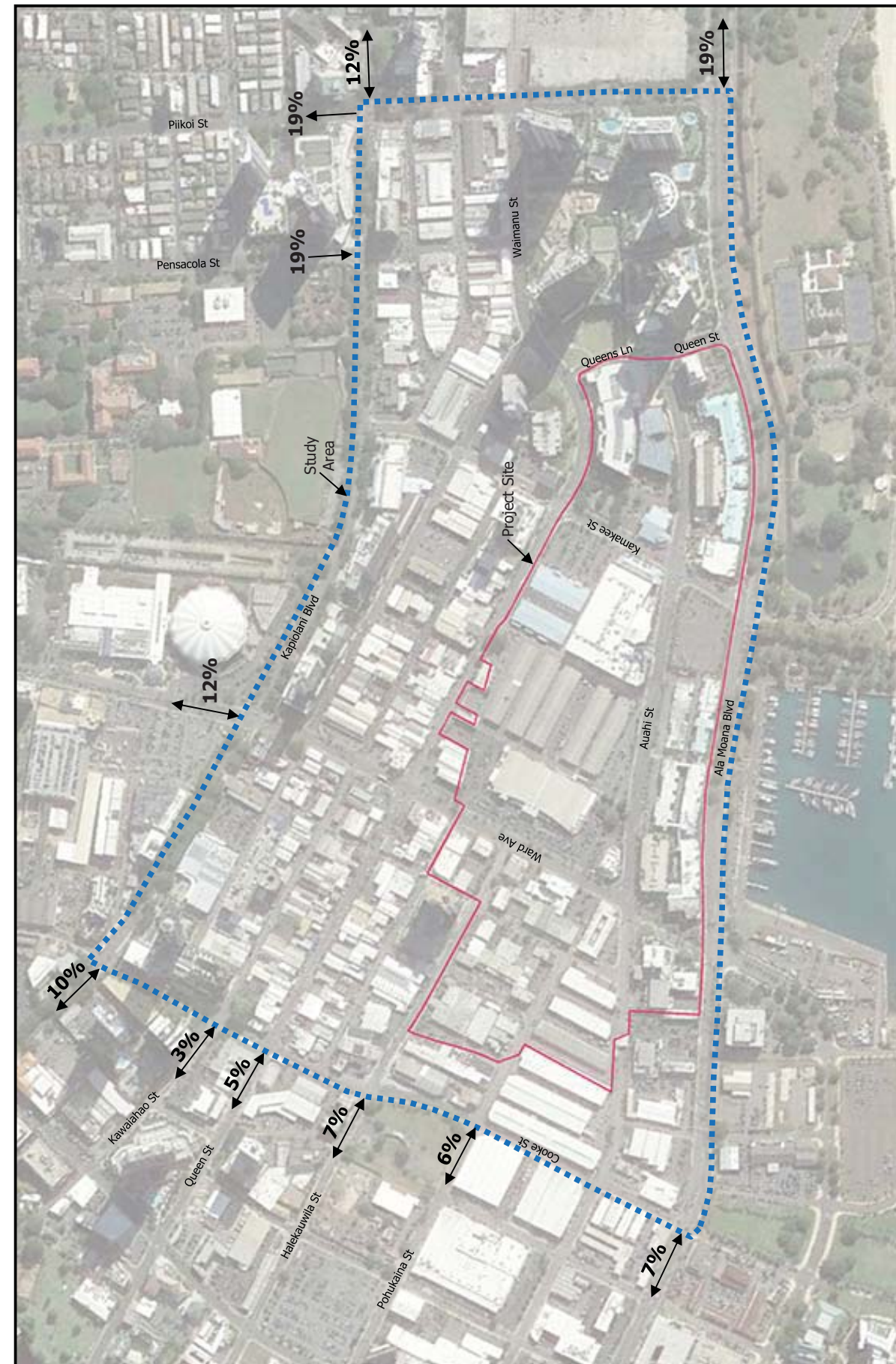
Table 1: Adjusted Peak Hour Trip Generation

COMMERCIAL/RETAIL (SHOPPING CENTER)		
INDEPENDENT VARIABLE:		1,000 sf of development = 37.50
		PROJECTED TRIP ENDS
AM PEAK	ENTER	13
	EXIT	8
	TOTAL	21
PM PEAK	ENTER	24
	EXIT	18
	TOTAL	42
FINE DINING RESTAURANT (QUALITY RESTAURANT)		
INDEPENDENT VARIABLE:		1,000 sf of development = 37.50
		PROJECTED TRIP ENDS
AM PEAK	ENTER	131
	EXIT	102
	TOTAL	233
PM PEAK	ENTER	78
	EXIT	34
	TOTAL	112
RESIDENTIAL (CONDOMINIUM/TOWNHOUSE)		
INDEPENDENT VARIABLE:		Dwelling Units = 700
		PROJECTED TRIP ENDS
AM PEAK	ENTER	30
	EXIT	196
	TOTAL	226
PM PEAK	ENTER	174
	EXIT	64
	TOTAL	238
TOTALS		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	174
	EXIT	306
	TOTAL	480
PM PEAK	ENTER	276
	EXIT	116
	TOTAL	392

It should be noted that there are plans to demolish the existing Ward Warehouse by the Year 2018 to prepare the site for future development. That project site will be redeveloped into three smaller parcels (referred to as Blocks B West, B East, and C West) which are also expected to include residential and commercial/retail uses. However, those blocks are not expected to be redeveloped prior to the completion of the Block I development. As such, the anticipated reduction in trips as a result of the overall Ward Village development, including the demolition of Ward Warehouse is incorporated into without project conditions. The trip generation characteristics associated with the future blocks expected to be located on in its place will be addressed in future site specific studies as planning of those developments progresses. Appendix D includes the detailed trip generation worksheets for the existing uses expected to be removed as a result of the demolition of Ward Warehouse.

2. Trip Distribution and Through Traffic Forecasting Methodology

The travel forecast utilized for this study is based on the OMPO regional forecasting model which contains estimated land usage for the island of Oahu by the Year 2035 including the development of other projects such as the adjacent Kamehameha Schools/Bishop Estate (KSBE) lands to the west. The travel forecast utilized for the OMPO model is based on Socio-Economic Data (SED) which represents the population distribution within a multitude of traffic analysis zones. The model utilizes this data to forecast individual vehicle trips between destinations within the model. The use of the OMPO model more accurately reflects the anticipated impacts of development on the island more than the use of historical travel patterns or traffic count data. Figures 6 to 8 show the trip distribution percentages and the distribution of site-generated traffic during the AM and PM peak periods based on the OMPO model. It should be noted that the on-site parking garage is expected to serve only the residential uses of the proposed project with commercial trips expected to utilize the regional parking garages within the vicinity. As such, trips were distributed between the available parking areas based on their

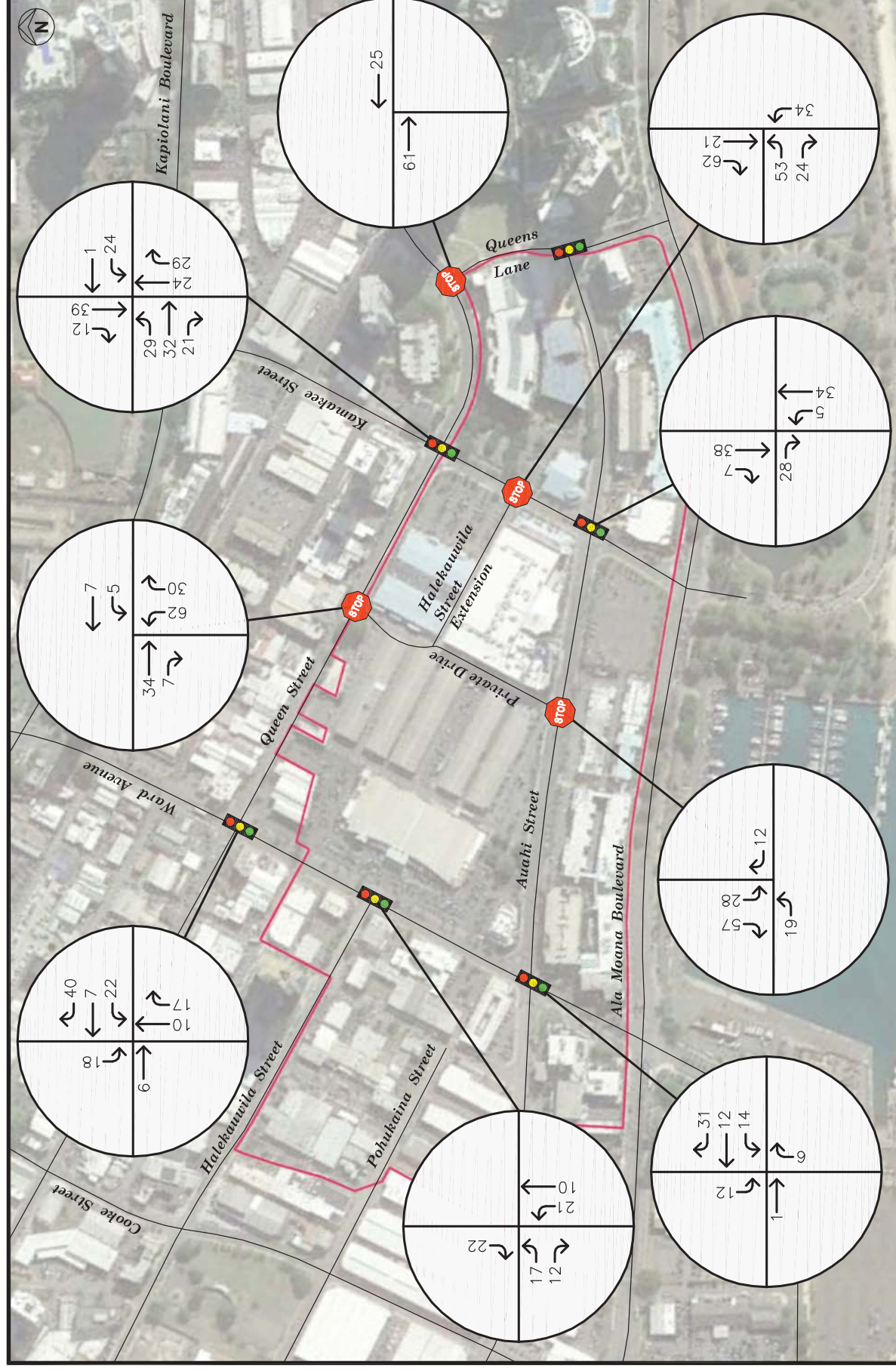


BLOCK I

DISTRIBUTION OF EXTERNAL SITE-GENERATED TRIPS

FIGURE 6

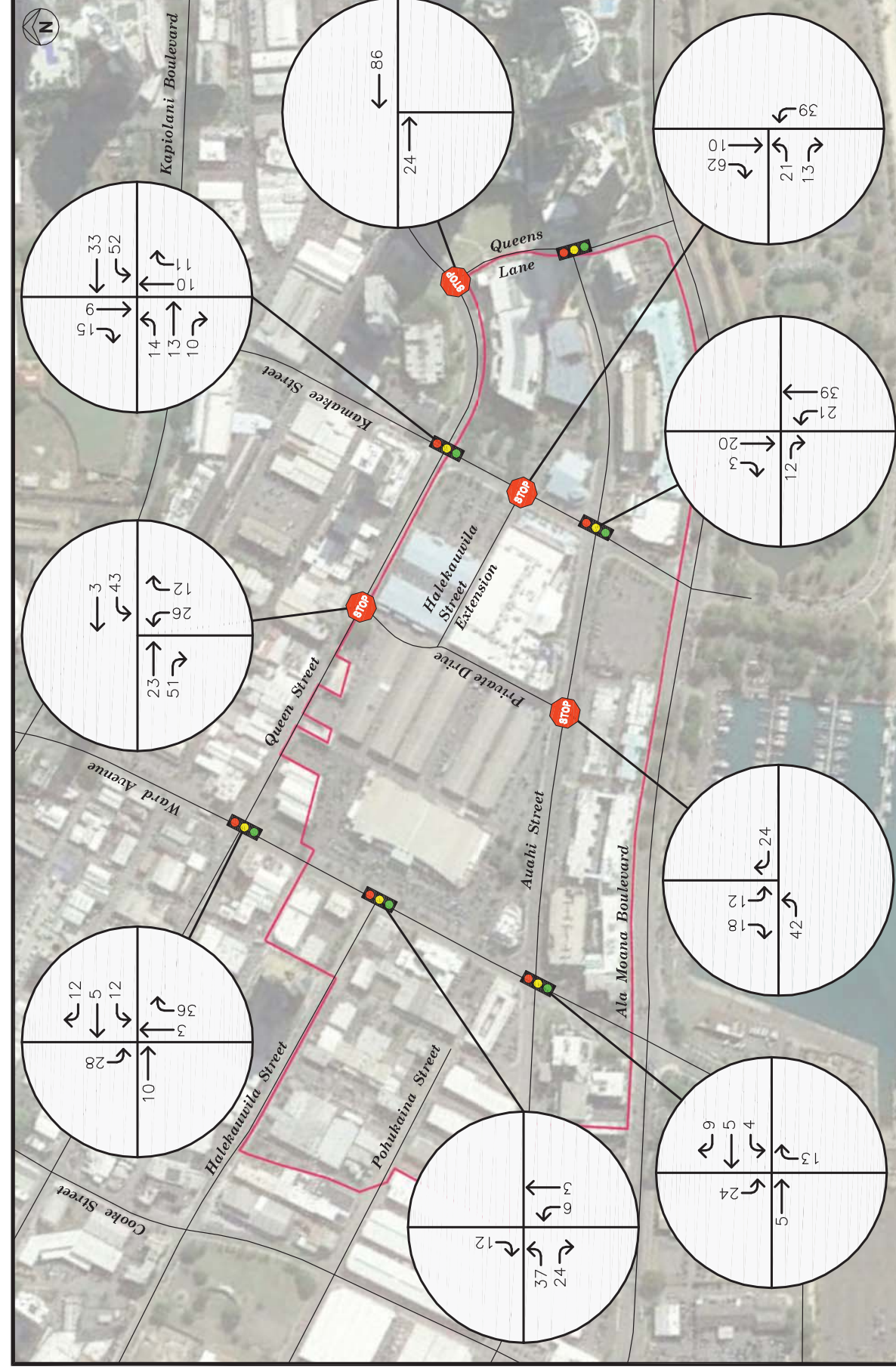




BLOCK I

DISTRIBUTION OF SITE-GENERATED VEHICLES
AM PEAK HOUR OF TRAFFIC WITH PROJECT

FIGURE
7



BLOCK I

DISTRIBUTION OF SITE-GENERATED VEHICLES
PM PEAK HOUR OF TRAFFIC WITH PROJECT

FIGURE
8



assumed origin/destination, allowed turning movement and the relative convenience of the available routes. In addition, since population estimates for the island of Oahu indicate that growth is expected to be relatively linear to the Year 2035. As such, a corresponding growth factor was interpolated for the Year 2021.

B. Total Traffic Volumes Without Project

The projected Year 2021 AM and PM peak period traffic volumes and operating conditions without the Block I development are shown in Figures 9 and 10, and summarized in Table 2. The analysis incorporates the trips associated with the development of other projects in the area, Blocks C East, K, M, O, and N East of the Ward Villages Master Plan, the demolition of Ward Warehouse, and the anticipated ambient growth in traffic in the vicinity. The baseline levels of service are provided for comparison purposes. LOS calculations are included in Appendix E.

Table 2: Baseline and Projected Year 2021 (Without Project) LOS Traffic Operating Conditions

Intersection	Approach/ Critical Movement	AM		PM	
		Base- line	Year 2021 w/out Proj*	Base- line	Year 2021 w/out Proj*
Ward Ave/ Queen St	Eastbound	B	B	D	D
	Westbound	C	C	D	D
	Northbound	C	C	D	D
	Southbound	C	C	D	D
Queen St/ Kamakee St	Eastbound	B	B	C	C
	Westbound	B	B	B	B
	Northbound	B	B	C	C
	Southbound	B	B	C	C
Queen St/ Queens Ln	Westbound	A	A	A	A
	Northbound	B	B	B	B

*Includes the demolition of Ward Warehouse

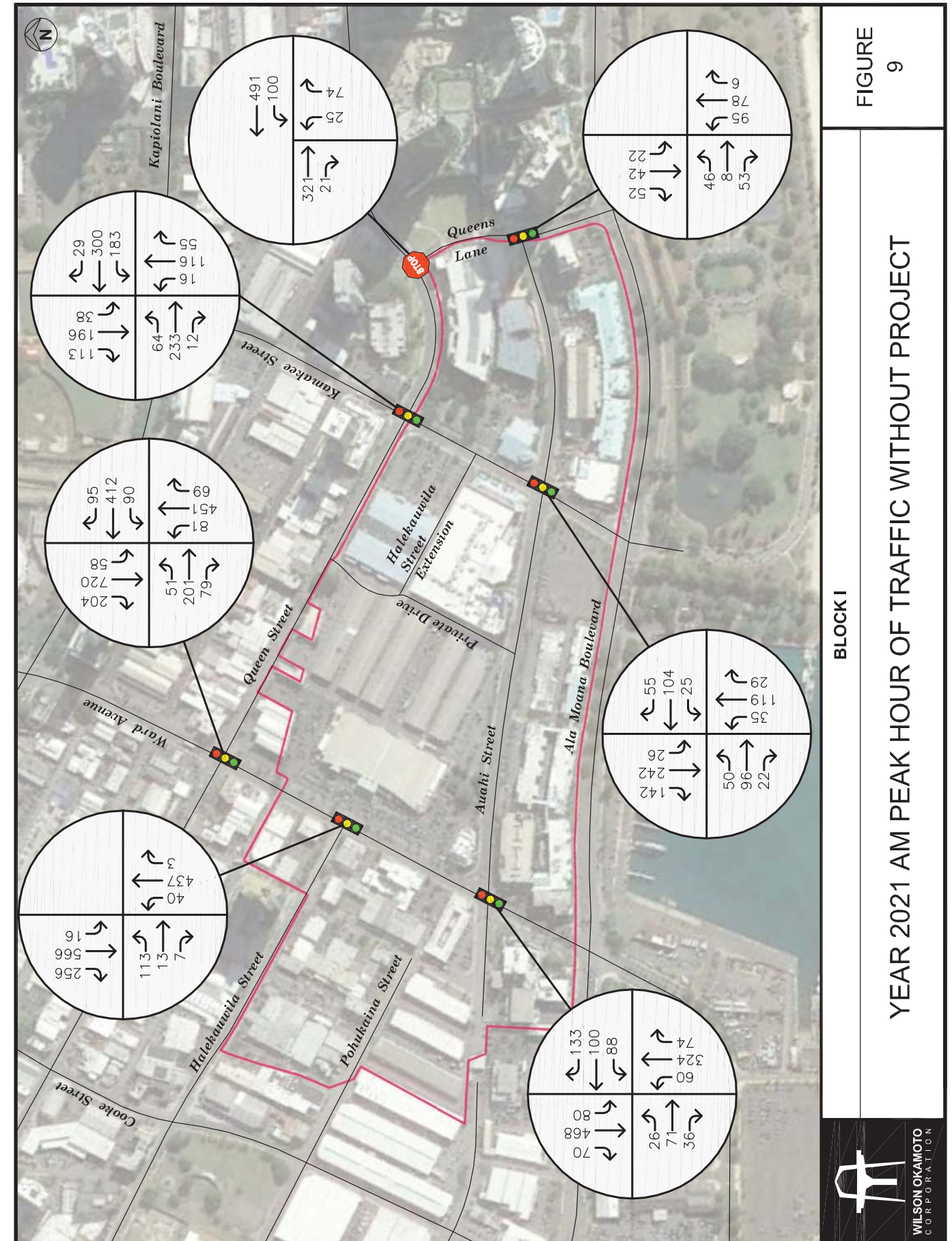


FIGURE 9

YEAR 2021 AM PEAK HOUR OF TRAFFIC WITHOUT PROJECT

BLOCK I



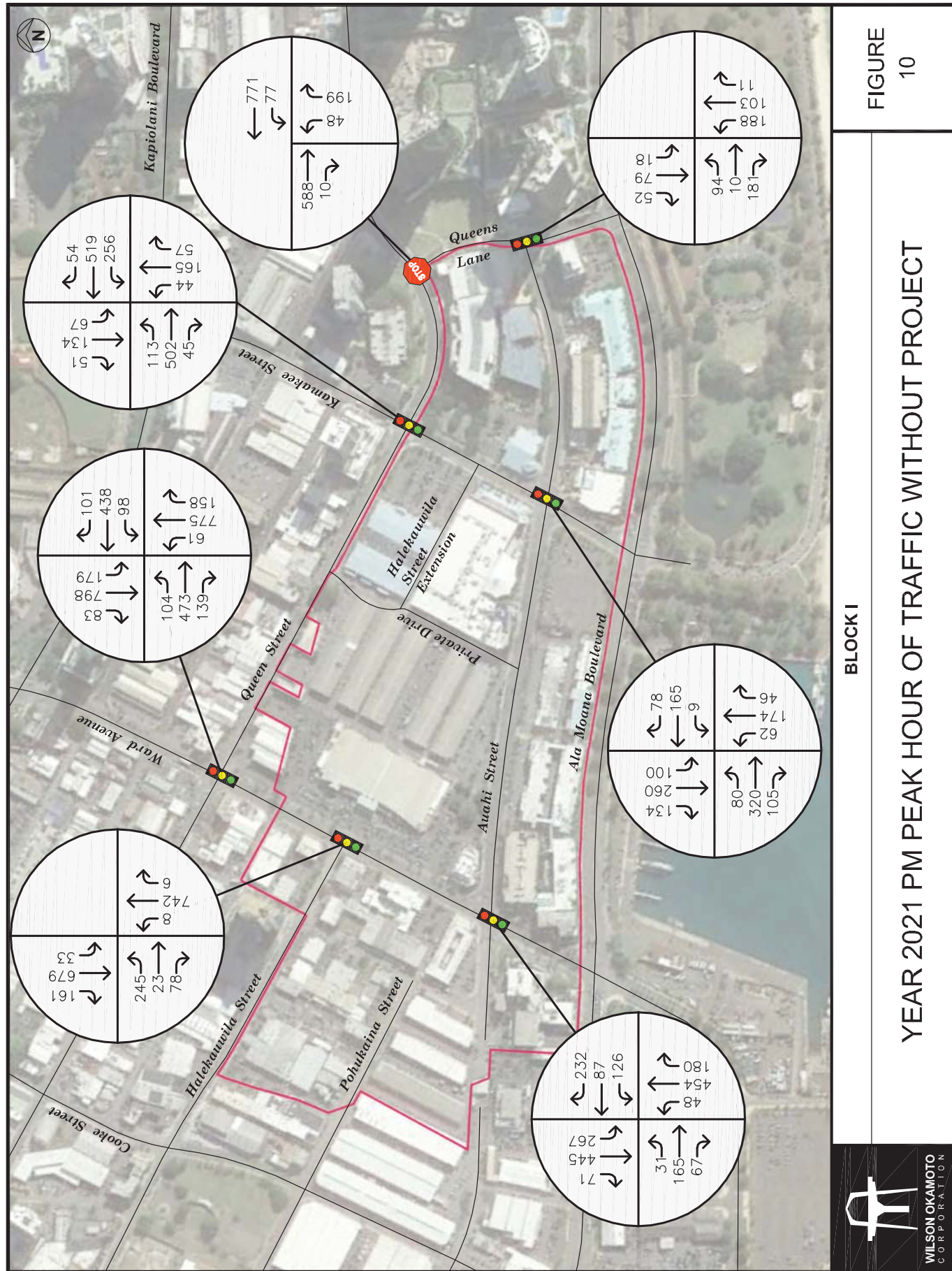


Table 2: Baseline and Projected Year 2021 (Without Project) LOS Traffic Operating Conditions (Cont'd)

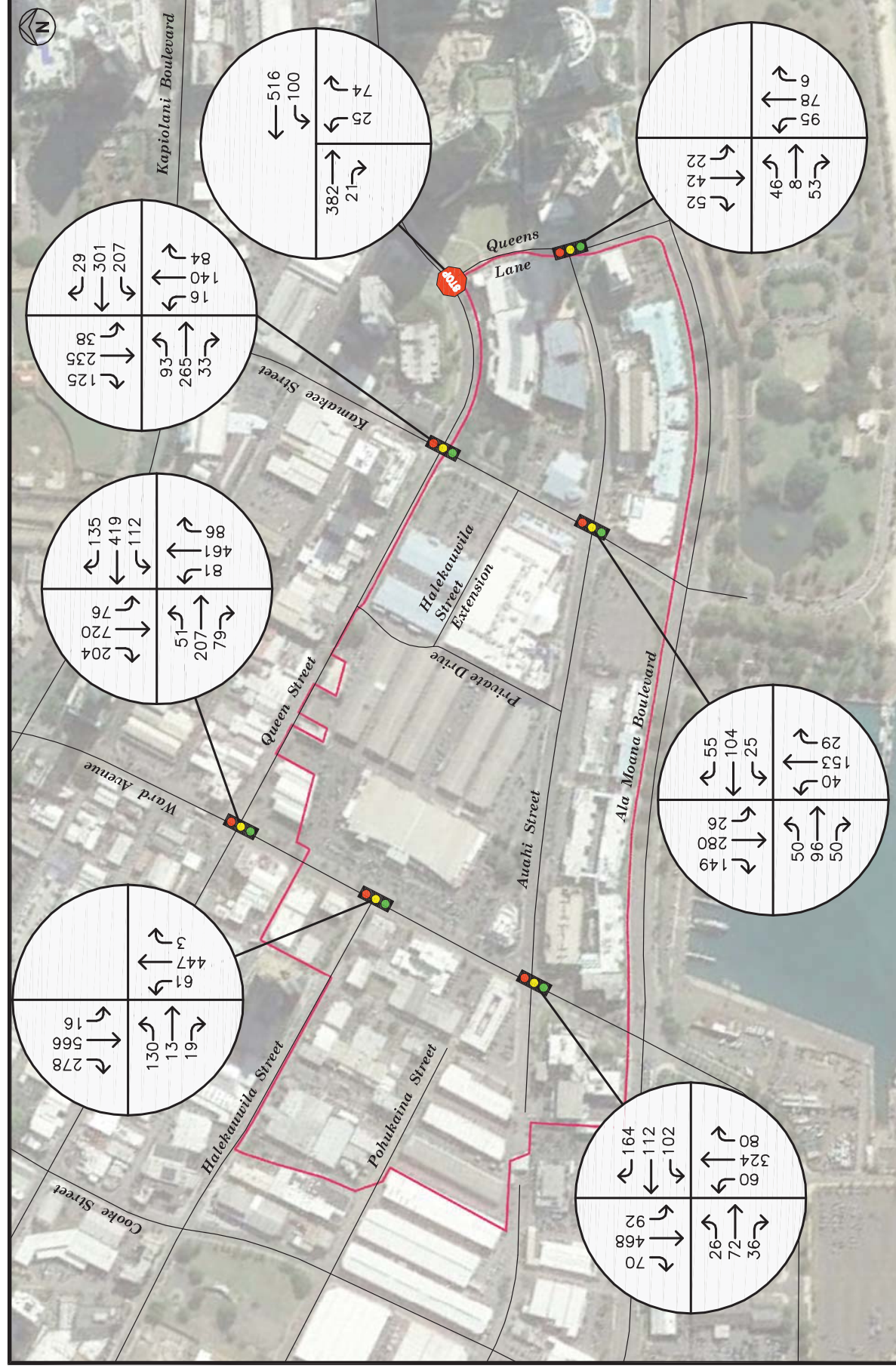
Intersection	Approach/ Critical Movement	AM		PM	
		Base- line	Year 2021 w/out Proj*	Base- line	Year 2021 w/out Proj*
Ward Ave/ Halekauwila St	Eastbound	B	B	B	B
	Northbound	A	A	B	B
	Southbound	A	A	B	B
Ward Ave/ Auahi St	Eastbound	B	B	B	B
	Westbound	B	B	C	B
	Northbound	A	A	A	B
	Southbound	A	A	B	B
Kamakee St/ Auahi St	Eastbound	C	C	B	B
	Westbound	B	B	B	B
	Northbound	A	A	C	B
	Southbound	A	A	C	C
Auahi St/ Queens Ln/ Queen St	Eastbound	B	B	B	B
	Northbound	B	B	B	B
	Southbound	B	B	B	B

*Includes the demolition of Ward Warehouse

Under Year 2021 without project conditions, traffic operations are generally expected to remain similar to baseline conditions. Along Ward Avenue, traffic operations at the intersections with Halekauwila Street and Auahi Street are expected to operate at LOS “B” or better during both peak periods while those at the intersection with Queen Street are expected to continue operating at LOS “C” or better during the AM peak period and LOS “D” during the PM peak period. At the remaining study intersections, traffic operations are expected to continue operating at levels of service similar to without project conditions.

C. Total Traffic Volumes With Project

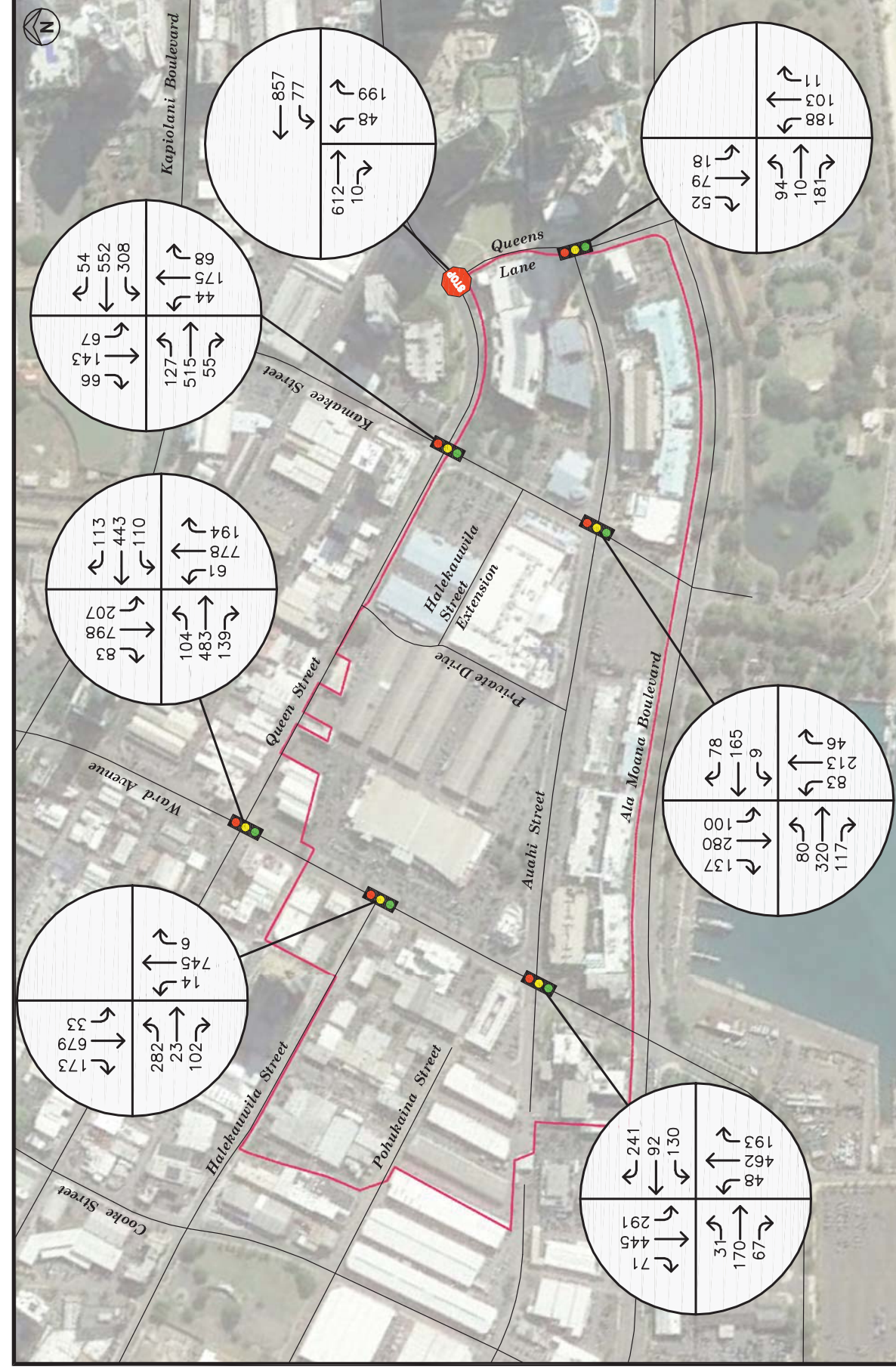
Figures 11 and 12 show the Year 2021 cumulative AM and PM peak hour traffic conditions resulting from the completion of the Block I development. The cumulative volumes consist of site-generated traffic superimposed over Year 2021



BLOCK I

YEAR 2021 AM PEAK HOUR OF TRAFFIC WITH PROJECT

FIGURE 11



BLOCK I

YEAR 2021 PM PEAK HOUR OF TRAFFIC WITH PROJECT

FIGURE 12



projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

V. TRAFFIC IMPACT ANALYSIS

The Year 2021 cumulative AM and PM peak hour traffic conditions with the completion of the Block I development are summarized in Table 3. The baseline and projected Year 2021 (Without Project) operating conditions are provided for comparison purposes. LOS calculations are included in Appendix F.

Table 3: Baseline and Projected Year 2021 (Without and With Project) LOS Traffic Operating Conditions

Intersection	Approach/ Critical Movement	AM			PM		
		Base-line	Year 2021		Base-line	Year 2021	
			w/out Proj	w/ Proj		w/out Proj	w/ Proj
Ward Ave/ Queen St	Eastbound	B	B	B	D	D	D
	Westbound	C	C	C	D	D	D
	Northbound	C	C	C	D	D	D
	Southbound	C	C	C	D	D	D
Queen St/ Kamakee St	Eastbound	B	B	C	C	C	C
	Westbound	B	B	B	B	B	B
	Northbound	B	B	B	C	C	C
	Southbound	B	B	B	C	C	C
Queen St/ Queens Ln	Westbound	A	A	A	A	A	A
	Northbound	B	B	B	B	B	B
Ward Ave/ Halekauwila St	Eastbound	B	B	B	B	B	B
	Northbound	A	A	A	B	B	B
	Southbound	A	A	A	B	B	B
Ward Ave/ Auahi St	Eastbound	B	B	B	B	B	B
	Westbound	B	B	B	C	B	C
	Northbound	A	A	A	A	B	A
	Southbound	A	A	A	B	B	B

Table 3: Baseline and Projected Year 2021 (Without and With Project) LOS Traffic Operating Conditions (Cont'd)

Intersection	Approach/ Critical Movement	AM			PM		
		Base-line	Year 2021		Base-line	Year 2021	
			w/out Proj	w/ Proj		w/out Proj	w/ Proj
Kamakee St/ Auahi St	Eastbound	C	C	C	B	B	B
	Westbound	B	B	C	B	B	B
	Northbound	A	A	A	C	B	C
	Southbound	A	A	A	C	C	C
Queens Ln/ Queen St/ Auahi St	Eastbound	B	B	B	B	B	B
	Northbound	B	B	B	B	B	B
	Southbound	B	B	B	B	B	B

Traffic operations under Year 2021 with project conditions are generally expected to remain similar to without project conditions despite the addition of site-generated vehicles to the surrounding roadways primarily due to the reduction in overall traffic demands in the vicinity as a result of the demolition of Ward Warehouse. However, as noted previously, the trip generation characteristics associated with the future blocks are expected to be located on in its place will be addressed in future site specific impact studies as planning of those developments progress. Along Ward Avenue, traffic operations at the intersection with Halekauwila Street are expected to continue operating at LOS “B” or better during both peak periods, while those at the intersection with Auahi Street are expected to operate at LOS “B” or better during the AM peak period and LOS “C” or better during the PM peak period. Along Kamakee Street, traffic operations at the intersections with Queen Street and Auahi Street are expected to operate at LOS “C” or better during both peak periods. At the remaining study intersections, traffic operations are expected to continue operating at levels of service similar to without project conditions.

VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study to be incorporated in the project design.

1. Maintain sufficient sight distance for motorists to safely enter and exit the project driveways.

2. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
3. Provide adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.
4. Provide sufficient turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
5. If access at the entrance to the parking garage is controlled, provide sufficient storage for entering vehicles at the parking area access controls (i.e., automatic gate, etc.) to ensure that queues do not extend onto the adjacent public roadways.
6. Consider modifying the south driveway for Block I along Private Drive to a one-way (exit) driveway with one-way circulation through the development's on-site drop-off/pick-up area to minimize conflicts between turning movements at that driveway.
7. Update the Traffic Impact Report for Block I should development phasing, land use intensity, or land use mix change.
8. Continue to develop and/or enhance bicycle and pedestrian facilities, as well as, public transportation services in the project vicinity as described in the "Transportation Master Plan for the Ward Villages Master Plan," dated May 2016,

VII. CONCLUSION

The project site for the Ward Village Master Plan currently encompasses Ward Warehouse, Ward Centre, Ward Village Shops, and other surrounding commercial and office buildings. The overall master plan is expected to be implemented in five (5) phases over the next 10-15 years and entail the redevelopment of most of the existing commercial, office, and industrial spaces. Block I is a part of Phase 2 of the master plan which is expected to include new commercial/retail space and residential units adjacent to Auahi Street midway between Ward Avenue and Kamakee Street. With the implementation of the aforementioned recommendations, traffic operations at the study intersections with the Block I development are generally expected to operate at levels of service similar to without project conditions. However, since the Ward Village Master Plan is expected to be developed in phases over a period of 10+ years, it is recommended that Traffic Impact Analysis Reports (TIARs) be prepared for each phase of the project to verify future conditions and ensure necessary mitigation measures are implemented.

APPENDIX A
TRAFFIC COUNT DATA

Counted By: JC, CY
Counters: D4-3888, D4-5677
Weather: Clear

WILSON UKAMOTO CORPORATION
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

File Name : AuaKam AM
Site Code : 00000006
Start Date : 3/3/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Kamani Street Thru = Vehicles Entering Bank Of Hawaii Parking Garage Southbound				Auahi Street Left = Turn Into Bank Of Hawaii Driveway Westbound				Bank Of Hawaii Driveway Northbound				Auahi Street Eastbound				Int. Total				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left		Thru	Right	Peds	App. Total
06:00 AM	5	1	0	0	6	1	6	2	0	9	0	0	1	0	1	0	0	0	0	0	16
06:15 AM	4	0	1	0	5	5	0	15	0	20	0	0	2	0	2	1	0	0	0	1	28
06:30 AM	9	0	1	0	10	0	0	14	0	14	0	0	1	0	1	0	0	0	0	0	25
06:45 AM	9	0	2	1	12	1	0	22	0	23	0	0	0	0	0	1	0	0	0	1	36
Total	27	1	4	1	33	7	6	53	0	66	0	0	4	0	4	2	0	0	0	2	105
07:00 AM	12	0	0	1	13	3	1	39	0	43	0	0	0	0	0	0	0	0	0	0	56
07:15 AM	24	4	0	1	29	3	0	37	0	40	0	0	1	0	1	0	0	0	0	0	70
07:30 AM	13	0	0	0	13	5	1	49	0	55	0	0	0	0	0	0	1	0	0	1	69
07:45 AM	12	1	1	3	17	4	5	40	0	49	0	3	0	3	1	0	0	0	0	1	70
Total	61	5	1	5	72	15	7	165	0	187	0	4	4	0	4	1	1	0	0	2	265
08:00 AM	19	1	1	0	21	4	1	40	0	45	0	0	4	0	4	2	0	0	0	0	72
08:15 AM	26	3	1	0	30	9	1	50	0	60	0	0	4	0	4	0	1	0	0	1	95
08:30 AM	30	4	2	1	37	12	2	35	0	49	0	0	5	0	5	1	1	0	0	2	93
08:45 AM	38	6	2	1	47	10	0	24	0	34	0	0	5	0	5	2	1	0	0	3	89
Total	113	14	6	2	135	35	4	149	0	188	0	0	18	0	18	5	3	0	0	8	349
Grand Total	201	20	11	8	240	57	17	367	0	441	0	0	26	0	26	8	4	0	0	12	719
Approch %	83.8	8.3	4.6	3.3	100.0	12.9	3.9	83.2	0	61.3	0	0	100.0	0	3.6	66.7	33.3	0	0	0	1.7
Total %	28	2.8	1.5	1.1	100.0	7.9	2.4	51	0	61.3	0	0	3.6	0	3.6	1.1	0.6	0	0	0	0.2

Start Time	Kamani Street Thru = Vehicles Entering Bank Of Hawaii Parking Garage Southbound				Auahi Street Left = Turn Into Bank Of Hawaii Driveway Westbound				Bank Of Hawaii Driveway Northbound				Auahi Street Eastbound				Int. Total				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left		Thru	Right	Peds	App. Total
08:00 AM	19	1	1	1	21	4	1	40	0	45	0	0	4	0	4	2	0	0	0	2	72
08:15 AM	26	3	1	0	30	9	1	50	0	60	0	0	4	0	4	0	1	0	0	1	95
08:30 AM	30	4	2	1	37	12	2	35	0	49	0	0	5	0	5	1	1	0	0	2	92
08:45 AM	38	6	2	1	46	10	0	24	0	34	0	0	5	0	5	2	1	0	0	3	88
Total Volume	113	14	6	2	133	35	4	149	0	188	0	0	18	0	18	5	3	0	0	8	347
% App. Total	85	10.5	4.5	1.5	100.0	18.6	2.1	79.3	0	61.3	0	0	100.0	0	3.6	62.5	37.5	0	0	0	2.2
PHF	.743	.583	.750	.723	100.0	.729	.500	.745	.000	.783	.000	.000	.900	.000	.900	.625	.750	.000	.000	.667	.913

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

WILSON OKAMOTO CORPORATION
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counted By: CY, JC
 Counters:D4-3888, D4-5677
 Weather:Clear

File Name : Auakam PM
 Site Code : 00000006
 Start Date : 3/3/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Kamani Street Thru = Vehicles Entering Bank Of Hawaii Parking Garage Southbound			Auahi Street Westbound			Bank Of Hawaii Driveway Northbound			Auahi Street Eastbound						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total	Int. Total
03:00 PM	34	2	1	2	0	30	0	0	10	0	2	0	10	0	2	81
03:15 PM	47	2	1	7	0	56	0	0	6	0	1	2	6	0	3	122
03:30 PM	50	2	1	6	1	41	0	0	5	0	3	1	5	0	4	113
03:45 PM	50	1	0	5	0	37	0	0	4	0	1	0	4	0	1	98
Total	181	7	3	20	1	164	0	0	25	0	5	0	25	0	10	414
04:00 PM	42	2	0	4	0	34	0	0	12	0	4	4	12	0	8	103
04:15 PM	47	0	1	1	1	42	0	0	7	0	2	0	7	0	2	101
04:30 PM	52	1	0	2	1	43	0	0	7	0	4	4	7	0	8	114
04:45 PM	53	1	0	5	0	31	0	0	7	0	3	0	7	0	3	100
Total	194	4	1	12	2	150	0	0	33	0	11	10	33	0	21	418
05:00 PM	49	0	0	5	0	53	1	0	13	0	7	2	13	0	9	130
05:15 PM	46	0	0	3	0	34	0	0	0	0	1	1	3	0	2	85
05:30 PM	50	0	0	4	0	42	0	0	8	0	1	3	8	0	4	108
05:45 PM	45	3	0	8	0	32	0	0	9	0	1	0	10	0	2	100
Total	190	3	0	20	0	161	1	0	30	0	10	6	31	0	17	423
Grand Total	565	14	4	52	3	475	1	0	88	0	26	21	89	0	48	1255
Apprch %	96.3	2.4	0.7	9.8	0.6	89.5	0.2	1.1	0	98.9	0	54.2	43.8	2.1	0	
Total %	45	1.1	0.3	4.1	0.2	37.8	0.1	0.1	0	7	0	2.1	1.7	0.1	0	3.8

Start Time	Kamani Street Thru = Vehicles Entering Bank Of Hawaii Parking Garage Southbound			Auahi Street Westbound			Bank Of Hawaii Driveway Northbound			Auahi Street Eastbound						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total	Int. Total
04:15 PM	47	0	1	1	1	42	0	0	7	0	2	0	7	0	2	101
04:30 PM	52	1	0	2	1	43	0	0	7	0	4	4	7	0	8	114
04:45 PM	53	1	0	5	0	31	0	0	7	0	3	0	7	0	3	100
05:00 PM	49	0	0	5	0	53	0	0	13	0	7	2	13	0	9	129
Total Volume	201	2	1	13	2	169	0	0	34	0	14	8	34	0	22	444
% App. Total	98.5	1	0.5	7.1	1.1	91.8	0	0	100	0	63.6	36.4	65.4	0	22	444
PHF	.948	.500	.250	.650	.500	.797	.000	.000	.654	.000	.500	.000	.654	.000	.611	.860

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:15 PM

Counted By:FS, PA
 Counters:D4-5672, D4-5673
 Weather:Clear

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

File Name : PohKam AM
 Site Code : 00000005
 Start Date : 3/3/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Kamani Street Left = Left Turn Into Business Driveway Southbound			Business Driveway Westbound			Kamani Street Northbound			Pohukaina Street Thru = To Business Driveway Eastbound						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total	Int. Total
06:00 AM	1	0	5	0	0	0	3	1	0	0	3	1	4	0	7	18
06:15 AM	0	1	7	0	0	2	13	2	1	0	16	0	16	0	3	29
06:30 AM	0	0	5	0	0	1	12	0	0	0	12	5	2	0	20	38
06:45 AM	0	3	7	0	2	0	20	1	1	0	22	5	2	8	1	52
Total	1	4	24	0	2	4	48	4	2	0	54	13	6	26	1	137
07:00 AM	0	2	9	0	1	0	28	4	1	0	33	4	0	9	1	62
07:15 AM	0	4	17	0	1	0	35	5	0	0	40	11	1	24	0	104
07:30 AM	0	2	19	0	1	0	41	3	1	0	45	10	1	13	3	96
07:45 AM	0	1	18	0	0	1	46	3	0	0	49	7	1	13	3	94
Total	0	9	63	0	3	1	150	15	2	0	167	32	3	59	7	356
08:00 AM	0	6	9	0	2	0	32	4	0	0	36	8	0	17	2	93
08:15 AM	1	3	9	0	0	1	38	7	0	0	45	1	0	24	0	85
08:30 AM	0	4	8	0	1	1	37	5	2	0	44	6	0	22	1	29
08:45 AM	0	4	14	0	3	0	21	8	0	0	29	2	1	34	1	93
Total	1	17	40	0	6	1	128	24	2	0	154	17	1	97	4	362
Grand Total	2	30	127	0	11	2	326	43	6	0	375	62	10	182	12	855
Apprch %	1.2	17.3	73.4	0	26.8	4.9	86.9	11.5	1.6	0	23.3	3.8	68.4	4.5	266	
Total %	0.2	3.5	14.9	0	1.3	0.2	38.1	5	0.7	0	43.9	7.3	1.2	21.3	1.4	31.1

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

Start Time	Kamani Street Left = Left Turn Into Business Driveway Southbound			Business Driveway Westbound			Kamani Street Northbound			Pohukaina Street Thru = To Business Driveway Eastbound						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total	Int. Total
07:15 AM	0	4	17	0	1	0	35	5	0	0	40	11	1	24	36	98
07:30 AM	0	2	19	0	1	0	41	3	1	0	45	10	1	13	24	91
07:45 AM	0	1	18	0	0	1	46	3	0	0	49	7	1	13	21	90
08:00 AM	0	6	9	0	2	0	32	4	0	0	36	8	0	17	25	78
Total Volume	0	13	63	0	4	1	154	15	1	0	170	36	3	67	106	357
% App. Total	0	17.1	82.9	0	80	20	90.6	8.8	0.6	0	86.7	34	2.8	63.2	106	357
PHF	.000	.542	.829	.000	.500	.250	.837	.750	.250	0	.867	.818	.750	.698	.736	.911

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

Counted By: FS, PA
Counters: D4-5673, D4-5672
Weather: Clear

File Name : PohKam PM
Site Code : 00000005
Start Date : 3/3/2015
Page No : 1

Start Time	Groups Printed- Unshifted																			
	Kamani Street Southbound			Business Driveway Westbound			Kamani Street Northbound			Pohukaina Street Eastbound										
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total					
03:00 PM	2	4	4	0	1	0	8	9	16	13	4	0	33	0	34	10	1	20	3	91
03:15 PM	1	3	8	0	1	0	9	10	44	17	3	0	64	0	41	8	2	31	0	132
03:30 PM	0	6	10	0	1	0	8	9	38	10	1	0	49	0	54	14	0	38	2	132
03:45 PM	0	4	14	0	3	1	8	12	28	13	0	0	41	0	57	12	1	40	4	129
Total	3	17	36	0	6	1	33	40	126	53	8	0	187	0	186	44	4	129	9	484
04:00 PM	1	3	12	0	1	4	3	8	25	13	1	0	39	0	49	8	1	36	4	116
04:15 PM	0	8	11	0	0	1	3	4	31	10	1	0	42	0	57	10	2	44	1	123
04:30 PM	0	5	10	0	2	2	2	4	31	12	1	0	44	0	79	18	3	53	5	144
04:45 PM	0	7	13	0	0	1	2	3	20	11	1	0	32	0	71	14	1	52	4	131
Total	1	23	46	0	1	8	10	19	107	46	4	0	157	0	256	50	7	185	14	514
05:00 PM	2	6	8	0	3	0	8	11	35	21	0	0	56	0	72	14	6	50	2	155
05:15 PM	0	1	10	0	0	1	6	7	21	8	0	0	29	0	64	9	2	50	3	117
05:30 PM	0	9	14	0	1	3	1	5	18	10	2	0	30	0	115	16	1	36	1	154
05:45 PM	1	5	8	0	6	3	7	16	24	7	1	4	36	0	137	13	3	51	1	137
Total	3	21	40	0	10	7	22	39	98	46	3	4	151	0	258	52	12	187	7	524
Grand Total	7	61	122	0	17	16	65	98	331	145	15	4	495	0	700	146	23	501	30	1522
Apprch %	3.1	26.6	53.3	0	17.3	16.3	66.3	6.4	66.9	29.3	3	0.8	20.9	0	32.5	9.6	3.3	71.6	4.3	1522
Total %	0.5	4	8	0	1.1	1.1	4.3	6.4	21.7	9.5	1	0.3	32.5	0	46	9.6	1.5	32.9	2	46

Start Time	Groups Printed- Unshifted																			
	Kamani Street Southbound			Business Driveway Westbound			Kamani Street Northbound			Pohukaina Street Eastbound										
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total					
04:15 PM	0	8	11	0	0	0	1	1	31	10	1	1	42	0	56	10	2	44	0	118
04:30 PM	0	5	10	0	0	0	2	2	31	12	1	1	44	0	74	18	3	53	0	135
04:45 PM	0	7	13	0	0	0	1	1	20	11	1	1	32	0	120	14	1	52	0	145
05:00 PM	2	6	8	0	3	0	0	3	35	21	0	0	56	0	70	14	6	50	0	145
Total Volume	2	26	42	0	3	4	4	7	117	54	3	3	174	0	267	56	12	199	0	518
% App. Total	2.9	37.1	60	0	42.9	57.1	500	.583	83.6	64.3	1.7	0.750	.777	0	.902	.778	.500	.939	0	.893
PHF	.250	.813	.808	.000	.250	.500	.500	.583	.836	.643	.750	.750	.777	.000	.902	.778	.500	.939	.000	.893

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM

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

Counted By: DY, GC
Counters: D4-5676, D4-5675
Weather: Clear

File Name : WarAua AM
Site Code : 00000003
Start Date : 3/3/2015
Page No : 1

Start Time	Groups Printed- Unshifted																			
	Ward Avenue Southbound			Auahi Street Westbound			Ward Avenue Northbound			Auahi Street Eastbound										
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total					
06:00 AM	10	70	7	8	5	2	6	21	2	29	10	1	42	0	8	2	1	2	3	159
06:15 AM	7	77	6	3	9	7	8	30	7	38	10	0	55	0	10	1	2	4	3	188
06:30 AM	5	75	8	2	8	4	3	21	1	42	11	0	54	0	13	2	3	5	3	178
06:45 AM	13	73	7	2	9	7	3	37	6	48	12	0	66	0	15	1	6	4	4	213
Total	35	295	28	8	366	42	26	20	16	157	43	1	217	0	46	6	12	15	13	738
07:00 AM	11	84	15	3	113	9	14	12	13	50	14	0	77	0	16	2	4	5	5	250
07:15 AM	15	105	9	7	136	16	23	8	7	56	10	0	73	0	28	3	12	7	6	300
07:30 AM	16	90	13	7	126	16	18	21	25	69	15	0	109	0	18	1	8	6	3	326
07:45 AM	12	77	10	9	108	20	30	11	15	73	20	0	108	0	22	0	7	7	8	316
Total	54	356	47	26	483	61	85	52	60	248	59	0	367	0	84	6	31	25	22	1192
08:00 AM	18	96	10	8	132	17	17	24	12	78	12	0	102	0	23	3	11	3	6	326
08:15 AM	15	116	10	9	150	26	33	18	21	73	21	0	115	0	33	10	11	7	5	392
08:30 AM	25	103	21	8	157	22	22	31	13	79	22	0	114	0	42	6	18	8	10	408
08:45 AM	27	86	24	12	149	19	11	29	10	66	18	0	94	0	57	5	24	15	13	367
Total	85	401	65	37	588	84	83	102	56	296	73	0	425	0	155	24	64	33	34	1493
Grand Total	174	1052	140	71	1437	187	194	174	137	701	175	1	1009	0	285	36	107	73	69	3423
Apprch %	12.1	73.2	9.7	4.9	73.2	27	28	25.1	19.8	69.5	17.3	0.1	12.6	0	8.3	12.6	37.5	25.6	24.2	3423
Total %	5.1	30.7	4.1	2.1	42	5.5	5.7	5.1	4	20.5	5.1	0	29.5	0	8.3	1.1	3.1	2.1	2	8.3

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

Start Time	Groups Printed- Unshifted																			
	Ward Avenue Southbound			Auahi Street Westbound			Ward Avenue Northbound			Auahi Street Eastbound										
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Peds	App. Total					
08:00 AM	18	96	10	10	17	17	24	11	12	78	12	0	102	0	23	3	11	3	6	301
08:15 AM	15	116	10	10	141	10	14	17	21	73	21	0	115	0	33	10	11	7	5	361
08:30 AM	25	103	21	8	149	22	22	31	13	79	22	0	114	0	42	6	18	8	10	370
08:45 AM	27	86	24	12	149	19	11	29	10	66	18	0	94	0	57	5	24	15	13	334
Total Volume	85	401	65	37	551	84	83	102	56	296	73	0	425	0	121	24	64	33	33	1366
% App. Total	15.4	72.8	11.8	6.77	72.8	31.2	30.9	37.9	17.2	69.6	17.2	0	29.5	0	8.3	19.8	52.9	27.3	27.3	1366
PHF	.787	.864	.677	.924	.873	.808	.629	.823	.667	.937	.830	0	.873	0	.688	.600	.667	.550	.550	.923

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counted By: CM, AH
Counter: TU-0649, TU-2050
Weather: Clear

File Name : WarAuahi AM
Site Code : 00000004
Start Date : 1/19/2017
Page No : 1

Start Time	Ward Avenue Southbound						Auahi Street Westbound						Ward Avenue Northbound						Auahi Street Eastbound													
	Left		Thru		Right		Peds		App. Total		Left		Thru		Right		Peds		App. Total		Left		Thru		Right		Peds		App. Total		Int. Total	
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int.	Total			
06:00 AM	9	50	11	11	11	81	8	2	5	7	22	1	30	19	6	56	1	1	2	5	9	1	1	2	5	9	168					
06:15 AM	9	80	6	12	107	107	5	11	11	14	41	4	33	11	9	57	1	2	1	2	6	1	2	1	2	6	211					
06:30 AM	13	67	7	14	101	101	5	5	8	13	31	5	29	10	4	48	1	1	5	3	4	1	5	3	4	13	193					
06:45 AM	15	68	12	6	101	101	17	12	13	6	48	10	49	16	6	81	1	4	6	6	6	1	4	6	6	17	247					
Total	46	265	36	43	390	390	35	30	37	40	142	20	141	56	25	242	4	12	12	17	45	4	12	12	17	45	819					
07:00 AM	10	79	6	5	100	100	17	11	13	3	44	9	63	17	5	94	1	7	5	5	18	1	7	5	5	18	256					
07:15 AM	7	91	15	5	118	118	14	16	16	4	50	16	63	25	10	114	3	6	8	6	23	3	6	8	6	23	305					
07:30 AM	6	89	15	3	113	113	20	21	11	3	55	19	73	16	13	121	2	11	5	1	19	2	11	5	1	19	308					
07:45 AM	14	74	17	9	114	114	16	18	19	7	60	17	77	16	7	117	3	9	8	9	29	3	9	8	9	29	320					
Total	37	333	53	22	445	445	67	66	59	17	209	61	276	74	35	446	9	33	26	21	89	9	33	26	21	89	1189					
08:00 AM	15	94	19	3	131	131	25	16	17	4	62	17	72	8	7	104	4	8	5	3	20	4	8	5	3	20	317					
08:15 AM	14	87	8	0	109	109	14	17	15	1	47	18	63	20	3	104	3	11	8	2	24	3	11	8	2	24	284					
08:30 AM	13	116	17	7	153	153	15	15	26	6	62	15	68	22	10	115	4	12	9	6	31	4	12	9	6	31	361					
08:45 AM	29	68	21	4	122	122	19	15	17	4	55	8	51	21	1	81	3	11	6	4	24	3	11	6	4	24	282					
Total	71	365	65	14	515	515	73	63	75	15	226	58	254	71	21	404	14	42	28	15	99	14	42	28	15	99	1244					
Grand Total	154	963	154	79	1350	1350	175	159	171	72	577	139	671	201	81	1092	27	87	66	53	233	11.6	37.3	28.3	22.7	7.2	3252					
Approch % Total %	4.7	29.6	4.7	2.4	41.5	41.5	5.4	4.9	5.3	2.2	17.7	4.3	20.6	6.2	2.5	33.6	0.8	2.7	2	1.6	7.2	0.8	2.7	2	1.6	7.2						

Start Time	Ward Avenue Southbound						Auahi Street Westbound						Ward Avenue Northbound						Auahi Street Eastbound											
	Left		Thru		Right		Peds		App. Total		Left		Thru		Right		Peds		App. Total		Left		Thru		Right		App. Total		Int. Total	
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int.	Total	
07:45 AM	14	74	17	105	105	105	16	18	19	105	53	17	77	16	16	110	3	9	8	20	288									
08:00 AM	15	94	19	128	128	128	25	16	17	58	17	72	8	8	97	4	8	5	17	300										
08:15 AM	14	87	8	109	109	109	14	17	15	46	18	63	20	3	101	3	11	8	22	278										
08:30 AM	13	116	17	146	146	146	15	15	26	22	56	15	68	22	10	105	4	12	9	25	332									
Total Volume	56	371	61	488	488	488	70	66	77	213	67	280	66	66	413	14	40	30	84	1198										
% App. Total	11.5	76	12.5	836	836	836	32.9	31	36.2	16.2	67.8	16	67.8	16	16	35.7	16.7	47.6	35.7	84	1198									
PHF	.933	.800	.803	.836	.836	.836	.700	.917	.740	.918	.931	.909	.750	.833	.833	.840	.875	.833	.833	.840	.902									

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:45 AM

Counted By: CM, AH
Counter: TU-0649, TU-2050
Weather: Clear

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

File Name : WarAuahi PM
Site Code : 00000004
Start Date : 1/19/2017
Page No : 1

Start Time	Ward Avenue Southbound						Auahi Street Westbound						Ward Avenue Northbound						Auahi Street Eastbound											
	Left		Thru		Right		Peds		App. Total		Left		Thru		Right		Peds		App. Total		Left		Thru		Right		App. Total		Int. Total	
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int.	Total	
03:00 PM	25	95	20	24	164	164	32	15	33	16	96	12	71	21	15	119	4	27	13	8	52	431								
03:15 PM	21	98	23	14	156	156	27	16	26	14	83	9	76	30	14	129	11	28	15	9	63	431								
03:30 PM	24	87	16	22	149	149	34	21	45	22	122	10	66	36	15	127	12	25	12	3	52	450								
03:45 PM	40	79	17	14	150	150	31	12	24	2	69	12	60	21	21	114	9	28	17	12	66	399								
Total	110	359	76	74	619	619	124	64	128	54	370	43	273	108	65	489	36	108	57	32	233	1711								
04:00 PM	38	76	21	11	146	146	20	26	31	7	84	4	66	19	12	101	8	33	21	5	67	398								
04:15 PM	34	64	19	10	127	127	32	24	18	5	79	8	61	28	27	124	11	31	15	11	68	398								
04:30 PM	33	93	9	13	148	148	22	13	21	11	67	11	72	24	30	137	12	35	20	12	79	431								
04:45 PM	58	96	11	10	175	175	29	20	23	8	80	7	98	15	6	126	8	38	16	3	65	446								
Total	163	329	60	44	596	596	103	83	93	31	310	30	297	86	75	488	39	137	72	31	279	1673								
05:00 PM	57	94	16	16	183	183	27	21	21	10	79	3	61	32	17	113	7	37	15	6	65	440								
05:15 PM	46	91	17	9	163	163	20	19	37	6	82	10	52	20	12	94	10	35	20	9	74	413								
05:30 PM	44	104	9	19	176	176	22	20	32	13	87	6	67	30	18	121	11	41	22	3	77	461								
05:45 PM	72	100	16	8	196	196	25	11	29	5	70	5	43	37	20	105	4	21	23	6	54	425								
Total	219	389	58	52	718	718	94	71	119	34	318	24	223	119	67	433	32	134	80	24	270	1739								
Grand Total	492	1077	194	170	1933	1933	321	218	340	119	998	97	793	313	207	1410	107	379	209	87	782	5123								
Approch % Total %	25.5	55.7	10	8.8	37.7	37.7	6.3	4.3	6.6	2.3	19.5	1.9	15.5	6.1	4	27.5	2.1	7.4	4.1	1.7	15.3	2.1	7.4	4.1	1.7	15.3				

Start Time	Ward Avenue Southbound						Auahi Street Westbound						Ward Avenue Northbound						Auahi Street Eastbound											
	Left		Thru		Right		Peds		App. Total		Left		Thru		Right		Peds		App. Total		Left		Thru		Right		App. Total		Int. Total	
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int.	Total	
04:45 PM	58	96	11	165	165	165	29	20	23	11	72	7	98	15	15	120	8	38	16	62	419									
05:00 PM	57	94	16	167	167	167	27	21	21	10	69	3	61	32	17	96	7	37	15	59	391									

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, DY
Counters: D4-5675, D4-5676
Weather: Clear

File Name : WarAua PM
Site Code : 00000003
Start Date : 3/3/2015
Page No : 1

Start Time	Ward Avenue Southbound						Auahi Street Westbound						Ward Avenue Northbound						Auahi Street Eastbound												
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	
03:00 PM	37	74	20	10	141	10	39	16	56	21	132	6	77	20	9	112	8	20	14	9	51	9	436	8	20	14	9	51	9	436	
03:15 PM	44	107	33	13	197	13	26	43	52	21	142	12	86	28	4	130	8	20	14	6	48	6	517	8	20	14	6	48	6	517	
03:30 PM	40	88	13	13	154	13	36	26	52	20	134	9	82	31	9	131	15	22	16	9	62	9	481	15	22	16	9	62	9	481	
03:45 PM	39	92	16	12	159	12	31	23	60	36	150	10	76	36	6	128	10	34	14	7	65	7	502	10	34	14	7	65	7	502	
Total	160	361	82	48	651	48	132	108	220	98	558	37	321	115	28	501	41	96	58	31	226	31	1936	41	96	58	31	226	31	1936	
04:00 PM	42	100	13	14	169	14	35	24	39	23	121	5	83	33	9	130	13	27	14	11	65	11	485	13	27	14	11	65	11	485	
04:15 PM	54	102	9	10	175	10	42	18	51	27	138	16	89	34	12	151	9	38	18	14	79	14	543	9	38	18	14	79	14	543	
04:30 PM	60	85	12	16	173	16	34	12	58	21	125	19	89	40	8	156	10	32	21	7	70	7	524	10	32	21	7	70	7	524	
04:45 PM	68	84	8	20	180	20	39	18	49	16	122	10	87	34	3	134	9	42	14	4	69	4	505	9	42	14	4	69	4	505	
Total	224	371	42	60	697	60	150	72	197	87	506	50	348	141	32	571	41	139	67	36	283	36	2057	41	139	67	36	283	36	2057	
05:00 PM	59	103	10	17	189	17	31	34	62	18	145	17	78	39	8	142	8	39	16	12	75	12	551	8	39	16	12	75	12	551	
05:15 PM	79	99	17	14	209	14	27	18	50	24	119	8	95	46	10	159	9	37	18	11	75	11	562	9	37	18	11	75	11	562	
05:30 PM	70	100	18	14	202	14	42	19	51	25	137	13	97	47	10	167	7	33	21	10	71	10	577	7	33	21	10	71	10	577	
05:45 PM	71	101	21	9	202	9	29	14	55	19	117	7	93	46	11	157	5	47	7	10	69	10	545	5	47	7	10	69	10	545	
Total	279	403	66	54	802	54	129	85	218	86	518	45	363	178	39	625	29	156	62	43	290	43	2235	29	156	62	43	290	43	2235	
Grand Total	663	1135	190	162	2150	162	411	265	635	271	1582	132	1032	434	99	1697	111	391	187	110	799	110	6228	111	391	187	110	799	110	6228	
Approch %	30.8	52.8	8.8	7.5		7.5	26	16.8	40.1	17.1		7.8	60.8	25.6	5.8		13.9	48.9	23.4	13.8				13.9	48.9	23.4	13.8				
Total %	10.6	18.2	3.1	2.6		2.6	6.6	4.3	10.2	4.4	25.4	2.1	16.6	7	1.6	27.2	1.8	6.3	3	1.8	12.8			1.8	6.3	3	1.8				

Start Time	Ward Avenue Southbound						Auahi Street Westbound						Ward Avenue Northbound						Auahi Street Eastbound												
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	
05:00 PM	59	103	10	17	189	17	31	34	62	18	145	17	78	39	8	142	8	39	16	12	75	12	551	8	39	16	12	75	12	551	
05:15 PM	79	99	17	14	209	14	27	18	50	24	119	8	95	46	10	159	9	37	18	11	75	11	562	9	37	18	11	75	11	562	
05:30 PM	70	100	18	14	202	14	42	19	51	25	137	13	97	47	10	167	7	33	21	10	71	10	577	7	33	21	10	71	10	577	
05:45 PM	71	101	21	9	202	9	29	14	55	19	117	7	93	46	11	157	5	47	7	10	69	10	545	5	47	7	10	69	10	545	
Total	279	403	66	54	802	54	129	85	218	86	518	45	363	178	39	625	29	156	62	43	290	43	2235	29	156	62	43	290	43	2235	
% App. PHF	37.3	53.9	8.8	7.86		7.86	29.9	19.7	50.5	19.7	50.5	7.7	61.9	30.4	11.7	63.2	11.7	63.2	25.1	11.7	63.2	25.1			11.7	63.2	25.1				
Total Volume	279	403	66	54	802	54	129	85	218	86	518	45	363	178	39	625	29	156	62	43	290	43	2235	29	156	62	43	290	43	2235	
% App. PHF	37.3	53.9	8.8	7.86		7.86	29.9	19.7	50.5	19.7	50.5	7.7	61.9	30.4	11.7	63.2	11.7	63.2	25.1	11.7	63.2	25.1			11.7	63.2	25.1				
Total	4	59	45	30	138	30	5	18	8	50	81	8	47	10	17	82	6	33	11	34	84	34	385	6	33	11	34	84	34	385	
06:00 AM	1	19	9	4	33	4	1	1	2	4	8	3	10	2	6	21	0	10	3	8	21	8	83	0	10	3	8	21	8	83	
06:15 AM	1	15	9	13	38	13	2	6	3	18	29	1	6	4	0	11	3	6	2	10	21	10	99	3	6	2	10	21	10	99	
06:30 AM	0	12	9	7	28	7	1	4	1	8	14	1	15	1	4	21	1	5	1	7	14	7	77	1	5	1	7	14	7	77	
06:45 AM	2	13	18	6	39	6	2	7	2	20	30	3	16	3	7	29	2	12	5	9	28	9	126	2	12	5	9	28	9	126	
Total	4	59	45	30	138	30	5	18	8	50	81	8	47	10	17	82	6	33	11	34	84	34	385	6	33	11	34	84	34	385	
07:00 AM	0	17	17	11	45	11	2	15	1	3	21	6	13	6	4	29	0	17	2	9	28	9	123	0	17	2	9	28	9	123	
07:15 AM	5	27	16	16	64	16	1	11	4	4	20	5	12	5	6	28	5	11	4	13	33	13	145	5	11	4	13	33	13	145	
07:30 AM	2	32	28	10	72	10	0	19	2	1	22	10	12	2	12	36	4	14	5	17	40	17	170	4	14	5	17	40	17	170	
07:45 AM	2	32	25	2	61	2	0	19	3	1	23	6	15	4	3	28	1	15	4	6	26	6	138	1	15	4	6	26	6	138	
Total	9	108	86	39	242	39	3	64	10	9	86	27	52	17	25	121	10	57	15	45	127	45	576	10	57	15	45	127	45	576	
08:00 AM	5	36	23	0	64	0	3	15	2	0	20	9	27	3	0	39	2	12	0	1	15	15	138	2	12	0	1	15	15	138	
08:15 AM	4	30	30	0	64	0	2	14	2	0	18	8	20	1	2	31	6	23	2	19	50	19	163	6	23	2	19	50	19	163	
08:30 AM	4	29	22	0	55	0	3	15	4	0	22	8	12	6	12	38	8	19	4	18	49	18	164	8	19	4	18	49	18	164	
08:45 AM	2	27	27	0	56	0	4	10	0	0	14	14	12	10	11	47	10	20	3	16	49	16	166	10	20	3	16	49	16	166	
Total	15	122	102	0	239	0	12	54	8	0	74	39	71	20	25	155	26	74	9	54	163	54	631	26	74	9	54	163	54	631	
Grand Total	28	289	233	69	619	69	20	136	26	59	241	74	170	47	67	358	42	164	35	133	374										

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counted By: JT, GH
Counter: D4-3889, D4-5675
Weather: Clear

File Name : AuahiKam PM
Site Code : 00000003
Start Date : 1/19/2017
Page No : 1

Start Time	Kamakee Street Southbound						Auahi Street Westbound						Kamakee Street Northbound						Auahi Street Eastbound												
	Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Int. Total		
03:00 PM	10	50	21	0	81	3	30	4	5	42	15	22	10	32	79	16	40	8	0	64	266										
03:15 PM	9	38	31	0	78	5	26	5	22	58	10	23	14	30	77	27	69	3	0	99	312										
03:30 PM	13	37	23	0	73	10	44	8	22	84	11	19	11	29	70	18	48	7	0	73	300										
03:45 PM	11	34	32	3	80	11	34	6	12	63	13	31	12	30	86	13	44	3	0	60	289										
Total	43	159	107	3	312	29	134	23	61	247	49	95	47	121	312	74	201	21	0	296	1167										
04:00 PM	15	44	30	1	90	4	45	4	17	70	6	21	9	29	65	18	32	7	0	57	282										
04:15 PM	7	33	35	1	76	5	14	2	11	32	11	31	7	27	76	18	36	5	0	59	243										
04:30 PM	9	32	26	0	67	3	26	8	11	48	2	16	9	32	59	18	48	13	0	79	253										
04:45 PM	12	36	30	0	78	7	30	8	11	56	9	17	4	24	54	28	58	13	0	99	287										
Total	43	145	121	2	311	19	115	22	50	206	28	85	29	112	254	82	174	38	0	294	1065										
05:00 PM	19	39	31	2	91	3	30	8	14	55	10	14	9	18	51	31	73	8	0	112	309										
05:15 PM	11	43	27	0	81	7	41	11	26	85	10	20	12	31	73	29	69	10	0	108	347										
05:30 PM	15	35	23	4	77	9	33	4	17	63	8	22	10	25	65	34	65	5	0	104	309										
05:45 PM	23	40	34	0	97	4	28	9	14	55	14	22	13	25	74	19	56	12	0	87	313										
Total	68	157	115	6	346	23	132	32	71	258	42	78	44	99	263	113	263	35	0	411	1278										
Grand Total	154	461	343	11	969	71	381	77	182	711	119	258	120	332	829	269	638	94	0	1001	3510										
Approch % Total %	4.4	13.1	9.8	0.3	27.6	2	10.9	2.2	5.2	20.3	3.4	7.4	3.4	9.5	23.6	7.7	18.2	2.7	0	28.5											

Start Time	Kamakee Street Southbound						Auahi Street Westbound						Kamakee Street Northbound						Auahi Street Eastbound												
	Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Int. Total		
05:00 PM	19	39	31	2	91	3	30	8	14	55	10	14	9	18	51	31	73	8	0	112	309										
05:15 PM	11	43	27	0	81	7	41	11	26	85	10	20	12	31	73	29	69	10	0	108	347										
05:30 PM	15	35	23	4	77	9	33	4	17	63	8	22	10	25	65	34	65	5	0	104	309										
05:45 PM	23	40	34	0	97	4	28	9	14	55	14	22	13	25	74	19	56	12	0	87	313										
Total Volume	68	157	115	6	340	23	132	32	78	187	42	78	44	164	113	263	35	8	0	411	1102										
% App. Total	20	46.2	33.8	1.1	46.2	12.3	70.6	17.1	17.1	79.2	25.6	47.6	26.8	84.6	83.7	27.5	64	8.5	0	41.1	950										
PHF	.739	.913	.846	.846	.876	.639	.805	.727	.727	.792	.750	.886	.846	.846	.837	.831	.901	.729	.729	.917	.950										

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 05:00 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: CM
Counters: TU-2050
Weather: Clear

File Name : KamAua AM
Site Code : 00000004
Start Date : 4/12/2016
Page No : 1

Start Time	Kamakee Street Southbound						Auahi Street Westbound						Kamakee Street Northbound						Auahi Street Eastbound											
	Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds		Thru		Right		Peds	
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Int. Total	
06:00 AM	1	16	14	4	35	1	6	1	4	12	3	5	5	8	21	4	9	3	7	23	91									
06:15 AM	3	24	15	9	51	2	3	1	16	22	6	17	5	7	35	2	12	3	21	38	146									
06:30 AM	5	22	22	16	65	1	6	2	12	21	10	19	5	13	47	4	8	9	10	31	164									
06:45 AM	7	34	21	14	76	2	6	5	2	15	6	18	13	7	44	8	11	1	13	33	168									
Total	16	96	72	43	227	6	21	9	34	70	25	59	28	35	147	18	40	16	51	125	569									
07:00 AM	6	30	20	3	59	0	12	4	6	22	7	11	6	4	28	4	19	3	7	33	142									
07:15 AM	5	24	33	3	65	1	24	4	5	34	7	21	1	4	33	2	15	1	7	25	157									
07:30 AM	5	46	40	11	102	1	21	4	5	31	7	22	4	5	38	5	12	0	5	22	193									
07:45 AM	11	43	36	5	95	2	18	3	2	25	5	27	4	4	40	6	28	3	5	42	202									
Total	27	143	129	22	321	4	75	15	18	112	26	81	15	17	139	17	74	7	24	122	694									
08:00 AM	11	31	37	7	86	0	24	5	7	36	22	24	7	3	56	5	32	2	3	42	220									
08:15 AM	13	35	40	11	99	3	16	5	6	30	4	33	4	3	44	6	35	2	4	47	220									
08:30 AM	6	33	34	13	86	4	17	3	1	25	9	19	6	2	36	6	25	2	2	35	182									
08:45 AM	7	25	40	6	78	1	13	8	2	24	8	14	8	9	39	9	32	2	10	53	194									
Total	37	124	151	37	349	8	70	21	16	115	43	90	25	17	175	26	124	8	19	177	816									
Grand Total	80	363	352	102	897	18	166	45	68	297	94	230	68	69	4															

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

Counted By:RJ, JJ
Counters:TU-0651, TUI-0652
Weather:Clear

File Name : KamAua PM
Site Code : 00000002
Start Date : 3/3/2015
Page No : 1

Start Time	Kamakee Street Southbound			Auahi Street Westbound			Kamakee Street Northbound			Auahi Street Eastbound			Int. Total				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total			
03:00 PM	13	52	43	3	27	8	16	20	10	25	71	20	48	16	29	113	417
03:15 PM	7	47	44	5	43	9	13	30	8	32	83	34	51	4	26	115	441
03:30 PM	16	55	33	7	28	13	18	34	9	35	96	21	43	12	28	104	393
03:45 PM	12	53	35	1	28	8	16	38	12	36	102	14	52	6	21	93	387
Total	48	207	155	16	126	38	63	122	39	128	352	89	194	38	104	425	1638
04:00 PM	19	41	32	1	37	9	14	25	6	34	79	31	42	5	22	100	409
04:15 PM	10	27	32	2	20	12	15	25	8	48	96	39	47	14	23	123	407
04:30 PM	7	49	36	3	30	13	18	30	15	40	103	22	59	13	18	112	427
04:45 PM	7	34	39	3	31	12	20	20	9	45	94	27	60	14	20	121	425
Total	43	151	139	9	118	46	67	100	38	167	372	119	208	46	83	456	1668
05:00 PM	18	54	36	0	42	17	11	24	14	27	76	22	77	17	28	144	460
05:15 PM	14	52	41	1	35	18	19	18	7	42	86	24	67	8	26	125	463
05:30 PM	17	42	35	2	35	15	17	27	11	46	101	23	70	15	31	139	442
05:45 PM	22	60	37	1	35	12	16	31	10	31	88	19	81	14	16	130	452
Total	71	208	149	4	147	62	63	100	42	146	351	88	295	54	101	538	1817
Grand Total	162	566	443	29	391	146	193	322	119	441	1075	296	697	138	288	1419	5123
Apprch %	9.5	33.2	26	3.1	42.3	15.8	3.8	6.3	2.3	8.6	21	20.9	49.1	9.7	20.3	27.7	
Total %	3.2	11	8.6	0.6	7.6	2.8	18.1	6.3	2.3	8.6	21	5.8	13.6	2.7	5.6	27.7	

Start Time	Kamakee Street Southbound			Auahi Street Westbound			Kamakee Street Northbound			Auahi Street Eastbound			Int. Total				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total			
05:00 PM	18	54	36	0	42	17	11	24	14	27	76	22	77	17	28	144	460
05:15 PM	14	52	41	1	35	18	19	18	7	42	86	24	67	8	26	125	463
05:30 PM	17	42	35	2	35	15	17	27	11	46	101	23	70	15	31	139	442
05:45 PM	22	60	37	1	35	12	16	31	10	31	88	19	81	14	16	130	452
Total Volume	71	208	149	4	147	62	63	100	42	146	351	88	295	54	101	538	1817
% App. Total	16.6	48.6	34.8	1.9	69	29.1	30.7	48.8	20.5	75.0	89.9	20.1	67.5	12.4	17.4	43.7	1283
PHF	.807	.867	.909	.500	.875	.861	.829	.806	.750	.942	.899	.917	.910	.794	.942	.942	.949

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

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

Counted By:KW, AC
Counters:TU-650, TUI-0649
Weather:Clear

File Name : AuaQue AM
Site Code : 00000001
Start Date : 3/3/2015
Page No : 1

Start Time	Queen's Lane Southbound			Honua Building Westbound			Queen Street Northbound			Auahi Street Eastbound			Int. Total				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total			
06:00 AM	1	6	2	0	0	0	9	7	0	5	21	1	1	0	3	5	42
06:15 AM	4	1	3	0	0	0	8	6	7	1	14	1	2	3	8	14	41
06:30 AM	3	4	4	0	0	0	14	0	0	0	18	2	0	1	9	12	47
06:45 AM	1	5	4	0	0	0	14	0	0	3	13	4	1	5	7	17	51
Total	9	16	13	0	0	0	45	0	0	22	33	8	4	9	27	48	181
07:00 AM	4	3	5	1	13	1	2	11	8	3	23	1	0	5	5	11	49
07:15 AM	3	8	7	3	21	0	5	18	14	3	37	6	1	9	14	30	93
07:30 AM	3	4	6	1	14	0	5	19	12	0	34	8	2	6	9	25	78
07:45 AM	1	9	7	2	19	0	3	18	22	4	6	6	3	5	16	30	102
Total	11	24	25	7	67	0	15	66	56	8	144	21	6	25	44	96	322
08:00 AM	2	7	11	4	24	0	5	14	17	2	47	11	1	8	22	42	118
08:15 AM	7	7	9	4	27	0	2	26	16	2	49	12	2	16	12	42	120
08:30 AM	5	6	3	2	16	0	4	18	18	2	43	4	4	13	12	33	96
08:45 AM	6	10	18	2	36	0	5	20	21	0	51	14	0	7	13	34	126
Total	20	30	41	12	103	0	16	78	72	6	190	41	7	44	59	151	460
Grand Total	40	70	79	26	215	0	53	177	151	16	400	70	17	78	130	295	963
Apprch %	18.6	32.6	36.7	12.1	44.2	0	100	44.2	37.8	4	14	23.7	5.8	26.4	44.1	44.1	30.6
Total %	4.2	7.3	8.2	2.7	22.3	0	5.5	18.4	15.7	1.7	5.8	7.3	1.8	8.1	13.5	30.6	

Start Time	Queen's Lane Southbound			Honua Building Westbound			Queen Street Northbound			Auahi Street Eastbound			Int. Total			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total		
08:00 AM	2	7	11	0	0	0	0	14	17	2	33	11	1	8	20	73
08:15 AM	7	7	9	0	0	0	0	26	16	2	44	12	2	16	30	97
08:30 AM	5	6	3	0	0	0	0	18	18	2	38	4	4	13	21	73
08:45 AM	6	10	18	0	0	0	0	20	21	0	41	14	0	7	21	96
Total Volume	20	30	41	0	0	0	0	78	72	6	156	41	7	44	92	339
% App. Total	22	33	45.1	0	0	0	0	50	46.2	3.8	88.6	44.6	7.6	47.8	92	339
PHF	.714	.750	.569	.000	.000	.000	.000	.750	.857	.750	.886	.732	.438	.688	.767	.874

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, KW
Counters: D4-5674, D4-5671
Weather: Clear

File Name : AuaQue PM
Site Code : 00000001
Start Date : 3/3/2015
Page No : 1

Start Time	Groups Printed- Unshifted																		
	Queen's Lane Southbound				Honua Driveway Westbound				Queen Street Northbound				Auahi Street Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	App. Total	App. Total
03:00 PM	3	11	7	18	0	0	0	9	18	14	4	8	44	19	4	31	6	60	152
03:15 PM	6	13	10	26	0	0	11	11	29	22	4	22	77	24	3	30	29	86	229
03:30 PM	10	17	7	17	0	0	8	8	28	28	0	3	59	24	2	30	9	65	183
03:45 PM	6	13	19	14	0	0	9	9	33	14	4	10	61	27	3	28	24	82	204
Total	25	54	43	75	0	0	37	37	108	78	12	43	241	94	12	119	68	293	768
04:00 PM	4	23	11	8	0	0	8	8	27	19	3	17	66	26	0	22	4	52	172
04:15 PM	7	14	8	7	0	0	10	10	35	16	1	16	68	27	1	25	21	74	188
04:30 PM	4	13	13	18	0	0	8	8	38	23	3	15	79	29	2	26	18	75	210
04:45 PM	11	9	10	12	0	0	18	18	31	23	3	14	71	24	0	35	11	70	201
Total	26	59	42	45	0	0	44	44	131	81	10	62	284	106	3	108	54	271	771
05:00 PM	8	21	8	18	0	0	11	11	40	26	3	13	82	17	3	36	29	85	233
05:15 PM	4	16	14	9	0	0	7	7	45	23	3	31	102	28	1	44	35	108	260
05:30 PM	2	15	7	19	0	0	12	12	46	21	2	16	85	27	1	44	24	96	236
05:45 PM	3	18	16	14	0	0	17	17	27	26	2	17	72	15	4	43	14	76	216
Total	17	70	45	60	0	0	47	47	158	96	10	77	341	87	9	167	102	365	945
Grand Total	68	183	130	180	0	0	128	128	397	255	32	182	866	287	24	394	224	929	2484
Apprch %	12.1	32.6	23.2	32.1	0	0	100	5.2	45.8	29.4	3.7	21	34.9	30.9	2.6	42.4	24.1	37.4	
Total %	2.7	7.4	5.2	7.2	0	0	5.2	5.2	16	10.3	1.3	7.3	15.1	11.6	1	15.9	9		

Start Time	Groups Printed- Unshifted																		
	Queen's Lane Southbound				Honua Driveway Westbound				Queen Street Northbound				Auahi Street Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	App. Total	App. Total
05:00 PM	8	21	8	18	0	0	11	11	40	26	3	13	82	17	3	36	29	85	233
05:15 PM	4	16	14	9	0	0	7	7	45	23	3	31	102	28	1	44	35	108	260
05:30 PM	2	15	7	19	0	0	12	12	46	21	2	16	85	27	1	44	24	96	236
05:45 PM	3	18	16	14	0	0	17	17	27	26	2	17	72	15	4	43	14	76	216
Total Volume	17	70	45	60	0	0	47	47	158	96	10	77	341	87	9	167	102	365	945
% App. Total	8.9	36.5	23.4	31.2	0	0	100	6.91	46.3	28.2	2.9	22.6	83.6	23.8	2.5	45.8	27.9	84.5	909
PHF	.531	.833	.703	.789	.000	.000	.691	.691	.859	.923	.833	.621	.836	.777	.563	.949	.729	.845	.909

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, KW
Counters: D4-5674, D4-5671
Weather: Clear

File Name : SouAua AM
Site Code : 00000001
Start Date : 3/4/2015
Page No : 1

Start Time	Groups Printed- Unshifted																		
	South Street Southbound				Auahi Street Westbound				South Street Northbound				Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	App. Total	App. Total
06:00 AM	0	8	0	2	3	0	4	1	8	0	31	4	1	36	0	54	0	54	54
06:15 AM	5	7	0	0	5	0	4	2	11	0	32	4	0	36	0	59	0	59	59
06:30 AM	8	5	0	2	7	0	8	1	16	0	47	3	0	50	0	81	0	81	81
06:45 AM	6	7	0	1	5	0	7	1	13	0	51	5	0	56	0	83	0	83	83
Total	19	27	0	5	20	0	23	5	48	0	161	16	1	178	0	277	0	277	277
07:00 AM	4	18	0	5	5	0	9	8	22	0	71	2	0	73	0	122	0	122	122
07:15 AM	12	17	0	6	20	4	14	2	20	0	78	3	0	81	0	136	0	136	136
07:30 AM	6	16	0	3	25	0	6	2	15	0	91	2	0	93	0	133	0	133	133
07:45 AM	8	21	0	6	35	7	9	1	17	0	74	6	0	80	0	132	0	132	132
Total	30	72	0	20	122	23	38	13	74	0	314	13	0	327	0	523	0	523	523
08:00 AM	10	16	0	4	30	6	15	0	21	0	68	5	0	73	0	124	0	124	124
08:15 AM	10	20	0	2	32	4	17	1	22	0	76	3	0	79	0	133	0	133	133
08:30 AM	6	17	0	11	34	3	8	6	17	0	61	8	0	69	0	120	0	120	120
08:45 AM	8	9	0	7	24	4	6	3	13	0	70	8	0	78	0	115	0	115	115
Total	34	62	0	24	120	17	46	10	73	0	275	24	0	299	0	492	0	492	492
Grand Total	83	161	0	49	293	60	107	28	195	0	750	53	1	804	0	1292	0	1292	1292
Apprch %	28.3	54.9	0	16.7	30.8	0	54.9	14.4	66.2	0	93.3	6.6	0.1	62.2	0		0		
Total %	6.4	12.5	0	3.8	22.7	4.6	8.3	2.2	15.1	0	58	4.1	0.1	62.2	0		0		

Start Time	Groups Printed- Unshifted																		
	South Street Southbound				Auahi Street Westbound				South Street Northbound				Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	App. Total	App. Total
07:30 AM	6	16	0	0	7	0	6	6	13	0	91	2	0	93	0	128	0	128	128
07:45 AM	8	21	0	0	7	0	9	9	16	0	74	6	0	80	0	125	0	125	125
08:00 AM	10	16	0	0	6	0	15	17	21	0	68	5	0	73	0	120	0	120	120
08:15 AM	10	20	0	0	4	0	17	17	21	0	76	3	0	79	0	130	0	130	130
Total Volume	34	73	0	0	24	0	47	47	71	0	309	16	0	325	0	503	0	503	503
% App. Total	31.8	68.2	0	0	33.8	0	66.2	66.2	95.1	0	95.1	4.9	0	62.2	0		0		
PHF	.850	.869	.000	.000	.857	.000	.691	.691	.845	.000	.849	.667	.000	.874	.000	.967	.000	.967	.967

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:GC, KW
Counters:D4-5671, D4-5674
Weather:Clear

File Name : SouAua PM
Site Code : 00000001
Start Date : 3/4/2015
Page No : 1

Groups Printed- Unshifted

Start Time	South Street Southbound			Auahi Street Westbound			South Street Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Int. Total
03:00 PM	5	28	0	10	0	9	2	48	3	0	51	0	112	
03:15 PM	8	23	0	7	0	11	1	56	1	0	57	0	112	
03:30 PM	12	32	0	2	0	15	2	61	5	0	66	0	133	
03:45 PM	4	24	0	6	0	14	2	60	4	0	64	0	119	
Total	29	107	0	25	0	49	7	225	13	0	238	0	476	
04:00 PM	9	33	0	12	0	9	3	62	4	0	66	0	140	
04:15 PM	6	30	0	3	0	17	0	66	3	0	69	0	130	
04:30 PM	7	59	0	9	0	13	0	80	9	0	89	0	180	
04:45 PM	10	35	0	8	0	16	1	83	13	0	96	0	173	
Total	32	157	0	32	0	55	4	291	29	0	320	0	623	
05:00 PM	8	55	0	7	0	10	3	85	5	0	90	0	179	
05:15 PM	12	53	0	8	0	19	4	84	11	0	95	0	196	
05:30 PM	9	24	0	5	0	8	11	67	4	0	71	0	139	
05:45 PM	4	21	0	2	0	11	5	84	10	0	94	0	142	
Total	33	153	0	22	0	48	23	320	30	0	350	0	656	
Grand Total	94	417	0	79	0	152	34	836	72	0	908	0	1755	
Approch %	16.2	71.6	0	29.8	0	57.4	12.8	92.1	7.9	0	47.6	0	51.7	0
Total %	5.4	23.8	0	4.5	0	8.7	1.9	47.6	4.1	0	51.7	0	51.7	0

Start Time	South Street Southbound			Auahi Street Westbound			South Street Northbound			Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Int. Total
04:30 PM	7	59	0	9	0	13	2	80	9	0	89	0	177	
04:45 PM	10	35	0	8	0	16	2	83	13	0	96	0	165	
05:00 PM	8	55	0	7	0	10	1	85	5	0	90	0	170	
05:15 PM	12	53	0	8	0	19	4	84	11	0	95	0	187	
Total Volume	37	202	0	32	0	58	23	332	38	0	370	0	699	
% App. Total	15.5	84.5	0	35.6	0	64.4	10.3	89.7	10.3	0	96.4	0	.934	
PHF	.771	.856	.000	.889	.000	.763	.976	.964	.731	.000	.964	.000		

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:CY, DY
Counters:TU-0653, TU-0654
Weather:Clear

File Name : KeaAua AM
Site Code : 00000003
Start Date : 3/4/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Keawe Street Southbound			Auahi Street Westbound			Keawe Street Northbound			Auahi Street Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Int. Total
06:00 AM	2	3	4	1	4	1	2	6	2	2	3	1	8	39
06:15 AM	1	5	2	1	4	3	5	3	0	1	7	3	9	39
06:30 AM	2	6	3	0	5	1	3	6	3	4	19	2	17	60
06:45 AM	3	3	1	2	6	3	10	8	4	0	17	2	25	81
Total	8	17	10	4	19	8	20	23	9	7	54	16	59	219
07:00 AM	3	9	3	3	0	4	6	9	3	0	18	2	7	52
07:15 AM	0	5	3	0	9	1	4	5	2	2	14	2	17	54
07:30 AM	0	11	2	1	6	4	12	12	3	1	20	0	10	57
07:45 AM	2	7	9	2	3	3	2	12	5	0	20	2	12	66
Total	5	32	17	4	21	8	11	38	13	3	72	5	46	229
08:00 AM	5	9	5	6	4	3	13	15	5	3	26	4	12	73
08:15 AM	5	9	4	1	6	3	7	17	4	0	14	3	10	62
08:30 AM	8	13	3	2	5	7	14	8	8	0	20	2	13	74
08:45 AM	3	5	3	1	8	5	7	10	3	3	17	6	7	70
Total	21	36	15	11	33	17	24	43	16	6	77	16	54	279
Grand Total	34	85	42	10	62	33	55	104	38	16	203	29	159	727
Approch %	16.6	41.5	20.5	6.2	38.8	20.6	34.4	51.2	18.7	7.9	47.6	18.2	32.7	21.9
Total %	4.7	11.7	5.8	1.4	8.5	4.5	7.6	14.3	5.2	2.2	27.9	4	7.2	7.2

Start Time	Keawe Street Southbound			Auahi Street Westbound			Keawe Street Northbound			Auahi Street Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	App. Total	Int. Total
07:45 AM	2	7	9	3	3	3	5	12	5	5	20	4	11	57
08:00 AM	5	9	5	6	4	10	5	15	5	23	23	4	10	62
08:15 AM	5	9	4	1	6	3	10	10	0	14	14	3	8	50
08:30 AM	8	13	3	2	5	7	7	8	8	0	20	2	10	61
Total Volume	20	38	21	14	24	35	18	45	18	77	77	19	39	230
% App. Total	25.3	48.1	26.6	8.6	48.6	42.9	18.2	58.4	23.4	30.8	48.7	20.5	39	230
PHF	.625	.731	.583	.823	.708	.750	.875	.750	.563	.600	.679	.500	.886	.927

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:45 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: CY, DY
Counters: TU-0654, TU-0653
Weather: Clear

File Name : KeaAua PM
Site Code : 00000003
Start Date : 3/4/2015
Page No : 1

Start Time	Keawe Street Southbound						Auahi Street Westbound						Keawe Street Northbound						Auahi Street Eastbound						
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		
																									Int. Total
03:00 PM	3	20	6	5	34		0	9	4	7	20		1	2	6	3	12		2	4	1	8	15		81
03:15 PM	4	6	3	0	13		0	9	2	4	15		2	8	4	1	15		5	4	3	0	12		55
03:30 PM	7	17	7	2	33		0	9	6	7	22		2	6	3	2	13		2	8	5	0	15		83
03:45 PM	3	16	4	6	29		3	12	6	13	34		3	11	9	2	25		4	6	2	2	14		102
Total	17	59	20	13	109		3	39	18	31	91		8	27	22	8	65		13	22	11	10	56		321
04:00 PM	5	21	5	2	33		1	13	6	1	21		0	13	7	0	20		2	10	0	1	13		87
04:15 PM	6	31	6	4	47		0	4	7	4	15		5	10	6	0	21		1	4	4	1	10		93
04:30 PM	5	20	6	2	33		1	12	6	5	24		6	13	6	2	27		7	10	3	1	21		105
04:45 PM	0	13	11	3	27		1	13	5	2	21		4	9	9	2	24		4	14	4	4	26		98
Total	16	85	28	11	140		3	42	24	12	81		15	45	28	4	92		14	38	11	7	70		383
05:00 PM	9	21	4	0	34		1	12	2	10	25		2	9	3	6	20		2	11	1	0	14		93
05:15 PM	3	16	7	4	30		6	11	6	4	27		4	8	6	0	18		3	17	2	3	25		100
05:30 PM	3	13	3	9	28		0	9	2	8	19		1	10	8	7	26		4	9	1	7	21		94
05:45 PM	6	9	5	3	23		2	9	5	5	21		2	9	11	9	31		2	14	3	5	24		99
Total	21	59	19	16	115		9	41	15	27	92		9	36	28	22	95		11	51	7	15	84		386
Grand Total	54	203	67	40	364		15	122	57	70	264		32	108	78	34	252		38	111	29	32	210		1090
Approach %	14.6	55.8	18.4	11	33.4		5.7	46.2	21.6	26.5	74.4		12.7	42.9	31	13.5	83.9		18.1	52.9	13.8	15.2	48.9		19.3
Total %	5	18.6	6.1	3.7	33.4		1.4	11.2	5.2	6.4	24.2		2.9	9.9	7.2	3.1	23.1		3.5	10.2	2.7	2.9	19.3		

Start Time	Keawe Street Southbound						Auahi Street Westbound						Keawe Street Northbound						Auahi Street Eastbound						
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		
																									Int. Total
04:00 PM	5	21	5	5	31		1	13	6	6	20		0	13	7	7	20		2	10	0	0	12		83
04:15 PM	6	31	6	6	43		0	4	7	7	11		5	10	6	6	21		1	4	4	4	9		84
04:30 PM	5	20	6	6	31		1	12	6	6	19		6	13	6	6	25		7	10	3	20	95		95
04:45 PM	0	13	11	11	24		1	13	5	5	19		4	9	9	9	22		4	14	4	4	22		87
Total Volume	16	85	28	28	129		3	42	24	24	69		15	45	28	28	88		14	38	11	63	349		349
% App. Total	12.4	65.9	21.7	21.7	75.0		4.3	60.9	34.8	34.8	86.3		17	51.1	31.8	77.8	88.0		22.2	60.3	17.5	68.8	716		918
PHF	.667	.685	.636	.636	.750		.750	.808	.857	.857	.863		.625	.865	.778	.778	.880		.500	.679	.688	.688	.716		.918

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

Counted By: JC, AC
Counters: TU-0649, TU-0650
Weather: Clear

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

File Name : CorAua AM
Site Code : 00000004
Start Date : 3/4/2015
Page No : 1

Start Time	Coral Street Southbound						Auahi Street Westbound						Coral Street Northbound						Auahi Street Eastbound						
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		
																									Int. Total
06:00 AM	2	3	1	1	7		1	4	0	4	9		1	3	3	1	8		1	2	0	3	6		30
06:15 AM	1	3	0	3	7		1	5	1	0	7		1	0	1	2	4		1	3	1	0	5		23
06:30 AM	2	1	0	8	11		4	7	1	4	16		0	5	2	7	14		2	1	0	3	6		47
06:45 AM	2	6	2	5	15		5	5	3	3	16		2	8	1	4	15		2	4	2	3	11		57
Total	7	13	3	17	40		11	21	5	11	48		4	16	7	14	41		6	10	3	9	28		157
07:00 AM	0	6	2	0	8		5	6	2	1	14		2	2	3	0	7		1	7	2	1	11		40
07:15 AM	0	7	1	1	9		0	8	2	2	12		4	4	0	1	9		0	8	1	2	11		41
07:30 AM	2	8	2	6	18		2	5	1	4	12		1	6	1	5	13		2	8	2	2	14		57
07:45 AM	2	10	0	4	16		1	6	0	3	10		5	4	3	4	16		2	9	0	4	15		57
Total	4	31	5	11	51		8	25	5	10	48		12	16	7	10	45		5	32	5	9	51		195
08:00 AM	5	11	7	2	25		3	4	1	7	15		4	4	3	1	12		5	9	6	3	23		75
08:15 AM	8	19	1	4	32		2	8	5	3	18		3	5	0	3	11		6	14	2	2	24		85
08:30 AM	1	11	2	3	17		1	5	1	0	7		3	7	6	2	18		2	9	1	0	12		54
08:45 AM	2	10	3	5	20		4	9	3	1	17		2	5	3	3	13		2	11	3	0	16		66
Total	16	51	13	14	94		10	26	10	11	57		12	21	12	9	54		15	43	12	5	75		280
Grand Total	27	95	21	42	185		29	72	20	32	153		28	53	26	33	140		26	85	20	23	154		632
Approach %	14.6	51.4	11.4	22.7	29.3		19	47.1	13.1	20.9	74.4		20	37.9	18.6	23.6	83.9		16.9	55.2	13	14.9	48.9		19.3
Total %	4.3	15	3.3	6.6	29.3		4.6	11.4	3.2	5.1	24.2		4.4	8.4	4.1	5.2	22.2		4.1	13.4	3.2	3.6	24.4		

Start Time	Coral Street Southbound						Auahi Street Westbound						Coral Street Northbound						Auahi Street Eastbound						
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		
																									Int. Total
08:00 AM	5	11	7	7	23		3	4	1	1	8		4	4	4	3	11		5	9	6	6	20		62
08:15 AM	8	19	1	1	28		2	8	5	5	15		3	5	0	0	8		6	14	2	2	22		73
08:30 AM	1	11	1	2	14		1	5	1	1	7		3	7	6	6	16		2	9	1	1	12		49
08:45 AM	2	10	3	5	15		4	9	3	3	16		2	5	3	3	10		2	11	3	3	16		57
Total Volume	16	51	13	13	80		10	26	10	11	46		12	21	12	12	45		15	43	12	12	70		241
% App. Total	20	63.8	16.2	16.2	71.4		21.7	56.5	21.7	26.7	83.9		26.7	46.7	26.7	50.0	94.4		21.4	61.4	17.1	50.0	79.5		82.5
PHF	.500	.671	.464	.464	.714		.625	.722	.500	.500	.719		.750	.750	.500	.500	.703		.625	.768	.500	.500	.795		.825

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: AC, JC
Counters: TU-0649, TU-0650
Weather: Clear

File Name : CorAua PM
Site Code : 0000000
Start Date : 3/4/2015
Page No : 1

Start Time	Coral Street Southbound						Auahi Street Westbound			Coral Street Northbound			Auahi Street Eastbound			Int. Total					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total
	03:00 PM	5	8	5	7	25	0	8	3	5	16	3	8	1	3		15	6	7	5	5
03:15 PM	5	16	2	3	26	4	3	3	2	12	4	2	5	3	14	3	14	2	0	19	71
03:30 PM	2	14	4	0	20	5	7	5	3	20	5	11	3	0	19	2	14	3	2	21	80
03:45 PM	2	16	5	12	35	3	11	3	1	18	1	10	3	4	18	1	10	7	0	18	89
Total	14	54	16	22	106	12	29	14	11	66	13	31	12	10	66	12	45	17	7	81	319
04:00 PM	4	4	1	8	17	3	10	3	4	20	5	7	3	6	21	2	4	1	1	8	66
04:15 PM	1	19	1	6	27	4	4	5	0	13	2	5	0	2	9	1	12	0	3	16	65
04:30 PM	3	18	3	6	30	2	15	11	1	29	3	5	0	4	12	2	17	3	0	22	93
04:45 PM	8	19	2	6	35	1	10	6	0	17	4	8	4	5	21	1	13	2	0	16	89
Total	16	60	7	26	109	10	39	25	5	79	14	25	7	17	63	6	46	6	4	62	313
05:00 PM	1	18	6	4	29	4	10	4	6	24	6	16	1	1	24	1	14	2	0	17	94
05:15 PM	3	9	3	2	17	1	9	1	1	12	6	7	3	1	17	0	5	3	1	9	55
05:30 PM	2	11	2	0	15	0	5	3	2	10	1	7	3	0	11	1	6	2	0	9	45
05:45 PM	1	20	6	1	28	4	9	7	1	21	8	14	1	1	24	1	14	6	1	22	95
Total	7	58	17	7	89	9	33	15	10	67	21	44	8	3	76	3	39	13	2	57	289
Grand Total	37	172	40	55	304	31	101	54	26	212	48	100	27	30	205	21	130	36	13	200	921
Approch %	12.2	56.6	13.2	18.1		14.6	47.6	25.5	12.3		23.4	48.8	13.2	14.6		10.5	65	18	6.5		
Total %	4	18.7	4.3	6	33	3.4	11	5.9	2.8	23	5.2	10.9	2.9	3.3	22.3	2.3	14.1	3.9	1.4	21.7	

Start Time	Coral Street Southbound			Auahi Street Westbound			Coral Street Northbound			Auahi Street Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total
	04:15 PM	1	19	1	4	4	5	2	5	0	7	1		12
04:30 PM	3	18	3	2	15	11	3	5	0	8	2	17	3	22
04:45 PM	8	19	2	1	10	6	4	8	4	16	1	13	2	16
05:00 PM	1	18	6	4	10	4	6	16	1	23	1	14	2	17
Total Volume	13	74	12	11	39	26	15	34	5	54	5	56	7	68
% App. Total	13.1	74.7	12.1	14.5	51.3	34.2	27.8	63	9.3	7.4	82.4	10.3		
PHF	.406	.974	.500	.688	.650	.591	.625	.531	.313	.587	.824	.583		.773

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: JJ, RJ
Counters: TU-0653, TU-0654
Weather: Clear

File Name : CooAua AM
Site Code : 00000002
Start Date : 3/4/2015
Page No : 1

Start Time	Cooke Street Southbound						Auahi Street Westbound			Cooke Street Northbound			Auahi Street Eastbound			Int. Total					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total
	06:00 AM	2	18	3	1	24	1	2	9	2	14	4	8	1	2		15	2	2	3	2
06:15 AM	5	7	6	1	19	0	0	3	1	4	8	11	0	1	20	3	1	1	1	6	49
06:30 AM	3	17	8	1	29	1	2	3	0	6	10	12	2	4	28	2	2	1	1	6	69
06:45 AM	3	12	10	2	27	2	1	7	0	10	10	21	1	1	33	3	3	2	2	10	80
Total	13	54	27	5	99	4	5	22	3	34	32	52	4	8	96	10	8	7	6	31	260
07:00 AM	5	20	9	3	37	1	5	6	3	15	8	16	2	2	28	6	4	0	3	13	93
07:15 AM	4	20	5	2	31	1	4	13	1	19	7	31	3	1	42	4	3	1	1	9	101
07:30 AM	6	29	5	2	42	1	0	9	5	15	8	28	1	2	39	7	4	2	2	15	111
07:45 AM	10	26	3	1	40	3	1	7	1	12	6	24	1	0	31	11	3	0	4	18	101
Total	25	95	22	8	150	6	10	35	10	61	29	99	7	5	140	28	14	3	10	55	406
08:00 AM	9	29	6	4	48	2	4	13	5	24	5	24	2	1	32	12	5	1	2	20	124
08:15 AM	11	23	10	1	45	2	2	14	6	24	12	27	2	0	41	13	7	3	3	26	136
08:30 AM	8	39	5	1	53	2	2	14	0	18	5	30	3	3	41	11	5	1	1	18	130
08:45 AM	6	30	8	2	46	6	3	13	1	23	13	24	1	0	38	9	4	2	2	17	124
Total	34	121	29	8	192	12	11	54	12	89	35	105	8	4	152	45	21	7	8	81	514
Grand Total	72	270	78	21	441	22	26	111	25	184	96	256	19	17	388	83	43	17	24	167	1180
Approch %	16.3	61.2	17.7	4.8		12	14.1	60.3	13.6		24.7	66	4.9	4.4		49.7	25.7	10.2	14.4		
Total %	6.1	22.9	6.6	1.8	37.4	1.9	2.2	9.4	2.1	15.6	8.1	21.7	1.6	1.4	32.9	7	3.6	1.4	2	14.2	

Start Time	Cooke Street Southbound			Auahi Street Westbound			Cooke Street Northbound			Auahi Street Eastbound			Int. Total								
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total							
	08:00 AM	9	29	6	2	4	13	5	24	2	1	32		12	5	1	2	20	124		
08:15 AM	11	23	10	1	45	2	2	14	6	24	12	27	2	0	41	13	7	3	3	26	136
08:30 AM	8	39	5	1	53	2	2	14	0	18	5	30	3	3	41	11	5	1	1	18	130
08:45 AM	6	30	8	2	46	6	3	13	1	23	13	24	1	0	38	9	4	2	2	17	124
Total Volume	34	121	29	8	184	12	11	54	12	89	35	105	8	4	152	45	21	7	8	81	514
% App. Total	18.5	65.8	15.8	4.4		15.6	14.3	70.1	5.4		23.6	70.9	5.4		32.9	61.6	28.8	9.6			
PHF	.773	.776	.725	.885		.500	.688	.964	.667		.673	.875	.667		.902	.865	.750	.583			.793

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

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

Counted By: JJ, RJ
Counters: TU-0653, TU-0654
Weather: Clear

File Name : CooAua PM
Site Code : 00000002
Start Date : 3/4/2015
Page No : 1

Groups Printed- Unshifted																					
Start Time	Cooke Street Southbound				Auahi Street Westbound				Cooke Street Northbound				Auahi Street Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	8	29	3	4	44	1	3	11	0	15	5	22	3	0	30	10	2	1	3	16	105
03:15 PM	5	36	3	0	44	3	1	19	6	29	6	31	0	2	39	17	5	2	5	29	141
03:30 PM	11	54	8	4	77	5	5	16	6	32	4	27	2	0	33	13	4	2	5	24	166
03:45 PM	14	47	9	3	73	5	4	16	5	30	5	24	5	2	36	12	2	1	2	17	156
Total	38	166	23	11	238	14	13	62	17	106	20	104	10	4	138	52	13	6	15	86	568
04:00 PM	7	50	4	5	66	6	8	25	5	44	4	27	1	0	32	8	2	1	2	13	155
04:15 PM	8	51	10	3	72	1	3	17	6	27	0	32	4	1	37	8	4	1	1	14	150
04:30 PM	10	45	18	0	73	1	9	15	2	27	1	22	4	2	29	15	3	2	3	23	152
04:45 PM	9	40	8	7	64	0	2	21	5	28	7	26	2	5	40	17	4	4	7	32	164
Total	34	186	40	15	275	8	22	78	18	126	12	107	11	8	138	48	13	8	13	82	621
05:00 PM	5	49	8	1	63	4	4	26	6	40	6	20	1	0	27	10	2	4	1	17	147
05:15 PM	3	41	7	1	52	0	3	22	2	27	1	18	0	1	20	6	2	3	1	12	111
05:30 PM	5	43	7	0	55	1	1	19	7	28	0	24	1	3	28	6	4	1	5	16	127
05:45 PM	7	34	12	4	57	1	2	11	2	16	6	20	1	0	27	13	2	1	4	20	120
Total	20	167	34	6	227	6	10	78	17	111	13	82	3	4	102	35	10	9	11	65	505
Grand Total	92	519	97	32	740	28	45	218	52	343	45	293	24	16	378	135	36	23	39	233	1694
Approach %	12.4	70.1	13.1	4.3		8.2	13.1	63.6	15.2		11.9	77.5	6.3	4.2		57.9	15.5	9.9	16.7		
Total %	5.4	30.6	5.7	1.9	43.7	1.7	2.7	12.9	3.1	20.2	2.7	17.3	1.4	0.9	22.3	8	2.1	1.4	2.3	13.8	

Start Time	Cooke Street Southbound				Auahi Street Westbound				Cooke Street Northbound				Auahi Street Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:30 PM	11	54	8		73	5	5	16		26	4	27	2		33	13	4	2		19	151
03:45 PM	14	47	9		70	5	4	16		25	5	24	5		34	12	2	1		15	144
04:00 PM	7	50	4		61	6	8	25		39	4	27	1		32	8	2	1		11	143
04:15 PM	8	51	10		69	1	3	17		21	0	32	4		36	8	4	1		13	139
Total Volume	40	202	31		273	17	20	74		111	13	110	12		135	41	12	5		58	577
% App. Total	14.7	74	11.4			15.3	18	66.7			9.6	81.5	8.9			70.7	20.7	8.6			
PHF	.714	.935	.775			.708	.625	.740		.712	.650	.859	.600		.938	.788	.750	.625		.763	.955

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:30 PM

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

Counted By: FS
Counters: D4-5673
Weather: Clear

File Name : OheAua AM
Site Code : 00000007
Start Date : 3/4/2015
Page No : 1

Groups Printed- Unshifted																						
Start Time	Southbound				Auahi Street Westbound				Ohe Street Northbound				Auahi Street Eastbound									
	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	5
06:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0	1	0	0	5	7
06:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0	6	6
Total	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	11	0	3	0	0	14	20
07:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	4
07:15 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	6	0	0	1	0	7	8
07:30 AM	0	0	0	2	0	2	0	0	1	1	9	0	0	0	0	9	0	0	2	0	11	14
07:45 AM	0	0	0	6	1	7	0	0	0	0	14	0	0	0	0	14	0	0	0	0	14	21
Total	0	1	0	9	1	11	0	0	1	2	31	0	0	0	0	31	0	0	3	0	34	47
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	1	0	0	7	7
08:15 AM	0	1	0	4	0	5	0	0	0	0	4	0	0	0	0	4	0	2	0	0	6	11
08:30 AM	0	1	0	2	0	3	0	0	0	0	5	0	0	0	0	5	0	1	0	0	6	9
08:45 AM	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5
Total	0	3	0	8	0	11	0	0	0	0	15	0	0	0	0	15	0	6	0	0	21	32
Grand Total	0	4	0	23	1	28	1	0	0	1	57	0	9	3	69	82.6	0	13	4.3	3	69.7	99
Approach %	0	14.3	0	82.1	3.6		50	0	0	0	82.6	0	9.1	4.3		82.6	0	9.1	4.3	3	69.7	
Total %	0	4	0	23.2	1	28.3	1	0	0	1	57.6	0	9.1	4.3	3	57.6	0	9.1	4.3	3	69.7	

Start Time	Southbound				Auahi Street Westbound				Ohe Street Northbound				Auahi Street Eastbound										
	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
07:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	11
07:45 AM	0	0	0	6	0	6	0	0	0	0	14	0	0	0	0	14	0	0	0	0	14	20	
08:00 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	7	7	
08:15 AM	0	1	0	4	0	5	0	0	0	0	4	0	0	0	0	4	0	0	2	0	6	11	
Total Volume	0	1	0	12	0	13	0	0	0	0	33	0	0	0	0	33	0	0	3	0	36	49	
% App. Total	.000	.250	.000	.500	.542	.000	.000	.000	.000	.000	.589	.000	.000	.375	.643	.589	.000	.000	.375	.643	.613		
PHF																							

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

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

Counted By: FS
 Counters: D4-5673
 Weather: Clear

File Name : OheAua PM
 Site Code : 00000006
 Start Date : 3/4/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Ohe Street Southbound			Auahi Street Westbound			Ohe Street Northbound			Auahi Street Eastbound			Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right		Peds
03:00 PM	0	0	0	1	0	0	4	0	2	4	0	0	1	5
03:15 PM	0	0	0	0	0	1	0	0	0	3	0	0	0	3
03:30 PM	0	0	0	0	0	2	0	0	0	2	0	3	0	5
03:45 PM	0	0	1	1	0	2	0	0	0	5	0	1	1	7
Total	0	0	1	2	0	9	0	0	2	14	0	4	2	20
04:00 PM	0	0	0	0	1	0	3	0	0	4	0	2	1	5
04:15 PM	0	0	3	3	0	14	0	0	0	14	0	0	4	25
04:30 PM	0	0	4	4	0	3	0	2	3	3	0	0	0	3
04:45 PM	0	0	1	1	1	4	0	1	4	1	0	1	2	4
Total	0	0	8	8	2	24	0	3	12	9	0	3	4	16
05:00 PM	1	0	1	2	1	0	3	0	0	4	0	0	0	4
05:15 PM	0	0	0	0	0	2	0	0	0	2	0	0	1	3
05:30 PM	0	0	1	1	0	5	0	0	1	1	0	0	0	2
05:45 PM	1	0	0	1	0	3	0	0	3	4	0	1	0	5
Total	2	0	1	4	1	13	0	0	7	10	0	1	1	12
Grand Total	2	0	2	4	3	0	46	0	16	33	0	8	7	48
Approach % Total	10.5	0	10.5	19	6.1	0	93.9	0	62.5	0	6.2	31.2	0	68.8
	1.5	0	1.5	11.4	2.3	0	34.8	0	7.6	0	0.8	3.8	0	12.1
				14.4					37.1					12.1
														36.4

Start Time	Ohe Street Southbound			Auahi Street Westbound			Ohe Street Northbound			Auahi Street Eastbound			Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right		Peds
04:15 PM	0	0	0	0	0	0	14	0	0	4	0	0	0	4
04:30 PM	0	0	0	0	0	3	0	0	1	3	0	0	0	4
04:45 PM	0	0	0	0	1	0	4	0	2	5	0	1	0	3
05:00 PM	1	0	1	2	0	3	0	0	4	0	0	0	0	4
Total Volume	1	0	1	2	2	0	24	1	7	26	0	1	1	8
% App. Total	50	0	50	250	7.7	0	92.3	12.5	87.5	0	12.5	0	8.3	91.7
PHF	.250	.000	.250	.250	.500	.000	.429	.000	.438	.500	.000	.250	.000	.750

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:15 PM

Counted By: PA
 Counters: D4-3889
 Weather: Clear

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

File Name : KouAua AM
 Site Code : 00000006
 Start Date : 3/4/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Koula Street Southbound			Auahi Street Westbound			Koula Street Northbound			Auahi Street Eastbound			Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right		Peds
06:00 AM	1	2	11	15	0	0	0	0	0	1	0	0	0	1
06:15 AM	1	0	5	6	2	1	0	1	4	1	0	0	0	2
06:30 AM	1	1	6	8	2	1	0	0	3	0	2	1	0	3
06:45 AM	1	4	6	11	4	4	0	0	8	2	0	3	1	6
Total	4	7	28	40	8	6	0	1	15	4	0	5	1	10
07:00 AM	1	1	6	8	2	2	0	0	4	0	1	3	0	4
07:15 AM	3	3	13	19	0	3	0	2	9	0	3	2	1	6
07:30 AM	0	1	7	8	1	1	0	0	2	4	0	2	0	3
07:45 AM	2	3	9	14	3	2	0	0	5	4	0	2	0	4
Total	6	8	35	49	6	8	0	0	14	15	0	7	9	17
08:00 AM	1	2	12	15	6	6	0	0	12	3	0	0	0	7
08:15 AM	5	7	11	23	0	5	0	0	5	0	2	0	0	10
08:30 AM	4	3	10	17	3	5	0	0	8	0	1	2	0	4
08:45 AM	1	3	14	18	5	3	0	0	8	1	0	4	0	7
Total	11	15	47	73	14	19	0	0	33	12	0	7	2	28
Grand Total	21	30	110	162	28	33	0	1	62	31	0	20	8	59
Approach % Total	13	18.5	67.9	0.6	45.2	53.2	0	1.6	52.5	0	33.9	13.6	0	59.6
	6.2	8.8	32.4	0.3	8.2	9.7	0	0.3	9.1	0	5.9	2.4	0	10
				47.6					18.2					17.4
														16.8

Start Time	Koula Street Southbound			Auahi Street Westbound			Koula Street Northbound			Auahi Street Eastbound			Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right		Peds
08:00 AM	1	2	12	15	6	6	0	0	12	3	0	0	0	3
08:15 AM	5	7	11	23	0	5	0	0	5	0	2	0	2	7
08:30 AM	4	3	10	17	3	5	0	0	8	0	3	1	0	4
08:45 AM	1	3	14	18	5	3	0	0	8	1	0	4	0	5
Total Volume	11	15	47	73	14	19	0	0	33	12	0	7	2	19
% App. Total	15.1	20.5	64.4	.793	42.4	57.6	0	0	63.2	0	36.8	0	0	60.7
PHF	.550	.536	.839	.793	.583	.792	.000	.000	.600	.000	.438	.000	.531	.700

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 08:00 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:PA
Counters:D4-3889
Weather:Clear

File Name : KouAua PM
Site Code : 00000007
Start Date : 3/4/2015
Page No : 1

Start Time	Koula Street Southbound			Auahi Street Westbound			Koula Street Northbound			Auahi Street Eastbound			Int. Total					
	Left	Thru	Right	Thru	Right	Peds	Left	Thru	Right	Thru	Right	Peds		Left	Thru	Right	Peds	App. Total
03:00 PM	1	1	7	4	4	0	0	0	0	0	0	0	0	3	6	3	12	41
03:15 PM	1	4	10	5	4	0	0	9	5	3	1	9	0	4	0	1	5	38
03:30 PM	5	1	16	3	6	0	0	9	2	4	1	4	0	1	7	0	8	47
03:45 PM	0	0	7	2	9	0	1	12	10	5	4	19	0	5	5	1	11	49
Total	7	6	40	14	23	0	1	38	23	17	6	47	0	13	18	5	36	175
04:00 PM	3	2	11	4	12	0	0	16	14	0	4	4	0	5	2	0	7	62
04:15 PM	4	2	22	5	4	0	2	11	7	0	1	4	0	2	5	0	7	58
04:30 PM	1	5	14	0	4	0	0	7	7	0	1	2	0	4	10	1	15	52
04:45 PM	6	6	14	2	4	0	0	6	11	0	1	13	0	9	6	0	15	60
Total	14	16	61	14	24	0	2	40	39	0	7	11	0	20	23	1	44	232
05:00 PM	1	3	16	0	11	0	0	16	6	0	0	2	0	2	8	0	10	54
05:15 PM	3	4	8	0	6	0	0	6	10	0	2	2	0	2	5	0	7	42
05:30 PM	5	1	12	0	3	0	0	3	8	0	1	7	0	2	6	0	8	45
05:45 PM	1	5	11	0	3	0	0	5	3	0	1	5	0	4	5	0	9	40
Total	10	13	47	0	23	0	0	30	27	0	4	16	0	10	24	0	34	181
Grand Total	31	35	148	1	215	0	3	108	89	1	28	33	0	43	65	6	114	588
Apprch %	14.4	16.3	68.8	0.5	32.4	64.8	0	2.8	58.9	0.7	18.5	21.9	0	37.7	57	5.3	19.4	
Total %	5.3	6	25.2	0.2	36.6	11.9	0	0.5	18.4	0.2	4.8	5.6	0	7.3	11.1	1	19.4	

Start Time	Koula Street Southbound			Auahi Street Westbound			Koula Street Northbound			Auahi Street Eastbound			Int. Total					
	Left	Thru	Right	Thru	Right	Peds	Left	Thru	Right	Thru	Right	Peds		Left	Thru	Right	Peds	App. Total
04:00 PM	3	3	11	4	12	0	0	16	14	0	4	4	0	5	2	0	7	58
04:15 PM	4	2	22	5	4	0	0	9	7	0	1	8	0	2	5	0	7	52
04:30 PM	1	5	14	3	4	0	0	7	7	0	1	8	0	4	10	0	14	49
04:45 PM	6	6	14	2	4	0	0	6	11	0	1	12	0	9	6	0	15	59
Total Volume	14	16	61	14	24	0	0	38	39	0	7	46	0	20	23	0	43	218
% App. Total	15.4	17.6	67	36.8	63.2	0	0	84.8	84.8	0	15.2	46.5	0	46.5	53.5	0	71.7	
PHF	.583	.667	.693	.813	.500	.000	.000	.594	.696	.000	.438	.639	.000	.556	.575	.000	.717	.924

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:KW, GC
Counters:D4-3888, D4-3890
Weather:Clear

File Name : CooAla AM
Site Code : 00000001
Start Date : 3/5/2015
Page No : 1

Start Time	Cooke Street Southbound			Ala Moana Boulevard Westbound			Cooke Street Northbound			Ala Moana Boulevard Eastbound			Int. Total						
	Left	Thru	Right	Thru	Right	Peds	Left	Thru	Right	Thru	Right	Peds		Left	Thru	Right	Peds	App. Total	
06:00 AM	1	2	8	2	174	1	3	180	4	3	1	4	5	267	7	0	279	484	
06:15 AM	1	3	7	5	224	5	2	231	0	2	0	3	9	319	8	2	338	590	
06:30 AM	5	2	14	6	275	5	0	282	3	0	1	8	12	10	337	7	3	357	678
06:45 AM	3	5	11	6	324	5	1	330	6	5	1	6	18	22	390	11	5	428	801
Total	10	12	40	19	997	16	6	1023	13	10	3	21	47	46	1313	33	10	1402	2553
07:00 AM	4	3	11	0	363	5	4	375	4	3	0	8	15	25	402	8	3	438	846
07:15 AM	4	2	25	0	410	10	2	426	4	3	1	6	14	26	445	12	4	487	958
07:30 AM	2	6	16	5	394	5	3	403	5	3	0	9	17	21	423	6	3	453	902
07:45 AM	7	6	19	3	444	6	2	457	7	4	0	12	23	15	377	11	6	409	924
Total	17	17	71	8	1611	26	11	1661	20	13	1	35	69	87	1647	37	16	1787	3630
08:00 AM	6	6	20	7	406	6	6	421	10	6	2	11	29	32	413	11	1	457	946
08:15 AM	6	8	23	5	409	6	6	424	3	6	0	4	13	15	340	11	4	370	849
08:30 AM	3	9	16	7	335	8	3	353	9	3	1	7	20	22	304	10	7	343	751
08:45 AM	4	10	15	5	281	15	2	302	6	5	7	3	21	14	306	12	2	334	691
Total	19	33	74	24	1431	35	17	1500	28	20	10	25	83	83	1363	44	14	1504	3237
Grand Total	46	62	185	51	4039	77	34	4184	61	43	14	81	199	216	4323	114	40	4693	9420
Apprch %	13.4	18	53.8	14.8	96.5	1.8	0.8	30.7	21.6	7	40.7	4.6	92.1	2.4	0.9	0.4	49.8		
Total %	0.5	0.7	2	0.5	42.9	0.8	0.4	44.4	0.6	0.5	0.1	0.9	2.1	2.3	45.9	1.2	0.4	19.4	

Start Time	Cooke Street Southbound			Ala Moana Boulevard Westbound			Cooke Street Northbound			Ala Moana Boulevard Eastbound			Int. Total						
	Left	Thru	Right	Thru	Right	Peds	Left	Thru	Right	Thru	Right	Peds		Left	Thru	Right	Peds	App. Total	
07:15 AM	4	2	25	0	410	10	2	426	4	3	1	6	14	26	445	12	4	487	946
07:30 AM	2	6	16	5	394	5	3	403	5	3	0	9	17	21	423	6	3	453	902
07:45 AM	7	6	19	3	444	6	2	457	7	4	0	12	23	15	377	11	6	409	924
08:00 AM	6	6	20	7	406	6	6	424	3	6	0	4	13	15	340	11	4	370	849
Total Volume	19	20	80	24	1654	27	16	1694	26	16	3	45	83	94	1658	40	14	1792	3650
% App. Total	16	16.8	67.2	0.8	97.6	1.6	0.4	57.8	35.6	6.7	0.9	2.1	4.6	92.5	2.2	0.4	49.8		
PHF	.679	.833	.800	.930	.931	.675	.650	.931	.650	.667	.375	.625	.734	.931	.833	.928	.965		

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

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

Counted By:CY, DY
Counters:TU-0651, TU-0652
Weather:Clear

File Name : CooAla PM
Site Code : 00000002
Start Date : 3/5/2015
Page No : 1

Start Time	Groups Printed- Unshifted																				
	Koula Street Southbound					Ala Moana Boulevard Westbound					Koula Street Northbound					Ala Moana Boulevard Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
03:00 PM	13	3	23	2	41	1	341	6	1	349	15	7	6	12	40	7	437	7	1	452	882
03:15 PM	5	4	18	5	32	3	362	18	2	385	14	10	9	14	47	13	439	6	2	460	924
03:30 PM	8	6	32	11	57	2	395	13	5	415	22	11	5	12	50	13	532	10	5	560	1082
03:45 PM	9	8	39	8	64	5	425	14	3	447	12	7	4	11	34	12	547	4	5	568	1113
Total	35	21	112	26	194	11	1523	51	11	1596	63	35	24	49	171	45	1955	27	13	2040	4001
04:00 PM	9	10	25	11	55	2	391	15	0	408	14	15	1	11	41	19	499	10	2	530	1034
04:15 PM	9	4	43	11	67	0	416	10	10	436	11	12	3	5	31	18	476	6	3	503	1037
04:30 PM	11	11	33	17	72	2	353	11	3	369	9	15	3	14	41	14	521	8	12	555	1037
04:45 PM	11	7	29	6	53	2	378	8	7	395	16	14	2	5	37	5	478	2	8	493	978
Total	40	32	130	45	247	6	1538	44	20	1608	50	56	9	35	150	56	1974	26	25	2081	4086
05:00 PM	8	12	27	8	55	4	342	9	6	361	7	11	5	12	35	6	507	8	10	531	982
05:15 PM	14	10	32	11	67	2	349	13	3	367	3	10	4	14	31	9	517	13	11	550	1015
05:30 PM	11	6	21	7	45	1	395	6	10	412	8	14	3	14	39	10	506	4	19	539	1035
05:45 PM	13	2	26	7	48	2	325	7	4	338	11	9	2	16	38	10	519	0	12	541	965
Total	46	30	106	33	215	9	1411	35	23	1478	29	44	14	56	143	35	2049	25	52	2161	3997
Grand Total	121	83	348	104	656	26	4472	130	54	4682	142	135	47	140	464	136	5978	78	90	6282	12084
Approch %	18.4	12.7	53	15.9	5.4	0.6	95.5	2.8	1.2	30.6	29.1	10.1	30.2	3.8	2.2	95.2	1.2	1.4	1.4	0.7	52
Total %	1	0.7	2.9	0.9	5.4	0.2	37	1.1	0.4	38.7	1.2	1.1	0.4	1.2	3.8	1.1	49.5	0.6	0.7	0.7	52

Start Time	Groups Printed- Unshifted																				
	Koula Street Southbound					Ala Moana Boulevard Westbound					Koula Street Northbound					Ala Moana Boulevard Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
03:30 PM	8	6	32	46	92	2	395	13	13	410	22	11	5	5	38	13	532	10	10	555	1049
03:45 PM	9	8	39	56	112	5	425	14	4	444	12	7	4	4	23	12	547	4	4	563	1086
04:00 PM	9	10	25	44	98	2	391	15	10	408	14	15	1	11	30	19	499	10	5	528	1010
04:15 PM	9	4	43	56	92	0	416	10	4	426	11	12	3	3	26	18	476	6	6	500	1008
Total Volume	35	28	139	202	604	9	1627	52	13	1688	59	45	13	13	117	62	2054	30	21	2146	4153
% App. Total	17.3	13.9	68.8	90.2	92.9	0.5	96.4	3.1	11.1	50.4	38.5	11.1	11.1	7.7	2.9	95.7	.939	1.4	1.4	.953	.956
PHF	.972	.700	.808	.902	.929	.450	.957	.867	.650	.670	.750	.650	.650	.770	.816	.939	.750	.750	.938	.953	.956

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:30 PM

Counted By:AC, FS
Counters:TU-0649, TU-0650
Weather:Clear

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

File Name : OheAla AM
Site Code : 00000004
Start Date : 3/5/2015
Page No : 1

Start Time	Groups Printed- Unshifted																				
	Ohe Street Southbound					Ala Moana Boulevard Westbound					Ohe Street Northbound					Ala Moana Boulevard Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	0	0	1	1	2	0	178	0	0	178	0	1	2	1	4	0	260	1	1	262	446
06:15 AM	0	0	4	4	4	0	234	1	0	235	0	0	3	4	7	0	310	9	5	324	570
06:30 AM	0	0	0	4	4	0	285	0	0	285	0	0	0	6	6	0	320	7	4	331	626
06:45 AM	0	0	0	3	3	0	330	0	0	330	0	0	0	6	6	0	368	8	5	381	720
Total	0	0	1	12	13	0	1027	1	0	1028	0	1	5	17	23	0	1258	25	15	1298	2362
07:00 AM	0	0	0	3	3	0	371	0	0	371	0	0	1	9	10	0	380	6	3	389	773
07:15 AM	0	0	5	5	5	0	423	0	0	423	0	0	0	6	6	0	413	13	5	431	865
07:30 AM	0	0	0	3	3	0	404	0	0	404	0	0	2	15	17	0	404	6	2	412	836
07:45 AM	0	0	0	1	1	0	456	0	0	456	0	0	1	15	16	0	356	11	6	373	846
Total	0	0	0	12	12	0	1654	0	0	1654	0	0	4	45	49	0	1553	36	16	1605	3320
08:00 AM	0	0	1	4	5	0	410	1	0	411	0	0	1	11	12	0	385	11	1	397	825
08:15 AM	0	0	2	1	3	0	415	0	0	415	0	0	0	5	5	0	305	12	4	321	744
08:30 AM	0	0	1	3	4	0	351	0	0	351	0	0	0	5	5	0	274	11	7	292	652
08:45 AM	0	0	2	4	6	0	290	0	0	290	0	0	0	4	4	0	285	13	4	302	602
Total	0	0	6	12	18	0	1466	1	0	1467	0	0	1	25	26	0	1249	47	16	1312	2823
Grand Total	0	0	7	36	43	0	4147	2	0	4149	0	1	10	87	98	0	4060	108	47	4215	8505
Approch %	0	0	16.3	83.7	0.5	0	100	0	0	48.8	0	0	10.2	88.8	1.2	0	96.3	2.6	1.1	1.1	0.6
Total %	0	0	0.1	0.4	0.5	0	48.8	0	0	48.8	0	0	0.1	1	1.2	0	47.7	1.3	0.6	0.6	49.6

Start Time	Groups Printed- Unshifted																				
	Ohe Street Southbound					Ala Moana Boulevard Westbound					Ohe Street Northbound					Ala Moana Boulevard Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:15 AM	0	0	0	0	0	0	423	0	0	423	0	0	0	0	0	0	413	13	426	849	
07:30 AM	0	0	0	0	0	0	404	0	0	404	0	0	2	2	2	0	404	6	410	816	
07:45 AM	0	0	0	0	0	0	456	0	0	456	0	0	1	1	1	0	356	11	367	824	
08:00 AM	0	0	1	1	1	0	410	1	1	411	0	0	0	1	1	0	385	11	396	809	
Total Volume	0	0	1	1	1	0	1693	1	1	1694	0	0	4	4	4	0	1558	41	1599	3298	
% App. Total	0	0	100	.250	.250	0	99.9	0.1	100	.929	0	0	100	.500	.500	0	97.4	2.6	2.6	2.6	.971
PHF	.000	.000	.250	.250	.250	.000	.928	.250	.500	.929	.000	.000	.500	.500	.500	.000	.943	.788	.938	.938	.971

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

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

Counted By:AC, FS
Counters:TU-0649, TU-0650
Weather:Clear

File Name : OheAla PM
Site Code : 00000004
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Ohe Street Southbound					Ala Moana Boulevard Westbound					Ohe Street Northbound					Ala Moana Boulevard Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	03:00 PM	0	0	0	3	3	0	350	0	0	350	0	0	4	8	12	0	452	7	0	
03:15 PM	0	0	3	4	7	0	388	0	0	388	0	0	0	13	13	0	426	7	2	435	843
03:30 PM	0	0	1	11	12	0	397	0	0	397	0	0	0	11	11	0	523	11	2	536	956
03:45 PM	0	0	3	5	8	0	441	0	0	441	0	0	0	6	6	0	528	2	3	533	988
Total	0	0	7	23	30	0	1576	0	0	1576	0	0	4	38	42	0	1929	27	7	1963	3611
04:00 PM	0	0	0	5	5	0	392	0	0	392	0	0	0	6	6	0	491	8	1	500	903
04:15 PM	0	0	3	16	19	0	430	2	0	432	0	0	2	2	2	0	460	5	3	468	921
04:30 PM	0	0	2	7	9	0	357	1	0	358	0	0	0	13	13	0	522	6	11	539	919
04:45 PM	0	0	2	2	4	0	391	1	0	392	0	0	0	6	6	0	467	3	9	479	881
Total	0	0	7	30	37	0	1570	4	0	1574	0	0	0	27	27	0	1940	22	24	1986	3624
05:00 PM	0	0	2	6	8	0	366	0	0	366	0	0	0	12	12	0	510	7	10	527	913
05:15 PM	1	1	2	9	13	0	373	0	0	373	0	1	4	14	19	0	531	8	7	546	951
05:30 PM	0	0	1	5	6	0	367	1	0	368	0	0	2	15	17	0	510	2	15	527	918
05:45 PM	0	0	0	14	14	0	361	0	0	361	0	0	0	7	7	0	537	0	11	548	930
Total	1	1	5	34	41	0	1467	1	0	1468	0	1	6	48	55	0	2088	17	43	2148	3712
Grand Total	1	1	19	87	108	0	4613	5	0	4618	0	1	10	113	124	0	5957	66	74	6097	10947
Apprch %	0.9	0.9	17.6	80.6	1	0	99.9	0.1	0	42.2	0	0.8	8.1	91.1	1.1	0	97.7	1.1	1.2	55.7	
Total %	0	0	0.2	0.8	1	0	42.1	0	0	42.2	0	0	0.1	1	1.1	0	54.4	0.6	0.7		

Start Time	Ohe Street Southbound					Ala Moana Boulevard Westbound					Ohe Street Northbound					Ala Moana Boulevard Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	03:30 PM	0	0	1	1	1	0	397	0	0	397	0	0	0	0	0	0	523	11	534	
03:45 PM	0	0	3	3	3	0	441	0	0	441	0	0	0	0	0	0	528	2	530	974	
04:00 PM	0	0	0	0	0	0	392	0	0	392	0	0	0	0	0	0	491	8	499	891	
04:15 PM	0	0	3	3	3	0	430	2	0	432	0	0	0	0	0	0	460	5	465	900	
Total Volume	0	0	7	7	7	0	1660	2	0	1662	0	0	0	0	0	0	2002	26	2028	3697	
% App. Total	0	0	100	.583	.583	0	99.9	0.1	0	.942	0	.000	.000	.000	.000	0	98.7	1.3	.949		
PHF	.000	.000	.583	.583	.583	.000	.941	.250	0	.942	.000	.000	.000	.000	.000	.000	.948	.591	.949		

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:30 PM

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

Counted By:DY, CY
Counters:TU-0652, TU-0651
Weather:Clear

File Name : KouAla AM
Site Code : 00000002
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Koula Street Southbound					Ala Moana Boulevard Westbound					Koula Street Northbound					Ala Moana Boulevard Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	06:00 AM	2	1	0	2	5	3	188	2	2	195	1	0	0	3	4	1	254	4	0	
06:15 AM	1	0	2	6	9	2	235	1	4	242	2	0	1	2	5	3	310	5	0	318	574
06:30 AM	1	1	0	4	6	1	282	2	2	287	1	0	0	2	3	2	320	1	0	323	619
06:45 AM	1	0	4	10	15	3	319	2	7	331	0	0	0	4	4	4	368	3	0	375	725
Total	5	2	6	22	35	9	1024	7	15	1055	4	0	1	11	16	10	1252	13	0	1275	2381
07:00 AM	0	2	1	7	10	5	381	2	2	390	0	0	0	3	3	1	380	2	0	383	786
07:15 AM	2	0	1	7	10	4	409	1	3	417	0	0	0	3	3	1	413	3	0	417	847
07:30 AM	2	2	3	6	13	2	389	1	11	403	0	0	0	6	6	2	404	1	0	407	829
07:45 AM	3	1	3	1	8	11	462	3	3	479	3	0	1	3	7	3	356	1	0	360	854
Total	7	5	8	21	41	22	1641	7	19	1689	3	0	1	15	19	7	1553	7	0	1567	3316
08:00 AM	1	0	2	4	7	6	422	3	3	434	1	0	1	7	9	2	385	0	0	387	837
08:15 AM	3	1	4	7	15	4	421	4	7	436	1	0	0	2	3	5	305	4	0	314	768
08:30 AM	2	0	4	5	11	1	351	5	3	360	1	0	1	3	5	3	274	2	0	279	655
08:45 AM	1	0	6	9	16	3	280	6	3	292	0	0	0	3	3	3	285	3	0	291	602
Total	7	1	16	25	49	14	1474	18	16	1522	3	0	2	15	20	13	1249	9	0	1271	2862
Grand Total	19	8	30	68	125	45	4139	32	50	4266	10	0	4	41	55	30	4054	29	0	4113	8559
Apprch %	15.2	6.4	24	54.4	1.5	1.1	97	0.8	1.2	18.2	0	7.3	74.5	0.6	0.7	98.6	0.7	0	48.1		
Total %	0.2	0.1	0.4	0.8	1.5	0.5	48.4	0.4	0.6	49.8	0.1	0	0	0.5	0.6	0.4	47.4	0.3	0		

Start Time	Koula Street Southbound					Ala Moana Boulevard Westbound					Koula Street Northbound					Ala Moana Boulevard Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	07:15 AM	2	0	1	1	3	4	409	1	1	414	0	0	0	0	0	1	413	3	0	
07:30 AM	2	2	3	3	7	2	389	1	1	392	0	0	0	0	0	2	404	1	0	407	806
07:45 AM	3	1	3	3	7	11	462	3	3	476	3	0	1	1	4	3	356	1	1	360	847
08:00 AM	1	0	2	2	3	6	422	3	3	431	1	0	1	1	2	2	385	0	0	387	823
Total Volume	8	3	9	9	20	23	1682	8	8	1713	4	0	2	2	6	8	1558	5	0	1571	3310
% App. Total	40	15	45	45	.714	1.3	98.2	0.5	0.5	66.7	0	33.3	0.3	0.5	0.6	0.5	99.2	0.3	0	.942	
PHF	.667	.375	.750	.750	.714	.523	.910	.667	.667	.900	.333	.000	.500	.375	.375	.667	.943	.417	.942		

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: DY, CY
Counters: TU-0651, TU-0652
Weather: Clear

File Name : KouAla PM
Site Code : 00000002
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Koula Street Southbound			Ala Moana Boulevard Westbound			Koula Street Northbound			Ala Moana Boulevard Eastbound			Int. Total					
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total				
03:00 PM	6	0	1	2	358	2	0	0	1	6	7	4	451	8	0	463	842	
03:15 PM	6	2	6	1	372	1	3	377	2	0	1	3	6	421	0	427	826	
03:30 PM	3	0	2	3	390	7	2	402	1	1	0	5	7	528	1	530	952	
03:45 PM	5	0	2	3	430	6	5	444	1	0	0	5	6	525	1	528	991	
Total	20	2	11	9	1550	16	10	1585	4	1	2	19	26	13	1925	10	1948	3611
04:00 PM	6	0	4	1	372	11	6	390	4	5	1	6	16	6	486	4	496	918
04:15 PM	6	1	3	3	479	6	2	490	0	4	1	1	6	7	461	0	468	989
04:30 PM	4	0	4	0	366	11	4	381	4	1	0	7	12	0	512	1	513	921
04:45 PM	9	0	5	3	334	4	3	344	0	0	0	0	3	470	1	474	837	
Total	25	1	16	7	1551	32	15	1605	8	10	2	14	34	16	1929	6	1951	3665
05:00 PM	8	4	3	0	371	5	3	379	1	3	1	8	13	4	516	1	521	935
05:15 PM	6	0	1	3	370	6	8	387	0	0	0	7	7	6	534	2	542	951
05:30 PM	2	1	3	1	361	5	5	372	5	0	0	8	13	13	501	3	517	913
05:45 PM	4	0	7	17	364	8	11	400	1	0	0	2	3	4	534	2	540	966
Total	20	5	14	32	71	21	27	1538	7	3	1	25	36	27	2085	8	2120	3765
Grand Total	65	8	41	84	198	37	52	4728	19	14	5	58	96	56	5939	24	6019	11041
Approch %	32.8	4	20.7	42.4	1.8	0.8	1.5	1.1	19.8	14.6	5.2	60.4	9.6	0.9	98.7	0.4	0	11041
Total %	0.6	0.1	0.4	0.8	1.8	0.3	0.7	0.5	0.2	0.1	0	0.5	0.9	0.5	53.8	0.2	0	54.5

Start Time	Koula Street Southbound			Ala Moana Boulevard Westbound			Koula Street Northbound			Ala Moana Boulevard Eastbound			Int. Total				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total			
03:30 PM	3	0	2	3	390	7	400	1	1	0	2	1	528	1	530	937	
03:45 PM	5	0	2	3	430	6	439	1	0	0	1	2	525	1	528	975	
04:00 PM	6	0	4	1	372	11	384	4	5	1	10	6	486	4	496	900	
04:15 PM	6	1	3	3	479	6	488	0	4	1	5	7	461	0	468	971	
Total Volume	20	1	11	10	1671	30	1711	6	10	2	18	16	2000	6	2022	3783	
% App. Total	62.5	3.1	34.4	0.6	97.7	1.8	33.3	55.6	11.1	0.8	98.9	0.3	0.8	98.9	0.3	0.8	98.9
PHF	.833	.250	.688	.833	.872	.682	.877	.500	.500	.571	.947	.375	.571	.947	.375	.954	.970

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:30 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: PA, JC
Counters: D4-5672, D4-5677
Weather: Clear

File Name : AhuiAla AM
Site Code : 00000000
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Southbound App. Total	Ala Moana Boulevard Westbound			Ahuhi Street Northbound			Ala Moana Boulevard Eastbound			App. Total	Int. Total		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
06:00 AM	0	0	180	0	0	0	0	6	0	241	10	0	251	437
06:15 AM	0	0	231	0	0	1	6	7	0	302	9	0	311	549
06:30 AM	0	0	290	0	0	0	9	9	0	317	9	0	326	625
06:45 AM	0	0	328	0	0	0	13	13	0	361	12	0	373	714
Total	0	0	1029	0	0	1	34	35	0	1221	40	0	1261	2325
07:00 AM	0	0	389	0	0	1	11	12	0	373	7	0	380	781
07:15 AM	0	0	418	0	0	4	6	10	1	407	7	0	415	843
07:30 AM	0	0	397	0	0	1	9	10	0	400	8	0	408	815
07:45 AM	0	0	487	0	0	1	6	7	0	353	7	0	360	854
Total	0	0	1691	0	0	7	32	39	1	1533	29	0	1563	3293
08:00 AM	0	0	418	0	0	0	6	6	0	384	8	0	392	816
08:15 AM	0	0	411	0	0	1	2	3	0	297	9	0	306	720
08:30 AM	0	1	351	0	0	1	9	10	0	268	7	0	275	637
08:45 AM	0	1	291	0	0	0	4	4	0	279	8	0	287	583
Total	0	2	1471	0	0	2	21	23	0	1228	32	0	1260	2756
Grand Total	0	2	4191	0	0	10	87	97	1	3982	101	0	4084	8374
Approch %	0	0	100	0	0	10.3	89.7	9.7	0	97.5	2.5	0	48.8	8374
Total %	0	0	50	0	0	0.1	1	1.2	0	47.6	1.2	0	48.8	8374

Start Time	Southbound App. Total	Ala Moana Boulevard Westbound			Ahuhi Street Northbound			Ala Moana Boulevard Eastbound			App. Total	Int. Total		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
07:15 AM	0	0	418	0	0	0	4	4	1	407	7	0	415	837
07:30 AM	0	0	397	0	0	1	1	1	0	400	8	0	408	806
07:45 AM	0	0	487	0	0	0	1	1	0	353	7	0	360	848
08:00 AM	0	0	418	0	0	0	0	0	0	384	8	0	392	810
Total Volume	0	0	1720	0	0	6	6	6	1	1544	30	0	1575	3301
% App. Total	.000	.000	.883	.000	.000	.375	.375	.375	.250	.948	.938	.000	.949	.973

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: PA, JC
Counters: D4-5672, D4-5677
Weather: Clear

File Name : AhuiAia PM
Site Code : 00000004
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Southbound			Ala Moana Boulevard Westbound			Ahui Street Northbound			Ala Moana Boulevard Eastbound			Int. Total				
	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left		Thru	Right	Peds	App. Total
03:00 PM	0	0	364	0	0	364	0	0	1	6	7	0	451	4	0	455	826
03:15 PM	0	1	373	0	0	374	0	0	4	7	11	0	419	5	0	424	809
03:30 PM	0	0	411	0	0	411	0	0	2	13	15	0	534	10	0	544	970
03:45 PM	0	0	438	0	0	438	0	0	6	8	14	0	531	4	0	535	987
Total	0	1	1586	0	0	1587	0	0	13	34	47	0	1935	23	0	1958	3592
04:00 PM	0	0	378	0	0	378	0	0	0	5	5	0	487	3	0	490	873
04:15 PM	0	1	489	0	0	490	0	0	4	5	9	0	470	3	0	473	972
04:30 PM	0	0	374	0	0	374	0	0	2	14	16	0	520	3	0	523	913
04:45 PM	0	0	341	0	0	341	0	0	4	5	9	0	487	2	0	489	839
Total	0	1	1582	0	0	1583	0	0	10	29	39	0	1964	11	0	1975	3597
05:00 PM	0	0	378	0	0	378	0	0	1	8	9	0	533	0	0	533	920
05:15 PM	0	0	381	0	0	381	0	0	3	19	22	0	538	2	0	540	943
05:30 PM	0	0	370	0	0	370	0	0	2	10	12	0	505	2	0	507	889
05:45 PM	0	0	382	0	0	382	0	0	2	2	3	0	530	2	0	532	917
Total	0	0	1511	0	0	1511	0	0	7	39	46	0	2106	6	0	2112	3669
Grand Total	0	2	4679	0	0	4681	0	0	30	102	132	0	6005	40	0	6045	10858
Approch % Total %	0	0	43.1	0	0	43.1	0	0	22.7	77.3	1.2	0	99.3	0.7	0	55.7	

Start Time	Southbound			Ala Moana Boulevard Westbound			Ahui Street Northbound			Ala Moana Boulevard Eastbound			Int. Total				
	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left		Thru	Right	Peds	App. Total
03:00 PM	0	0	411	0	0	411	0	0	0	2	2	0	534	10	0	544	957
03:15 PM	0	0	438	0	0	438	0	0	0	6	6	0	531	4	0	535	979
04:00 PM	0	0	378	0	0	378	0	0	0	0	0	0	487	3	0	490	868
04:15 PM	0	1	489	0	0	490	0	0	0	4	4	0	470	3	0	473	967
Total Volume	0	1	1716	0	0	1717	0	0	0	12	12	0	2022	20	0	2042	3771
% App. Total PHF	.000	.250	.877	.000	.876	.876	.000	.000	.500	.500	.500	.000	.947	.500	.938	.938	.963

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:30 PM

Counted By: GC, DY
Counters: D4-5675, D4-5676
Weather: Clear

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

File Name : AlaWar AM
Site Code : 00000001
Start Date : 4/13/2016
Page No : 1

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound			Ala Moana Boulevard Westbound			Ward Avenue Northbound			Ala Moana Boulevard Eastbound			Int. Total							
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total						
06:00 AM	38	9	42	5	157	7	3	172	3	2	4	3	12	32	266	0	298	574		
06:15 AM	38	25	39	10	221	10	2	243	1	3	6	4	14	33	271	1	311	675		
06:30 AM	24	17	37	17	255	22	5	299	1	3	2	8	14	43	313	2	360	760		
06:45 AM	26	25	30	11	322	9	4	346	0	4	6	1	11	60	330	0	398	840		
Total	126	76	148	43	955	48	14	1060	5	12	18	16	51	168	1180	3	1367	2849		
07:00 AM	25	25	42	23	352	34	5	414	0	6	4	2	12	37	352	0	397	922		
07:15 AM	36	30	37	26	382	41	10	459	0	9	7	6	22	53	346	1	4	404	991	
07:30 AM	37	29	50	21	389	35	4	449	0	11	8	2	21	40	345	1	3	389	978	
07:45 AM	29	24	71	2	126	45	7	418	1	4	8	5	18	63	327	0	6	396	958	
Total	127	108	200	100	1459	155	26	1740	1	30	27	15	73	193	1370	2	21	1586	3849	
08:00 AM	33	33	49	41	364	37	10	452	1	3	11	1	16	53	349	1	4	407	993	
08:15 AM	36	32	63	35	397	55	2	489	0	4	13	2	19	53	338	1	3	395	1036	
08:30 AM	38	36	54	6	134	17	260	41	12	330	0	8	17	59	271	0	6	336	817	
08:45 AM	35	22	46	3	106	25	263	41	2	331	1	7	22	56	306	0	2	364	823	
Total	142	123	212	14	491	118	1284	174	26	1602	2	22	44	74	221	1264	2	15	1502	3669
Grand Total	395	307	560	50	1312	377	66	4402	8	64	89	37	198	582	3814	7	52	4455	10367	
Approch % Total %	30.1	23.4	42.7	3.8	5.9	8.6	1.5	42.5	0.1	32.3	44.9	18.7	1.9	13.1	85.6	0.2	1.2	43		

Start Time	Ward Avenue Southbound			Ala Moana Boulevard Westbound			Ward Avenue Northbound			Ala Moana Boulevard Eastbound			Int. Total					
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total				
07:30 AM	37	29	50	21	389	35	4	449	0	11	8	2	19	40	345	1	386	966
07:45 AM	29	24	71	30	336	45	11	411	1	4	8	1	13	63	327	0	390	938
08:00 AM	33	33	49	41	364	37	10	452	1	3	11	1	16	53	349	1	403	975
08:15 AM	36	32	63	35	397	55	2	489	0	4	13	2	17	59	271	0	392	1027
Total Volume	135	118	233	127	1486	172	40	1785	2	22	40	3	64	209	1359	3	1571	3906
% App. Total PHF	27.8	24.3	47.9	7.1	83.2	9.6	2.5	42.5	0.1	34.4	62.5	0.2	1.9	13.3	86.5	0.2	1.2	.951

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, DY
Counters: D4-5675, D4-5676
Weather: Clear

File Name : AlaWar AM - U-Turns
Site Code : 00000001
Start Date : 4/13/2016
Page No : 1

Groups Printed- Unshifted

Start Time	Southbound			Ala Moana Boulevard			Left = U-Turns Westbound			Northbound			Eastbound			Int. Total		
	Left	Thru	Right	App. Total	Thru	Peds	App. Total	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Right		Peds	App. Total
06:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
06:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
06:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
06:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6
07:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
Grand Total	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	14
Apprch %	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	100
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Southbound			Westbound			Northbound			Eastbound			Int. Total	
	Left	Thru	Right	App. Total	Thru	Peds	App. Total	Left	Thru	Peds	App. Total	Right		Peds
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
PHF														

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 06:00 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, DY
Counters: D4-5675, D4-5676
Weather: Clear

File Name : AlaWar PM
Site Code : 00000001
Start Date : 4/13/2016
Page No : 1

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound			Ala Moana Boulevard Westbound			Ward Avenue Northbound			Ala Moana Boulevard Eastbound			Int. Total							
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total			
03:00 PM	37	11	88	142	10	312	34	14	370	2	20	10	6	38	41	408	3	2	454	1004
03:15 PM	39	11	75	126	21	355	54	5	435	1	18	9	5	33	72	457	1	3	533	1127
03:30 PM	53	15	98	168	8	361	45	8	422	4	24	14	5	47	48	405	1	6	460	1097
03:45 PM	37	14	80	132	7	393	57	9	466	1	21	21	7	50	63	470	2	3	538	1186
Total	166	51	341	568	46	1421	190	36	1693	8	83	54	23	168	224	1740	7	14	1985	4414
04:00 PM	51	8	76	137	8	313	41	9	371	1	25	24	4	54	63	448	0	11	522	1084
04:15 PM	68	12	80	162	10	375	47	9	441	1	33	34	3	71	56	458	2	13	529	1203
04:30 PM	43	11	72	127	12	341	39	11	403	1	41	33	11	86	66	475	1	4	546	1162
04:45 PM	51	11	76	142	13	291	53	10	367	3	21	34	9	67	68	413	3	2	486	1062
Total	213	42	304	568	43	1320	180	39	1582	6	120	125	27	278	253	1794	6	30	2083	4511
05:00 PM	47	8	55	116	11	298	41	15	365	0	34	38	7	79	52	477	1	4	534	1094
05:15 PM	71	13	58	151	13	315	36	9	373	2	25	28	7	62	68	469	0	4	541	1127
05:30 PM	56	12	80	153	9	265	53	14	341	1	24	26	4	55	80	414	1	2	497	1046
05:45 PM	36	5	71	112	8	310	40	4	362	1	18	25	8	52	75	517	1	2	595	1121
Total	210	38	264	532	41	1188	170	42	1441	4	101	117	26	248	275	1877	3	12	2167	4388
Grand Total	589	131	909	1668	130	3929	540	117	4716	18	304	296	76	694	752	5411	16	56	6235	13313
Apprch %	35.3	7.9	54.5	2.3	2.8	83.3	11.5	2.5	2.6	43.8	42.7	11	0.6	5.2	12.1	86.8	0.3	0.9	46.8	46.8
Total %	4.4	1	6.8	0.3	1	29.5	4.1	0.9	35.4	0.1	2.3	2.2	0.6	5.2	5.6	40.6	0.1	0.4	46.8	46.8

Start Time	Ward Avenue Southbound			Ala Moana Boulevard Westbound			Ward Avenue Northbound			Ala Moana Boulevard Eastbound			Int. Total						
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		
03:45 PM	37	14	80	131	7	393	57	57	457	1	21	21	21	43	63	470	2	535	1166
04:00 PM	51	8	76	135	8	313	41	41	362	1	25	24	24	50	63	448	0	511	1058
04:15 PM	68	12	80	160	10	375	47	47	432	1	33	34	34	68	56	458	2	516	1176
04:30 PM	43	11	72	126	12	341	39	39	392	1	41	41	33	75	66	475	1	542	1135
Total Volume	199	45	308	552	37	1422	184	184	1643	4	120	112	112	236	248	1851	5	2104	4535
% App. Total	36.1	8.2	55.8	11.2	2.3	86.5	11.2	11.2	11.8	1.7	50.8	47.5	0.2	11.8	11.8	88	0.2	11.8	88
PHF	.732	.804	.963	.863	.771	.905	.807	.899	.899	1.00	.732	.824	.824	.787	.939	.974	.625	.970	.970

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:45 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, DY
Counters: D4-5675, D4-5676
Weather: Clear

File Name : AlaWar PM - U-Turns
Site Code : 00000001
Start Date : 4/13/2016
Page No : 1

Groups Printed- Unshifted

Start Time	Ala Moana Boulevard				Southbound			Left = U-Turns Westbound			Northbound			Eastbound		
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	Int. Total
03:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	2
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	2
Total	2	0	0	0	2	0	0	0	0	2	0	0	0	0	0	2
Grand Total	4	0	0	0	4	0	0	0	0	4	0	0	0	0	0	4
Apprch % Total %	100	0	0	0	100	0	0	0	0	100	0	0	0	0	0	0

Start Time	Ala Moana Boulevard				Southbound			Left = U-Turns Westbound			Northbound			Eastbound		
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	Int. Total
06:00 AM	10	164	8	3	185	0	5	2	3	10	25	215	0	0	0	505
06:15 AM	10	190	16	1	217	2	3	5	4	14	38	269	2	1	310	638
06:30 AM	17	259	19	3	298	1	6	10	9	26	32	287	0	4	323	738
06:45 AM	11	303	21	1	336	0	5	7	8	20	58	302	1	3	364	795
Total	48	916	64	8	1036	3	19	24	24	70	153	1073	3	8	1237	2676
% App. Total	.000	.500	.000	.000	.500	.000	.000	.000	.000	.500	.000	.000	.000	.000	.000	.500

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: JJ, RJ
Counters: D4-5675, D4-5676
Weather: Clear

File Name : WarAla AM
Site Code : 00000005
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound				Ala Moana Boulevard Westbound				Ward Avenue Northbound			Ala Moana Boulevard Eastbound			App. Total	Int. Total			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru			Right		
06:00 AM	28	21	19	2	10	164	8	3	0	5	2	3	10	25	215	0	240	505	
06:15 AM	22	33	38	4	10	190	16	1	2	3	5	4	14	38	269	2	310	638	
06:30 AM	33	27	28	3	17	259	19	3	1	6	10	9	26	32	287	0	323	738	
06:45 AM	23	22	27	3	11	303	21	1	0	5	7	8	20	58	302	1	364	795	
Total	106	103	112	12	48	916	64	8	1036	3	19	24	70	153	1073	3	1237	2676	
07:00 AM	24	25	50	0	23	341	21	2	387	0	6	14	29	56	315	0	381	896	
07:15 AM	28	33	38	3	102	26	375	33	3	8	10	4	22	41	367	0	416	977	
07:30 AM	33	26	46	6	111	27	347	37	1	8	8	8	25	50	357	2	419	967	
07:45 AM	23	31	59	4	117	32	440	43	10	12	12	3	27	44	308	2	362	1031	
Total	108	115	193	13	429	108	1503	134	1761	1	34	44	103	191	1347	4	1578	3871	
08:00 AM	29	46	45	3	123	375	27	5	440	0	10	12	26	48	332	0	4	384	973
08:15 AM	22	42	61	4	129	40	355	40	4	9	10	3	23	39	259	1	7	306	897
08:30 AM	30	33	44	4	111	29	302	30	7	13	13	10	37	47	221	0	6	274	790
08:45 AM	19	43	56	10	128	37	231	24	13	9	13	5	29	66	213	1	9	289	751
Total	100	164	206	21	491	139	1263	121	1552	4	41	48	115	200	1025	2	26	1253	3411
Grand Total	314	382	511	46	1253	295	3682	319	4349	8	94	116	288	544	3445	9	70	4068	9958
Apprch % Total %	25.1	30.5	40.8	3.7	12.6	6.8	84.7	7.3	1.2	2.8	32.6	40.3	24.3	13.4	84.7	0.2	1.7	40.9	9558

Start Time	Ward Avenue Southbound			Ala Moana Boulevard Westbound			Ward Avenue Northbound			Ala Moana Boulevard Eastbound				
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
07:15 AM	28	33	38	26	375	33	0	8	10	41	367	0	408	959
07:30 AM	33	26	46	27	347	37	1	8	8	50	357	2	409	942
07:45 AM	23	31	59	32	440	43	0	12	12	44	308	2	354	1006
08:00 AM	29	46	45	33	375	27	5	10	10	44	308	2	380	957
Total Volume	113	136	188	118	1537	140	1795	1	38	183	1364	4	1551	3664
% App. Total	25.9	31.1	43	6.6	85.6	7.8	1.2	46.9	51.9	11.8	87.9	0.3	15.1	3664
PHF	.856	.739	.797	.894	.873	.814	.871	.250	.792	.915	.929	.500	.948	.960

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

Counted By: JJ, RJ
Counters: D4-5675, D4-5676
Weather: Clear

File Name : WarAla AM - U-Turns
Site Code : 00000005
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Ala Moana Boulevard				Left = U-Turns Westbound				Northbound				Eastbound			
	Southbound				Right		Thru		App. Total		App. Total		App. Total		App. Total	
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06:00 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
06:15 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
06:30 AM	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
06:45 AM	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Total	6	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
07:00 AM	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
07:15 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
07:30 AM	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
07:45 AM	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Total	12	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0
08:00 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
08:15 AM	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
08:30 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
08:45 AM	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
Total	7	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0
Grand Total	25	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0
Apprch %	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
Total %	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0

Start Time	Ala Moana Boulevard				Left = U-Turns Westbound				Northbound				Eastbound			
	Southbound				Thru		Right		App. Total		App. Total		App. Total		App. Total	
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06:45 AM	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
07:00 AM	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
07:15 AM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
07:30 AM	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
Total Volume	12	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0
% App. Total	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
PHF	.600	.000	.000	.000	.000	.600	.000	.000	.600	.000	.000	.000	.000	.600	.000	.000

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 06:45 AM

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

Counted By: JJ, RJ
Counters: D4-5675, D4-5676
Weather: Clear

File Name : WarAla PM
Site Code : 00000005
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound				Ala Moana Boulevard Westbound				Ward Avenue Northbound				Ala Moana Boulevard Eastbound			
	Left		Right		Thru		Peds		App. Total		App. Total		App. Total		App. Total	
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
03:00 PM	33	16	68	2	11	302	38	8	359	1	18	14	4	37	48	398
03:15 PM	42	15	73	4	8	294	32	16	350	2	17	15	7	41	62	362
03:30 PM	35	16	79	7	9	330	40	17	396	1	33	12	12	58	65	463
03:45 PM	55	16	71	5	13	358	51	16	438	2	19	16	11	48	77	467
Total	165	63	291	18	41	1284	161	57	1543	6	87	57	34	184	252	1690
04:00 PM	44	18	78	9	9	292	34	17	352	0	32	33	12	77	55	400
04:15 PM	58	16	63	9	9	427	44	15	495	3	35	36	10	84	59	473
04:30 PM	57	12	76	14	12	264	42	23	341	3	31	27	12	73	67	435
04:45 PM	61	12	69	2	14	274	42	13	344	1	29	40	11	81	50	448
Total	220	58	286	34	45	1257	162	68	1532	7	127	136	45	315	231	1756
05:00 PM	53	22	55	8	6	310	51	11	378	6	32	36	6	80	53	494
05:15 PM	60	20	58	9	14	316	39	17	386	2	28	33	13	76	63	465
05:30 PM	60	21	77	10	17	295	23	16	351	2	29	44	13	88	49	469
05:45 PM	71	14	57	11	15	321	29	13	373	1	21	31	8	61	61	471
Total	244	77	247	38	47	1242	142	57	1488	11	110	144	40	305	226	1899
Grand Total	629	198	824	90	133	3783	465	182	4563	24	324	337	119	804	709	5345
Apprch %	36.1	11.4	47.3	5.2	2.9	82.9	10.2	4	34.4	0.2	2.4	2.5	0.9	6.1	5.3	40.3
Total %	4.7	1.5	6.2	0.7	1	28.5	3.5	1.4	34.4	0.2	2.4	2.5	0.9	6.1	5.3	40.3

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:30 PM

Start Time	Ward Avenue Southbound				Ala Moana Boulevard Westbound				Ward Avenue Northbound				Ala Moana Boulevard Eastbound			
	Left		Right		Thru		Peds		App. Total		App. Total		App. Total		App. Total	
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
03:30 PM	35	16	79	7	9	330	40	17	379	1	33	12	12	65	46	463
03:45 PM	55	16	71	14	13	358	51	16	422	2	19	16	16	37	77	467
04:00 PM	44	18	78	9	9	292	34	17	352	0	32	33	12	77	55	400
04:15 PM	58	16	63	9	9	427	44	15	495	3	35	36	10	84	59	473
Total Volume	192	66	291	53	40	1407	169	63	1616	6	119	144	40	305	226	1899
% App. Total	35	12	53	5	2.5	87.1	10.5	2.7	34.4	0.2	2.4	2.5	0.9	6.1	5.3	40.3
PHF	.828	.917	.921	.921	.769	.824	.828	.842	.842	.500	.850	.674	.674	.750	.831	.953

1083
1146
995
1223
4447
909

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: PA
Counters: D4-5677
Weather: Clear

File Name : Kewalo Basin Driveways West and East PM
Site Code : 00000004
Start Date : 3/10/2015
Page No : 1

Start Time	Southbound			Westbound			Groups Printed- Unshifted									
	App. Total	Thru	Left	App. Total	Thru	Left	Kewalo Basin Driveway (East) Northbound			Ala Moana Boulevard Right = RT Into Kewalo Basin Driveway (West) Eastbound						
							Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	3	0	3	0	0	18	0	18	21
03:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	8	0	8	10
03:30 PM	0	0	0	0	0	0	0	2	0	2	0	0	17	0	17	19
03:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	18	0	18	19
Total	0	0	0	0	0	0	0	8	0	8	0	0	61	0	61	69
04:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	13	0	13	14
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	8
04:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	22	0	22	23
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	8
Total	0	0	0	0	0	0	0	2	0	2	0	0	51	0	51	53
05:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	8	0	8	9
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	11
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	11
05:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	10	0	10	12
Total	0	0	0	0	0	0	0	3	0	3	0	0	40	0	40	43
Grand Total	0	0	0	0	0	0	0	13	0	13	0	0	152	0	152	165
Approach %	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	0	0	7.9	0	7.9	0	0	92.1	0	92.1	

Start Time	Southbound			Westbound			Groups Printed- Unshifted									
	App. Total	Thru	Left	App. Total	Thru	Left	Kewalo Basin Driveway (East) Northbound			Ala Moana Boulevard Right = RT Into Kewalo Basin Driveway (West) Eastbound						
							Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	3	0	3	0	0	18	0	18	21
03:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	8	0	8	8
03:30 PM	0	0	0	0	0	0	0	2	0	2	0	0	17	0	17	19
03:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	18	0	18	19
Total	0	0	0	0	0	0	0	8	0	8	0	0	61	0	61	69
% App. Total	.000	.000	.000	.000	.000	.000	.000	.667	0	.667	.000	.000	.847	0	.847	.821
PHF																

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:00 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: DY, JC
Counters: TU-0654, TU-0653
Weather: Clear

File Name : Kewalo Basin Entrance AM
Site Code : 00000000
Start Date : 3/10/2015
Page No : 1

Start Time	Southbound			Westbound			Groups Printed- Unshifted										
	App. Total	Thru	Left	App. Total	Thru	Left	Kewalo Basin Entrance Northbound			Ala Moana Boulevard Eastbound							
							Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	0	173	0	0	2	0	3	2	7	0	200	10	0	210	390
06:15 AM	0	0	0	227	0	0	2	0	1	1	4	0	270	9	0	279	510
06:30 AM	0	0	0	282	0	0	3	0	3	3	9	0	290	12	0	302	593
06:45 AM	0	0	0	336	0	0	2	0	3	7	12	0	403	10	3	416	764
Total	0	0	0	1018	0	0	9	0	10	13	32	0	1163	41	3	1207	2257
07:00 AM	0	0	0	405	0	0	10	0	4	6	20	0	390	5	1	396	821
07:15 AM	0	0	0	457	0	0	5	0	5	10	17	0	378	2	0	380	857
07:30 AM	0	0	0	436	0	0	5	0	5	7	17	0	391	4	0	395	848
07:45 AM	0	0	0	387	0	0	5	1	6	12	24	0	375	8	0	383	794
Total	0	0	0	1685	0	0	25	1	20	35	81	0	1534	19	1	1554	3320
08:00 AM	0	0	0	447	0	0	4	0	4	6	14	0	371	4	0	375	836
08:15 AM	0	0	0	411	0	0	7	0	4	12	23	0	349	4	0	353	787
08:30 AM	0	0	0	390	0	0	4	0	7	6	17	0	350	4	1	355	762
08:45 AM	0	0	0	304	0	0	6	0	4	5	15	0	326	12	1	339	658
Total	0	0	0	1552	0	0	21	0	19	29	69	0	1396	24	2	1422	3043
Grand Total	0	1	1	4254	0	0	55	1	49	77	182	0	4093	84	6	4183	8620
Approach %	0	0	0	100	0	0	30.2	0.5	26.9	42.3	2.1	0	97.8	2	0.1	48.5	
Total %	0	0	0	49.4	0	0	0.6	0	0.6	0.9	2.1	0	47.5	1	0.1	48.5	

Start Time	Southbound			Westbound			Groups Printed- Unshifted										
	App. Total	Thru	Left	App. Total	Thru	Left	Kewalo Basin Entrance Northbound			Ala Moana Boulevard Eastbound							
							Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:15 AM	0	0	0	457	0	0	5	0	5	5	10	0	378	2	0	380	847
07:30 AM	0	0	0	436	0	0	5	0	5	5	10	0	391	4	4	395	841
07:45 AM	0	0	0	387	0	0	5	1	6	6	12	0	375	8	8	383	782
08:00 AM	0	0	0	447	0	0	4	0	4	4	8	0	371	4	4	375	830
Total	0	0	0	1727	0	0	19	1	20	20	40	0	1515	18	18	1533	3300
% App. Total	.000	.000	.000	.945	.000	.000	47.5	2.5	50	.833	.833	.000	98.8	1.2	1.2	1533	
PHF							.950	.250	.833	.833	.833	.000	.969	.563	.563	.970	.974

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: DY, CY
Counters: TU-0653, TU-0654
Weather: Clear

File Name : Kewalo Basin Entrance PM
Site Code : 00000002
Start Date : 3/10/2015
Page No : 1

Start Time	Southbound			Ala Moana Boulevard Westbound			Kewalo Basin Driveway Northbound			Ala Moana Boulevard Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total
03:00 PM	0	368	0	8	0	8	24	0	400	7	0	0	407	799
03:15 PM	0	316	0	9	0	15	33	0	387	6	2	0	395	744
03:30 PM	0	427	0	20	0	13	37	0	477	7	1	0	485	949
03:45 PM	0	398	0	10	0	11	24	0	460	6	1	0	467	889
Total	0	1509	0	47	0	47	118	0	1724	26	4	0	1754	3381
04:00 PM	0	359	0	20	0	10	5	35	0	518	12	1	531	925
04:15 PM	0	402	0	7	0	20	6	33	0	551	5	2	558	993
04:30 PM	0	342	0	1	0	6	8	0	511	7	0	0	518	868
04:45 PM	0	348	0	5	0	9	4	18	0	546	5	0	551	917
Total	0	1451	0	33	0	45	94	0	2126	29	3	0	2158	3703
05:00 PM	0	304	0	5	0	8	18	31	0	536	8	0	544	879
05:15 PM	0	368	0	5	0	15	15	35	0	515	7	0	522	925
05:30 PM	0	340	0	5	0	10	22	37	0	555	6	0	561	938
05:45 PM	0	310	0	7	0	10	17	34	0	514	6	0	520	864
Total	0	1322	0	22	0	43	72	137	0	2120	27	0	2147	3606
Grand Total	0	4282	0	102	0	135	112	349	0	5970	82	7	6059	10690
Approch %	0	100	0	29.2	0	38.7	32.1	0	98.5	1.4	0.1	0	56.7	
Total %	0	40.1	0	1	0	1.3	1	3.3	0	55.8	0.8	0.1	56.7	

Start Time	Southbound			Ala Moana Boulevard Westbound			Kewalo Basin Driveway Northbound			Ala Moana Boulevard Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total
03:30 PM	0	427	0	20	0	13	33	0	477	7	0	0	484	944
03:45 PM	0	398	0	10	0	11	21	0	460	6	0	0	466	885
04:00 PM	0	359	0	20	0	10	30	0	518	12	0	0	530	919
04:15 PM	0	402	0	7	0	20	27	0	551	5	0	0	556	985
Total Volume	0	1586	0	57	0	54	111	0	2006	30	0	0	2036	3733
% App. Total	.000	.929	.000	.713	.000	.675	.841	.000	.910	.625	1.5	0	.915	.947
PHF	.000	.929	.000	.713	.000	.675	.841	.000	.910	.625	1.5	0	.915	.947

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:30 PM

Counted By: KC, CC
Counters: TU-0650, TU-0651
Weather: Clear

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

File Name : AlaKam AM
Site Code : 00000002
Start Date : 4/13/2016
Page No : 1

Start Time	Kamakee Street Southbound			Ala Moana Boulevard Westbound			Kamakee Street Northbound			Ala Moana Boulevard Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total
06:00 AM	4	12	32	1	167	4	40	0	0	1	14	15	15	294
06:15 AM	3	11	38	0	215	6	55	3	2	0	32	37	22	307
06:30 AM	10	3	16	0	293	8	41	3	3	2	16	25	17	331
06:45 AM	3	6	29	4	310	12	19	8	6	0	5	19	17	363
Total	20	24	72	5	985	30	155	15	11	3	67	96	69	1295
07:00 AM	5	1	25	2	373	7	13	10	2	1	4	17	16	393
07:15 AM	3	6	20	3	429	7	14	18	4	3	3	28	17	377
07:30 AM	3	7	40	1	386	11	11	12	5	2	5	24	15	399
07:45 AM	2	10	31	6	430	13	12	9	8	1	6	24	18	368
Total	13	24	116	15	1618	38	50	49	19	7	18	93	66	1537
08:00 AM	1	5	29	2	399	31	15	8	9	1	7	25	17	396
08:15 AM	2	8	30	2	369	12	10	14	8	4	7	33	19	397
08:30 AM	1	6	29	8	266	15	9	20	10	5	7	42	19	311
08:45 AM	3	5	21	8	293	11	7	16	3	4	4	27	17	348
Total	7	24	109	23	1637	69	41	58	30	14	25	127	72	1452
Grand Total	40	72	297	172	4339	137	246	122	60	24	110	316	207	4284
Approch %	6.9	12.4	51.1	29.6	38.6	19	7.6	34.8	4.8	89.3	5.8	0	4.8	5.8
Total %	0.4	0.8	3.1	1.8	1.3	0.6	0.3	1.2	2.2	40.2	2.6	0	2.2	2.6

Start Time	Kamakee Street Southbound			Ala Moana Boulevard Westbound			Kamakee Street Northbound			Ala Moana Boulevard Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total
07:15 AM	3	6	20	3	429	7	439	18	4	3	3	25	17	377
07:30 AM	3	7	40	1	386	11	398	12	5	2	2	19	15	364
07:45 AM	2	10	31	9	430	13	452	9	8	1	1	18	18	330
08:00 AM	1	5	29	2	399	31	432	8	9	1	1	18	17	358
Total Volume	9	28	120	157	1644	62	1721	47	26	7	80	80	67	1397
% App. Total	5.7	17.8	76.4	78.5	95.6	5.00	95.2	58.8	32.5	8.8	4.4	4.4	90.7	76
PHF	.750	.700	.750	.785	.956	.500	.952	.653	.722	.583	.800	.800	.931	.959
Total	.905	.905	.905	.905	.905	.905	.905	.905	.905	.905	.905	.905	.905	.905

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:CC, KC
Counters:TU-0650, TU-0651
Weather:Clear

File Name : AlaKam PM
Site Code : 00000002
Start Date : 4/13/2016
Page No : 1

Start Time	Kamakee Street Southbound						Ala Moana Boulevard Westbound						Ala Moana Boulevard Northbound						Ala Moana Boulevard Eastbound											
	Left			Right			Left			Right			Left			Right			Left			Right			Left			Right		
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Int. Total	
03:00 PM	4	6	36	21	29	369	16	5	7	15	43	19	340	20	0	379	858													
03:15 PM	3	11	32	31	18	416	10	2	4	13	29	6	440	19	0	465	987													
03:30 PM	12	7	43	42	104	438	13	5	2	46	66	21	418	37	0	476	1084													
03:45 PM	11	18	40	15	84	406	26	13	3	5	47	25	408	29	0	462	999													
Total	30	42	151	109	332	1629	65	25	16	79	185	71	1606	105	0	1782	3928													
04:00 PM	11	23	32	9	75	368	13	14	6	11	44	15	524	35	0	574	1061													
04:15 PM	8	9	34	11	62	413	12	11	3	7	33	15	487	36	0	538	1046													
04:30 PM	11	7	27	7	52	373	21	18	4	12	55	17	399	28	0	444	924													
04:45 PM	14	14	26	11	65	355	28	6	4	17	55	14	439	25	0	478	953													
Total	44	53	119	38	254	1509	74	49	17	47	187	61	1849	124	0	2034	3984													
05:00 PM	17	12	35	12	76	319	18	10	11	14	53	17	446	34	0	497	945													
05:15 PM	15	16	37	14	82	363	16	9	8	10	43	19	444	40	0	503	991													
05:30 PM	12	9	37	8	66	331	7	11	10	23	51	17	406	27	0	450	898													
05:45 PM	9	7	33	13	62	336	17	8	6	8	39	14	472	28	0	514	951													
Total	53	44	142	47	286	1349	58	38	35	55	186	67	1768	129	0	1964	3785													
Grand Total	127	139	412	194	872	4487	197	112	68	181	558	199	5223	358	0	5780	11697													
Approch %	14.6	15.9	47.2	22.2	1.2	88	5.4	5.4	12.2	32.4	35.3	4.3	90.4	6.2	0	49.4														
Total %	1.1	1.2	3.5	1.7	7.5	0.5	33.8	2.1	0.6	1.5	4.8	1.7	44.7	3.1	0															

Start Time	Kamakee Street Southbound						Ala Moana Boulevard Westbound						Ala Moana Boulevard Northbound						Ala Moana Boulevard Eastbound											
	Left			Right			Left			Right			Left			Right			Left			Right			Left			Right		
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Int. Total	
03:30 PM	12	7	43	62	4	355	18	13	5	2	20	21	418	37	476	935														
03:45 PM	11	18	40	69	2	375	17	26	13	3	42	25	408	29	462	967														
04:00 PM	11	23	32	66	4	318	21	343	13	14	6	15	524	35	574	1016														
04:15 PM	8	9	34	51	3	376	21	400	12	11	3	15	487	36	538	1015														
Total Volume	42	57	149	248	13	1424	77	1514	64	43	14	121	76	1837	137	2050	3933													
% App. Total	16.9	23	60.1	60.1	0.9	94.1	5.1	52.9	35.5	11.6	11.6	3.7	89.6	6.7	893															
PHF	.875	.620	.866	.899	.813	.947	.917	.946	.615	.768	.583	.720	.760	.876	.926	.893	.968													

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:GC, KW
Counters:D4-5675, D4-5676
Weather:Clear

File Name : AlaKam AM
Site Code : 00000001
Start Date : 3/10/2015
Page No : 1

Start Time	Kamakee Street Southbound						Ala Moana Boulevard Westbound						Ala Moana Boulevard Northbound						Ala Moana Boulevard Eastbound											
	Left			Right			Left			Right			Left			Right			Left			Right			Left			Right		
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Int. Total	
06:00 AM	2	3	9	1	15	174	4	0	1	4	9	7	175	24	0	206	404													
06:15 AM	4	8	4	20	36	242	3	1	2	3	9	6	241	25	0	272	559													
06:30 AM	3	8	11	12	34	295	3	4	1	7	15	42	231	23	0	296	640													
06:45 AM	3	6	12	14	35	336	9	4	2	2	17	9	371	15	0	395	783													
Total	12	25	36	47	120	1047	19	9	6	16	50	64	1018	87	0	1169	2386													
07:00 AM	4	6	12	4	26	395	13	4	0	4	21	16	361	19	0	396	838													
07:15 AM	1	6	17	3	27	451	15	5	5	9	34	11	363	13	0	387	899													
07:30 AM	7	12	19	3	41	441	5	8	2	10	25	17	369	15	0	401	908													
07:45 AM	2	8	15	10	35	414	11	8	5	17	41	14	346	16	0	376	866													
Total	14	32	63	20	129	1701	44	25	12	40	121	58	1439	63	0	1560	3511													
08:00 AM	3	8	29	4	44	446	11	12	1	7	25	11	345	26	0	382	897													
08:15 AM	4	7	15	4	30	367	13	11	3	6	33	19	321	17	0	357	814													
08:30 AM	10	4	17	0	31	359	22	4	1	10	37	13	329	14	0	356	783													
08:45 AM	5	16	15	2	38	420	4	281	10	7	33	14	300	19	0	333	706													
Total	22	35	76	10	143	1501	65	21	10	32	128	57	1295	76	0	1428	3200													
Grand Total	48	92	175	77	392	4249	128	55	28	88	299	179	3752	226	0	4157	9097													
Approch %	12.2	23.5	44.6	19.6	0.8	92.8	2.3	4	9.4	29.4	42.8	4.3	90.3	5.4	0	45.7														
Total %	0.5	1	1.9	0.8	4.3	0.4	43.4	1.1	1.9	0.3	3.3	2	41.2	2.5	0															

Start Time	Kamakee Street Southbound						Ala Moana Boulevard Westbound						Ala Moana Boulevard Northbound						Ala Moana Boulevard Eastbound											
	Left			Right			Left			Right			Left			Right			Left			Right			Left			Right		
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Thru	Right	Peds	App. Total	Int. Total	
07:15 AM	1	6	17	19	24	438	12	15	5	5	25	11	363	13	387	874														
07:30 AM	7	12	19	8	38	429	13	5	8	2	15	17	369	15	401	883														
07:45 AM	2	8	15	15	25	397	13	11	8	5	24	14	346	16	376	822														
08:00 AM	3	8	29	8	40	434	11	11	6	1	18	11	345	26	382	874														
Total Volume	13	34	80	80	127	1698	42	27	13	1	82	53	1423	70	1546	3453														
% App. Total	10.2	26.8	63	63	10.2	96.3	2.9	0.8	96.3	2.9	51.2	32.9	15.9	4.5	1546	3453														
PHF	.464	.708	.690	.690	.794	.969	.942	.650	.844	.650	.820	.779	.964	.673	.964	.978														

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, KW
Counters: D4-5675, D4-5676
Weather: Clear

File Name : AlaKam PM
Site Code : 00000001
Start Date : 3/10/2015
Page No : 1

Start Time	Kamakee Street Southbound				Ala Moana Boulevard Westbound				Ala Moana Park Drive Northbound				Ala Moana Boulevard Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total	
	App. Total				App. Total				App. Total				App. Total						
03:00 PM	7	6	6	7	4	340	12	19	18	6	4	13	41	9	379	18	0	406	848
03:15 PM	12	23	30	6	3	269	16	28	16	13	7	5	41	16	364	22	0	402	830
03:30 PM	13	8	30	27	2	365	19	37	29	14	6	13	62	16	453	17	0	486	1049
03:45 PM	8	19	21	15	6	367	28	28	9	6	7	7	29	22	413	32	0	467	988
Total	40	56	87	55	15	1341	75	112	72	39	24	38	173	63	1609	89	0	1761	3715
04:00 PM	10	21	28	7	1	307	16	30	13	9	7	10	39	23	465	34	0	522	981
04:15 PM	15	11	15	1	8	364	22	27	17	7	7	10	41	12	506	48	0	566	1070
04:30 PM	13	11	17	10	1	316	11	23	35	22	7	3	37	22	457	37	0	516	955
04:45 PM	19	21	36	3	7	313	24	20	36	12	13	5	35	13	494	50	0	557	1032
Total	57	64	96	21	14	1300	73	100	148	64	36	22	152	70	1922	169	0	2161	4038
05:00 PM	11	18	19	3	8	270	26	26	330	11	10	11	54	14	478	49	0	541	976
05:15 PM	16	18	39	6	6	317	18	20	36	14	12	9	52	16	467	44	0	527	1019
05:30 PM	13	27	32	29	5	277	29	38	349	33	19	3	77	21	495	47	0	563	1090
05:45 PM	16	20	22	12	6	260	16	16	298	25	11	9	66	24	448	51	0	523	957
Total	56	83	112	50	25	1124	89	100	1338	83	52	32	249	75	1888	191	0	2154	4042
Grand Total	153	203	295	126	54	3765	237	312	4368	219	127	78	574	208	5419	449	0	6076	11795
Approch %	19.7	26.1	38	16.2	1.2	86.2	5.4	7.1	38.2	22.1	13.6	26.1	4.9	3.4	89.2	7.4	0	51.5	
Total %	1.3	1.7	2.5	1.1	0.5	31.9	2	2.6	37	1.9	1.1	0.7	1.3	1.8	45.9	3.8	0		

Start Time	Kamakee Street Southbound				Ala Moana Boulevard Westbound				Ala Moana Park Drive Northbound				Ala Moana Boulevard Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total	
	App. Total				App. Total				App. Total				App. Total						
04:45 PM	19	21	36		4	313	24		12	13	5		13	494	50		557	1004	
05:00 PM	11	18	19		8	270	26		304	11	10	11	32	14	478	49		541	925
05:15 PM	16	18	39		6	317	18		304	14	12	9	35	16	467	44		527	976
05:30 PM	13	27	32		5	277	29		311	33	19	3	55	21	495	47		563	1001
05:45 PM	16	20	22		6	260	16		1297	70	54	28	152	64	1934	190		2188	3906
Total	59	84	126		23	1177	97		46.1	35.5	18.4			2.9	88.4	8.7			
% App. Total	21.9	31.2	46.8		1.8	90.7	7.5		.530	.711	.636		.691	.762	.977	.950		.972	.973
PHF	.776	.778	.808		.719	.928	.836		.951	.951	.636		.691	.972	.972	.950		.972	.973

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

Counted By: RJ, JJ
Counters: D4-5671, D4-5674
Weather: Clear

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

File Name : QueAla AM
Site Code : 00000003
Start Date : 3/10/2015
Page No : 1

Start Time	Queen Street Southbound				Ala Moana Boulevard Westbound				Northbound				Ala Moana Boulevard Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total	
	App. Total				App. Total				App. Total				App. Total						
06:00 AM	3	0	1	3	0	168	9		9	177	0		3	176	0	3	182	366	
06:15 AM	3	0	1	3	0	224	12		12	236	0		1	263	0	7	271	514	
06:30 AM	3	0	3	6	0	272	12		12	284	0		0	237	0	4	241	537	
06:45 AM	6	0	3	3	0	315	16		16	331	0		1	355	0	7	363	706	
Total	15	0	8	15	0	979	49		49	1028	0		5	1031	0	21	1057	2123	
07:00 AM	10	0	3	2	0	374	21		21	395	0		3	359	0	7	369	779	
07:15 AM	7	0	3	6	0	442	35		35	477	0		3	372	0	9	384	877	
07:30 AM	8	0	3	9	0	432	29		29	461	0		4	378	0	14	396	877	
07:45 AM	10	0	7	2	0	395	34		34	429	0		5	347	0	14	366	814	
Total	35	0	16	19	0	1643	119		119	1762	0		15	1456	0	44	1515	3347	
08:00 AM	18	0	6	8	0	425	35		35	460	0		3	349	0	10	362	854	
08:15 AM	10	0	6	18	0	375	30		30	405	0		2	334	0	14	350	789	
08:30 AM	12	0	9	6	0	331	32		32	363	0		5	329	0	9	343	733	
08:45 AM	19	0	4	7	0	312	32		32	344	0		6	318	0	2	326	700	
Total	59	0	25	39	0	1443	129		129	1572	0		16	1330	0	35	1381	3076	
Grand Total	109	0	49	73	0	4065	297		297	4362	0		36	3817	0	100	3953	8546	
Approch %	47.2	0	21.2	31.6	0	93.2	6.8		6.8	0	0		0.9	96.6	0	2.5	0	46.3	
Total %	1.3	0	0.6	0.9	0	47.6	3.5		3.5	0	0		0.4	44.7	0	1.2	0		

Start Time	Queen Street Southbound				Ala Moana Boulevard Westbound				Northbound				Ala Moana Boulevard Eastbound						
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total	
	App. Total				App. Total				App. Total				App. Total						
07:15 AM	7	0	0	3	0	442	35		35	477	0		3	372	0	0	375	862	
07:30 AM	8	0	0	3	0	432	29		29	461	0		4	378	0	0	382	854	
07:45 AM	10	0	0	7	0	395	34		34	429	0		5	347	0	0	352	798	
08:00 AM	18	0	0	6	0	425	35		35	460	0		3	349	0	0	352	836	
Total	43	0	0	19	0	1694	133		133	1827	0		15	1446	0	0	1461	3350	
% App. Total	69.4	0	0	30.6	0	92.7	7.3		7.3	0	0		1	99	0	0	0		
PHF	.597	.000	.000	.679	.000	.958	.950		.950	.958	.000		.750	.956	.000	.000	.956	.972	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: RJ, JJ
Counters: D4-5671, D4-5674
Weather: Clear

File Name : QueAla PM
Site Code : 00000003
Start Date : 3/10/2015
Page No : 1

Start Time	Queen Street Southbound				Ala Moana Boulevard Westbound				Ala Moana Boulevard Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total
03:00 PM	47	0	20	17	0	308	39	0	7	378	0	8
03:15 PM	31	0	9	14	0	294	38	0	4	384	0	23
03:30 PM	37	0	11	20	0	377	47	0	13	462	0	10
03:45 PM	46	0	19	4	0	366	40	0	11	418	0	9
Total	161	0	59	55	0	1345	164	0	35	1642	0	50
04:00 PM	32	0	6	14	0	379	46	0	8	497	0	18
04:15 PM	40	0	8	9	0	339	48	0	6	495	0	14
04:30 PM	41	0	6	13	0	313	47	0	4	466	0	13
04:45 PM	29	0	13	12	0	360	49	0	8	524	0	17
Total	142	0	33	48	0	1391	190	0	26	1982	0	62
05:00 PM	45	0	8	6	0	275	40	0	9	465	0	17
05:15 PM	67	0	12	13	0	334	56	0	8	497	0	21
05:30 PM	43	0	16	21	0	316	71	0	3	522	0	12
05:45 PM	42	0	4	33	0	261	39	0	10	459	0	52
Total	197	0	40	73	0	1186	206	0	30	1943	0	102
Grand Total	500	0	132	176	0	3922	560	0	91	5567	0	214
Approch %	61.9	0	16.3	21.8	0	87.5	12.5	0	1.5	94.8	0	3.6
Total %	4.5	0	1.2	1.6	0	35.1	5	0	0.8	49.9	0	1.9

Start Time	Queen Street Southbound				Ala Moana Boulevard Westbound				Ala Moana Boulevard Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total
04:45 PM	29	0	13	13	0	360	49	0	8	524	0	0
05:00 PM	45	0	8	8	0	275	40	0	9	465	0	0
05:15 PM	67	0	12	12	0	334	56	0	8	497	0	0
05:30 PM	43	0	16	16	0	316	71	0	3	522	0	0
Total Volume	184	0	49	49	0	1285	216	0	28	2008	0	0
% App. Total	79	0	21	21	0	85.6	14.4	0	1.4	98.6	0	0
PHF	.687	.000	.766	.766	.000	.892	.761	.000	.778	.958	.000	.957
Grand Total	500	0	132	176	0	3922	560	0	91	5567	0	214
Approch %	61.9	0	16.3	21.8	0	87.5	12.5	0	1.5	94.8	0	3.6
Total %	4.5	0	1.2	1.6	0	35.1	5	0	0.8	49.9	0	1.9

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

Counted By: AC, DM, FS
Counters: D4-3888, D4-3889, D4-3890
Weather: Clear

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

File Name : PiiAla AM
Site Code : 00000006
Start Date : 3/10/2015
Page No : 1

Start Time	Piikoi Street Southbound				Ala Moana Boulevard Westbound				Ala Moana Boulevard Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total
06:00 AM	12	0	8	2	0	174	57	9	45	132	0	0
06:15 AM	14	0	21	2	0	207	65	24	54	222	0	0
06:30 AM	29	0	12	3	0	274	69	34	53	182	0	0
06:45 AM	24	0	25	2	0	304	72	15	80	273	0	0
Total	79	0	66	9	0	959	263	82	232	809	0	0
07:00 AM	20	0	31	2	0	361	65	22	98	279	0	0
07:15 AM	27	0	21	1	0	451	92	6	83	289	0	0
07:30 AM	46	0	37	2	0	431	72	16	90	300	0	0
07:45 AM	33	0	37	2	0	389	78	6	110	255	0	0
Total	126	0	126	7	0	1632	307	50	381	1123	0	0
08:00 AM	26	0	32	4	0	423	83	11	80	264	0	0
08:15 AM	24	0	34	0	0	368	62	8	84	254	0	0
08:30 AM	27	0	29	6	0	329	56	14	108	253	0	0
08:45 AM	28	0	29	0	0	315	59	10	87	269	0	0
Total	105	0	124	10	0	1435	260	43	359	1040	0	0
Grand Total	310	0	316	26	0	4026	830	175	972	2972	0	0
Approch %	47.5	0	48.5	4	0	80	16.5	3.5	24.6	75.4	0	0
Total %	3.2	0	3.3	0.3	0	41.8	8.6	1.8	10.1	30.9	0	0

Start Time	Piikoi Street Southbound				Ala Moana Boulevard Westbound				Ala Moana Boulevard Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total	App. Total
07:15 AM	27	0	0	21	0	451	92	0	83	289	0	0
07:30 AM	46	0	0	37	0	431	72	90	90	300	0	0
07:45 AM	33	0	0	37	0	389	78	83	110	255	0	0
08:00 AM	26	0	0	32	0	423	64	10	80	264	0	0
Total Volume	132	0	0	127	0	1694	325	2019	363	1108	0	0
% App. Total	51	0	0	49	0	83.9	16.1	24.7	24.7	75.3	0	0
PHF	.717	.000	.858	.858	.000	.939	.883	.930	.825	.923	.000	.960
Grand Total	310	0	316	26	0	4026	830	175	972	2972	0	0
Approch %	47.5	0	48.5	4	0	80	16.5	3.5	24.6	75.4	0	0
Total %	3.2	0	3.3	0.3	0	41.8	8.6	1.8	10.1	30.9	0	0

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: JC, AC, DM
Counters: D4-3889, D4-3890, D4-3888
Weather: Clear

File Name : PiiAla PM
Site Code : 00000006
Start Date : 3/10/2015
Page No : 1

Start Time	PiiAla Street Southbound							Ala Moana Boulevard Westbound							Northbound							Ala Moana Boulevard Eastbound																																																																																																																																																																																																																																																																																																																																			
	Left		Thru		Right		Peds	App. Total	Left		Thru		Right		Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	Left		Thru		Right		Peds	App. Total	Int. Total																																																																																																																																																																																																																																																																																																																										
	Left	Thru	Right	Thru	Right	Thru			Right	Thru	Right	App. Total	Left	Thru									Right	App. Total	Left	Thru	Right	App. Total				Int. Total																																																																																																																																																																																																																																																																																																																									
03:00 PM	55	0	59	32	32	146	0	278	59	13	350	0	88	332	0	420	916	03:15 PM	55	0	60	26	141	0	283	75	7	365	0	80	346	0	426	932	03:30 PM	57	0	58	30	145	0	361	74	18	453	0	67	416	0	483	1081	03:45 PM	53	0	50	29	29	132	0	355	80	2	437	0	82	403	0	485	1054	Total	220	0	227	117	564	0	1277	288	40	1605	0	317	1497	0	1814	3983	04:00 PM	43	0	50	16	16	109	0	369	85	9	463	0	72	445	0	517	1089	04:15 PM	58	0	55	17	130	0	330	99	2	431	0	86	447	0	543	1104	04:30 PM	47	0	33	26	26	106	0	325	38	5	368	0	80	414	0	494	968	04:45 PM	49	0	43	17	109	0	360	71	12	443	0	63	509	0	572	1124	Total	197	0	181	76	76	454	0	1384	293	28	1705	0	311	1815	0	2126	4285	05:00 PM	65	0	40	23	23	128	0	272	67	10	349	0	90	423	0	513	990	05:15 PM	81	0	67	39	187	0	325	64	51	440	0	83	477	0	560	1187	05:30 PM	50	0	44	37	37	131	0	350	102	29	481	0	82	487	0	569	1181	05:45 PM	65	0	52	40	157	0	251	88	38	377	0	84	436	0	520	1054	Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1															
03:45 PM	53	0	50	29	29	132	0	355	80	2	437	0	82	403	0	485	1054	Total	220	0	227	117	564	0	1277	288	40	1605	0	317	1497	0	1814	3983	04:00 PM	43	0	50	16	16	109	0	369	85	9	463	0	72	445	0	517	1089	04:15 PM	58	0	55	17	130	0	330	99	2	431	0	86	447	0	543	1104	04:30 PM	47	0	33	26	26	106	0	325	38	5	368	0	80	414	0	494	968	04:45 PM	49	0	43	17	109	0	360	71	12	443	0	63	509	0	572	1124	Total	197	0	181	76	76	454	0	1384	293	28	1705	0	311	1815	0	2126	4285	05:00 PM	65	0	40	23	23	128	0	272	67	10	349	0	90	423	0	513	990	05:15 PM	81	0	67	39	187	0	325	64	51	440	0	83	477	0	560	1187	05:30 PM	50	0	44	37	37	131	0	350	102	29	481	0	82	487	0	569	1181	05:45 PM	65	0	52	40	157	0	251	88	38	377	0	84	436	0	520	1054	Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																			
04:00 PM	43	0	50	16	16	109	0	369	85	9	463	0	72	445	0	517	1089	04:15 PM	58	0	55	17	130	0	330	99	2	431	0	86	447	0	543	1104	04:30 PM	47	0	33	26	26	106	0	325	38	5	368	0	80	414	0	494	968	04:45 PM	49	0	43	17	109	0	360	71	12	443	0	63	509	0	572	1124	Total	197	0	181	76	76	454	0	1384	293	28	1705	0	311	1815	0	2126	4285	05:00 PM	65	0	40	23	23	128	0	272	67	10	349	0	90	423	0	513	990	05:15 PM	81	0	67	39	187	0	325	64	51	440	0	83	477	0	560	1187	05:30 PM	50	0	44	37	37	131	0	350	102	29	481	0	82	487	0	569	1181	05:45 PM	65	0	52	40	157	0	251	88	38	377	0	84	436	0	520	1054	Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																						
04:30 PM	47	0	33	26	26	106	0	325	38	5	368	0	80	414	0	494	968	04:45 PM	49	0	43	17	109	0	360	71	12	443	0	63	509	0	572	1124	Total	197	0	181	76	76	454	0	1384	293	28	1705	0	311	1815	0	2126	4285	05:00 PM	65	0	40	23	23	128	0	272	67	10	349	0	90	423	0	513	990	05:15 PM	81	0	67	39	187	0	325	64	51	440	0	83	477	0	560	1187	05:30 PM	50	0	44	37	37	131	0	350	102	29	481	0	82	487	0	569	1181	05:45 PM	65	0	52	40	157	0	251	88	38	377	0	84	436	0	520	1054	Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																																																									
Total	197	0	181	76	76	454	0	1384	293	28	1705	0	311	1815	0	2126	4285	05:00 PM	65	0	40	23	23	128	0	272	67	10	349	0	90	423	0	513	990	05:15 PM	81	0	67	39	187	0	325	64	51	440	0	83	477	0	560	1187	05:30 PM	50	0	44	37	37	131	0	350	102	29	481	0	82	487	0	569	1181	05:45 PM	65	0	52	40	157	0	251	88	38	377	0	84	436	0	520	1054	Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																																																																																												
05:00 PM	65	0	40	23	23	128	0	272	67	10	349	0	90	423	0	513	990	05:15 PM	81	0	67	39	187	0	325	64	51	440	0	83	477	0	560	1187	05:30 PM	50	0	44	37	37	131	0	350	102	29	481	0	82	487	0	569	1181	05:45 PM	65	0	52	40	157	0	251	88	38	377	0	84	436	0	520	1054	Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																																																																																																														
05:30 PM	50	0	44	37	37	131	0	350	102	29	481	0	82	487	0	569	1181	05:45 PM	65	0	52	40	157	0	251	88	38	377	0	84	436	0	520	1054	Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																																																																																																																																																	
Total	261	0	203	139	139	603	0	1198	321	128	1647	0	339	1823	0	2162	4412	Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																																																																																																																																																																																				
Grand Total	678	0	611	332	332	1621	0	3859	902	196	4957	0	967	5135	0	6102	12680	Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																		Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																																																																																																																																																																																																						
Apprch %	41.8	0	37.7	20.5	20.5	12.8	0	77.8	18.2	4	15.8	84.2	0	0	48.1																																																																																																																																																																																																																																																																																																																																										
Total %	5.3	0	4.8	2.6	2.6	12.8	0	30.4	7.1	1.5	39.1	0	7.6	40.5	0	48.1																																																																																																																																																																																																																																																																																																																																									

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

Start Time	PiiAla Street Southbound			Ala Moana Boulevard Westbound			Northbound			Ala Moana Boulevard Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
04:45 PM	49	0	43	0	360	71	0	63	509	0	572	1095
05:00 PM	65	0	40	0	272	67	0	90	423	0	513	990
05:15 PM	81	0	67	0	325	64	0	83	477	0	560	1187
05:30 PM	50	0	44	0	350	102	0	82	487	0	569	1181
05:45 PM	65	0	52	0	251	88	0	84	436	0	520	1054
Total	245	0	194	0	1307	304	0	318	1896	0	2214	4264
% App. Total	55.8	0	44.2	0	81.1	18.9	0	14.4	85.6	0	64.8	95.6
PHF	.756	.000	.724	.000	.908	.745	.000	.883	.931	.000	.968	.956

Counted By: GH, YS
Counter: D4-5674, D4-3888
Weather: Clear

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

File Name : QueenKam AM
Site Code : 00000002
Start Date : 1/19/2017
Page No : 1

Start Time	Kamakee Street Southbound							Queen Street Westbound							Kamakee Street Northbound							Queen Street Eastbound																																																																																																																																																																																																																																																																																																																																																																											
	Left		Thru		Right		Peds	App. Total	Left		Thru		Right		Peds	App. Total	Left		Thru		Right		Peds	App. Total	Int. Total	Left		Thru		Right		Peds	App. Total	Int. Total																																																																																																																																																																																																																																																																																																																																																															
	Left	Thru	Right	Thru	Right	Thru			Right	Thru	Right	App. Total	Left	Thru			Right	App. Total	Left	Thru	Right	App. Total				Int. Total																																																																																																																																																																																																																																																																																																																																																																							
06:00 AM	10	18	5	0	33	12	11	1	0	24	2	4	5	0	11	1	19	2	0	22	90	06:15 AM	13	17	5	0	35	13	8	3	0	24	0	12	2	13	1	0	16	87	06:30 AM	14	14	15	0	43	9	17	3	0	29	1	6	9	0	16	1	29	3	0	33	121	06:45 AM	7	20	6	0	33	14	30	4	0	48	1	10	1	11	2	0	14	115	Total	44	69	31	0	144	48	66	11	0	125	4	27	26	2	59	5	72	8	0	85	413	07:00 AM	6	23	16	0	45	16	41	8	0	65	2	6	3	0	11	3	19	1	0	23	144	07:15 AM	5	21	10	0	36	20	44	4	0	68	5	11	4	0	20	4	20	3	0	27	151	07:30 AM	7	32	20	0	59	36	70	4	0	110	2	13	4	0	19	3	30	1	0	34	222	07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0	
06:30 AM	14	14	15	0	43	9	17	3	0	29	1	6	9	0	16	1	29	3	0	33	121	06:45 AM	7	20	6	0	33	14	30	4	0	48	1	10	1	11	2	0	14	115	Total	44	69	31	0	144	48	66	11	0	125	4	27	26	2	59	5	72	8	0	85	413	07:00 AM	6	23	16	0	45	16	41	8	0	65	2	6	3	0	11	3	19	1	0	23	144	07:15 AM	5	21	10	0	36	20	44	4	0	68	5	11	4	0	20	4	20	3	0	27	151	07:30 AM	7	32	20	0	59	36	70	4	0	110	2	13	4	0	19	3	30	1	0	34	222	07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																										
Total	44	69	31	0	144	48	66	11	0	125	4	27	26	2	59	5	72	8	0	85	413	07:00 AM	6	23	16	0	45	16	41	8	0	65	2	6	3	0	11	3	19	1	0	23	144	07:15 AM	5	21	10	0	36	20	44	4	0	68	5	11	4	0	20	4	20	3	0	27	151	07:30 AM	7	32	20	0	59	36	70	4	0	110	2	13	4	0	19	3	30	1	0	34	222	07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																			
07:00 AM	6	23	16	0	45	16	41	8	0	65	2	6	3	0	11	3	19	1	0	23	144	07:15 AM	5	21	10	0	36	20	44	4	0	68	5	11	4	0	20	4	20	3	0	27	151	07:30 AM	7	32	20	0	59	36	70	4	0	110	2	13	4	0	19	3	30	1	0	34	222	07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																									
07:15 AM	5	21	10	0	36	20	44	4	0	68	5	11	4	0	20	4	20	3	0	27	151	07:30 AM	7	32	20	0	59	36	70	4	0	110	2	13	4	0	19	3	30	1	0	34	222	07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																															
07:30 AM	7	32	20	0	59	36	70	4	0	110	2	13	4	0	19	3	30	1	0	34	222	07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																					
07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																											
Total	21	108	71	0	200	102	228	20	0	350	12	39	14	0	65	13	86	5	0	104	719	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																																																	
08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																																																																							
08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																																																																																													
08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																																																																																																																			
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Total	22	117	57	0	196	90	127	14	0	231	12	47	27	0	86	19	117	13	0	149	662	Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																																																																																																																																																															
Grand Total	87	294	159	0	540	240	421	45	0	706	28	113	67	2	210	37	275	26	0	338	1794	Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8	Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																																																																																																																																																																																					
Apprch %	16.1	54.4	29.4	0	30.1	34	59.6	6.4	0	13.3	53.8	31.9	1	11.7	10.9	81.4	7.7	0	18.8																																																																																																																																																																																																																																																																																																																																																																														
Total %	4.8	16.4	8.9	0	30.1	13.4	23.5	2.5	0	39.4	1.6	6.3	3.7	0.1	2.1	15.3	1.4	0																																																																																																																																																																																																																																																																																																																																																																															

Start Time	Kamakee Street Southbound							Queen Street Westbound							Kamakee Street Northbound							Queen Street Eastbound																																																																																																																																																																										
	Left		Thru		Right		Peds	App. Total	Left		Thru		Right		Peds	App. Total	Left		Thru		Right		Peds	App. Total	Int. Total	Left		Thru		Right		Peds	App. Total	Int. Total																																																																																																																																																														
	Left	Thru	Right	Thru	Right	Thru			Right	Thru	Right	App. Total	Left	Thru			Right	App. Total	Left	Thru	Right	App. Total				Int. Total																																																																																																																																																																						
07:30 AM	7	32	20	0	59	36	70	4	0	110	2	13	4	0	19	3	30	1	0	34	222	07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	20	132	84	0	236	121	241	20	0	382	13	57	23	0	93	14	100	4	0	118	829	% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0		PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934
07:45 AM	3	32	25	0	60	30	73	4	0	107	3	9	3	0	15	3	17	0	0	20	202	08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	20	132	84	0	236	121	241	20	0	382	13	57	23	0	93	14	100	4	0	118	829	% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0		PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934																						
08:00 AM	2	37	23	0	62	25	60	6	0	91	3	22	6	0	31	4	31	2	0	37	221	08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	20	132	84	0	236	121	241	20	0	382	13	57	23	0	93	14	100	4	0	118	829	% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0		PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934																																												
08:15 AM	8	31	16	0	55	30	38	6	0	74	5	13	10	0	28	4	22	1	0	27	184	08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	20	132	84	0	236	121	241	20	0	382	13	57	23	0	93	14	100	4	0	118	829	% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0		PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934																																																																		
08:30 AM	6	20	7	0	33	35	29	2	0	66	4	12	11	0	27	7	28	3	0	38	164	08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	20	132	84	0	236	121	241	20	0	382	13	57	23	0	93	14	100	4	0	118	829	% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0		PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934																																																																																								
08:45 AM	6	29	11	0	46	0	0	0	0	0	0	0	0	0	0	4	36	7	0	47	93	Total	20	132	84	0	236	121	241	20	0	382	13	57	23	0	93	14	100	4	0	118	829	% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0		PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934																																																																																																														
Total	20	132	84	0	236	121	241	20	0	382	13	57	23	0	93	14	100	4	0	118	829	% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0		PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934																																																																																																																																				
% App. Total	8.5	55.9	35.6	0	30.1	31.7	63.1	5.2	0	39.4	1.6	6.3	24.7	0.1	11.9	84.7	3.4	0																																																																																																																																																																														
PHF	.625	.892	.840	0	.952	.840	.825	.833	0	.868	.650	.648	.575	.750	.806	.500	.797	.934																																																																																																																																																																														

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400

Honolulu, HI 96826

Counted By: CK
Counter: D4-3888
Weather: Clear

File Name : QueenKam PM
Site Code : 00000002
Start Date : 1/19/2017
Page No : 1

Groups Printed- Unshifted

Start Time	Kamakee Street Southbound					Queen Street Westbound					Kamakee Street Northbound					Queen Street Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
03:00 PM	17	36	9	5	67	42	56	11	2	111	2	32	14	0	48	9	55	9	9	82	308
03:15 PM	12	29	12	13	66	54	70	20	2	146	4	33	15	0	52	13	54	8	23	98	362
03:30 PM	14	26	8	43	91	41	84	10	4	139	6	34	13	1	54	9	55	7	18	89	373
03:45 PM	5	33	10	12	60	47	73	19	0	139	3	30	13	0	46	13	53	16	23	105	350
Total	48	124	39	73	284	184	283	60	8	535	15	129	55	1	200	44	217	40	73	374	1393
04:00 PM	13	33	4	12	62	48	79	9	1	137	2	38	10	1	51	15	79	19	30	143	393
04:15 PM	7	24	6	7	44	52	59	7	0	118	3	33	12	0	48	12	55	11	19	97	307
04:30 PM	13	25	9	1	48	46	66	15	1	128	2	32	16	5	55	14	79	8	22	123	354
04:45 PM	11	26	4	10	51	48	74	19	5	146	3	33	14	5	55	13	96	11	28	148	400
Total	44	108	23	30	205	194	278	50	7	529	10	136	52	11	209	54	309	49	99	511	1454
05:00 PM	14	41	5	15	75	54	62	13	2	131	3	39	17	0	59	15	96	8	15	134	399
05:15 PM	16	36	7	9	68	46	72	8	0	126	10	38	18	1	67	12	83	20	22	137	398
05:30 PM	12	45	1	28	86	39	84	12	1	136	7	35	18	0	60	15	109	14	23	161	443
05:45 PM	14	39	4	17	74	34	76	6	0	116	1	30	14	0	45	14	92	16	14	136	371
Total	56	161	17	69	303	173	294	39	3	509	21	142	67	1	231	56	380	58	74	568	1611
Grand Total	148	393	79	172	792	551	855	149	18	1573	46	407	174	13	640	154	906	147	246	1453	4458
Approch %	18.7	49.6	10	21.7		35	54.4	9.5	1.1		7.2	63.6	27.2	2		10.6	62.4	10.1	16.9		
Total %	3.3	8.8	1.8	3.9	17.8	12.4	19.2	3.3	0.4	35.3	1	9.1	3.9	0.3	14.4	3.5	20.3	3.3	5.5	32.6	

Start Time	Kamakee Street Southbound					Queen Street Westbound					Kamakee Street Northbound					Queen Street Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
04:45 PM	11	26	4		41	48	74	19		141	3	33	14		50	13	96	11		120	352
05:00 PM	14	41	5		60	54	62	13		129	3	39	17		59	15	96	8		119	367
05:15 PM	16	36	7		59	46	72	8		126	10	38	18		66	12	83	20		115	366
05:30 PM	12	45	1		58	39	84	12		135	7	35	18		60	15	109	14		138	391
Total Volume	53	148	17		218	187	292	52		531	23	145	67		235	55	384	53		492	1476
% App. Total	24.3	67.9	7.8			35.2	55	9.8			9.8	61.7	28.5			11.2	78	10.8			
PHF	.828	.822	.607		.908	.866	.869	.684		.941	.575	.929	.931		.890	.917	.881	.663		.891	.944

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400

Honolulu, HI 96826

Counted By: DY, JC
Counters: D4-5677, D4-3889
Weather: Clear

File Name : KamQue AM
Site Code : 00000005
Start Date : 3/11/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Kamakee Street Southbound					Queen Street Westbound					Kamakee Street Northbound					Queen Street Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	4	20	7	1	32	15	15	2	5	37	2	8	1	0	11	3	17	1	7	28	108
06:15 AM	1	18	9	6	34	6	22	3	3	34	1	7	4	2	14	2	8	1	7	18	100
06:30 AM	6	37	17	6	66	8	25	3	0	36	1	4	3	0	8	4	13	3	9	29	139
06:45 AM	5	17	17	7	46	17	38	3	3	61	3	9	6	1	19	6	16	1	8	31	157
Total	16	92	50	20	178	46	100	11	11	168	7	28	14	3	52	15	54	6	31	106	504
07:00 AM	5	26	15	12	58	13	37	3	2	55	2	7	9	1	19	3	17	3	4	27	159
07:15 AM	6	43	13	5	67	31	63	7	6	107	2	7	7	1	17	4	19	5	6	34	225
07:30 AM	2	38	33	6	79	37	50	4	4	95	5	18	8	1	32	9	22	2	21	54	260
07:45 AM	5	40	32	8	85	42	76	8	3	129	3	15	10	1	29	5	25	1	8	39	282
Total	18	147	93	31	289	123	226	22	15	366	12	47	34	4	97	21	83	11	39	154	926
08:00 AM	6	48	19	5	78	43	60	9	3	115	3	27	6	0	36	8	34	1	12	55	284
08:15 AM	5	45	15	4	69	38	59	4	4	105	1	19	12	7	39	6	32	3	19	60	273
08:30 AM	6	35	15	3	59	32	58	9	5	104	2	23	2	1	28	4	33	4	15	56	247
08:45 AM	12	36	22	10	80	28	56	4	9	97	3	17	8	5	33	11	35	3	10	59	269
Total	29	164	71	22	286	141	233	26	21	421	9	86	28	13	136	29	134	11	56	230	1073
Grand Total	63	403	214	73	753	310	559	59	47	975	28	161	76	20	285	65	271	28	126	490	2503
Approch %	8.4	53.5	28.4	9.7		31.8	57.3	6.1	4.8		9.8	56.5	26.7	7		13.3	55.3	5.7	25.7		
Total %	2.5	16.1	8.5	2.9	30.1	12.4	22.3	2.4	1.9	39	1.1	6.4	3	0.8	11.4	2.6	10.8	1.1	5	19.6	

Start Time	Kamakee Street Southbound					Queen Street Westbound					Kamakee Street Northbound					Queen Street Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:30 AM	2	38	33		73	37	50	4		91	5	18	8		31	9	22	2		33	228
07:45 AM	5	40	32		77	42	76	8		126	3	15	10		28	5	25	1		31	262
08:00 AM	6	48	19		73	43	60	9		112	3	27	6		36	8	34	1		43	264
08:15 AM	5	45	15		65	38	59	4		101	1	19	12		32	6	32	3		41	239
Total Volume	18	171	99		288	160	245	25		430	12	79	36		127	28	113	7		148	993
% App. Total	6.2	59.4	34.4			37.2	57	5.8			9.4	62.2	28.3			18.9	76.4	4.7			
PHF	.750	.891	.750		.935	.930	.806	.694		.853	.600	.731	.750		.882	.778	.831	.583		.860	.940

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: DY, JC
Counters: D4-3889, D4-5677
Weather: Clear

File Name : KamQue PM
Site Code : 00000005
Start Date : 3/11/2015
Page No : 1

Start Time	Kamakee Street Southbound				Queen Street Westbound				Kamakee Street Northbound				Queen Street Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
03:00 PM	12	46	18	9	44	62	17	13	4	23	17	7	17	44	9	29
03:15 PM	5	33	16	7	51	66	14	14	4	19	15	9	47	19	52	7
03:30 PM	16	27	17	10	48	100	14	13	5	38	13	5	61	22	70	4
03:45 PM	8	28	15	10	47	76	9	10	8	37	10	6	61	25	57	6
Total	41	134	66	36	277	190	304	54	50	117	55	27	220	83	223	26
04:00 PM	9	31	17	7	64	48	15	14	4	21	16	15	56	21	57	6
04:15 PM	8	23	12	8	51	62	77	12	14	165	14	9	63	25	84	10
04:30 PM	9	27	15	20	71	51	81	9	11	152	9	9	64	26	92	13
04:45 PM	10	32	14	15	71	66	70	8	18	162	2	30	52	27	93	17
Total	36	113	58	50	257	227	292	44	57	620	22	109	235	99	326	46
05:00 PM	17	30	11	17	75	59	11	20	169	5	33	11	54	16	83	7
05:15 PM	17	35	9	19	80	57	69	22	17	165	4	27	64	28	100	10
05:30 PM	16	42	17	9	84	40	54	22	9	125	6	27	58	34	83	9
05:45 PM	16	42	18	7	83	58	59	19	17	153	5	41	73	22	68	12
Total	66	149	55	52	322	214	261	74	63	612	20	128	249	100	334	38
Grand Total	143	396	179	138	856	631	857	172	170	1830	63	354	178	704	282	883
Approch %	16.7	46.3	20.9	16.1	34.5	46.8	9.4	9.3	8.9	50.3	25.3	15.5	17.4	54.6	6.8	21.2
Total %	2.9	7.9	3.6	2.8	17.1	12.6	17.1	3.4	3.4	36.5	1.3	7.1	3.6	14.1	5.6	17.6

Start Time	Kamakee Street Southbound				Queen Street Westbound				Kamakee Street Northbound				Queen Street Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
04:30 PM	9	27	15	15	51	81	9	9	9	32	14	55	26	92	13	
04:45 PM	10	32	14	14	56	66	70	8	8	27	17	49	27	93	17	
05:00 PM	17	30	11	11	58	59	79	11	11	149	5	33	16	83	7	
05:15 PM	17	35	9	9	61	57	69	22	22	148	4	27	48	100	10	
Total Volume	53	124	49	49	226	233	299	50	50	582	20	122	201	97	368	47
% App. Total	23.5	54.9	21.7	21.7	40	51.4	8.6	8.6	10	60.7	29.4	18.9	71.9	9.2	18.9	9.2
PHF	.779	.886	.817	.926	.883	.923	.568	.568	.556	.924	.868	.914	.866	.920	.691	.928

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: AC, DM
Counters: TU-0650, TU-0652
Weather: Clear

File Name : QueQue AM
Site Code : 00000004
Start Date : 3/11/2015
Page No : 1

Start Time	Southbound	Queen Street Westbound				Queen's Lane Northbound				Queen Street Eastbound				
		App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	
06:00 AM	0	7	29	0	0	36	3	0	0	2	14	0	0	14
06:15 AM	0	6	26	0	0	32	5	0	5	0	7	0	0	7
06:30 AM	0	3	31	0	0	34	5	0	5	2	12	1	0	14
06:45 AM	0	10	53	0	0	63	5	0	7	0	12	0	0	17
Total	0	26	139	0	0	165	18	0	17	4	39	0	0	52
07:00 AM	0	17	49	0	0	66	4	0	10	0	14	0	0	23
07:15 AM	0	13	91	0	0	104	11	0	14	4	29	0	0	29
07:30 AM	0	23	85	0	0	108	5	0	12	2	19	0	0	26
07:45 AM	0	20	119	0	0	139	8	0	13	2	23	0	2	46
Total	0	73	344	0	0	417	28	0	49	8	85	0	2	124
08:00 AM	0	29	103	0	0	132	6	0	17	1	24	0	0	42
08:15 AM	0	22	98	0	0	120	7	0	12	5	24	0	0	47
08:30 AM	0	22	119	0	0	119	2	0	25	6	33	0	0	41
08:45 AM	0	11	89	0	0	100	2	0	3	7	12	0	0	31
Total	0	84	387	0	0	471	17	0	57	19	93	0	0	161
Grand Total	0	183	870	0	0	1053	63	0	123	31	217	0	330	5
Approch %	0	17.4	82.6	0	0	29	56.7	14.3	56.7	14.3	13.5	0	97.9	1.5
Total %	0	11.4	54.1	0	0	65.5	3.9	0	7.7	1.9	0.6	0	20.5	0.3

Start Time	Southbound	Queen Street Westbound				Queen's Lane Northbound				Queen Street Eastbound				
		App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	
07:45 AM	0	20	119	0	0	139	8	0	13	21	0	42	2	44
08:00 AM	0	29	103	0	0	132	6	0	17	23	0	41	1	42
08:15 AM	0	22	98	0	0	120	7	0	12	23	0	47	0	47
08:30 AM	0	22	119	0	0	119	2	0	25	19	0	41	0	41
Total Volume	0	93	417	0	0	510	23	0	67	90	0	171	3	174
% App. Total	.000	18.2	81.8	0	0	25.6	.719	.000	74.4	.833	.000	98.3	1.7	.926
PHF	.000	.802	.876	.000	.917	.876	.000	.670	.670	.833	.000	.910	.375	.949

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:45 AM

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

Counted By: AC, DM
Counters: D4-3889, D4-3890
Weather: Clear

File Name : QueQue PM
Site Code : 00000004
Start Date : 3/11/2015
Page No : 1

Start Time	Queen Street Westbound						Queen's Lane Northbound						Queen Street Eastbound								
	Southbound		Westbound		Northbound		Westbound		Northbound		Eastbound		Westbound		Northbound		Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	0	18	118	0	0	136	5	0	53	1	0	82	1	0	83	0	82	1	0	83	278
03:15 PM	0	14	114	0	0	128	8	0	45	6	0	85	0	0	85	0	85	0	0	85	272
03:30 PM	0	20	140	0	0	160	20	0	41	5	0	95	1	0	96	0	95	1	0	96	322
03:45 PM	0	17	134	0	0	151	7	0	51	8	0	86	0	0	86	0	86	0	0	86	303
Total	0	69	507	0	0	575	40	0	190	20	0	348	2	0	350	0	348	2	0	350	1175
04:00 PM	0	14	118	0	0	132	14	0	46	6	0	74	1	0	75	0	74	1	0	75	273
04:15 PM	0	16	130	0	0	146	18	0	57	17	0	107	0	0	107	0	107	0	0	107	345
04:30 PM	0	10	136	0	0	146	13	0	45	4	0	110	3	0	113	0	110	3	0	113	321
04:45 PM	0	18	123	0	0	141	8	0	45	8	0	128	0	0	128	0	128	0	0	128	330
Total	0	58	507	0	0	565	53	0	193	35	0	419	4	0	423	0	419	4	0	423	1269
05:00 PM	0	20	129	0	0	149	13	0	60	2	0	116	0	0	116	0	116	0	0	116	340
05:15 PM	0	23	137	0	0	160	11	0	65	5	0	144	0	0	144	0	144	0	0	144	385
05:30 PM	0	13	96	0	0	109	13	0	35	7	0	107	0	0	107	0	107	0	0	107	271
05:45 PM	0	17	108	0	0	125	14	0	32	3	0	99	0	0	99	0	99	0	0	99	273
Total	0	73	470	0	0	543	51	0	192	17	0	466	0	0	466	0	466	0	0	466	1269
Grand Total	0	200	1483	0	0	1683	144	0	575	72	0	1233	6	0	1239	0	1233	6	0	1239	3713
Approch %	0	11.9	88.1	0	0	45.3	18.2	0	72.7	9.1	0	99.5	0.5	0	33.4	0	99.5	0.5	0	33.4	
Total %	0	5.4	39.9	0	0	12.8	3.9	0	15.5	1.9	0	33.2	0.2	0	11.2	0	33.2	0.2	0	11.2	

Start Time	Queen Street Westbound						Queen's Lane Northbound						Queen Street Eastbound								
	Southbound		Westbound		Northbound		Westbound		Northbound		Eastbound		Westbound		Northbound		Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:30 PM	0	10	136	0	0	146	13	0	45	0	0	110	3	0	113	0	110	3	0	113	317
04:45 PM	0	18	123	0	0	141	8	0	45	53	0	128	0	0	128	0	128	0	0	128	322
05:00 PM	0	20	129	0	0	149	13	0	60	73	0	116	0	0	116	0	116	0	0	116	338
05:15 PM	0	23	137	0	0	160	11	0	65	58	0	144	0	0	144	0	144	0	0	144	380
Total Volume	0	71	525	0	0	596	45	0	215	260	0	498	3	0	501	0	498	3	0	501	1357
% App. PHF	.000	.772	.958	.000	.931	.865	17.3	0	82.7	.855	.000	.865	.250	.870	.893	.000	.865	.250	.870	.893	

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

Counted By: PA, FS
Counters: D4-3888, D4-3890
Weather: Clear

File Name : QueWai AM
Site Code : 00000001
Start Date : 3/11/2015
Page No : 1

Start Time	Waimanu Street Southbound						Queen Street Westbound						Queen Street Eastbound								
	Southbound		Westbound		Northbound		Westbound		Northbound		Eastbound		Westbound		Northbound		Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	3	0	6	1	10	0	30	9	0	39	0	14	0	12	28	2	14	0	12	28	77
06:15 AM	8	0	1	2	11	0	30	7	0	37	0	1	12	6	19	1	12	0	6	19	67
06:30 AM	19	0	5	2	26	0	29	9	0	38	0	1	14	10	25	1	14	0	10	25	89
06:45 AM	18	0	4	0	22	0	59	18	0	77	0	1	24	5	30	1	24	0	5	30	129
Total	48	0	16	5	69	0	148	43	0	191	0	5	64	33	102	5	64	0	33	102	362
07:00 AM	19	0	8	11	38	0	58	15	0	73	0	2	36	11	49	2	36	0	11	49	160
07:15 AM	17	0	3	2	22	0	102	20	0	122	0	2	41	7	50	2	41	0	7	50	194
07:30 AM	16	0	5	3	24	0	102	13	0	115	0	2	38	11	51	2	38	0	11	51	190
07:45 AM	16	0	4	1	21	0	133	22	0	155	0	4	44	3	51	4	44	0	3	51	227
Total	68	0	20	17	105	0	395	70	0	465	0	10	159	32	201	10	159	0	32	201	771
08:00 AM	13	0	4	1	18	0	128	19	0	147	0	4	50	7	61	4	50	0	7	61	226
08:15 AM	18	0	7	1	26	0	113	18	0	131	0	2	47	7	56	2	47	0	7	56	213
08:30 AM	14	0	5	2	21	0	114	24	0	138	0	4	50	6	60	4	50	0	6	60	219
08:45 AM	11	0	4	0	15	0	96	18	0	114	0	5	55	8	68	5	55	0	8	68	197
Total	56	0	20	4	80	0	451	79	0	530	0	15	202	28	245	15	202	0	28	245	855
Grand Total	172	0	56	26	254	0	994	192	0	1186	0	30	425	93	548	30	425	0	93	548	1988
Approch %	67.7	0	22	10.2	12.8	0	83.8	16.2	0	59.7	0	5.5	77.6	17	27.6	5.5	77.6	0	17	27.6	
Total %	8.7	0	2.8	1.3	1.3	0	50	9.7	0	17.3	0	1.5	21.4	4.7	27.6	1.5	21.4	0	4.7	27.6	

Start Time	Waimanu Street Southbound						Queen Street Westbound						Queen Street Eastbound								
	Southbound		Westbound		Northbound		Westbound		Northbound		Eastbound		Westbound		Northbound		Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:45 AM	16	0	4	4	20	0	133	22	0	155	0	4	44	0	48	4	44	0	0	48	223
08:00 AM	13	0	4	4	17	0	128	19	0	147	0	4	50	7	61	4	50	0	7	61	218
08:15 AM	18	0	7	1	25	0	113	18	0	131	0	2	47	7	56	2	47	0	7	56	205
08:30 AM	14	0	5	2	19	0	114	24	0	138	0	4	50	6	60	4	50	0	6	60	211
Total Volume	61	0	20	20	81	0	488	83	0	571	0	14	191	28	245	14	191	0	28	245	857
% App. PHF	.847	.000	.714	.714	.810	.000	.917	.865	.921	.865	.000	.875	.955	.000	.949	.875	.955	.000	.000	.949	.961

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: PA., FS
Counters: D4-3890, D4-3888
Weather: Clear

File Name : QueWai PM
Site Code : 00000001
Start Date : 3/11/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Waimanu Street Southbound				Queen Street Westbound				Northbound				Queen Street Eastbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total
03:00 PM	15	0	5	4	0	127	24	0	151	0	126	0	11	9	146	146	321
03:15 PM	6	0	6	6	0	122	27	0	149	0	120	0	8	14	142	142	309
03:30 PM	12	0	9	8	0	164	35	0	199	0	115	0	5	8	128	128	356
03:45 PM	10	0	6	3	0	135	19	0	154	0	119	0	8	8	135	135	308
Total	43	0	26	21	0	548	105	0	653	0	480	0	32	39	551	551	1294
04:00 PM	9	0	1	0	0	132	29	0	161	0	110	0	1	11	122	122	293
04:15 PM	19	0	5	0	0	142	27	0	169	0	147	0	9	8	164	164	357
04:30 PM	18	0	13	6	0	144	27	0	171	0	130	0	6	16	152	152	360
04:45 PM	16	0	3	3	0	135	30	0	165	0	133	0	10	19	162	162	349
Total	62	0	22	9	0	553	113	0	666	0	520	0	26	54	600	600	1359
05:00 PM	16	0	9	3	0	150	36	0	186	0	143	0	12	14	169	169	383
05:15 PM	19	0	8	7	0	144	40	0	184	0	169	0	6	14	189	189	407
05:30 PM	11	0	5	2	0	121	26	0	147	0	128	0	9	10	147	147	312
05:45 PM	10	0	6	4	0	127	37	0	164	0	113	0	13	9	135	135	319
Total	56	0	28	16	0	542	139	0	681	0	553	0	40	47	640	640	1421
Grand Total	161	0	76	46	0	1643	357	0	2000	0	1553	0	98	140	1791	1791	4074
Approch %	56.9	0	26.9	16.3	0	82.2	17.9	0	49.1	0	86.7	0	5.5	7.8	86.7	86.7	191.7
Total %	4	0	1.9	1.1	0	40.3	8.8	0	49.1	0	38.1	0	2.4	3.4	38.1	38.1	44

Start Time	Waimanu Street Southbound				Queen Street Westbound				Northbound				Queen Street Eastbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total
04:30 PM	18	0	0	13	0	144	27	0	171	0	130	0	0	16	146	146	348
04:45 PM	16	0	3	3	0	135	30	0	165	0	133	0	0	19	152	152	336
05:00 PM	16	0	9	9	0	150	36	0	186	0	143	0	0	14	157	157	368
05:15 PM	19	0	8	8	0	144	40	0	184	0	169	0	0	14	183	183	394
Total Volume	69	0	33	33	0	573	133	0	706	0	575	0	0	63	638	638	1446
% App. Total	67.6	0	32.4	.635	0	81.2	18.8	0	.949	0	90.1	0	0	9.9	87.2	87.2	191.7
PHF	.908	.000	.635	.831	.000	.955	.831	.000	.949	.000	.851	.000	.000	.829	.851	.851	.918

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: JJ, RJ
Counters: TU-0649, TU-0651
Weather: Clear

File Name : PenWai AM
Site Code : 00000002
Start Date : 3/11/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Pensacola Street Southbound				Waimanu Street Westbound				Honua Condominium Northbound				Waimanu Street Eastbound					
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	44	4	29	1	0	7	0	0	7	0	8	5	0	18	0	3	21	122
06:15 AM	49	4	31	0	0	3	0	0	3	0	11	3	0	15	1	1	17	120
06:30 AM	47	4	34	3	0	2	0	0	2	0	11	1	0	34	2	4	40	146
06:45 AM	38	8	61	1	0	8	0	0	8	0	14	10	0	44	1	3	48	195
Total	178	20	155	5	0	20	0	0	20	0	44	19	0	111	4	11	126	583
07:00 AM	40	3	54	7	0	10	0	0	10	0	25	7	0	49	7	5	61	218
07:15 AM	45	10	90	2	0	12	0	0	12	0	20	5	0	58	1	1	60	262
07:30 AM	58	9	99	5	0	5	0	0	5	0	24	14	0	47	4	6	57	280
07:45 AM	60	9	122	4	0	22	0	0	22	0	22	8	0	51	4	13	68	325
Total	203	31	365	18	0	49	0	0	49	0	91	34	0	205	16	25	246	1085
08:00 AM	72	24	124	6	0	19	0	0	20	0	18	13	0	56	13	5	74	356
08:15 AM	64	18	115	1	0	9	0	0	9	0	10	21	0	68	10	9	87	330
08:30 AM	78	6	111	3	0	15	0	0	17	0	22	13	0	74	6	8	88	347
08:45 AM	65	8	99	3	0	12	0	0	14	0	14	9	0	67	6	2	75	293
Total	279	56	449	13	0	55	0	0	60	0	64	56	0	265	35	24	324	1326
Grand Total	660	107	969	36	0	124	0	0	129	0	199	109	0	581	55	60	696	2994
Approch %	37.2	6	54.7	2	0	3.9	96.1	0	22.4	0	50.1	27.5	0	83.5	7.9	8.6	23.2	23.2
Total %	22	3.6	32.4	1.2	0	0.2	4.1	0	4.3	0	6.6	3.6	0	19.4	1.8	2	13.3	13.3

Start Time	Pensacola Street Southbound				Waimanu Street Westbound				Honua Condominium Northbound				Waimanu Street Eastbound					
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total
07:45 AM	60	9	122	191	0	22	0	0	22	0	22	0	0	10	4	4	55	300
08:00 AM	72	24	124	220	1	19	0	0	20	0	18	13	0	56	13	5	69	332
08:15 AM	64	18	115	197	0	9	0	0	9	0	10	21	0	68	10	9	78	299
08:30 AM	78	6	111	195	2	15	0	0	17	0	22	13	0	74	6	8	88	347
Total Volume	274	57	472	803	3	65	0	0	68	0	72	101	0	249	33	282	1254	1254
% App. Total	34.1	7.1	58.8	.913	4.4	95.6	0	0	28.7	0	71.3	11.7	0	88.3	11.7	8.6	23.2	23.2
PHF	.878	.594	.952	.913	.375	.739	.000	.773	.725	.000	.818	.789	.000	.841	.635	.881	.881	.944

Peak Hour for Entire Intersection Begins at 07:45 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: JJ, RJ
Counters: TU-0649, TU-0651
Weather: Clear

File Name : PenWai PM
Site Code : 00000002
Start Date : 3/11/2015
Page No : 1

Start Time	Pensacola Street Southbound						Waimanu Street Westbound			Honua Condominium Northbound						Waimanu Street Eastbound						
	Left	Thru	Right	Peds	App. Total	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	03:00 PM	101	13	103	4		221	0	40	0	0	40	5	0	11	33	49	0	122	11	14	14
03:15 PM	108	10	101	10	229	2	41	0	0	43	5	0	10	23	38	0	113	11	5	129	439	
03:30 PM	75	7	113	0	195	2	76	0	0	78	10	0	9	24	43	0	127	9	10	146	462	
03:45 PM	86	25	104	9	224	3	40	0	0	43	7	0	10	27	44	0	128	11	9	148	459	
Total	370	55	421	23	869	7	197	0	0	204	27	0	40	107	174	0	490	42	38	570	1817	
04:00 PM	98	13	113	3	227	0	41	0	0	41	2	0	10	37	49	0	107	6	6	119	436	
04:15 PM	79	12	128	3	222	1	40	0	0	41	4	0	9	27	40	0	147	13	9	169	472	
04:30 PM	98	15	121	7	241	5	36	0	0	41	10	0	16	24	50	0	125	8	11	144	476	
04:45 PM	93	12	115	6	226	0	42	0	0	42	5	0	18	31	54	0	148	8	13	169	491	
Total	368	52	477	19	917	6	159	0	0	165	21	0	53	119	193	0	527	35	39	601	1875	
05:00 PM	97	15	128	5	245	1	51	0	0	52	7	0	13	41	61	0	137	13	12	162	520	
05:15 PM	86	12	137	12	247	3	39	0	0	42	5	0	12	16	33	0	169	10	11	190	512	
05:30 PM	88	10	108	7	213	0	34	0	0	34	5	0	8	27	40	0	125	13	14	152	439	
05:45 PM	92	13	102	5	212	2	46	0	0	48	4	0	9	41	54	0	126	6	8	140	454	
Total	363	50	475	29	917	6	170	0	0	176	21	0	42	125	188	0	557	42	45	644	1925	
Grand Total	1101	157	1373	71	2702	19	526	0	0	545	69	0	135	351	555	0	1574	119	122	1815	5617	
Apprch %	40.7	5.8	50.8	2.6		3.5	96.5	0	0	9.7	12.4	0	24.3	63.2	9.9	0	86.7	6.6	6.7			
Total %	19.6	2.8	24.4	1.3	48.1	0.3	9.4	0	0	9.7	1.2	0	2.4	6.2	9.9	0	28	2.1	2.2			

Start Time	Pensacola Street Southbound			Waimanu Street Westbound			Honua Condominium Northbound			Waimanu Street Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
	04:30 PM	98	15	121	5	36	0	10	0	16	0	125
04:45 PM	93	12	115	0	42	0	5	0	18	0	148	8
05:00 PM	97	15	128	1	51	0	7	0	13	0	137	13
05:15 PM	86	12	137	3	39	0	5	0	16	0	169	10
05:30 PM	88	10	108	0	34	0	5	0	8	0	125	13
05:45 PM	92	13	102	2	46	0	4	0	9	0	126	6
Total	374	54	501	9	168	0	27	0	59	0	579	39
% App. Total	40.3	5.8	53.9	5.1	94.9	0	31.4	0	68.6	0	93.7	6.3
PHF	.954	.900	.914	.450	.824	.000	.675	.000	.819	.827	.857	.750
												.863
												.957

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: GC, KW
Counters: T-1841, D4-5673
Weather: Clear

File Name : PiiWai AM
Site Code : 00000001
Start Date : 3/11/2015
Page No : 1

Start Time	Piiwai Street Southbound			Ala Moana Ramp Westbound			Piiwai Street Northbound			Waimanu Street Eastbound							
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Peds	App. Total
	06:00 AM	0	9	6	0	3	4	0	94	16	2	35	5	80	227		
06:15 AM	0	18	2	0	1	1	8	0	87	26	4	3	81	226			
06:30 AM	0	11	2	0	0	5	8	0	111	32	5	3	101	275			
06:45 AM	0	21	6	0	2	4	10	0	154	8	8	10	116	329			
Total	0	59	16	0	6	14	37	0	446	82	19	21	378	1057			
07:00 AM	0	23	8	0	2	4	12	0	153	14	7	34	127	350			
07:15 AM	0	26	9	0	3	4	14	0	175	15	7	32	150	403			
07:30 AM	0	36	4	0	1	3	13	0	175	19	16	26	147	414			
07:45 AM	0	29	15	0	8	8	6	0	179	17	5	36	158	425			
Total	0	114	36	0	14	19	45	0	682	65	35	87	582	1592			
08:00 AM	0	36	17	0	3	15	8	0	165	18	14	65	140	416			
08:15 AM	0	38	5	0	6	10	21	0	162	22	10	67	158	432			
08:30 AM	0	33	13	0	4	6	7	0	141	15	18	81	163	400			
08:45 AM	0	35	12	0	2	8	13	0	164	20	18	83	153	425			
Total	0	142	47	0	15	39	49	0	632	75	60	296	614	1673			
Grand Total	0	315	99	0	414	0	238	0	1760	222	114	2096	1574	4322			
Apprch %	0	76.1	23.9	0	0	14.7	30.3	0	84	10.6	5.4	50	21.3	23	5.7		
Total %	0	7.3	2.3	0	0	0.8	1.7	0	40.7	5.1	2.6	18.2	7.8	8.4	2.1		

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Start Time	Piiwai Street Southbound			Ala Moana Ramp Westbound			Piiwai Street Northbound			Waimanu Street Eastbound							
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Peds	App. Total
	07:30 AM	0	36	4	0	1	3	4	0	175	19	194	34	138	376		
07:45 AM	0	29	15	0	8	8	16	0	179	17	196	35	151	407			
08:00 AM	0	36	17	0	3	15	18	0	165	18	183	30	127	381			
08:15 AM	0	38	5	0	6	10	43	0	162	22	184	46	148	391			
Total Volume	0	139	41	0	18	36	54	0	681	76	757	144	564	1555			
% App. Total	0	77.2	22.8	0	33.3	66.7	71.4	0	90	10	96.6	25.5	36.4				
PHF	.000	.914	.603	.849	.000	.563	.600	.750	.951	.864	.966	.800	.934	.955			

WILSON OKAMOTO CORPORATION
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: PA, JC
Counters: D4-3889, D4-5677
Weather: Clear

File Name : KamKaw PM
Site Code : 00000000
Start Date : 3/12/2015
Page No : 1

Start Time	Groups Printed- Unshifted																				
	Kamakee Street Southbound				Kamakee Street (Church Parking Lot / Commercial Parking Lot) Westbound				Kamakee Street Northbound				Kawaiahao Street Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	1	38	4	1	44	1	0	1	0	2	10	52	2	0	64	13	0	12	23	48	158
03:15 PM	2	53	9	2	66	1	0	3	0	4	3	43	1	0	47	6	1	12	26	45	162
03:30 PM	3	35	12	3	53	0	1	2	0	3	7	55	2	0	64	12	0	9	24	45	165
03:45 PM	1	28	9	1	39	3	0	0	0	3	9	72	3	0	84	12	0	12	23	47	173
Total	7	154	34	7	202	5	1	6	0	12	29	222	8	0	259	43	1	45	96	185	658
04:00 PM	1	27	13	2	43	3	0	1	0	4	15	63	5	0	83	8	1	12	19	40	170
04:15 PM	1	29	12	5	47	0	0	1	1	2	10	52	3	0	65	15	1	15	17	48	162
04:30 PM	0	42	20	0	62	1	0	2	0	3	10	62	2	0	74	17	1	22	24	64	203
04:45 PM	3	42	11	0	56	0	0	3	0	3	5	61	3	0	69	19	1	13	35	68	196
Total	5	140	56	7	208	4	0	7	1	12	40	238	13	0	291	59	4	62	95	220	731
05:00 PM	0	35	11	3	49	2	0	2	0	4	12	79	9	0	100	15	0	13	22	50	203
05:15 PM	3	35	15	2	55	0	0	2	0	2	4	65	3	0	72	16	0	20	18	54	183
05:30 PM	4	61	2	1	68	1	0	0	0	1	12	58	1	0	71	17	0	9	30	56	196
05:45 PM	1	50	3	4	58	0	0	0	0	0	14	55	5	0	74	11	0	8	18	37	169
Total	8	181	31	10	230	3	0	4	0	7	42	257	18	0	317	59	0	50	88	197	751
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Grand Total	20	475	121	24	640	12	1	17	1	31	111	717	39	0	867	161	5	157	283	606	2144
Approch %	3.1	74.2	18.9	3.8		38.7	3.2	54.8	3.2		12.8	82.7	4.5	0	26.6	0.8	25.9	46.7	6.0	28.3	100.0
Total %	0.9	22.2	5.6	1.1	29.9	0.6	0	0.8	0	1.4	5.2	33.4	1.8	0	40.4	7.5	0.2	7.3	13.2	28.3	100.0

Start Time	Groups Printed- Unshifted																				
	Kamakee Street Southbound				Kamakee Street (Church Parking Lot / Commercial Parking Lot) Westbound				Kamakee Street Northbound				Kawaiahao Street Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:30 PM	0	42	20	0	62	1	0	2	0	3	10	62	2	0	74	17	1	22	40	179	
04:45 PM	3	42	11	56	0	0	3	0	3	69	5	61	3	0	69	19	1	13	33	161	
05:00 PM	0	35	11	46	2	0	2	4	9	100	15	79	9	0	100	15	0	13	28	178	
05:15 PM	3	35	15	53	0	0	2	2	4	72	4	65	3	0	72	16	0	20	36	163	
Total Volume	6	154	57	217	3	0	9	17	12	315	31	267	17	0	315	67	2	68	137	681	
% App. Total	2.8	71	26.3	.875		25	0	75	5.4		9.8	84.8	5.4	0	48.9	1.5	49.6	7.3	28.3	85.6	100.0
PHF	.500	.917	.713			.375	.000	.750	.472		.646	.845	.472		.788	.882	.500	.773		.856	.951

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

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

Counted By: FC, AC
Counters: D4-5675, D4-5676
Weather: Clear

File Name : KamWai AM
Site Code : 00000003
Start Date : 3/12/2015
Page No : 1

Start Time	Groups Printed- Unshifted																				
	Kamakee Street Southbound				Waimanu Street Westbound				Kamakee Street Northbound				Waimanu Street Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	1	24	2	2	29	2	2	1	5	10	0	8	5	1	14	1	3	3	1	8	61
06:15 AM	2	20	5	6	33	5	4	6	5	20	1	6	1	2	10	3	4	2	5	14	77
06:30 AM	3	38	8	6	55	4	5	5	10	24	7	10	5	3	25	7	2	7	13	29	133
06:45 AM	2	44	6	7	59	11	9	6	5	31	3	14	7	3	27	5	7	6	6	24	141
Total	8	126	21	21	176	22	20	18	25	85	11	38	18	9	76	16	16	18	25	75	412
07:00 AM	7	47	9	8	71	9	10	9	6	34	1	24	5	9	39	5	9	5	21	40	184
07:15 AM	4	61	11	10	86	8	8	16	10	42	3	18	5	5	31	5	7	7	11	30	189
07:30 AM	3	56	5	7	71	7	8	15	10	40	3	25	6	5	39	7	8	11	16	42	192
07:45 AM	2	56	13	15	86	4	6	18	10	38	5	19	8	4	36	14	11	7	14	46	206
Total	16	220	38	40	314	28	32	58	36	154	12	86	24	23	145	31	35	30	62	158	771
08:00 AM	3	62	20	7	92	10	13	12	8	43	2	29	5	4	40	8	12	12	13	45	220
08:15 AM	1	52	10	8	71	10	8	8	9	35	0	24	5	11	40	11	7	11	18	47	193
08:30 AM	1	55	13	6	75	13	10	13	10	46	3	32	5	11	51	7	9	13	18	47	219
08:45 AM	4	60	13	6	83	6	8	15	10	39	4	36	11	12	63	11	7	10	12	40	225
Total	9	229	56	27	321	39	39	48	37	163	9	121	26	38	194	37	35	46	61	179	857
Grand Total	33	575	115	88	811	89	91	124	98	402	32	245	68	70	415	84	86	94	148	412	2040
Approch %	4.1	70.9	14.2	10.9		22.1	22.6	30.8	24.4		7.7	59	16.4	16.9	20.4	20.9	22.8	35.9	7.3	20.2	100.0
Total %	1.6	28.2	5.6	4.3	39.8	4.4	4.5	6.1	4.8	19.7	1.6	12	3.3	3.4	20.3	4.1	4.2	4.6	7.3	20.2	100.0

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

Start Time	Groups Printed- Unshifted																				
	Kamakee Street Southbound				Waimanu Street Westbound				Kamakee Street Northbound				Waimanu Street Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
08:00 AM	3	62	20	0	85	10	13	12	8	35	2	29	5	5	36	8	12	12	13	32	188
08:15 AM	1	52	10	63	0	8	8	9	9	26	0	24	5	5	29	11	7	11	11	29	147
08:30 AM	1	55	13	6	69	13	10	13	10	36	3	32	5	5	40	7	9	13	13	29	174
08:45 AM	4	60	13	6	83	6	8	15	10	39	4	36	11	12	63	11	7	10	12	40	225
Total Volume	9	229	56	27	321	39	39	48	37	163	9	121	26	38	194	37	35	46	61	179	857
% App. Total	3.1	77.9	19	7.0	.865	.750	.750	.800	.800	.875	.563	.840	.591	.765	.765	.841	.729	.885	.922	.922	.922
PHF	.563	.923	.700			.750	.750	.800	.800	.875	.563	.840	.591	.765	.765	.841	.729	.885	.922	.922	.922

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: AC, FC
Counters: D4-5676, D4-5675
Weather: Clear

File Name : KamWai PM
Site Code : 00000003
Start Date : 3/12/2015
Page No : 1

Start Time	Kamakee Street Southbound						Waimanu Street Westbound						Kamakee Street Northbound						Waimanu Street Eastbound																																																																																																																																																																																																																																																																																																																																																																	
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total																																																																																																																																																																																																																																																																																																																																																													
	03:00 PM	5	36	12	2	55	4	14	17	10	45	2	57	10	5	74	7	6	27	46	220	03:15 PM	4	47	4	10	65	9	11	15	19	54	5	38	5	6	54	11	7	9	33	60	233	03:30 PM	5	30	7	11	53	6	17	12	18	53	3	62	5	8	78	14	14	9	18	55	239	03:45 PM	6	24	16	4	50	7	16	7	5	35	6	66	6	8	86	15	8	10	18	51	222	Total	20	137	39	27	223	26	58	51	52	187	16	223	26	27	292	47	35	34	96	212	914	04:00 PM	8	26	5	8	47	6	17	26	11	60	5	51	13	3	72	13	12	7	23	55	234	04:15 PM	5	26	12	12	55	10	21	11	12	54	5	57	10	9	81	16	7	6	18	47	237	04:30 PM	5	35	9	11	60	13	11	14	7	45	6	62	7	10	85	23	13	13	26	75	265	04:45 PM	8	37	7	4	56	9	12	19	13	53	7	66	14	13	100	16	12	13	38	79	288	Total	26	124	33	35	218	38	61	70	43	212	23	236	44	35	338	68	44	39	105	256	1024	05:00 PM	7	29	11	12	59	10	15	22	8	55	6	80	5	6	97	20	16	9	30	75	286	05:15 PM	6	34	5	7	52	9	14	17	11	51	5	71	9	11	96	17	10	8	30	65	264	05:30 PM	8	56	21	5	90	7	14	11	6	38	3	59	9	6	77	10	8	6	25	49	254	05:45 PM	12	48	20	8	88	3	17	6	7	33	6	59	9	6	80	11	12	5	15	43	244	Total	33	167	57	32	289	29	60	56	32	177	20	269	32	29	350	58	46	28	100	232	1048	Grand Total	79	428	129	94	730	93	179	177	127	576	59	728	102	91	980	173	125	101	301	700	2986	Approch % Total	10.8	58.6	17.7	12.9		16.1	31.1	30.7	22		6	74.3	10.4	9.3	32.8	5.8	4.2	3.4	10.1	23.4
04:00 PM	8	26	5	8	47	6	17	26	11	60	5	51	13	3	72	13	12	7	23	55	234	04:15 PM	5	26	12	12	55	10	21	11	12	54	5	57	10	9	81	16	7	6	18	47	237	04:30 PM	5	35	9	11	60	13	11	14	7	45	6	62	7	10	85	23	13	13	26	75	265	04:45 PM	8	37	7	4	56	9	12	19	13	53	7	66	14	13	100	16	12	13	38	79	288	Total	26	124	33	35	218	38	61	70	43	212	23	236	44	35	338	68	44	39	105	256	1024	05:00 PM	7	29	11	12	59	10	15	22	8	55	6	80	5	6	97	20	16	9	30	75	286	05:15 PM	6	34	5	7	52	9	14	17	11	51	5	71	9	11	96	17	10	8	30	65	264	05:30 PM	8	56	21	5	90	7	14	11	6	38	3	59	9	6	77	10	8	6	25	49	254	05:45 PM	12	48	20	8	88	3	17	6	7	33	6	59	9	6	80	11	12	5	15	43	244	Total	33	167	57	32	289	29	60	56	32	177	20	269	32	29	350	58	46	28	100	232	1048	Grand Total	79	428	129	94	730	93	179	177	127	576	59	728	102	91	980	173	125	101	301	700	2986	Approch % Total	10.8	58.6	17.7	12.9		16.1	31.1	30.7	22		6	74.3	10.4	9.3	32.8	5.8	4.2	3.4	10.1	23.4																																																																																																														
05:00 PM	7	29	11	12	59	10	15	22	8	55	6	80	5	6	97	20	16	9	30	75	286	05:15 PM	6	34	5	7	52	9	14	17	11	51	5	71	9	11	96	17	10	8	30	65	264	05:30 PM	8	56	21	5	90	7	14	11	6	38	3	59	9	6	77	10	8	6	25	49	254	05:45 PM	12	48	20	8	88	3	17	6	7	33	6	59	9	6	80	11	12	5	15	43	244	Total	33	167	57	32	289	29	60	56	32	177	20	269	32	29	350	58	46	28	100	232	1048	Grand Total	79	428	129	94	730	93	179	177	127	576	59	728	102	91	980	173	125	101	301	700	2986	Approch % Total	10.8	58.6	17.7	12.9		16.1	31.1	30.7	22		6	74.3	10.4	9.3	32.8	5.8	4.2	3.4	10.1	23.4																																																																																																																																																																																																																												
Grand Total	79	428	129	94	730	93	179	177	127	576	59	728	102	91	980	173	125	101	301	700	2986	Approch % Total	10.8	58.6	17.7	12.9		16.1	31.1	30.7	22		6	74.3	10.4	9.3	32.8	5.8	4.2	3.4	10.1	23.4																																																																																																																																																																																																																																																																																																																																										

Start Time	Kamakee Street Southbound						Waimanu Street Westbound						Kamakee Street Northbound						Waimanu Street Eastbound																																																																																																																																							
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total																																																																																																																																			
	04:30 PM	5	35	9	11	60	13	11	14	7	45	6	62	7	10	85	23	13	13	26	75	265	04:45 PM	8	37	7	4	56	9	12	19	13	53	7	66	14	13	100	16	12	13	38	79	288	05:00 PM	7	29	11	12	59	10	15	22	8	55	6	80	5	6	97	20	16	9	30	75	286	05:15 PM	6	34	5	7	52	9	14	17	11	51	5	71	9	11	96	17	10	8	30	65	264	Total	26	135	32	34	227	41	52	72	39	204	24	279	35	40	378	76	51	43	124	294	1103	% App. Total	11.5	59.5	14.1	15		20.1	25.5	35.3	19.1		6.3	73.8	9.3	10.6	25.9	17.3	14.6	42.2					PHF	.813	.912	.727	.708		.788	.867	.818	.750		.857	.872	.625	.769	.945	.826	.797	.827	.816	.930
% App. Total	11.5	59.5	14.1	15		20.1	25.5	35.3	19.1		6.3	73.8	9.3	10.6	25.9	17.3	14.6	42.2					PHF	.813	.912	.727	.708		.788	.867	.818	.750		.857	.872	.625	.769	.945	.826	.797	.827	.816	.930	.957																																																																																																														

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By: DY, CY
Counters: D4-3888, D4-3890
Weather: Clear

File Name : KamKon AM
Site Code : 00000005
Start Date : 3/12/2015
Page No : 1

Start Time	Kamakee Street Southbound						Kona Street Westbound						Kamakee Street Northbound						Eastbound																																																																																																																																																																																																																																																																																														
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total																																																																																																																																																																																																																																																																																										
	06:00 AM	3	30	0	0	33	1	0	2	0	3	0	9	4	0	13	0	49	06:15 AM	0	28	0	1	29	3	0	1	2	6	0	13	0	0	13	0	48	06:30 AM	4	44	0	0	48	4	0	3	4	11	0	13	5	2	20	0	79	06:45 AM	6	49	0	3	58	3	0	2	1	6	0	18	4	0	22	0	86	Total	13	151	0	4	168	11	0	8	7	26	0	53	13	2	68	0	262	07:00 AM	5	55	0	2	62	3	0	1	5	9	0	33	6	1	40	0	111	07:15 AM	4	70	0	1	75	3	0	1	6	10	0	30	5	0	35	0	120	07:30 AM	1	58	0	0	59	7	0	2	8	17	0	39	8	0	47	0	123	07:45 AM	4	71	0	0	75	4	0	4	4	12	0	38	10	1	49	0	136	Total	14	254	0	3	271	17	0	8	23	48	0	140	29	2	171	0	490	08:00 AM	2	78	0	1	81	7	0	7	7	21	0	31	15	0	46	0	148	08:15 AM	2	57	0	0	59	6	0	8	2	16	0	33	10	0	43	0	118	08:30 AM	6	64	0	0	70	10	0	5	10	25	0	43	6	0	49	0	144	08:45 AM	4	69	0	0	73	10	0	9	6	25	0	48	10	0	58	0	156	Total	14	268	0	1	283	33	0	29	25	87	0	155	41	0	196	0	566	Grand Total	41	673	0	8	722	61	0	45	55	161	0	348	83	4	435	0	1318	Approch % Total	5.7	93.2	0	1.1		37.9	0	28	34.2	12.2	0	26.4	6.3	0.3	33	0
07:00 AM	5	55	0	2	62	3	0	1	5	9	0	33	6	1	40	0	111	07:15 AM	4	70	0	1	75	3	0	1	6	10	0	30	5	0	35	0	120	07:30 AM	1	58	0	0	59	7	0	2	8	17	0	39	8	0	47	0	123	07:45 AM	4	71	0	0	75	4	0	4	4	12	0	38	10	1	49	0	136	Total	14	254	0	3	271	17	0	8	23	48	0	140	29	2	171	0	490	08:00 AM	2	78	0	1	81	7	0	7	7	21	0	31	15	0	46	0	148	08:15 AM	2	57	0	0	59	6	0	8	2	16	0	33	10	0	43	0	118	08:30 AM	6	64	0	0	70	10	0	5	10	25	0	43	6	0	49	0	144	08:45 AM	4	69	0	0	73	10	0	9	6	25	0	48	10	0	58	0	156	Total	14	268	0	1	283	33	0	29	25	87	0	155	41	0	196	0	566	Grand Total	41	673	0	8	722	61	0	45	55	161	0	348	83	4	435	0	1318	Approch % Total	5.7	93.2	0	1.1		37.9	0	28	34.2	12.2	0	26.4	6.3	0.3	33	0																																																																																											
08:00 AM	2	78	0	1	81	7	0	7	7	21	0	31	15	0	46	0	148	08:15 AM	2	57	0	0	59	6	0	8	2	16	0	33	10	0	43	0	118	08:30 AM	6	64	0	0	70	10	0	5	10	25	0	43	6	0	49	0	144	08:45 AM	4	69	0	0	73	10	0	9	6	25	0	48	10	0	58	0	156	Total	14	268	0	1	283	33	0	29	25	87	0	155	41	0	196	0	566	Grand Total	41	673	0	8	722	61	0	45	55	161	0	348	83	4	435	0	1318	Approch % Total	5.7	93.2	0	1.1		37.9	0	28	34.2	12.2	0	26.4	6.3	0.3	33	0																																																																																																																																																																																					
Grand Total	41	673	0	8	722	61	0	45	55	161	0	348	83	4	435	0	1318	Approch % Total	5.7	93.2	0	1.1		37.9	0	28	34.2	12.2	0	26.4	6.3	0.3	33	0																																																																																																																																																																																																																																																																															

Groups Printed- Unshifted

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:00 AM

Start Time	Kamakee Street Southbound						Kona Street Westbound						Kamakee Street Northbound						Eastbound																																																																																								
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total																																																																																				
	08:00 AM	2	78	0	0	80	7	0	7	7	14	0	31	15	0	46	0	140	08:15 AM	2	57	0	0	59	6	0	8	2	14	0	33	10	0	43	0	116	08:30 AM	6	64	0	0	70	10	0	5	10	15	0	43	6	0	49	0	134	08:45 AM	4	69	0	0	73	10	0	9	9	19	0	48	10	0	58	0	150	Total	14	268	0	0	282	33	0	29	25	62	0	155	41	0	196	0	540	% App. Total	5.83	85.9	0.000	0.000	.881	.825	.000	.806	.816	12.2	0	26.4	6.3	0.3	33	0
% App. Total	5.83	85.9	0.000	0.000	.881	.825	.000	.806	.816	12.2	0	26.4	6.3	0.3	33	0																																																																																											

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

Counted By:RJ, JJ
Counters:TU-0653, TU-0654
Weather:Clear

File Name : KonPen PM
Site Code : 00000002
Start Date : 3/12/2015
Page No : 1

Start Time	Pensacola Street Southbound						Kona Street Westbound						Pensacola Street Northbound						Kona Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	03:00 PM	13	182	3	0	198		18	8	0	4	30		0	0	0	0	0		0	1	3	3	7
03:15 PM	17	166	3	1	187		28	2	0	1	31		0	0	0	0	0		0	0	1	11	12	230
03:30 PM	17	194	9	0	220		23	7	0	11	41		0	0	0	3	3		0	2	4	5	11	275
03:45 PM	19	196	12	1	228		16	8	0	3	27		0	0	0	2	2		0	3	2	6	11	268
Total	66	738	27	2	833		85	25	0	19	129		0	0	0	5	5		0	6	10	25	41	1008
04:00 PM	15	195	6	0	216		26	12	0	5	43		0	0	0	0	0		0	5	4	4	13	272
04:15 PM	16	209	3	1	229		14	11	0	1	26		0	0	0	2	2		0	4	3	6	13	270
04:30 PM	24	203	11	2	240		29	13	0	4	46		0	0	0	4	4		0	0	1	5	6	296
04:45 PM	24	210	6	0	240		19	8	0	1	28		0	0	0	1	1		0	5	2	6	13	282
Total	79	817	26	3	925		88	44	0	11	143		0	0	0	7	7		0	14	10	21	45	1120
05:00 PM	24	204	5	2	235		27	9	0	1	37		0	0	0	1	1		0	2	1	9	12	285
05:15 PM	22	212	2	1	237		20	6	0	1	27		0	0	0	0	0		0	4	2	7	13	277
05:30 PM	14	202	9	3	228		22	6	0	1	29		0	0	0	0	0		0	2	5	6	13	270
05:45 PM	22	180	6	0	208		18	5	0	5	28		0	0	0	0	0		0	3	1	9	13	249
Total	82	798	22	6	908		87	26	0	8	121		0	0	0	1	1		0	11	9	31	51	1081
Grand Total	227	2353	75	11	2666		260	95	0	38	393		0	0	0	13	13		0	31	29	77	137	3209
Approch %	8.5	88.3	2.8	0.4			66.2	24.2	0	9.7			0	0	0	100			0	22.6	21.2	56.2		
Total %	7.1	73.3	2.3	0.3	83.1		8.1	3	0	1.2	12.2		0	0	0	0.4			0	1	0.9	2.4		4.3

Start Time	Pensacola Street Southbound						Kona Street Westbound						Pensacola Street Northbound						Kona Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	04:30 PM	24	203	11	0	238		29	13	0	0	42		0	0	0	0	0		0	0	0	1	1
04:45 PM	24	210	6	0	240		19	8	0	0	27		0	0	0	0	0		0	5	2	7	7	274
05:00 PM	24	204	5	0	233		27	9	0	0	36		0	0	0	0	0		0	2	1	3	3	272
05:15 PM	22	212	2	0	236		20	6	0	0	26		0	0	0	0	0		0	4	2	6	6	268
Total Volume	94	829	24	0	947		95	36	0	0	131		0	0	0	0	0		0	11	6	17	17	1095
% App. Total	9.9	87.5	2.5	0			72.5	27.5	0	0			0	0	0	0	0		0	64.7	35.3			
PHF	.979	.978	.545		.986		.819	.692	.000	.000	.780		.000	.000	.000	.000	.000		.000	.550	.750	.607	.974	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

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

Counted By:GC, KW
Counters:D4-5671, D4-5674
Weather:Clear

File Name : KonPii AM
Site Code : 00000001
Start Date : 3/12/2015
Page No : 1

Start Time	Piiikoi Street Southbound						Kona Street Westbound						Piiikoi Street Northbound						Kona Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	06:00 AM	0	7	1	1	9		7	4	13	5	29		3	113	21	0	137		0	5	0	0	5
06:15 AM	0	9	0	0	9		10	3	7	9	29		4	107	25	0	136		0	5	0	0	5	179
06:30 AM	0	8	2	3	13		10	6	14	7	37		2	126	26	0	154		0	2	0	0	2	206
06:45 AM	0	16	2	3	21		5	10	10	5	30		4	141	44	0	189		0	4	1	1	6	246
Total	0	40	5	7	52		32	23	44	26	125		13	487	116	0	616		0	16	1	1	18	811
07:00 AM	0	10	3	7	20		14	3	18	12	47		1	210	29	0	240		0	3	2	8	13	320
07:15 AM	0	17	6	3	26		18	11	18	5	52		2	260	27	0	289		0	6	2	14	22	389
07:30 AM	0	17	1	8	26		14	9	23	11	57		1	233	37	0	271		0	8	0	6	14	368
07:45 AM	0	15	3	13	31		25	14	31	14	84		3	204	43	0	250		0	13	0	5	18	383
Total	0	59	13	31	103		71	37	90	42	240		7	907	136	0	1050		0	30	4	33	67	1460
08:00 AM	0	12	5	4	21		24	16	33	9	82		2	197	34	0	233		0	12	0	10	22	358
08:15 AM	0	19	3	4	26		24	11	28	12	75		4	216	41	0	261		0	19	1	4	24	386
08:30 AM	0	16	5	12	33		31	13	36	14	94		9	210	34	0	253		0	16	0	8	24	404
08:45 AM	0	16	6	11	33		27	14	24	16	81		6	203	39	0	248		0	18	2	11	31	393
Total	0	63	19	31	113		106	54	121	51	332		21	826	148	0	995		0	65	3	33	101	1541
Grand Total	0	162	37	69	268		209	114	255	119	697		41	2220	400	0	2661		0	111	8	67	186	3812
Approch %	0	60.4	13.8	25.7			30	16.4	36.6	17.1			1.5	83.4	15	0			0	59.7	4.3	36		
Total %	0	4.2	1	1.8	7		5.5	3	6.7	3.1	18.3		1.1	58.2	10.5	0	69.8		0	2.9	0.2	1.8		4.9

Start Time	Piiikoi Street Southbound						Kona Street Westbound						Piiikoi Street Northbound						Kona Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	08:00 AM	0	12	5	0	17		24	16	33	33	73		2	197	34	0	233		0	12	0	0	12
08:15 AM	0	19	3	3	22		24	11	28	28	63		4	216	41	0	261		0	19	1	1	20	366
08:30 AM	0	16	5	6	21		31	13	36	14	80		9	210	34	0	253		0	16	0	8	24	370
08:45 AM	0	16	6	11	33		27	14	24	16	65		6	203	39	0	248		0	18	2	11	31	355
Total Volume	0	63	19	31	113		106	54	121	51	332		21	826	148	0	995		0	65	3	33	101	1541
% App. Total	0	76.8	23.2		.932		37.7	19.2	43.1		281		2.1	83	14.9		995		0	95.6	4.4		68	1426
PHF	.000	.829	.792		.932		.855	.844	.840		.878		.583	.956	.902		.953		.000	.855	.375		.850	.964

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

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

Counted By:GC, KKW
Counters:D4-5671, D4-5674
Weather:Clear

File Name : KonPii PM
Site Code : 00000001
Start Date : 3/12/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Piikoi Street Southbound			Kona Street Westbound			Piikoi Street Northbound			Kona Street Eastbound			Int. Total						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total	Peds	App. Total	Peds	App. Total	Peds
03:00 PM	0	35	3	42	27	61	3	246	16	0	265	0	5	21	31	0	5	21	497
03:15 PM	0	32	6	35	18	67	6	268	32	0	306	0	17	1	23	0	17	1	561
03:30 PM	0	31	9	54	29	62	2	274	33	0	309	0	24	3	18	0	24	3	590
03:45 PM	0	39	2	58	39	48	5	335	36	0	376	0	11	4	9	0	11	4	574
Total	0	137	20	170	83	238	16	1123	117	0	1256	0	57	13	71	0	57	13	2222
04:00 PM	0	18	7	56	25	69	4	257	23	0	284	0	20	2	8	0	20	2	522
04:15 PM	0	40	3	66	45	25	9	295	30	0	334	0	16	4	15	0	16	4	576
04:30 PM	0	23	7	41	40	27	5	271	19	0	299	0	22	3	8	0	22	3	524
04:45 PM	0	29	3	47	43	21	2	286	36	0	324	0	26	3	20	0	26	3	595
Total	0	110	20	188	184	98	24	1109	108	0	1241	0	84	12	51	0	84	12	2217
05:00 PM	0	45	8	77	46	33	7	260	25	0	292	0	29	3	23	0	29	3	586
05:15 PM	0	29	4	49	39	21	2	317	28	0	347	0	27	1	20	0	27	1	569
05:30 PM	0	39	2	53	36	25	5	307	24	0	336	0	18	4	31	0	18	4	580
05:45 PM	0	42	5	64	42	17	2	309	25	0	336	0	18	2	12	0	18	2	572
Total	0	155	19	243	163	96	16	1193	102	0	1311	0	92	10	86	0	92	10	2307
Grand Total	0	402	59	661	517	277	56	3425	327	0	3808	0	233	35	208	0	233	35	6746
Apprch %	0	60.8	8.9	30.3	28.7	15.4	1.5	89.9	8.6	0	56.4	0	48.9	7.4	43.7	0	48.9	7.4	
Total %	0	6	0.9	3	7.7	4.1	0.8	50.8	4.8	0	56.4	0	3.5	0.5	3.1	0	3.5	0.5	7.1

Groups Printed- Unshifted

Start Time	Piikoi Street Southbound			Kona Street Westbound			Piikoi Street Northbound			Kona Street Eastbound			Int. Total						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total	Int. Total				
04:45 PM	0	29	3	43	21	73	2	286	36	0	324	0	26	3	29	0	26	3	522
05:00 PM	0	45	8	46	33	54	7	260	25	0	292	0	27	3	32	0	27	3	510
05:15 PM	0	29	4	33	21	43	2	317	28	0	347	0	29	1	20	0	29	1	511
05:30 PM	0	39	2	41	36	25	5	307	24	0	336	0	18	4	22	0	18	4	518
Total Volume	0	142	17	164	100	228	16	1170	113	0	1299	0	100	11	111	0	100	11	2061
% App. Total	0	89.3	10.7	33.3	20.3	46.3	1.2	90.1	8.7	0	93.6	0	90.1	9.9	86.7	0	90.1	9.9	
PHF	.000	.789	.531	.891	.758	.781	.571	.923	.785	.000	.936	.000	.862	.688	.867	.000	.862	.688	.987

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

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

Counted By:DY, TO
Counters:D4-5676, D4-5675
Weather:Clear

File Name : KapCoo AM
Site Code : 00000003
Start Date : 4/7/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Cooke Street Southbound			Kapiolani Boulevard Westbound			Cooke Street Northbound			Kapiolani Boulevard Eastbound			Int. Total						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total	Int. Total				
06:00 AM	0	1	4	25	76	13	0	14	3	10	27	0	60	10	6	0	60	10	230
06:15 AM	1	3	7	51	70	24	3	23	1	14	41	0	73	10	6	0	73	10	301
06:30 AM	0	6	3	75	111	51	5	31	6	12	54	0	88	14	15	0	88	14	449
06:45 AM	0	11	7	105	140	41	7	38	5	8	58	0	93	20	9	0	93	20	502
Total	1	21	32	256	397	129	15	106	15	44	180	0	314	54	36	0	314	54	1482
07:00 AM	0	5	4	111	175	32	13	22	1	19	55	0	112	17	14	0	112	17	534
07:15 AM	1	8	3	116	222	42	13	42	9	11	75	0	116	23	18	0	116	23	639
07:30 AM	2	9	13	122	236	53	13	45	10	14	82	0	148	24	18	0	148	24	720
07:45 AM	3	19	9	122	230	57	8	49	12	13	82	0	144	28	19	0	144	28	730
Total	6	41	29	471	863	184	47	158	32	57	294	0	520	92	69	0	520	92	2623
08:00 AM	2	10	8	105	219	51	9	32	9	13	63	0	188	25	6	0	188	25	696
08:15 AM	4	12	1	123	168	50	21	48	6	7	82	0	128	27	28	0	128	27	637
08:30 AM	4	21	3	100	120	28	8	35	13	12	68	0	129	36	7	0	129	36	529
08:45 AM	3	5	3	66	106	19	10	35	23	9	77	0	103	22	8	0	103	22	433
Total	13	48	15	394	613	148	48	150	51	41	290	0	548	110	49	0	548	110	2295
Grand Total	20	110	36	1121	1873	461	110	414	98	142	764	0	1382	256	154	0	1382	256	6400
Apprch %	8.1	44.7	14.6	32.5	31.2	52.1	14.4	54.2	12.8	18.6	11.9	0	77.1	14.3	8.6	0	77.1	14.3	
Total %	0.3	1.7	0.6	1.2	17.5	29.3	1.7	6.5	1.5	2.2	11.9	0	21.6	4	2.4	0	21.6	4	28

Groups Printed- Unshifted

Start Time	Cooke Street Southbound			Kapiolani Boulevard Westbound			Cooke Street Northbound			Kapiolani Boulevard Eastbound			Int. Total						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total	Int. Total				
07:15 AM	1	8	2	116	222	42	13	42	9	9	64	0	116	23	139	0	116	23	594
07:30 AM	2	9	1	122	236	53	13	45	10	10	68	0	148	24	172	0	148	24	663
07:45 AM	3	19	5	122	230	57	8	49	12	12	69	0	144	28	213	0	144	28	677
08:00 AM	2	10	8	105	219	51	9	32	9	9	50	0	188	25	213	0	188	25	658
Total Volume	8	46	16	465	907	203	43	168	40	40	251	0	596	100	696	0	596	100	2592
% App. Total	11.4	65.7	22.9	29.5	57.6	12.9	17.1	66.9	15.9	15.9	11.9	0	85.6	14.4	25.92	0	85.6	14.4	
PHF	.667	.605	.500	.648	.953	.961	.827	.857	.833	.909	.817	.000	.793	.893	.817	.000	.793	.893	.957

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

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

Counted By: DY, EV
 Counters: D4-5676, D4-5675
 Weather: Clear

File Name : KapCoo PM
 Site Code : 00000003
 Start Date : 4/7/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Cooke Street Southbound					Kapiolani Boulevard Westbound					Cooke Street Northbound					Kapiolani Boulevard Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total
	03:00 PM	5	11	3	5	24	41	132	27	16	216	22	56	20	10	108	3	174	22	4
03:15 PM	0	5	5	4	14	74	171	30	12	287	8	56	17	16	97	1	210	16	9	236
03:30 PM	0	9	8	19	36	66	277	27	14	384	13	54	25	19	111	2	228	18	17	265
03:45 PM	1	6	14	7	28	74	196	26	15	311	13	64	45	12	134	2	252	19	17	290
Total	6	31	30	35	102	255	776	110	57	1198	56	230	107	57	450	8	864	75	47	994
04:00 PM	2	7	7	6	22	76	210	36	26	348	19	62	38	16	135	2	277	14	23	316
04:15 PM	4	14	4	9	31	74	190	28	15	307	22	71	27	35	155	1	264	26	10	301
04:30 PM	4	13	8	8	33	72	210	38	24	344	20	81	54	24	179	1	324	8	27	360
04:45 PM	9	16	8	12	45	79	219	26	11	335	17	63	60	19	159	2	292	25	18	337
Total	19	50	27	35	131	301	829	128	76	1334	78	277	179	94	628	6	1157	73	78	1314
05:00 PM	3	14	6	7	30	68	216	28	32	344	27	81	50	31	189	0	338	17	18	373
05:15 PM	3	11	11	9	34	75	167	32	11	285	23	71	42	36	172	1	301	25	6	333
05:30 PM	3	7	5	4	19	32	184	21	23	260	14	72	22	25	133	1	315	17	9	342
05:45 PM	3	2	5	6	16	51	121	18	6	196	12	59	26	15	112	1	242	20	9	272
Total	12	34	27	26	99	226	688	99	72	1085	76	283	140	107	606	3	1196	79	42	1320
Grand Total	37	115	84	96	332	782	2293	337	205	3617	210	790	426	258	1684	17	3217	227	167	3628
Approch %	11.1	34.6	25.3	28.9	3.6	21.6	63.4	9.3	5.7	12.5	46.9	25.3	15.3	15.3	18.2	0.5	88.7	6.3	4.6	39.2
Total %	0.4	1.2	0.9	1		8.4	24.8	3.6	2.2	39.1	2.3	8.5	4.6	2.8		0.2	34.7	2.5	1.8	

Groups Printed- Unshifted

Start Time	Cooke Street Southbound					Kapiolani Boulevard Westbound					Cooke Street Northbound					Kapiolani Boulevard Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total
	04:30 PM	4	13	8		25	72	210	38		320	20	81	54		155	1	324	8	
04:45 PM	9	16	8		33	79	219	26		324	17	63	60		140	2	292	25		319
05:00 PM	3	14	6		23	68	216	28		312	27	81	50		158	0	338	17		355
05:15 PM	3	11	11		25	75	167	32		274	23	71	42		136	1	301	25		327
Total Volume	19	54	33		106	294	812	124		1230	87	296	206		589	4	1255	75		1334
% App. Total	17.9	50.9	31.1		80.3	23.9	66	10.1		94.9	14.8	50.3	35		93.2	0.3	94.1	5.6		96.1
PHF	.528	.844	.750			.930	.927	.816			.806	.914	.858			.500	.928	.750		

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

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

Counted By: GC, KW
 Counters: TU-0654, TU-0652
 Weather: Clear

File Name : KapWar AM
 Site Code : 00000002
 Start Date : 4/7/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound					Kapiolani Boulevard Westbound					Ward Avenue Northbound					Kapiolani Boulevard Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total
	06:00 AM	15	103	11	5	134	23	88	6	5	122	17	32	8	14	71	0	46	14	10
06:15 AM	26	141	25	15	207	21	100	16	15	152	24	53	13	16	106	0	56	17	7	80
06:30 AM	32	148	18	16	214	45	198	19	15	277	25	63	5	12	105	0	74	8	13	95
06:45 AM	28	140	27	18	213	66	224	13	13	316	27	67	13	13	120	0	84	18	7	109
Total	101	532	81	54	768	155	610	54	48	867	93	215	39	55	402	0	260	57	37	354
07:00 AM	18	137	14	17	186	61	277	16	15	369	26	88	23	25	162	0	92	17	7	116
07:15 AM	30	146	25	12	213	69	322	16	23	430	37	112	6	18	173	0	100	21	17	138
07:30 AM	25	150	21	19	215	80	364	12	18	474	33	92	14	19	158	0	128	26	14	168
07:45 AM	30	192	35	24	281	73	351	24	38	486	27	101	14	20	162	0	138	21	18	177
Total	103	625	95	72	895	283	1314	68	94	1759	123	393	57	82	655	0	458	85	56	599
08:00 AM	36	166	29	16	247	90	318	29	31	468	27	89	12	14	142	0	146	29	9	184
08:15 AM	40	170	27	11	248	63	270	20	14	367	36	92	18	16	162	0	133	34	10	177
08:30 AM	45	165	17	11	238	65	194	15	15	289	35	85	23	19	162	0	122	27	7	156
08:45 AM	45	184	13	11	253	70	153	22	8	253	25	84	21	9	139	0	99	22	2	123
Total	166	685	86	49	986	288	935	86	68	1377	123	350	74	58	605	0	500	112	28	640
Grand Total	370	1842	262	175	2649	726	2859	208	210	4003	339	958	170	195	1662	0	1218	254	121	1593
Approch %	14	69.5	9.9	6.6	18.1	71.4	5.2	5.2	5.2	20.4	57.6	10.2	11.7	11.7	16.8	0	76.5	15.9	7.6	16.1
Total %	3.7	18.6	2.6	1.8	26.7	7.3	28.9	2.1	2.1	40.4	3.4	9.7	1.7	2			12.3	2.6	1.2	

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound					Kapiolani Boulevard Westbound					Ward Avenue Northbound					Kapiolani Boulevard Eastbound				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total
	07:30 AM	25	150	21		196	80	364	12		456	33	92	14		139	0	128	26	
07:45 AM	30	192	35		257	73	351	24		448	27	101	14		142	0	138	21		159
08:00 AM	36	166	29		231	90	318	29		429	27	89	12		128	0	146	29		175
08:15 AM	40	170	27		237	63	270	20		353	26	92	18		145	0	133	34		167
Total Volume	131	678	112		921	306	1303	85		1694	123	374	58		555	0	545	110		655
% App. Total	14.2	73.6	12.2		18.1	76.9	5		5	22.2	67.4	10.5	16.8		16.8	0	83.2	16.8		16.1
PHF	.819	.883	.800		.896	.850	.895	.733		.929	.854	.926	.806		.950	.000	.933	.809		.936

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:GC, KW
Counters:TU-0652, TU-0654
Weather:Clear

File Name : KapWar PM
Site Code : 00000002
Start Date : 4/7/2015
Page No : 1

Groups Printed- Unshifted																
Start Time	Ward Avenue Southbound				Kapiolani Boulevard Westbound				Ward Avenue Northbound				Kapiolani Boulevard Eastbound			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	Int. Total				App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
03:00 PM	54	155	14	7	230	51	153	30	13	247	36	146	30	8	220	
03:15 PM	39	154	15	20	228	31	225	34	19	309	38	166	38	11	253	
03:30 PM	66	149	31	21	267	0	305	36	30	371	35	160	42	29	266	
03:45 PM	56	189	21	14	280	0	237	29	11	277	39	182	51	18	290	
Total	215	647	81	62	1005	82	920	129	73	1204	148	654	161	66	1029	
04:00 PM	60	128	15	14	217	0	267	35	14	316	45	143	57	20	265	
04:15 PM	60	155	24	26	265	0	234	32	20	286	37	153	62	23	275	
04:30 PM	53	160	22	18	253	0	254	25	28	307	47	131	65	32	275	
04:45 PM	60	214	20	15	309	0	272	31	24	327	34	160	64	25	283	
Total	233	657	81	73	1044	0	1027	123	86	1236	163	587	248	100	1098	
05:00 PM	62	171	14	17	264	0	258	31	27	316	40	159	66	29	294	
05:15 PM	61	191	27	15	294	0	224	30	26	280	30	174	64	29	297	
05:30 PM	73	157	35	13	278	47	157	24	28	256	48	124	52	33	257	
05:45 PM	62	181	25	15	283	62	145	27	25	259	17	153	48	27	245	
Total	258	700	101	60	1119	109	784	112	106	1111	135	610	230	118	1093	
Grand Total	706	2004	283	195	3168	191	2731	364	265	3551	446	1851	639	284	3220	
Apprch % Total %	22.3	63.3	8.3	6.2	23	5.4	76.9	10.3	7.5	25.8	3.2	13.5	4.6	2.1	23.4	
	5.1	14.6	1.9	1.4		1.4	19.8	2.6	1.9							

Start Time	Ward Avenue Southbound				Kapiolani Boulevard Westbound				Ward Avenue Northbound				Kapiolani Boulevard Eastbound			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	Int. Total				App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
04:30 PM	53	160	22	235	0	254	25	131	65	279	47	131	65	243	384	
04:45 PM	60	214	20	294	0	272	31	160	64	303	34	160	64	258	329	
05:00 PM	62	171	14	14	247	0	258	31	289	40	159	66	30	265	366	
05:15 PM	61	191	27	15	279	0	224	30	30	254	30	174	64	268	391	
Total Volume	236	736	83	1055	0	1008	117	624	259	1125	151	624	259	1034	1486	
% App. Total	22.4	69.8	7.9	8.97	0	89.6	10.4	14.6	60.3	25	14.6	60.3	25	25	89.8	
PHF	.952	.860	.769	.897	.897	.000	.926	.944	.928	.928	.803	.897	.981	.965	.821	
						.000	.926	.944	.928	.965	.000	.925	.821	.965	.950	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Start Time	Ward Avenue Southbound				Kapiolani Boulevard Westbound				Ward Avenue Northbound				Kapiolani Boulevard Eastbound			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
	Int. Total				App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
04:30 PM	53	160	22	235	0	254	25	131	65	279	47	131	65	243	384	
04:45 PM	60	214	20	294	0	272	31	160	64	303	34	160	64	258	329	
05:00 PM	62	171	14	14	247	0	258	31	289	40	159	66	30	265	366	
05:15 PM	61	191	27	15	279	0	224	30	30	254	30	174	64	268	345	
Total Volume	236	736	83	1055	0	1008	117	624	259	1125	151	624	259	1034	1486	
% App. Total	22.4	69.8	7.9	8.97	0	89.6	10.4	14.6	60.3	25	14.6	60.3	25	25	89.8	
PHF	.952	.860	.769	.897	.897	.000	.926	.944	.928	.928	.803	.897	.981	.965	.821	
						.000	.926	.944	.928	.965	.000	.925	.821	.965	.950	

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:AC, PA
Counters:D4-3890, D4-5674
Weather:Clear

File Name : KapKam AM
Site Code : 00000001
Start Date : 4/7/2015
Page No : 1

Groups Printed- Unshifted																
Start Time	Southbound				Kapiolani Boulevard Westbound				Kamakee Street Northbound				Kapiolani Boulevard Eastbound			
	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	
	Int. Total				App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	0	20	111	0	3	134	5	0	6	7	18	0	57	14	6	
06:15 AM	0	30	137	0	4	171	5	0	12	8	25	4	80	13	4	
06:30 AM	0	38	236	0	2	276	8	0	7	6	21	0	94	14	16	
06:45 AM	0	29	301	0	0	330	10	0	17	5	32	0	118	5	10	
Total	0	117	785	0	9	911	28	0	42	26	96	0	349	46	36	
07:00 AM	0	54	328	0	3	385	16	2	15	9	42	0	127	7	21	
07:15 AM	0	46	390	0	3	439	22	0	17	11	50	0	120	16	38	
07:30 AM	0	51	422	0	2	475	8	0	22	6	36	0	156	6	52	
07:45 AM	0	50	449	0	6	505	22	0	17	13	52	0	168	16	67	
Total	0	201	1589	0	14	1804	68	2	71	39	180	0	571	45	178	
08:00 AM	0	57	419	0	5	481	18	0	16	13	47	0	173	15	61	
08:15 AM	0	52	333	0	10	395	19	0	29	11	59	0	176	16	50	
08:30 AM	0	45	256	0	4	305	18	0	25	13	56	0	174	11	14	
08:45 AM	0	52	223	0	7	282	20	0	28	12	60	0	138	21	9	
Total	0	206	1231	0	26	1463	75	0	98	49	222	0	661	63	134	
Grand Total	0	524	3605	0	49	4178	171	2	211	114	498	0	1581	154	348	
Apprch % Total %	0	12.5	86.3	0	1.2	34.3	0.4	42.4	22.9	7.4	7.4	0	75.9	7.4	16.7	
	0	7.8	53.3	0	0.7	61.8	2.5	3.1	1.7			0	23.4	2.3	5.1	

Groups Printed- Unshifted																
Start Time	Southbound				Kapiolani Boulevard Westbound				Kamakee Street Northbound				Kapiolani Boulevard Eastbound			
	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	
	Int. Total				App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:30 AM	0	51	422	0	473	8	0	22	30	30	0	156	6	162	665	
07:45 AM	0	50	449	0	499	22	0	17	39	39	0	168	16	184	722	
08:00 AM	0	57	419	0	476	18	0	29	34	34	0	173	15	188	698	
08:15 AM	0	52	333	0	385	19	0	26	48	48	0	176	16	192	625	
Total Volume	0	210	1623	0	1833	67	0	84	151	151	0	673	53	726	2710	
% App. Total	0	11.5	88.5	0	44.4	44.4	0	55.6	7.3	7.3	0	92.7	7.3	9.9	938	
PHF	.000	.921	.904	.000	.918	.761	.000	.724	.786	.786	.000	.956	.828	.945	.938	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

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

Counted By: AC, JA
 Counters: D4-3890, D4-5674
 Weather: Clear

File Name : KapKam PM
 Site Code : 00000001
 Start Date : 4/7/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Kapiolani Boulevard Westbound				Kamakee Street Northbound				Kapiolani Boulevard Eastbound					
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	
03:00 PM	44	221	0	8	15	0	41	23	79	0	213	31	51	295
03:15 PM	17	266	0	5	23	0	63	18	104	0	257	32	27	316
03:30 PM	0	300	0	3	38	0	67	303	123	0	233	35	22	290
03:45 PM	0	233	0	6	34	0	62	23	119	0	312	42	41	395
Total	61	1020	0	22	110	0	233	82	425	0	1015	140	141	1296
04:00 PM	0	270	0	4	29	0	65	23	117	0	383	31	15	429
04:15 PM	0	231	0	4	34	0	70	18	122	0	347	29	36	412
04:30 PM	0	236	0	7	39	0	67	33	139	0	438	36	30	504
04:45 PM	0	265	0	11	37	0	79	31	147	0	426	44	38	508
Total	0	1002	0	26	139	0	281	105	525	0	1594	140	119	1853
05:00 PM	0	251	0	8	34	0	94	25	153	0	468	41	31	540
05:15 PM	0	232	0	2	39	0	67	23	127	0	407	52	35	494
05:30 PM	37	195	0	2	29	0	70	23	122	0	350	44	42	436
05:45 PM	42	196	0	3	38	0	55	21	114	0	339	26	42	407
Total	79	874	0	15	140	0	286	90	516	0	1564	163	150	1877
Grand Total	140	2896	0	63	389	0	800	277	1466	0	4173	443	410	5026
Approch %	4.5	93.4	0	2	26.5	0	54.6	18.9	15.3	0	83	8.8	8.2	52.4
Total %	1.5	30.2	0	0.7	4.1	0	8.3	2.9	15.3	0	43.5	4.6	4.3	52.4

Start Time	Kapiolani Boulevard Westbound				Kamakee Street Northbound				Kapiolani Boulevard Eastbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total
04:30 PM	0	236	0	0	39	0	67	106	106	0	438	36	474
04:45 PM	0	265	0	0	37	0	79	116	116	0	426	44	470
05:00 PM	0	251	0	0	34	0	94	128	128	0	468	41	509
05:15 PM	0	232	0	0	39	0	67	106	106	0	407	52	459
Total Volume	0	984	0	0	149	0	307	456	456	0	1739	173	1912
% App. Total	0	100	0	0	32.7	0	67.3	.891	.891	0	91	9	9
PHF	.000	.928	.000	.000	.955	.000	.816	.832	.832	.000	.929	.832	.939

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM

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

Counted By: RJ, JJ
 Counters: TU-0649, TU-0651
 Weather: Clear

File Name : KapPen AM
 Site Code : 00000004
 Start Date : 4/7/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Pensacola Street Southbound				Kapiolani Boulevard Westbound				Pensacola Street Northbound				Kapiolani Boulevard Eastbound					
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	22	71	24	5	7	102	0	0	109	0	0	0	5	53	8	3	64	300
06:15 AM	33	82	14	3	2	158	0	0	160	0	0	0	13	76	11	7	94	399
06:30 AM	28	101	8	8	8	272	0	0	280	0	0	0	8	84	18	9	111	544
06:45 AM	34	88	5	12	11	336	0	0	347	0	0	4	4	100	29	5	134	624
Total	117	342	51	28	28	868	0	0	896	0	0	30	30	313	66	24	403	1867
07:00 AM	34	90	13	11	12	372	0	0	384	0	0	10	10	119	23	7	149	691
07:15 AM	43	122	7	16	20	419	0	0	439	0	0	7	7	113	24	10	147	781
07:30 AM	72	155	18	10	25	461	0	0	483	0	0	10	10	154	23	3	180	928
07:45 AM	54	165	56	9	22	470	0	0	492	0	0	13	13	155	35	3	193	982
Total	203	532	94	46	76	1722	0	0	1798	0	0	40	40	541	105	23	669	3382
08:00 AM	65	181	67	11	21	414	0	0	435	0	0	6	6	167	31	15	213	978
08:15 AM	58	169	23	15	25	362	0	0	387	0	0	12	12	168	34	12	214	878
08:30 AM	67	176	39	10	19	241	0	0	260	0	0	12	12	155	43	5	203	767
08:45 AM	73	205	6	11	22	230	0	0	252	0	0	24	24	132	21	16	169	740
Total	263	731	135	47	87	1247	0	0	1334	0	0	54	54	622	129	48	799	3363
Grand Total	583	1605	280	121	191	3837	0	0	4028	0	0	124	124	1476	300	95	1871	8612
Approch %	22.5	62	10.8	4.7	4.7	95.3	0	0	100	0	0	1.4	1.4	17.1	3.5	1.1	21.7	
Total %	6.8	18.6	3.3	1.4	2.2	44.6	0	0	46.8	0	0	1.4	1.4	17.1	3.5	1.1	21.7	

Start Time	Pensacola Street Southbound				Kapiolani Boulevard Westbound				Pensacola Street Northbound				Kapiolani Boulevard Eastbound					
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total
07:30 AM	72	155	18	18	22	461	0	0	483	0	0	0	0	154	23	7	177	905
07:45 AM	54	165	56	56	22	470	0	0	492	0	0	0	0	155	35	35	190	957
08:00 AM	65	181	67	67	21	414	0	0	435	0	0	0	0	167	31	198	198	946
08:15 AM	58	169	23	23	25	362	0	0	387	0	0	0	0	168	34	202	202	839
Total Volume	249	670	164	164	90	1707	0	0	1797	0	0	0	0	644	123	767	767	3647
% App. Total	23	61.9	15.1	15.1	5	95	0	0	100	0	0	0	0	84	16	18	18	953
PHF	.865	.925	.612	.612	.900	.908	.000	.000	.913	.000	.000	.000	.000	.958	.879	.949	.949	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

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

Counted By:GC, KW
Counters:D4-3888, D4-3889
Weather:Clear

File Name : WarHa PM
Site Code : 00000004
Start Date : 4/8/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound					Sports Authority Parking Lot - North Driveway Westbound					Ward Avenue Northbound					Ilaniwai Street Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
	03:00 PM	15	193	4	3	215	2	0	12	8	22	3	167	0	3	173	1	0	3	3	7
03:15 PM	27	184	3	1	215	1	0	5	12	18	2	173	0	1	176	4	0	2	9	15	424
03:30 PM	15	186	4	6	211	0	0	2	12	14	0	199	1	6	206	1	1	0	13	15	446
03:45 PM	19	205	7	5	236	0	0	4	13	17	4	184	0	5	193	3	0	8	14	25	471
Total	76	768	18	15	877	3	0	23	45	71	9	723	1	15	748	9	1	13	39	62	1758
04:00 PM	19	163	5	4	191	0	0	3	19	22	3	217	0	7	227	3	0	3	9	15	455
04:15 PM	19	169	5	2	195	0	0	3	5	8	0	248	0	0	248	1	0	3	8	12	463
04:30 PM	17	227	4	7	255	0	0	4	13	17	1	222	0	6	229	3	0	8	17	28	529
04:45 PM	19	188	3	1	211	0	0	16	9	25	3	224	0	1	228	2	0	8	12	22	486
Total	74	747	17	14	852	0	0	26	46	72	7	911	0	14	932	9	0	22	46	77	1933
05:00 PM	23	204	7	3	237	0	0	6	7	13	1	218	2	4	225	4	0	5	12	21	496
05:15 PM	23	216	2	7	248	1	0	10	15	26	1	175	0	8	184	1	0	7	16	24	482
05:30 PM	24	192	2	6	224	1	1	1	8	11	2	159	0	6	167	2	0	4	14	20	422
05:45 PM	13	169	2	3	187	0	0	3	10	13	1	207	0	1	209	0	0	0	7	7	416
Total	83	781	13	19	896	2	1	20	40	63	5	759	2	19	785	7	0	16	49	72	1816
Grand Total	233	2296	48	48	2625	5	1	69	131	206	21	2393	3	48	2465	25	1	51	134	211	5507
Approch %	8.9	87.5	1.8	1.8		2.4	0.5	33.5	63.6		0.9	97.1	0.1	1.9		11.8	0.5	24.2	63.5		
Total %	4.2	41.7	0.9	0.9	47.7	0.1	0	1.3	2.4	3.7	0.4	43.5	0.1	0.9	44.8	0.5	0	0.9	2.4	3.8	

Start Time	Ward Avenue Southbound					Sports Authority Parking Lot - North Driveway Westbound					Ward Avenue Northbound					Ilaniwai Street Eastbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
	04:15 PM	19	169	5		193	0	0	0	3	3	0	248	0	0	248	1	0	0	3	4
04:30 PM	17	227	4		248	0	0	4	4	4	1	222	0	0	223	3	0	8	8	11	486
04:45 PM	19	188	3		210	0	0	16	16	16	3	224	0	0	227	2	0	8	8	10	463
05:00 PM	23	204	7		234	0	0	6	6	6	1	218	2	2	221	4	0	5	5	9	470
Total Volume	78	788	19		885	0	0	29	29	29	5	912	2	2	919	10	0	24	24	34	1867
% App. Total	8.8	89	2.1			0	0	100			0.5	99.2	0.2			29.4	0	70.6			
PHF	.848	.868	.679		.892	.000	.000	.453	.453	.453	.417	.919	.250		.926	.625	.000	.750		.773	.960

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM

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

Counted By:PA, FS
Counters:TU-0650, TU-0653
Weather:Clear

File Name : WarHal AM
Site Code : 00000005
Start Date : 4/8/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Ward Avenue Southbound					Westbound	Ward Avenue Northbound					Halekauwila Street Eastbound									
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total				
	06:00 AM	1	95	23	0		119	0	3	33	1	3	40	3	0	2	4	9	168		
06:15 AM	4	93	34	0	131	0	4	52	0	3	59	8	0	0	2	10	200				
06:30 AM	4	95	38	0	137	0	6	58	2	9	75	12	2	5	6	25	237				
06:45 AM	1	118	48	0	167	0	8	63	0	6	77	18	1	4	5	28	272				
Total	10	401	143	0	554	0	21	206	3	21	251	41	3	11	17	72	877				
07:00 AM	4	100	38	0	142	0	7	81	1	7	96	26	3	3	5	37	275				
07:15 AM	4	119	59	2	184	0	6	102	0	6	114	30	1	6	3	40	338				
07:30 AM	1	105	62	0	168	0	10	108	0	10	128	24	3	5	5	37	333				
07:45 AM	4	123	55	0	182	0	8	86	3	13	110	35	3	4	12	54	346				
Total	13	447	214	2	676	0	31	377	4	36	448	115	10	18	25	168	1292				
08:00 AM	6	142	62	0	210	0	7	90	0	4	101	20	5	5	4	34	345				
08:15 AM	6	113	38	0	157	0	7	90	0	13	110	26	2	9	15	52	319				
08:30 AM	1	147	39	0	187	0	4	100	0	14	118	24	4	8	8	44	349				
08:45 AM	9	151	39	0	199	0	8	88	0	5	101	30	2	8	15	55	355				
Total	22	553	178	0	753	0	26	368	0	36	430	100	13	30	42	185	1368				
Grand Total	45	1401	535	2	1983	0	78	951	7	93	1129	256	26	59	84	425	3537				
Approch %	2.3	70.7	27	0.1		0	6.9	84.2	0.6	8.2	60.2	6.1	13.9	19.8		42.5					
Total %	1.3	39.6	15.1	0.1	56.1	0	2.2	26.9	0.2	2.6	31.9	7.2	0.7	1.7	2.4	12					

Start Time	Ward Avenue Southbound					Westbound	Ward Avenue Northbound					Halekauwila Street Eastbound									
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total				
	07:15 AM	4	119	59	59		182	0	6	102	0	4	108	30	1	6	37	327			
07:30 AM	1	105	62	62	168	0	10	108	0	13	118	24	3	5	32	318					
07:45 AM	4	123	55	55	182	0	8	86	3	14	118	24	4	8	42	321					
08:00 AM	6	142	39	62	210	0	7	90	0	9	97	20	5	5	30	337					
Total Volume	15	489	238	238	742	0	31	386	3	420	420	109	12	20	141	1303					
% App. Total	2	65.9	32.1			.000	7.4	91.9	0.7	7.7	77.3	8.5	14.2								
PHF	.625	.861	.960		.883	.000	.775	.894	.250	.890	.890	.779	.600	.833	.839	.967					

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

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

Counted By: FS, PA
 Counters: TU-0650, TU-0653
 Weather: Clear

File Name : WarHal PM
 Site Code : 00000005
 Start Date : 4/8/2015
 Page No : 1

Start Time	Ward Avenue Southbound				Westbound App. Total	Ward Avenue Northbound				Halekaiwila Street Eastbound						
	Left	Thru	Right	Peds		Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total	
03:00 PM	7	152	43	0	202	9	139	0	14	162	29	0	13	12	54	418
03:15 PM	5	149	35	0	189	6	137	3	16	162	38	5	13	7	63	414
03:30 PM	9	150	25	0	184	10	150	5	32	197	45	3	19	15	82	463
03:45 PM	12	170	27	0	209	7	150	3	20	180	38	9	8	13	68	457
Total	33	621	130	0	784	32	576	11	82	701	150	17	53	47	267	1752
04:00 PM	4	122	40	0	166	7	162	3	25	197	58	5	15	7	85	448
04:15 PM	2	136	34	0	172	6	185	3	24	218	63	4	18	9	94	484
04:30 PM	8	183	45	0	236	4	156	4	23	183	66	5	20	29	120	539
04:45 PM	11	151	34	0	196	10	167	3	13	193	58	4	22	2	86	475
Total	25	592	153	0	770	27	670	9	85	791	245	18	75	47	385	1946
05:00 PM	10	164	36	0	210	10	162	0	27	199	56	8	30	16	110	519
05:15 PM	4	175	31	0	210	8	115	1	25	149	60	6	17	16	99	458
05:30 PM	7	156	38	0	201	9	121	2	21	153	38	4	21	16	79	433
05:45 PM	6	138	28	0	172	13	152	1	18	184	50	4	18	5	77	433
Total	27	633	133	0	793	40	550	4	91	685	204	22	86	53	365	1843
Grand Total	85	1846	416	0	2347	99	1796	24	258	2177	599	57	214	147	1017	5541
Apprch %	3.6	78.7	17.7	0		4.5	82.5	1.1	11.9		58.9	5.6	21	14.5		
Total %	1.5	33.3	7.5	0	42.4	1.8	32.4	0.4	4.7	39.3	10.8	1	3.9	2.7	18.4	

Start Time	Ward Avenue Southbound				Westbound App. Total	Ward Avenue Northbound				Halekaiwila Street Eastbound					
	Left	Thru	Right	Peds		Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total
04:15 PM	2	136	34	0	172	6	185	3	0	194	63	4	18	85	451
04:30 PM	8	183	45	0	236	4	156	0	0	160	66	5	20	91	487
04:45 PM	11	151	34	0	196	10	167	3	0	180	58	4	22	84	460
05:00 PM	10	164	36	0	210	10	162	0	0	172	56	8	30	94	476
Total Volume	31	634	149	0	814	30	670	6	6	706	243	21	90	354	1874
% App. Total	3.8	77.9	18.3	0	.862	4.2	94.9	0.8	0.8	.910	68.6	5.9	25.4		
PHF	.705	.866	.828	.000		.750	.905	.500			.920	.656	.750	.941	.962

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:15 PM

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

Counted By: RJ, JJ
 Counters: TU-0651, TU-0649
 Weather: Clear

File Name : CookKaw AM
 Site Code : 00000001
 Start Date : 4/9/2015
 Page No : 1

Start Time	Cooke Street Southbound				Kawaiahao Street Westbound	Cooke Street Northbound				Kawaiahao Street Eastbound						
	Left	Thru	Right	Peds		Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total	
06:00 AM	1	29	13	4	47	0	4	4	8	16	4	13	4	0	21	97
06:15 AM	2	29	17	5	53	2	2	5	13	22	3	19	2	0	24	108
06:30 AM	0	58	29	8	95	1	4	6	13	24	3	33	3	0	39	174
06:45 AM	3	88	44	7	142	3	10	9	19	41	8	34	2	1	45	246
Total	6	204	103	24	337	6	20	24	53	103	18	99	11	1	129	625
07:00 AM	5	75	45	11	136	1	6	15	4	26	9	52	5	1	67	248
07:15 AM	5	91	57	18	171	4	4	9	19	36	10	36	6	0	52	277
07:30 AM	5	86	43	16	150	4	14	14	18	50	12	56	15	0	83	305
07:45 AM	9	91	61	11	172	11	6	11	20	48	13	58	12	0	83	327
Total	24	343	206	56	629	20	30	49	61	160	44	202	38	1	285	1157
08:00 AM	9	90	46	13	158	4	4	20	19	47	12	48	7	0	67	301
08:15 AM	12	78	55	19	164	10	11	13	22	56	8	44	9	0	61	305
08:30 AM	11	72	26	27	136	8	6	17	18	49	8	41	13	0	62	266
08:45 AM	12	72	24	21	129	2	8	19	18	47	15	42	6	0	63	257
Total	44	312	151	80	587	24	29	69	77	199	43	175	35	0	253	1129
Grand Total	74	859	460	160	1553	50	79	142	191	462	105	476	84	2	667	2911
Apprch %	4.8	55.3	29.6	10.3		10.8	17.1	30.7	41.3		15.7	71.4	12.6	0.3	25.3	40.2
Total %	2.5	29.5	15.8	5.5	53.3	1.7	2.7	4.9	6.6	15.9	3.6	16.4	2.9	0.1	22.9	7.9

Start Time	Cooke Street Southbound				Kawaiahao Street Westbound	Cooke Street Northbound				Kawaiahao Street Eastbound					
	Left	Thru	Right	Peds		Left	Thru	Right	Peds	Left	Thru	Right	Peds	App. Total	Int. Total
07:30 AM	5	86	43	134	4	14	14	14	56	15	12	56	15	83	263
07:45 AM	9	91	61	161	11	6	11	28	13	58	12	58	12	83	286
08:00 AM	9	90	46	145	4	4	20	28	12	48	7	48	15	67	255
08:15 AM	12	78	55	145	10	11	13	34	8	44	9	44	9	61	257
Total Volume	35	345	205	585	29	35	58	122	45	206	43	294	7	294	1061
% App. Total	6	59	35	.908	23.8	28.7	47.5	71.7	15.3	70.1	14.6	45	11.7	43.3	60
PHF	.729	.948	.840		.659	.625	.725	.897	.865	.888	.717	.866	.964	.882	.882

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM

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

Counted By: DY, EV
Counters: D4-5675, D4-5676
Weather: Clear

File Name : CooQue PM
Site Code : 00000002
Start Date : 4/9/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Cooke Street Southbound			Queen Street Westbound			Cooke Street Northbound			Queen Street Eastbound			Int. Total						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total					
03:00 PM	2	32	16	11	91	14	11	127	7	60	13	5	85	8	49	16	7	80	344
03:15 PM	9	46	20	5	80	14	9	117	7	50	17	5	79	16	58	22	5	101	377
03:30 PM	4	71	17	2	94	17	12	147	7	63	10	10	90	17	66	11	5	99	430
03:45 PM	9	60	22	7	98	21	10	153	7	84	7	8	106	15	61	21	6	103	460
Total	24	209	75	16	324	66	42	544	28	257	47	28	360	56	234	70	23	383	1611
04:00 PM	5	73	19	8	105	9	17	103	12	71	19	4	106	15	59	17	10	101	415
04:15 PM	4	50	18	1	73	18	20	137	6	68	9	8	91	20	78	22	7	127	428
04:30 PM	6	64	29	2	101	8	7	100	8	78	9	5	100	24	101	18	11	154	455
04:45 PM	11	63	22	3	99	11	12	102	3	66	14	11	94	25	107	15	9	156	451
Total	26	250	88	14	378	44	61	442	29	283	51	28	391	84	345	72	37	538	1749
05:00 PM	9	56	27	3	95	11	12	119	10	94	14	14	132	23	98	19	8	148	494
05:15 PM	7	55	18	0	80	11	16	124	9	75	12	5	101	19	94	20	3	136	441
05:30 PM	3	30	14	5	52	13	8	105	9	72	11	7	99	27	87	15	5	134	390
05:45 PM	1	25	25	7	58	11	14	106	13	63	10	8	94	6	84	15	9	114	372
Total	20	166	84	15	285	46	58	454	41	304	47	34	426	75	363	69	25	532	1697
Grand Total	70	625	247	45	987	147	160	1440	98	844	145	90	1177	215	942	211	85	1453	5057
Apprch %	7.1	63.3	25	4.6	11.2	8.3	71.7	12.3	7.6	14.8	64.8	14.5	5.8	4.3	18.6	4.2	1.7	28.7	
Total %	1.4	12.4	4.9	0.9	19.5	2.9	19.2	3.2	3.2	1.9	16.7	2.9	1.8	23.3	4.3	18.6	4.2	1.7	28.7

Start Time	Cooke Street Southbound			Queen Street Westbound			Cooke Street Northbound			Queen Street Eastbound			Int. Total						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total					
04:30 PM	6	64	29	8	73	7	7	88	8	78	9	9	95	24	101	18	143	425	
04:45 PM	11	63	22	11	67	12	12	90	3	66	14	14	83	25	107	15	147	416	
05:00 PM	9	56	27	11	82	14	17	107	10	94	14	14	118	23	98	19	140	457	
05:15 PM	7	55	18	11	80	17	14	108	9	75	12	12	96	19	94	20	133	417	
Total Volume	33	238	96	41	302	50	50	393	30	313	49	49	392	91	400	72	563	1715	
% App. Total	9	64.9	26.2	10.4	76.8	12.7	12.7	79.8	7.7	79.8	12.5	12.5	83.1	16.2	71	12.8	900	957	
PHF	.750	.930	.828	.932	.921	.735	.910	.910	.750	.832	.875	.831	.831	.910	.935	.900	.957	.938	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

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

Counted By: GC, KW
Counters: D4-3890, D4-5674
Weather: Clear

File Name : CooHal AM
Site Code : 00000004
Start Date : 4/9/2015
Page No : 1

Groups Printed- Unshifted

Start Time	Cooke Street Southbound			Halekauwila Street Westbound			Cooke Street Northbound			Halekauwila Street Eastbound			Int. Total							
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total						
06:00 AM	7	17	9	3	36	6	5	3	20	0	11	2	16	1	10	1	6	18	90	
06:15 AM	6	27	3	3	39	3	2	15	0	5	0	5	22	5	5	8	5	23	99	
06:30 AM	3	32	13	4	52	8	5	4	25	4	19	2	4	7	18	5	6	36	142	
06:45 AM	5	55	5	1	66	4	4	9	32	3	31	4	43	8	12	2	3	25	166	
Total	21	131	30	11	193	21	19	21	92	9	76	8	17	21	45	16	20	102	497	
07:00 AM	11	38	19	4	72	3	21	7	37	4	39	2	6	10	15	2	6	33	193	
07:15 AM	9	44	18	10	81	8	24	9	45	4	26	7	4	11	12	6	6	35	202	
07:30 AM	14	51	12	8	85	13	21	9	48	3	51	9	2	65	13	23	10	7	251	
07:45 AM	6	50	19	8	83	11	23	13	8	5	49	13	5	72	14	17	8	4	253	
Total	40	183	68	30	321	35	89	38	185	16	165	31	17	229	48	67	26	164	899	
08:00 AM	6	81	17	7	111	13	19	7	41	4	45	13	2	64	13	18	8	4	259	
08:15 AM	8	53	12	1	74	14	9	4	27	3	49	8	2	62	10	11	5	6	195	
08:30 AM	10	65	12	3	90	10	10	8	39	2	45	10	2	59	4	14	2	4	212	
08:45 AM	6	77	10	10	103	7	15	3	29	2	48	5	3	58	10	13	10	4	227	
Total	30	276	51	21	378	44	53	22	136	11	187	36	9	243	37	56	25	18	893	
Grand Total	91	590	149	62	892	100	173	79	61	413	36	428	75	43	582	106	168	67	402	2289
Apprch %	10.2	66.1	16.7	7	24.2	41.9	19.1	14.8	6.2	73.5	12.9	7.4	7.4	26.4	41.8	16.7	15.2	15.2		
Total %	4	25.8	6.5	2.7	39	4.4	7.6	3.5	2.7	1.6	18.7	3.3	1.9	25.4	4.6	7.3	2.9	2.7	17.6	

Start Time	Cooke Street Southbound			Halekauwila Street Westbound			Cooke Street Northbound			Halekauwila Street Eastbound			Int. Total						
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		App. Total					
07:30 AM	14	51	12	13	21	9	9	43	3	51	9	9	63	13	23	10	46	229	
07:45 AM	6	50	19	11	23	13	13	47	5	49	13	13	67	14	17	8	39	228	
08:00 AM	6	81	17	104	13	19	7	104	4	45	13	62	62	13	18	8	39	244	
08:15 AM	8	53	12	73	14	9	4	27	3	49	8	8	60	10	11	5	26	186	
Total Volume	34	235	60	329	51	72	33	156	15	194	43	252	50	69	31	150	887		
% App. Total	10.3	71.4	18.2	32.7	46.2	21.2	17.1	17.1	6	77	17.1	17.1	33.3	33.3	46	20.7	7.75	.815	.909
PHF	.607	.725	.789	.791	.911	.783	.635	.830	.750	.951	.827	.940	.893	.750	.775	.815	.815	.815	.909

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:GC, KW
Counters:D4-5674, D4-3890
Weather:Clear

File Name : CooHal PM
Site Code : 00000004
Start Date : 4/9/2015
Page No : 1

Table with columns for Start Time, Cooke Street Southbound, Halekauwila Street Westbound, Cooke Street Northbound, Halekauwila Street Eastbound, and Int. Total. Includes Grand Total and Approach % rows.

Table with columns for Start Time, Cooke Street Southbound, Halekauwila Street Westbound, Cooke Street Northbound, Halekauwila Street Eastbound, and Int. Total. Includes Grand Total and Approach % rows.

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:FS, PA
Counters:TU-0654, TU-0652
Weather:Clear

File Name : CooPoh AM
Site Code : 00000003
Start Date : 4/9/2015
Page No : 1

Table with columns for Start Time, Cooke Street Southbound, Pohukaina Street Westbound, Cooke Street Northbound, Pohukaina Street Eastbound, and Int. Total. Includes Grand Total and Approach % rows.

Table with columns for Start Time, Cooke Street Southbound, Pohukaina Street Westbound, Cooke Street Northbound, Pohukaina Street Eastbound, and Int. Total. Includes Grand Total and Approach % rows.

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

Counted By:PA, FS
Counters:TU-0654, TU-0652
Weather:Clear

File Name : CooPoh PM
Site Code : 00000003
Start Date : 4/9/2015
Page No : 1

Start Time	Cooke Street Southbound						Pohukaina Street Westbound						Cooke Street Northbound						Pohukaina Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	03:00 PM	16	37	7	2	62		9	19	10	2	40		4	52	6	2	64		14	21	6	2	43
03:15 PM	7	58	15	5	85		9	18	12	5	44		5	37	17	2	61		13	27	5	5	50	
03:30 PM	15	65	7	0	87		13	27	22	5	67		0	39	11	0	50		18	23	7	5	53	
03:45 PM	20	66	15	5	106		6	33	12	10	61		5	45	12	3	65		21	29	6	5	61	
Total	58	226	44	12	340		37	97	56	22	212		14	173	46	7	240		66	100	24	17	207	
04:00 PM	16	54	14	0	84		19	24	11	2	56		0	41	5	6	52		26	19	6	8	59	
04:15 PM	15	58	11	3	87		13	26	9	4	52		0	46	3	6	55		15	15	7	2	39	
04:30 PM	20	59	15	5	99		4	22	12	8	46		3	39	12	8	62		17	49	7	3	76	
04:45 PM	19	64	13	4	100		10	15	8	3	36		1	40	3	9	53		19	31	9	2	61	
Total	70	235	53	12	370		46	87	40	17	190		4	166	23	29	222		77	114	29	15	235	
05:00 PM	20	65	12	11	108		13	22	22	7	64		5	51	14	10	80		25	22	6	8	61	
05:15 PM	14	54	19	3	90		12	21	15	8	56		8	40	16	11	75		12	26	6	4	48	
05:30 PM	15	27	13	4	59		18	17	15	6	56		2	40	20	10	72		31	21	8	62	122	
05:45 PM	10	30	15	4	59		12	27	24	7	70		4	42	6	11	63		16	18	5	8	47	
Total	59	176	59	22	316		55	87	76	28	246		19	173	56	42	290		84	87	25	82	278	
Grand Total	187	637	156	46	1026		138	271	172	67	648		37	512	125	78	752		227	301	78	114	720	
Apprch %	18.2	62.1	15.2	4.5			21.3	41.8	26.5	10.3		4.9	68.1	16.6	10.4		7.2		31.5	41.8	10.8	15.8		
Total %	5.9	20.2	5	1.5	32.6		4.4	8.6	5.5	2.1	20.6		1.2	16.3	4	2.5	23.9		7.2	9.6	2.5	3.6	22.9	

Start Time	Cooke Street Southbound						Pohukaina Street Westbound						Cooke Street Northbound						Pohukaina Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	04:30 PM	20	59	15	94		4	22	12	3	39		17	49	7	73		17	49	7	73		259	
04:45 PM	19	64	13	96		10	15	8	33		1	40	3	44		19	31	9	59		232			
05:00 PM	20	65	12	97		13	22	22	57		5	51	14	70		25	22	6	53		277			
05:15 PM	14	54	19	87		12	21	15	48		8	40	16	64		12	26	6	44		243			
Total Volume	73	242	59	374		39	80	57	176		17	170	45	232		73	128	28	229		1011			
% App. Total	19.5	64.7	15.8			22.2	45.5	32.4			7.3	73.3	19.4			31.9	55.9	12.2						
PHF	.913	.931	.776		.964		.750	.909	.648	.772		.531	.833	.703	.829		.730	.653	.778		.784		.912	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

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

Counted By:AC, DM
Counters:TU-0653, TU-0650
Weather:Clear

File Name : HalkAM AM
Site Code : 00000005
Start Date : 4/9/2015
Page No : 1

Start Time	Kauahale Kakaako Drive Thru Southbound						Halekauwila Street Westbound						Kamani Street Northbound						Halekauwila Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	06:00 AM	0	0	0	3	3		1	29	0	3	33		4	0	0	0	4		0	6	0	0	6
06:15 AM	0	0	0	0	0		4	27	1	2	34		3	0	2	3	8		1	5	3	0	9	
06:30 AM	0	0	0	1	1		6	35	0	7	48		5	0	4	2	11		1	9	3	0	13	
06:45 AM	0	0	0	1	1		6	39	0	6	51		3	0	2	2	7		3	20	2	1	26	
Total	0	0	0	5	5		17	130	1	18	166		15	0	8	7	30		5	40	8	1	54	
07:00 AM	0	0	0	1	1		9	49	1	6	65		3	0	7	3	13		0	7	1	0	8	
07:15 AM	0	0	0	1	1		8	55	1	1	65		5	0	5	5	15		0	9	2	0	11	
07:30 AM	0	0	0	1	1		17	55	3	2	77		2	0	0	1	3		0	30	4	1	35	
07:45 AM	0	0	0	0	0		11	63	1	1	76		2	0	10	1	13		0	16	5	0	21	
Total	0	0	0	3	3		45	222	6	10	283		12	0	22	10	44		0	62	12	1	75	
08:00 AM	0	0	0	3	3		12	41	1	2	56		3	0	9	1	13		1	20	3	1	25	
08:15 AM	0	0	0	1	1		10	34	1	3	48		13	0	10	4	27		0	13	1	1	15	
08:30 AM	0	0	0	0	0		15	28	0	2	45		7	0	11	3	21		1	22	3	6	32	
08:45 AM	0	0	0	0	0		16	24	1	0	41		2	0	6	1	9		1	8	0	0	9	
Total	0	0	0	4	4		53	127	3	7	190		25	0	36	9	70		3	63	7	8	81	
Grand Total	0	0	0	12	12		115	479	10	35	639		52	0	66	26	144		8	165	27	10	210	
Apprch %	0	0	0	100			18	75	1.6	5.5		36.1	0	45.8	18.1		14.3		3.8	78.6	12.9	4.8		
Total %	0	0	0	1.2	1.2		11.4	47.7	1	3.5	63.6		5.2	0	6.6	2.6		0.8	16.4	2.7	1	20.9		

Start Time	Kauahale Kakaako Drive Thru Southbound						Halekauwila Street Westbound						Kamani Street Northbound						Halekauwila Street Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	07:15 AM	0	0	0	0	0		8	55	1	1	64		5	0	5	5	10		0	9	2	2	11
07:30 AM	0	0	0	0	0		17	55	3	3	75		2	0	0	0	2		0	30	4	34		
07:45 AM	0	0	0	0	0		11	63	1	1	75		2	0	10	10	12		0	16	5	21		
08:00 AM	0	0	0	0	0		12	41	1	1	54		3	0	9	9	12		1	20	3	24		
Total Volume	0	0	0	0	0		48	214	6	6	268		12	0	24	36	36		1	75	14	90		
% App. Total	0	0	0	0		17.9	79.9	2.2			33.3		33.3	0	66.7		1.1		83.3		15.6			
PHF	.000	.000	.000	.000	.000		.706	.849	.500	.893		.600	.600	.600	.750		.250		.625		.700		.662	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

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

Counted By: AC, DM
 Counters: TU-0653, TU-0650
 Weather: Clear

File Name : HaKam PM
 Site Code : 00000005
 Start Date : 4/9/2015
 Page No : 1

Groups Printed- Unshifted

Start Time	Kauahale Kakaako Drive Thru Southbound			Halekauwila Street Westbound			Kamani Street Northbound			Halekauwila Street Eastbound			Int. Total					
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total
03:00 PM	0	0	0	8	14	2	26	2	0	16	0	18	0	14	3	0	17	61
03:15 PM	0	0	0	9	23	2	35	10	1	19	1	31	6	24	2	0	32	98
03:30 PM	0	0	0	7	14	0	22	3	0	12	5	20	1	23	1	2	27	69
03:45 PM	0	0	0	9	17	2	28	4	0	20	1	25	2	26	2	1	31	84
Total	0	0	0	33	68	6	111	19	1	67	7	94	9	87	8	3	107	312
04:00 PM	0	0	0	8	29	3	47	3	0	11	2	16	0	18	1	0	19	82
04:15 PM	0	0	8	8	15	0	26	2	0	19	2	23	3	60	5	2	70	127
04:30 PM	0	0	1	9	22	1	33	5	0	18	5	28	2	52	2	3	59	121
04:45 PM	0	0	1	5	18	0	23	4	0	15	2	21	2	29	1	2	34	79
Total	0	0	10	30	84	4	129	14	0	63	11	88	7	159	9	7	182	409
05:00 PM	0	0	6	8	42	2	53	2	0	17	1	20	4	17	4	3	28	107
05:15 PM	0	0	1	5	32	1	38	7	1	14	1	23	5	37	2	3	47	109
05:30 PM	0	0	1	7	31	2	41	5	0	15	4	24	4	37	2	3	46	112
05:45 PM	0	0	1	1	18	1	20	8	0	8	9	25	1	16	6	1	24	70
Total	0	0	9	21	123	6	152	22	1	54	15	92	14	107	14	10	145	398
Grand Total	0	0	19	84	275	16	392	55	2	184	33	274	30	353	31	20	434	1119
Apprch %	0	0	100	21.4	70.2	4.1	4.3	20.1	0.7	67.2	12	24.5	6.9	81.3	7.1	4.6	38.8	
Total %	0	0	1.7	7.5	24.6	1.4	1.5	4.9	0.2	16.4	2.9	24.5	2.7	31.5	2.8	1.8	38.8	

Start Time	Kauahale Kakaako Drive Thru Southbound			Halekauwila Street Westbound			Kamani Street Northbound			Halekauwila Street Eastbound			Int. Total				
	Left	Thru	Right	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds
04:15 PM	0	0	0	8	15	0	23	2	0	0	0	21	3	60	5	68	120
04:30 PM	0	0	1	9	22	1	32	5	0	18	18	23	2	52	2	56	112
04:45 PM	0	0	1	5	18	0	23	4	0	15	19	19	2	29	1	32	75
05:00 PM	0	0	6	8	42	2	52	2	0	17	19	19	4	17	4	25	102
Total Volume	0	0	16	30	97	3	130	13	0	69	82	82	11	158	12	181	409
% App. Total	.000	.000	.500	.833	.577	.375	.625	.650	.000	.908	.665	.891	.688	.658	.600	.665	.852
PHF	.000	.000	.500	.833	.577	.375	.625	.650	.000	.908	.665	.891	.688	.658	.600	.665	.852

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

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 (sec/veh)
A	≤10.0
B	>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 B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

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 v/c 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 sec 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 v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

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 (Sec/Veh)
A	≤10.0
B	>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

APPENDIX C
CAPACITY ANALYSIS CALCULATIONS
BASELINE PEAK PERIOD TRAFFIC ANALYSIS

HCM Signalized Intersection Capacity Analysis
15: Ward Ave & Queen St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	202	83	90	407	95	83	450	64	62	718	201
Future Volume (vph)	50	202	83	90	407	95	83	450	64	62	718	201
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	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Fipb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1759	1769		1756	1800		1770	3433		1770	3376	
Flt Permitted	0.19	1.00		0.47	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	357	1769		866	1800		1770	3433		1770	3376	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	215	88	96	433	101	88	479	68	66	764	214
RTOR Reduction (vph)	0	17	0	0	10	0	0	13	0	0	29	0
Lane Group Flow (vph)	53	286	0	96	524	0	88	534	0	66	949	0
Confl. Peds. (#/hr)	21		15	15		21			58			34
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	27.4	27.4		27.4	27.4		5.8	28.9		6.0	29.1	
Effective Green, g (s)	27.4	27.4		27.4	27.4		5.8	28.9		6.0	29.1	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.08	0.37		0.08	0.38	
Clearance Time (s)	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		3.0	3.0	
Lane Grp Cap (vph)	126	627		306	638		132	1283		137	1270	
v/s Ratio Prot		0.16			c0.29		c0.05	0.16		0.04	c0.28	
v/s Ratio Perm	0.15			0.11								
v/c Ratio	0.42	0.46		0.31	0.82		0.67	0.42		0.48	0.75	
Uniform Delay, d1	18.9	19.2		18.1	22.7		34.8	17.9		34.2	20.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.5		0.6	8.4		12.0	0.2		2.7	2.4	
Delay (s)	21.2	19.7		18.7	31.1		46.8	18.2		36.8	23.4	
Level of Service	C	B		B	C		D	B		D	C	
Approach Delay (s)		20.0			29.2			22.1			24.2	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay		24.3					HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		77.3					Sum of lost time (s)		15.0			
Intersection Capacity Utilization		79.1%					ICU Level of Service		D			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
15: Ward Ave & Queen St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	103	465	150	97	434	100	73	786	159	175	814	82
Future Volume (vph)	103	465	150	97	434	100	73	786	159	175	814	82
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	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1764	1779		1760	1803		1770	3363		1770	3457	
Flt Permitted	0.22	1.00		0.13	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	402	1779		249	1803		1770	3363		1770	3457	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	107	484	156	101	452	104	76	819	166	182	848	85
RTOR Reduction (vph)	0	13	0	0	9	0	0	19	0	0	8	0
Lane Group Flow (vph)	107	627	0	101	547	0	76	966	0	182	925	0
Confl. Peds. (#/hr)	11		25	25		11		88				59
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	36.0	36.0		36.0	36.0		4.7	30.5		8.0	33.8	
Effective Green, g (s)	36.0	36.0		36.0	36.0		4.7	30.5		8.0	33.8	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.05	0.34		0.09	0.38	
Clearance Time (s)	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		3.0	3.0	
Lane Grp Cap (vph)	161	715		100	725		92	1146		158	1305	
v/s Ratio Prot		0.35			0.30		0.04	c0.29		c0.10	c0.27	
v/s Ratio Perm	0.27			c0.41								
v/c Ratio	0.66	0.88		1.01	0.75		0.83	0.84		1.15	0.71	
Uniform Delay, d1	21.8	24.7		26.8	23.0		42.0	27.3		40.8	23.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.9	11.8		92.7	4.5		42.8	5.8		118.3	1.8	
Delay (s)	31.7	36.5		119.5	27.4		84.8	33.1		159.0	25.5	
Level of Service	C	D		F	C		F	C		F	C	
Approach Delay (s)		35.8			41.6			36.8			47.3	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay	40.7			HCM 2000 Level of Service			D					
HCM 2000 Volume to Capacity ratio	0.95											
Actuated Cycle Length (s)	89.5			Sum of lost time (s)			15.0					
Intersection Capacity Utilization	93.6%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
16: Kamakee St & Queen St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗			↕			↕	
Traffic Volume (vph)	64	231	11	185	296	29	16	117	57	38	199	108
Future Volume (vph)	64	231	11	185	296	29	16	117	57	38	199	108
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	
Lane Util. Factor		0.95		1.00	0.95			0.95			0.95	
Frbp, ped/bikes		0.99		1.00	0.99			0.95			0.95	
Flpb, ped/bikes		0.99		0.95	1.00			1.00			1.00	
Frt		0.99		1.00	0.99			0.95			0.95	
Flt Protected		0.99		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		3483		1770	3492			3365			3355	
Flt Permitted		0.80		0.95	1.00			0.91			0.90	
Satd. Flow (perm)		2828		1770	3492			3077			3043	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	68	246	12	197	315	31	17	124	61	40	212	115
RTOR Reduction (vph)	0	4	0	0	10	0	0	42	0	0	69	0
Lane Group Flow (vph)	0	322	0	197	336	0	0	160	0	0	298	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2							8			4	
Actuated Green, G (s)		14.1		9.3	28.4			17.2			17.2	
Effective Green, g (s)		14.1		9.3	28.4			17.2			17.2	
Actuated g/C Ratio		0.25		0.17	0.51			0.31			0.31	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		717		296	1783			951			941	
v/s Ratio Prot				c0.11	0.10							
v/s Ratio Perm		c0.11						0.05			c0.10	
v/c Ratio		0.45		0.67	0.19			0.17			0.32	
Uniform Delay, d1		17.5		21.7	7.4			14.0			14.7	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		0.5		5.6	0.1			0.1			0.2	
Delay (s)		17.9		27.2	7.4			14.1			14.9	
Level of Service		B		C	A			B			B	
Approach Delay (s)		17.9			14.6			14.1			14.9	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay	15.4			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.44											
Actuated Cycle Length (s)	55.6			Sum of lost time (s)			15.0					
Intersection Capacity Utilization	51.1%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
16: Kamakee St & Queen St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	112	497	44	282	514	53	43	169	71	66	133	52
Future Volume (vph)	112	497	44	282	514	53	43	169	71	66	133	52
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	
Lane Util. Factor		0.95		1.00	0.95			0.95			0.95	
Fr _t		0.99		1.00	0.99			0.96			0.97	
Flt Protected		0.99		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		3474		1770	3490			3380			3385	
Flt Permitted		0.74		0.95	1.00			0.86			0.75	
Satd. Flow (perm)		2579		1770	3490			2918			2587	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	117	518	46	294	535	55	45	176	74	69	139	54
RTOR Reduction (vph)	0	5	0	0	8	0	0	27	0	0	19	0
Lane Group Flow (vph)	0	676	0	294	582	0	0	268	0	0	243	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		30.1		19.8	54.9			15.6			15.6	
Effective Green, g (s)		30.1		19.8	54.9			15.6			15.6	
Actuated g/C Ratio		0.37		0.25	0.68			0.19			0.19	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		964		435	2380			565			501	
v/s Ratio Prot				c0.17	0.17							
v/s Ratio Perm		c0.26						0.09			c0.09	
v/c Ratio		0.70		0.68	0.24			0.48			0.49	
Uniform Delay, d1		21.4		27.4	4.9			28.8			28.9	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.3		4.1	0.1			0.6			0.7	
Delay (s)		23.7		31.6	4.9			29.4			29.6	
Level of Service		C		C	A			C			C	
Approach Delay (s)		23.7			13.8			29.4			29.6	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
17: Queens Ln & Queen St

7/19/2016

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	
Traffic Volume (veh/h)	321	21	99	489	24	73
Future Volume (Veh/h)	321	21	99	489	24	73
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	338	22	104	515	25	77
Pedestrians					19	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					2	
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (ft)	564			680		
pX, platoon unblocked						
vC, conflicting volume			379		834	199
vC1, stage 1 conf vol					368	
vC2, stage 2 conf vol					466	
vCu, unblocked vol			379		834	199
tC, single (s)			4.1		*5.8	*5.9
tC, 2 stage (s)					4.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			91		95	91
cM capacity (veh/h)			1157		547	843

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	225	135	104	258	258	102
Volume Left	0	0	104	0	0	25
Volume Right	0	22	0	0	0	77
cSH	1700	1700	1157	1700	1700	744
Volume to Capacity	0.13	0.08	0.09	0.15	0.15	0.14
Queue Length 95th (ft)	0	0	7	0	0	12
Control Delay (s)	0.0	0.0	8.4	0.0	0.0	10.6
Lane LOS			A			B
Approach Delay (s)	0.0		1.4			10.6
Approach LOS						B

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization		32.7%	ICU Level of Service A
Analysis Period (min)		15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
17: Queens Ln & Queen St

7/19/2016

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕↕		↙	↕↕	↘	
Traffic Volume (veh/h)	595	10	76	792	48	196
Future Volume (Veh/h)	595	10	76	792	48	196
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	669	11	85	890	54	220
Pedestrians	19					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)						
Median type	TWLTL		None			
Median storage (veh)	2					
Upstream signal (ft)	564		687			
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			699		1308	359
vC1, stage 1 conf vol					694	
vC2, stage 2 conf vol					615	
vCu, unblocked vol			473		1142	100
tC, single (s)			4.1		*5.8	*5.9
tC, 2 stage (s)					4.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			91		88	75
cM capacity (veh/h)			973		446	864
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	446	234	85	445	445	274
Volume Left	0	0	85	0	0	54
Volume Right	0	11	0	0	0	220
cSH	1700	1700	973	1700	1700	729
Volume to Capacity	0.26	0.14	0.09	0.26	0.26	0.38
Queue Length 95th (ft)	0	0	7	0	0	44
Control Delay (s)	0.0	0.0	9.1	0.0	0.0	12.9
Lane LOS			A			B
Approach Delay (s)	0.0		0.8		12.9	
Approach LOS					B	
Intersection Summary						
Average Delay	2.2					
Intersection Capacity Utilization	45.8%		ICU Level of Service		A	
Analysis Period (min)	15					
* User Entered Value						

HCM Signalized Intersection Capacity Analysis
24: Ward Ave & Halekauwila St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕					↙	↕↕		↘	↕↕	↘
Traffic Volume (vph)	108	13	9	0	0	0	42	439	3	16	571	253
Future Volume (vph)	108	13	9	0	0	0	42	439	3	16	571	253
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
Lane Util. Factor	1.00			1.00			0.95	0.95	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00			1.00			1.00	1.00	1.00	1.00	1.00	0.93
Flpb, ped/bikes	1.00			1.00			0.98	1.00	1.00	1.00	1.00	1.00
Frt	0.99			1.00			1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.96			0.95			1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1766			1728			3536	3536	1770	3539	1468	1468
Flt Permitted	0.96			0.43			1.00	1.00	0.49	1.00	1.00	1.00
Satd. Flow (perm)	1766			776			3536	3536	911	3539	1468	1468
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	111	13	9	0	0	0	43	453	3	16	589	261
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	127
Lane Group Flow (vph)	0	131	0	0	0	0	43	456	0	16	589	134
Confl. Peds. (#/hr)	2		44				42					42
Turn Type	Perm	NA					Perm	NA	Perm	NA	Perm	Perm
Protected Phases		4					2	2		6	6	6
Permitted Phases	4						2		6			6
Actuated Green, G (s)		15.0					26.2	26.2	26.2	26.2	26.2	26.2
Effective Green, g (s)		15.0					26.2	26.2	26.2	26.2	26.2	26.2
Actuated g/C Ratio		0.29					0.51	0.51	0.51	0.51	0.51	0.51
Clearance Time (s)		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	3.0
Lane Grp Cap (vph)		517					397	1809	466	1810	751	751
v/s Ratio Prot								0.13		c0.17		
v/s Ratio Perm		0.07					0.06		0.02		0.09	0.09
v/c Ratio		0.25					0.11	0.25	0.03	0.33	0.18	0.18
Uniform Delay, d1		13.8					6.5	7.0	6.2	7.3	6.7	6.7
Progression Factor		1.00					1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.3					0.1	0.1	0.0	0.1	0.1	0.1
Delay (s)		14.1					6.6	7.1	6.2	7.4	6.8	6.8
Level of Service		B					A	A	A	A	A	A
Approach Delay (s)		14.1			0.0			7.0			7.2	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay	7.8			HCM 2000 Level of Service			A					
HCM 2000 Volume to Capacity ratio	0.30											
Actuated Cycle Length (s)	51.2			Sum of lost time (s)			10.0					
Intersection Capacity Utilization	50.7%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
24: Ward Ave & Halekauwila St/Driveway

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕					↕	↕		↕	↕	
Traffic Volume (vph)	244	22	87	0	0	0	18	767	6	33	710	158
Future Volume (vph)	244	22	87	0	0	0	18	767	6	33	710	158
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	
Lane Util. Factor		1.00					1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.98					1.00	1.00		1.00	0.98	
Flpb, ped/bikes		1.00					0.98	1.00		1.00	1.00	
Frt		0.97					1.00	1.00		1.00	0.97	
Flt Protected		0.97					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1711					1733	3535		1770	3376	
Flt Permitted		0.97					0.22	1.00		0.27	1.00	
Satd. Flow (perm)		1711					408	3535		507	3376	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	254	23	91	0	0	0	19	799	6	34	740	165
RTOR Reduction (vph)	0	13	0	0	0	0	0	1	0	0	24	0
Lane Group Flow (vph)	0	355	0	0	0	0	19	804	0	34	881	0
Confl. Peds. (#/hr)			91				63			63		63
Turn Type	Perm	NA					Perm	NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4						2			6		
Actuated Green, G (s)		22.5					23.1	23.1		23.1	23.1	
Effective Green, g (s)		22.5					23.1	23.1		23.1	23.1	
Actuated g/C Ratio		0.40					0.42	0.42		0.42	0.42	
Clearance Time (s)		5.0					5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0					3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		692					169	1468		210	1402	
v/s Ratio Prot								0.23			c0.26	
v/s Ratio Perm		0.21					0.05			0.07		
v/c Ratio		0.51					0.11	0.55		0.16	0.63	
Uniform Delay, d1		12.4					10.0	12.3		10.2	12.9	
Progression Factor		1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6					0.3	0.4		0.4	0.9	
Delay (s)		13.1					10.3	12.7		10.5	13.7	
Level of Service		B					B	B		B	B	
Approach Delay (s)		13.1			0.0			12.7			13.6	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		13.2					HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		55.6					Sum of lost time (s)			10.0		
Intersection Capacity Utilization		57.4%					ICU Level of Service			B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
34: Ward Ave & Auahi St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕	↕	↕	↕	↕	↕	↕	↕	↕	↕
Traffic Volume (vph)	25	72	35	90	100	141	59	319	77	95	462	69
Future Volume (vph)	25	72	35	90	100	141	59	319	77	95	462	69
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	
Lane Util. Factor		0.95	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		1.00	1.00	1.00	0.98		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		0.99	1.00		0.98	1.00	
Frt		1.00	0.85	1.00	0.91		1.00	0.97		1.00	0.98	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3484	1583	1770	1671		1747	3407		1739	3449	
Flt Permitted		0.86	1.00	0.69	1.00		0.43	1.00		0.50	1.00	
Satd. Flow (perm)		3024	1583	1277	1671		793	3407		917	3449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	78	38	98	109	153	64	347	84	103	502	75
RTOR Reduction (vph)	0	0	25	0	66	0	0	24	0	0	13	0
Lane Group Flow (vph)	0	105	13	98	196	0	64	407	0	103	564	0
Confl. Peds. (#/hr)		37					37	34		63	63	34
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		15.5	15.5	15.5	15.5		20.8	20.8		20.8	20.8	
Effective Green, g (s)		15.5	15.5	15.5	15.5		20.8	20.8		20.8	20.8	
Actuated g/C Ratio		0.33	0.33	0.33	0.33		0.45	0.45		0.45	0.45	
Clearance Time (s)		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		3.0	3.0	
Lane Grp Cap (vph)		1012	529	427	559		356	1530		411	1549	
v/s Ratio Prot					c0.12			0.12			c0.16	
v/s Ratio Perm		0.03	0.01	0.08			0.08			0.11		
v/c Ratio		0.10	0.02	0.23	0.35		0.18	0.27		0.25	0.36	
Uniform Delay, d1		10.6	10.3	11.1	11.6		7.6	8.0		7.9	8.4	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0	0.0	0.3	0.4		0.2	0.1		0.3	0.1	
Delay (s)		10.7	10.3	11.4	12.0		7.9	8.1		8.2	8.5	
Level of Service		B	B	B	B		A	A		A	A	
Approach Delay (s)		10.6			11.8			8.0			8.5	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay		9.3					HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio		0.36										
Actuated Cycle Length (s)		46.3					Sum of lost time (s)			10.0		
Intersection Capacity Utilization		62.0%					ICU Level of Service			B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
34: Ward Ave & Auahi St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗	↖	↔		↗	↔↔		↖	↔↔	
Traffic Volume (vph)	31	171	66	137	92	275	48	448	191	313	439	70
Future Volume (vph)	31	171	66	137	92	275	48	448	191	313	439	70
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	
Lane Util. Factor		0.95	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		1.00	0.96	1.00	0.95		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	0.98	1.00		0.97	1.00		0.97	1.00	
Frt		1.00	0.85	1.00	0.89		1.00	0.96		1.00	0.98	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3498	1517	1730	1575		1720	3297		1721	3429	
Flt Permitted		0.83	1.00	0.62	1.00		0.44	1.00		0.37	1.00	
Satd. Flow (perm)		2937	1517	1131	1575		805	3297		674	3429	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	32	176	68	141	95	284	49	462	197	323	453	72
RTOR Reduction (vph)	0	0	47	0	123	0	0	52	0	0	14	0
Lane Group Flow (vph)	0	208	21	141	256	0	49	607	0	323	511	0
Confl. Peds. (#/hr)	67		39	39		67	43		87	87		43
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		24.2	24.2	24.2	24.2		43.3	43.3		43.3	43.3	
Effective Green, g (s)		24.2	24.2	24.2	24.2		43.3	43.3		43.3	43.3	
Actuated g/C Ratio		0.31	0.31	0.31	0.31		0.56	0.56		0.56	0.56	
Clearance Time (s)		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		3.0	3.0	
Lane Grp Cap (vph)		917	473	353	491		449	1842		376	1915	
v/s Ratio Prot					c0.16			0.18			0.15	
v/s Ratio Perm		0.07	0.01	0.12			0.06			c0.48		
v/c Ratio		0.23	0.04	0.40	0.52		0.11	0.33		0.86	0.27	
Uniform Delay, d1		19.7	18.6	20.9	21.9		8.0	9.2		14.5	8.9	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1	0.0	0.7	1.0		0.1	0.1		17.4	0.1	
Delay (s)		19.9	18.6	21.7	22.9		8.1	9.4		31.9	8.9	
Level of Service		B	B	C	C		A	A		C	A	
Approach Delay (s)		19.6			22.6			9.3			17.7	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM 2000 Control Delay	16.5			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.74											
Actuated Cycle Length (s)	77.5			Sum of lost time (s)			10.0					
Intersection Capacity Utilization	102.2%			ICU Level of Service			G					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
35: Kamakee St & Auahi St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↗	↔↔		↗	↔↔		↖	↔	↗
Traffic Volume (vph)	54	94	28	25	103	54	40	118	28	25	239	152
Future Volume (vph)	54	94	28	25	103	54	40	118	28	25	239	152
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
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00
Frbp, ped/bikes		1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.96
Flpb, ped/bikes		1.00	1.00		1.00	1.00		0.98	1.00		0.98	1.00
Frt		1.00	0.97		1.00	0.95		1.00	0.97		1.00	0.85
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1770	3389		1770	3357		1739	3418		1742	1863
Flt Permitted		0.95	1.00		0.95	1.00		0.60	1.00		0.65	1.00
Satd. Flow (perm)		1770	3389		1770	3357		1099	3418		1197	1863
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	58	101	30	27	111	58	43	127	30	27	257	163
RTOR Reduction (vph)	0	22	0	0	44	0	0	17	0	0	0	94
Lane Group Flow (vph)	58	109	0	27	125	0	43	140	0	27	257	69
Confl. Peds. (#/hr)			34	34			43		33	33		43
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			8	4
Permitted Phases							8			4		4
Actuated Green, G (s)	2.1	13.4		1.6	12.9		22.0	22.0		22.0	22.0	22.0
Effective Green, g (s)	2.1	13.4		1.6	12.9		22.0	22.0		22.0	22.0	22.0
Actuated g/C Ratio	0.04	0.26		0.03	0.25		0.42	0.42		0.42	0.42	0.42
Clearance Time (s)	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		3.0	3.0	3.0
Lane Grp Cap (vph)	71	873		54	832		464	1446		506	788	645
v/s Ratio Prot	c0.03	0.03		0.02	c0.04			0.04			c0.14	
v/s Ratio Perm							0.04			0.02		0.05
v/c Ratio	0.82	0.12		0.50	0.15		0.09	0.10		0.05	0.33	0.11
Uniform Delay, d1	24.8	14.8		24.8	15.3		9.0	9.0		8.9	10.0	9.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	49.3	0.1		7.1	0.1		0.1	0.0		0.0	0.2	0.1
Delay (s)	74.0	14.9		31.9	15.4		9.1	9.1		8.9	10.3	9.1
Level of Service	E	B		C	B		A	A		A	B	A
Approach Delay (s)		33.0			17.6			9.1			9.8	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay	15.4			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.29											
Actuated Cycle Length (s)	52.0			Sum of lost time (s)			15.0					
Intersection Capacity Utilization	56.7%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
35: Kamakee St & Auahi St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖	↗
Traffic Volume (vph)	100	315	132	9	163	77	78	172	46	99	257	161
Future Volume (vph)	100	315	132	9	163	77	78	172	46	99	257	161
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	0.95		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.95		1.00	0.95		1.00	0.97		1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.94	1.00		0.91	1.00	1.00
Frt	1.00	0.96		1.00	0.95		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3199		1770	3213		1659	3331		1607	1863	1408
Flt Permitted	0.95	1.00		0.95	1.00		0.47	1.00		0.61	1.00	1.00
Satd. Flow (perm)	1770	3199		1770	3213		823	3331		1030	1863	1408
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	332	139	9	172	81	82	181	48	104	271	169
RTOR Reduction (vph)	0	51	0	0	48	0	0	26	0	0	0	121
Lane Group Flow (vph)	105	420	0	9	205	0	82	203	0	104	271	48
Confl. Peds. (#/hr)			167			209	105		137	137		105
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	7.3	36.8		0.7	30.2		21.1	21.1		21.1	21.1	21.1
Effective Green, g (s)	7.3	36.8		0.7	30.2		21.1	21.1		21.1	21.1	21.1
Actuated g/C Ratio	0.10	0.50		0.01	0.41		0.29	0.29		0.29	0.29	0.29
Clearance Time (s)	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		3.0	3.0	3.0
Lane Grp Cap (vph)	175	1599		16	1318		235	954		295	534	403
v/s Ratio Prot	c0.06	c0.13		0.01	0.06			0.06			c0.15	
v/s Ratio Perm							0.10			0.10		0.03
v/c Ratio	0.60	0.26		0.56	0.16		0.35	0.21		0.35	0.51	0.12
Uniform Delay, d1	31.8	10.6		36.3	13.7		20.8	19.9		20.8	21.9	19.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.5	0.1		38.3	0.1		0.9	0.1		0.7	0.8	0.1
Delay (s)	37.2	10.7		74.6	13.7		21.7	20.1		21.6	22.7	19.5
Level of Service	D	B		E	B		C	C		C	C	B
Approach Delay (s)		15.5			15.8			20.5			21.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	73.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
36: Queens Lane/Queens Ln & Auahi St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗				↖	↗		↖	↗	↖↗
Traffic Volume (vph)	46	7	53	0	0	0	94	76	6	21	42	52
Future Volume (vph)	46	7	53	0	0	0	94	76	6	21	42	52
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
Lane Util. Factor		1.00	1.00				1.00	1.00				1.00
Frbp, ped/bikes		1.00	0.96				1.00	1.00				0.97
Flpb, ped/bikes		0.99	1.00				1.00	1.00				1.00
Frt		1.00	0.85				1.00	0.99				0.94
Flt Protected		0.96	1.00				0.95	1.00				0.99
Satd. Flow (prot)		1760	1521				1770	1836				1678
Flt Permitted		0.96	1.00				0.95	1.00				0.95
Satd. Flow (perm)		1760	1521				1770	1836				1603
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	53	8	61	0	0	0	108	87	7	24	48	60
RTOR Reduction (vph)	0	0	50	0	0	0	0	3	0	0	30	0
Lane Group Flow (vph)	0	61	11	0	0	0	108	91	0	0	102	0
Confl. Peds. (#/hr)	12		34	34		12			16	16		62
Turn Type	Perm	NA	Perm				Prot	NA		Perm	NA	
Protected Phases		4					5	2			6	
Permitted Phases	4		4							6		
Actuated Green, G (s)		8.5	8.5				6.9	30.4				18.5
Effective Green, g (s)		8.5	8.5				6.9	30.4				18.5
Actuated g/C Ratio		0.17	0.17				0.14	0.62				0.38
Clearance Time (s)		5.0	5.0				5.0	5.0				5.0
Vehicle Extension (s)		3.0	3.0				3.0	3.0				3.0
Lane Grp Cap (vph)		305	264				249	1141				606
v/s Ratio Prot							c0.06	0.05				
v/s Ratio Perm		0.03	0.01									c0.06
v/c Ratio		0.20	0.04				0.43	0.08				0.17
Uniform Delay, d1		17.3	16.8				19.2	3.7				10.1
Progression Factor		1.00	1.00				1.00	1.00				1.00
Incremental Delay, d2		0.3	0.1				1.2	0.0				0.1
Delay (s)		17.6	16.9				20.4	3.7				10.2
Level of Service		B	B				C	A				B
Approach Delay (s)		17.2				0.0		12.6				10.2
Approach LOS		B				A		B				B

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 36: Queens Lane/Queens Ln & Auahi St

7/19/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔				↔	↔			↔	
Traffic Volume (vph)	92	10	178	0	0	0	186	102	11	18	78	52
Future Volume (vph)	92	10	178	0	0	0	186	102	11	18	78	52
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	
Lane Util. Factor		1.00	1.00				1.00	1.00			1.00	
Frbp, ped/bikes		1.00	0.92				1.00	0.99			0.96	
Flpb, ped/bikes		0.92	1.00				1.00	1.00			0.99	
Frt		1.00	0.85				1.00	0.99			0.95	
Flt Protected		0.96	1.00				0.95	1.00			0.99	
Satd. Flow (prot)		1632	1453				1770	1819			1685	
Flt Permitted		0.96	1.00				0.95	1.00			0.96	
Satd. Flow (perm)		1632	1453				1770	1819			1623	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	101	11	196	0	0	0	204	112	12	20	86	57
RTOR Reduction (vph)	0	0	150	0	0	0	0	5	0	0	22	0
Lane Group Flow (vph)	0	112	46	0	0	0	204	119	0	0	141	0
Confl. Peds. (#/hr)	60		77	77		60			48	48		104
Turn Type	Perm	NA	Perm				Prot	NA		Perm	NA	
Protected Phases		4					5	2			6	
Permitted Phases	4		4							6		
Actuated Green, G (s)		13.1	13.1				12.2	32.9			15.7	
Effective Green, g (s)		13.1	13.1				12.2	32.9			15.7	
Actuated g/C Ratio		0.23	0.23				0.22	0.59			0.28	
Clearance Time (s)		5.0	5.0				5.0	5.0			5.0	
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		381	339				385	1068			455	
v/s Ratio Prot							c0.12	0.07				
v/s Ratio Perm		0.07	0.03								c0.09	
v/c Ratio		0.29	0.14				0.53	0.11			0.31	
Uniform Delay, d1		17.6	17.0				19.4	5.1			15.9	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.4	0.2				1.3	0.0			0.4	
Delay (s)		18.1	17.2				20.7	5.1			16.3	
Level of Service		B	B				C	A			B	
Approach Delay (s)		17.5		0.0			14.8				16.3	
Approach LOS		B		A			B				B	
Intersection Summary												
HCM 2000 Control Delay		16.1										B
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		56.0						15.0				
Intersection Capacity Utilization		56.2%										B
Analysis Period (min)		15										
c Critical Lane Group												

APPENDIX E
CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2021 PEAK PERIOD TRAFFIC
ANALYSIS WITHOUT PROJECT

HCM Signalized Intersection Capacity Analysis
15: Ward Ave & Queen St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	201	79	90	412	95	81	451	69	58	720	204
Future Volume (vph)	51	201	79	90	412	95	81	451	69	58	720	204
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	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1759	1772		1756	1801		1770	3426		1770	3374	
Flt Permitted	0.19	1.00		0.48	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	360	1772		883	1801		1770	3426		1770	3374	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	54	214	84	96	438	101	86	480	73	62	766	217
RTOR Reduction (vph)	0	16	0	0	10	0	0	13	0	0	29	0
Lane Group Flow (vph)	54	282	0	96	529	0	86	540	0	62	954	0
Confl. Peds. (#/hr)	21		15	15		21			58			34
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	27.9	27.9		27.9	27.9		5.7	29.0		5.6	28.9	
Effective Green, g (s)	27.9	27.9		27.9	27.9		5.7	29.0		5.6	28.9	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.07	0.37		0.07	0.37	
Clearance Time (s)	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		3.0	3.0	
Lane Grp Cap (vph)	129	637		317	648		130	1281		127	1258	
v/s Ratio Prot		0.16			c0.29		c0.05	0.16		0.04	c0.28	
v/s Ratio Perm	0.15			0.11								
v/c Ratio	0.42	0.44		0.30	0.82		0.66	0.42		0.49	0.76	
Uniform Delay, d1	18.7	18.9		17.8	22.5		35.0	18.0		34.6	21.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.5		0.5	7.9		11.9	0.2		2.9	2.7	
Delay (s)	20.9	19.4		18.4	30.4		46.9	18.2		37.5	23.9	
Level of Service	C	B		B	C		D	B		D	C	
Approach Delay (s)		19.6			28.5			22.1			24.7	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			24.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			77.5				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			79.4%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
15: Ward Ave & Queen St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	104	473	139	98	438	101	61	775	158	179	798	83
Future Volume (vph)	104	473	139	98	438	101	61	775	158	179	798	83
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	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1764	1785		1760	1803		1770	3362		1770	3455	
Flt Permitted	0.21	1.00		0.13	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	388	1785		248	1803		1770	3362		1770	3455	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	108	493	145	102	456	105	64	807	165	186	831	86
RTOR Reduction (vph)	0	12	0	0	9	0	0	19	0	0	8	0
Lane Group Flow (vph)	108	626	0	102	552	0	64	953	0	186	909	0
Confl. Peds. (#/hr)	11		25	25		11			88			59
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)	36.0	36.0		36.0	36.0		5.5	29.9		9.0	33.4	
Effective Green, g (s)	36.0	36.0		36.0	36.0		5.5	29.9		9.0	33.4	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.06	0.33		0.10	0.37	
Clearance Time (s)	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		3.0	3.0	
Lane Grp Cap (vph)	155	714		99	722		108	1118		177	1283	
v/s Ratio Prot		0.35			0.31		0.04	c0.28		c0.11	c0.26	
v/s Ratio Perm	0.28			c0.41								
v/c Ratio	0.70	0.88		1.03	0.76		0.59	0.85		1.05	0.71	
Uniform Delay, d1	22.4	24.9		27.0	23.3		41.1	27.9		40.5	24.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.8	11.7		98.9	4.8		8.4	6.4		81.7	1.8	
Delay (s)	35.2	36.6		125.8	28.1		49.5	34.4		122.2	25.9	
Level of Service	D	D		F	C		D	C		F	C	
Approach Delay (s)		36.4			43.2			35.3			42.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: Kamakee St & Queen St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↔	↔		↖	↗	
Traffic Volume (vph)	64	233	12	183	300	29	16	116	55	38	196	113
Future Volume (vph)	64	233	12	183	300	29	16	116	55	38	196	113
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	
Lane Util. Factor		0.95		1.00	0.95			0.95			0.95	
Frt		0.99		1.00	0.99			0.96			0.95	
Flt Protected		0.99		0.95	1.00			1.00			0.99	
Satd. Flow (prot)		3482		1770	3492			3367			3348	
Flt Permitted		0.80		0.95	1.00			0.91			0.90	
Satd. Flow (perm)		2817		1770	3492			3073			3035	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	68	248	13	195	319	31	17	123	59	40	209	120
RTOR Reduction (vph)	0	4	0	0	9	0	0	42	0	0	66	0
Lane Group Flow (vph)	0	325	0	195	341	0	0	157	0	0	303	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		14.2		12.8	32.0			17.1			17.1	
Effective Green, g (s)		14.2		12.8	32.0			17.1			17.1	
Actuated g/C Ratio		0.24		0.22	0.54			0.29			0.29	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		676		383	1890			889			878	
v/s Ratio Prot				c0.11	0.10							
v/s Ratio Perm		c0.12						0.05			c0.10	
v/c Ratio		0.48		0.51	0.18			0.18			0.34	
Uniform Delay, d1		19.3		20.4	6.9			15.7			16.6	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		0.5		1.1	0.0			0.1			0.2	
Delay (s)		19.8		21.5	6.9			15.8			16.8	
Level of Service		B		C	A			B			B	
Approach Delay (s)		19.8			12.1			15.8			16.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: Kamakee St & Queen St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↕↔			↕↔			↕↔	
Traffic Volume (vph)	113	502	45	256	519	54	44	165	57	67	134	51
Future Volume (vph)	113	502	45	256	519	54	44	165	57	67	134	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	
Lane Util. Factor		0.95		1.00	0.95			0.95			0.95	
Fr't		0.99		1.00	0.99			0.97			0.97	
Flt Protected		0.99		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		3473		1770	3489			3398			3387	
Flt Permitted		0.74		0.95	1.00			0.85			0.77	
Satd. Flow (perm)		2576		1770	3489			2911			2648	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	118	523	47	267	541	56	46	172	59	70	140	53
RTOR Reduction (vph)	0	5	0	0	8	0	0	20	0	0	18	0
Lane Group Flow (vph)	0	683	0	267	589	0	0	257	0	0	245	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		29.9		18.2	53.1			15.5			15.5	
Effective Green, g (s)		29.9		18.2	53.1			15.5			15.5	
Actuated g/C Ratio		0.38		0.23	0.68			0.20			0.20	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		979		409	2357			574			522	
v/s Ratio Prot				c0.15	0.17							
v/s Ratio Perm		c0.27						0.09			c0.09	
v/c Ratio		0.70		0.65	0.25			0.45			0.47	
Uniform Delay, d1		20.5		27.3	5.0			27.8			27.9	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.2		3.7	0.1			0.6			0.7	
Delay (s)		22.7		31.1	5.0			28.3			28.6	
Level of Service		C		C	A			C			C	
Approach Delay (s)		22.7			13.1			28.3			28.6	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay		20.2					HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio		0.63										
Actuated Cycle Length (s)		78.6					Sum of lost time (s)		15.0			
Intersection Capacity Utilization		66.3%					ICU Level of Service				C	
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
17: Queens Ln & Queen St

3/7/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕↔		↖	↕↔	↖	
Traffic Volume (veh/h)	321	21	100	491	25	74
Future Volume (Veh/h)	321	21	100	491	25	74
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	338	22	105	517	26	78
Pedestrians					19	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					2	
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (ft)	564			680		
pX, platoon unblocked						
vC, conflicting volume			379		836	199
vC1, stage 1 conf vol					368	
vC2, stage 2 conf vol					468	
vCu, unblocked vol			379		836	199
tC, single (s)			4.1		*5.8	*5.9
tC, 2 stage (s)					4.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			91		95	91
cM capacity (veh/h)			1157		546	843
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	225	135	105	258	258	104
Volume Left	0	0	105	0	0	26
Volume Right	0	22	0	0	0	78
cSH	1700	1700	1157	1700	1700	742
Volume to Capacity	0.13	0.08	0.09	0.15	0.15	0.14
Queue Length 95th (ft)	0	0	7	0	0	12
Control Delay (s)	0.0	0.0	8.4	0.0	0.0	10.6
Lane LOS			A			B
Approach Delay (s)	0.0		1.4			10.6
Approach LOS						B
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			32.9%		ICU Level of Service	A
Analysis Period (min)			15			

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
17: Queens Ln & Queen St

3/7/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↗	
Traffic Volume (veh/h)	588	10	77	771	48	199
Future Volume (Veh/h)	588	10	77	771	48	199
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	661	11	87	866	54	224
Pedestrians					19	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					2	
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (ft)	564			687		
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			691		1292	355
vC1, stage 1 conf vol					686	
vC2, stage 2 conf vol					607	
vCu, unblocked vol			469		1128	100
tC, single (s)			4.1		*5.8	*5.9
tC, 2 stage (s)					4.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			91		88	74
cM capacity (veh/h)			978		450	865
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	441	231	87	433	433	278
Volume Left	0	0	87	0	0	54
Volume Right	0	11	0	0	0	224
cSH	1700	1700	978	1700	1700	733
Volume to Capacity	0.26	0.14	0.09	0.25	0.25	0.38
Queue Length 95th (ft)	0	0	7	0	0	44
Control Delay (s)	0.0	0.0	9.0	0.0	0.0	12.9
Lane LOS			A			B
Approach Delay (s)	0.0		0.8			12.9
Approach LOS						B
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			45.8%		ICU Level of Service	A
Analysis Period (min)			15			

* User Entered Value

HCM Signalized Intersection Capacity Analysis
24: Ward Ave & Halekauwila St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔					↖	↑↑		↗	↑↑	↗
Traffic Volume (vph)	113	13	7	0	0	0	40	437	3	16	566	256
Future Volume (vph)	113	13	7	0	0	0	40	437	3	16	566	256
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
Lane Util. Factor		1.00					1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00					1.00	1.00		1.00	1.00	0.93
Flpb, ped/bikes		1.00					0.98	1.00		1.00	1.00	1.00
Frt		0.99					1.00	1.00		1.00	1.00	0.85
Flt Protected		0.96					0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1769					1728	3536		1770	3539	1469
Flt Permitted		0.96					0.43	1.00		0.49	1.00	1.00
Satd. Flow (perm)		1769					780	3536		913	3539	1469
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	116	13	7	0	0	0	41	451	3	16	584	264
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	130
Lane Group Flow (vph)	0	135	0	0	0	0	41	454	0	16	584	134
Confl. Peds. (#/hr)	2		44				42					42
Turn Type	Perm	NA					Perm	NA		Perm	NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4						2			6		6
Actuated Green, G (s)		15.1					25.9	25.9		25.9	25.9	25.9
Effective Green, g (s)		15.1					25.9	25.9		25.9	25.9	25.9
Actuated g/C Ratio		0.30					0.51	0.51		0.51	0.51	0.51
Clearance Time (s)		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
Lane Grp Cap (vph)		523					396	1795		463	1797	746
v/s Ratio Prot								0.13			c0.17	
v/s Ratio Perm		0.08					0.05			0.02		0.09
v/c Ratio		0.26					0.10	0.25		0.03	0.32	0.18
Uniform Delay, d1		13.7					6.5	7.1		6.3	7.4	6.8
Progression Factor		1.00					1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.3					0.1	0.1		0.0	0.1	0.1
Delay (s)		13.9					6.6	7.2		6.3	7.5	6.9
Level of Service		B					A	A		A	A	A
Approach Delay (s)		13.9			0.0			7.1			7.3	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.8									A
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			51.0							10.0		
Intersection Capacity Utilization			50.7%									A
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
24: Ward Ave & Halekauwila St/Driveway

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕					↗	↕	↖	↗	↕	↖
Traffic Volume (vph)	245	23	78	0	0	0	8	742	6	33	679	161
Future Volume (vph)	245	23	78	0	0	0	8	742	6	33	679	161
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	
Lane Util. Factor		1.00					1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.98					1.00	1.00		1.00	0.98	
Flpb, ped/bikes		1.00					0.98	1.00		1.00	1.00	
Frt		0.97					1.00	1.00		1.00	0.97	
Flt Protected		0.97					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1718					1731	3535		1770	3368	
Flt Permitted		0.97					0.24	1.00		0.29	1.00	
Satd. Flow (perm)		1718					431	3535		531	3368	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	255	24	81	0	0	0	8	773	6	34	707	168
RTOR Reduction (vph)	0	11	0	0	0	0	0	1	0	0	26	0
Lane Group Flow (vph)	0	349	0	0	0	0	8	778	0	34	849	0
Confl. Peds. (#/hr)			91				63					63
Turn Type	Perm	NA					Perm	NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4						2			6		
Actuated Green, G (s)		22.3					22.6	22.6		22.6	22.6	
Effective Green, g (s)		22.3					22.6	22.6		22.6	22.6	
Actuated g/C Ratio		0.41					0.41	0.41		0.41	0.41	
Clearance Time (s)		5.0					5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0					3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		697					177	1455		218	1386	
v/s Ratio Prot								0.22			c0.25	
v/s Ratio Perm		0.20					0.02			0.06		
v/c Ratio		0.50					0.05	0.53		0.16	0.61	
Uniform Delay, d1		12.1					9.7	12.2		10.2	12.7	
Progression Factor		1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6					0.1	0.4		0.3	0.8	
Delay (s)		12.7					9.8	12.6		10.5	13.5	
Level of Service		B					A	B		B	B	
Approach Delay (s)		12.7			0.0			12.5			13.4	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	54.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
34: Ward Ave & Auahi St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕	↖	↗	↕	↖	↗	↕	↖	↗	↕	↖
Traffic Volume (vph)	26	71	36	88	100	133	60	324	74	80	468	70
Future Volume (vph)	26	71	36	88	100	133	60	324	74	80	468	70
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	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	0.98		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00		0.99	1.00		0.97	1.00	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	1863	1583	1770	1675		1747	3395		1718	3449	
Flt Permitted	0.60	1.00	1.00	0.71	1.00		0.43	1.00		0.50	1.00	
Satd. Flow (perm)	1096	1863	1583	1317	1675		785	3395		906	3449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	77	39	96	109	145	65	352	80	87	509	76
RTOR Reduction (vph)	0	0	26	0	63	0	0	22	0	0	13	0
Lane Group Flow (vph)	28	77	13	96	191	0	65	410	0	87	572	0
Confl. Peds. (#/hr)	37					37	34		63	63		34
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	15.4	15.4	15.4	15.4	15.4		21.4	21.4		21.4	21.4	
Effective Green, g (s)	15.4	15.4	15.4	15.4	15.4		21.4	21.4		21.4	21.4	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33		0.46	0.46		0.46	0.46	
Clearance Time (s)	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	3.0		3.0	3.0	
Lane Grp Cap (vph)	360	613	520	433	551		358	1552		414	1577	
v/s Ratio Prot		0.04			c0.11			0.12			c0.17	
v/s Ratio Perm	0.03		0.01	0.07			0.08			0.10		
v/c Ratio	0.08	0.13	0.02	0.22	0.35		0.18	0.26		0.21	0.36	
Uniform Delay, d1	10.8	11.0	10.6	11.4	11.9		7.5	7.8		7.6	8.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.3	0.4		0.2	0.1		0.3	0.1	
Delay (s)	10.9	11.1	10.6	11.6	12.3		7.8	7.9		7.9	8.4	
Level of Service	B	B	B	B	B		A	A		A	A	
Approach Delay (s)		10.9			12.1			7.9			8.3	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	46.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
34: Ward Ave & Auahi St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑↓	↗	↖	↑↓	↗
Traffic Volume (vph)	31	165	67	126	87	232	48	454	180	267	445	71
Future Volume (vph)	31	165	67	126	87	232	48	454	180	267	445	71
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	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.96	1.00	0.96		1.00	0.96		1.00	0.99	
Flpb, ped/bikes	0.97	1.00	1.00	0.98	1.00		0.97	1.00		0.96	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1721	1863	1521	1731	1589		1724	3264		1695	3431	
Flt Permitted	0.43	1.00	1.00	0.65	1.00		0.44	1.00		0.37	1.00	
Satd. Flow (perm)	787	1863	1521	1184	1589		795	3264		659	3431	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	32	170	69	130	90	239	49	468	186	275	459	73
RTOR Reduction (vph)	0	0	45	0	105	0	0	51	0	0	15	0
Lane Group Flow (vph)	32	170	24	130	224	0	49	603	0	275	517	0
Confl. Peds. (#/hr)	67		39	39		67	43		87	87		43
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	24.3	24.3	24.3	24.3	24.3		37.0	37.0		37.0	37.0	
Effective Green, g (s)	24.3	24.3	24.3	24.3	24.3		37.0	37.0		37.0	37.0	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34		0.52	0.52		0.52	0.52	
Clearance Time (s)	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	3.0		3.0	3.0	
Lane Grp Cap (vph)	268	634	518	403	541		412	1693		341	1780	
v/s Ratio Prot		0.09			c0.14			0.18			0.15	
v/s Ratio Perm	0.04		0.02	0.11			0.06			c0.42		
v/c Ratio	0.12	0.27	0.05	0.32	0.41		0.12	0.36		0.81	0.29	
Uniform Delay, d1	16.1	17.0	15.7	17.4	18.0		8.8	10.1		14.2	9.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.2	0.0	0.5	0.5		0.1	0.1		13.0	0.1	
Delay (s)	16.3	17.3	15.8	17.9	18.6		8.9	10.3		27.2	9.8	
Level of Service	B	B	B	B	B		A	B		C	A	
Approach Delay (s)		16.8			18.4			10.2			15.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	10.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
35: Kamakee St & Auahi St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↓	↗	↖	↑↓	↗	↖	↑↓	↗	↖	↑	↗
Traffic Volume (vph)	50	96	22	25	104	55	35	119	29	26	242	142
Future Volume (vph)	50	96	22	25	104	55	35	119	29	26	242	142
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	0.95		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.97	1.00		0.98	1.00	1.00
Frt	1.00	0.97		1.00	0.95		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3415		1770	3356		1719	3415		1743	1863	1488
Flt Permitted	0.95	1.00		0.95	1.00		0.60	1.00		0.65	1.00	1.00
Satd. Flow (perm)	1770	3415		1770	3356		1080	3415		1195	1863	1488
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	54	103	24	27	112	59	38	128	31	28	260	153
RTOR Reduction (vph)	0	18	0	0	44	0	0	18	0	0	0	89
Lane Group Flow (vph)	54	109	0	27	127	0	38	141	0	28	260	64
Confl. Peds. (#/hr)			34	34			43		33	33		43
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8				4	4
Actuated Green, G (s)	2.1	13.6		1.4	12.9		21.5	21.5		21.5	21.5	21.5
Effective Green, g (s)	2.1	13.6		1.4	12.9		21.5	21.5		21.5	21.5	21.5
Actuated g/C Ratio	0.04	0.26		0.03	0.25		0.42	0.42		0.42	0.42	0.42
Clearance Time (s)	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		3.0	3.0	3.0
Lane Grp Cap (vph)	72	901		48	840		450	1425		498	777	621
v/s Ratio Prot	c0.03	0.03		0.02	c0.04			0.04			c0.14	
v/s Ratio Perm							0.04			0.02		0.04
v/c Ratio	0.75	0.12		0.56	0.15		0.08	0.10		0.06	0.33	0.10
Uniform Delay, d1	24.4	14.4		24.7	15.0		9.1	9.1		8.9	10.2	9.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	34.9	0.1		14.2	0.1		0.1	0.0		0.0	0.3	0.1
Delay (s)	59.4	14.5		39.0	15.1		9.1	9.1		9.0	10.4	9.2
Level of Service	E	B		D	B		A	A		A	B	A
Approach Delay (s)		27.9			18.4			9.1			9.9	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	51.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
35: Kamakee St & Auahi St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗	↗	↖	↖	↖	↖	↖↗	↗	↖	↖	↖
Traffic Volume (vph)	80	320	105	9	165	78	62	174	46	100	260	134
Future Volume (vph)	80	320	105	9	165	78	62	174	46	100	260	134
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	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.95		1.00	1.00	0.86	1.00	0.97		1.00	1.00	0.82
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.90	1.00		0.91	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3254		1770	1863	1356	1587	3333		1609	1863	1293
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.47	1.00		0.61	1.00	1.00
Satd. Flow (perm)	1770	3254		1770	1863	1356	786	3333		1030	1863	1293
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	337	111	9	174	82	65	183	48	105	274	141
RTOR Reduction (vph)	0	36	0	0	0	48	0	26	0	0	0	100
Lane Group Flow (vph)	84	412	0	9	174	34	65	205	0	105	274	41
Confl. Peds. (#/hr)			167			209	105		137	137		105
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6	8			4		4
Actuated Green, G (s)	6.6	36.1		0.7	30.2	30.2	21.1	21.1		21.1	21.1	21.1
Effective Green, g (s)	6.6	36.1		0.7	30.2	30.2	21.1	21.1		21.1	21.1	21.1
Actuated g/C Ratio	0.09	0.50		0.01	0.41	0.41	0.29	0.29		0.29	0.29	0.29
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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	160	1611		16	771	561	227	964		298	539	374
v/s Ratio Prot	c0.05	c0.13		0.01	0.09			0.06			c0.15	
v/s Ratio Perm						0.03	0.08			0.10		0.03
v/c Ratio	0.53	0.26		0.56	0.23	0.06	0.29	0.21		0.35	0.51	0.11
Uniform Delay, d1	31.7	10.6		35.9	13.8	12.8	20.1	19.6		20.5	21.6	19.0
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	3.1	0.1		38.3	0.1	0.0	0.7	0.1		0.7	0.8	0.1
Delay (s)	34.7	10.7		74.2	13.9	12.9	20.8	19.7		21.2	22.3	19.1
Level of Service	C	B		E	B	B	C	B		C	C	B
Approach Delay (s)		14.5			15.7			20.0			21.2	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	72.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
36: Queens Lane/Queens Ln & Auahi St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖↗	↗				↖	↖			↖	↖↗
Traffic Volume (vph)	46	8	53	0	0	0	95	78	6	22	42	52
Future Volume (vph)	46	8	53	0	0	0	95	78	6	22	42	52
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
Lane Util. Factor		1.00	1.00				1.00	1.00			1.00	1.00
Frbp, ped/bikes		1.00	0.96				1.00	1.00			1.00	0.97
Flpb, ped/bikes		0.99	1.00				1.00	1.00			1.00	1.00
Frt		1.00	0.85				1.00	0.99			1.00	0.94
Flt Protected		0.96	1.00				0.95	1.00			0.99	0.99
Satd. Flow (prot)		1761	1521				1770	1837			1679	1679
Flt Permitted		0.96	1.00				0.95	1.00			0.94	0.94
Satd. Flow (perm)		1761	1521				1770	1837			1600	1600
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	53	9	61	0	0	0	109	90	7	25	48	60
RTOR Reduction (vph)	0	0	50	0	0	0	0	3	0	0	31	0
Lane Group Flow (vph)	0	62	11	0	0	0	109	94	0	0	102	0
Confl. Peds. (#/hr)	12		34	34		12			16	16		62
Turn Type	Perm	NA	Perm				Prot	NA		Perm	NA	
Protected Phases		4					5	2			6	
Permitted Phases	4		4							6		
Actuated Green, G (s)		8.5	8.5				7.0	30.4			18.4	
Effective Green, g (s)		8.5	8.5				7.0	30.4			18.4	
Actuated g/C Ratio		0.17	0.17				0.14	0.62			0.38	
Clearance Time (s)		5.0	5.0				5.0	5.0			5.0	
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		306	264				253	1142			602	
v/s Ratio Prot							c0.06	0.05				
v/s Ratio Perm		0.04	0.01								c0.06	
v/c Ratio		0.20	0.04				0.43	0.08			0.17	
Uniform Delay, d1		17.3	16.8				19.1	3.7			10.2	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.3	0.1				1.2	0.0			0.1	
Delay (s)		17.6	16.9				20.3	3.7			10.3	
Level of Service		B	B				C	A			B	
Approach Delay (s)		17.3			0.0			12.5			10.3	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 36: Queens Lane/Queens Ln & Auahi St






















3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔				↔	↔			↔	
Traffic Volume (vph)	94	10	181	0	0	0	188	103	11	18	79	52
Future Volume (vph)	94	10	181	0	0	0	188	103	11	18	79	52
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	
Lane Util. Factor		1.00	1.00				1.00	1.00			1.00	
Frb, ped/bikes		1.00	0.92				1.00	0.99			0.96	
Flpb, ped/bikes		0.92	1.00				1.00	1.00			0.99	
Frt		1.00	0.85				1.00	0.99			0.95	
Flt Protected		0.96	1.00				0.95	1.00			0.99	
Satd. Flow (prot)		1632	1453				1770	1819			1686	
Flt Permitted		0.96	1.00				0.95	1.00			0.96	
Satd. Flow (perm)		1632	1453				1770	1819			1623	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	103	11	199	0	0	0	207	113	12	20	87	57
RTOR Reduction (vph)	0	0	152	0	0	0	0	5	0	0	22	0
Lane Group Flow (vph)	0	114	47	0	0	0	207	120	0	0	142	0
Confl. Peds. (#/hr)	60		77	77		60			48	48		104
Turn Type	Perm	NA	Perm				Prot	NA		Perm	NA	
Protected Phases		4					5	2			6	
Permitted Phases	4		4							6		
Actuated Green, G (s)		13.1	13.1				12.3	32.9			15.6	
Effective Green, g (s)		13.1	13.1				12.3	32.9			15.6	
Actuated g/C Ratio		0.23	0.23				0.22	0.59			0.28	
Clearance Time (s)		5.0	5.0				5.0	5.0			5.0	
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		381	339				388	1068			452	
v/s Ratio Prot							c0.12	0.07				
v/s Ratio Perm		0.07	0.03								c0.09	
v/c Ratio		0.30	0.14				0.53	0.11			0.31	
Uniform Delay, d1		17.7	17.0				19.3	5.1			16.0	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.4	0.2				1.4	0.0			0.4	
Delay (s)		18.1	17.2				20.7	5.1			16.4	
Level of Service		B	B				C	A			B	
Approach Delay (s)		17.5			0.0			14.9			16.4	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		16.2		HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		56.0		Sum of lost time (s)				15.0				
Intersection Capacity Utilization		56.2%		ICU Level of Service				B				
Analysis Period (min)		15										
c Critical Lane Group												

APPENDIX F
CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2021 PEAK PERIOD TRAFFIC
ANALYSIS WITH PROJECT

HCM Signalized Intersection Capacity Analysis
15: Ward Ave & Queen St

3/8/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	207	79	112	419	135	81	461	86	76	720	204
Future Volume (vph)	51	207	79	112	419	135	81	461	86	76	720	204
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	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1760	1773		1756	1782		1770	3404		1770	3374	
Flt Permitted	0.16	1.00		0.48	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	295	1773		883	1782		1770	3404		1770	3374	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	54	220	84	119	446	144	86	490	91	81	766	217
RTOR Reduction (vph)	0	16	0	0	13	0	0	17	0	0	29	0
Lane Group Flow (vph)	54	288	0	119	577	0	86	564	0	81	954	0
Confl. Peds. (#/hr)	21		15	15		21			58			34
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	30.0	30.0		30.0	30.0		5.1	29.5		5.1	29.5	
Effective Green, g (s)	30.0	30.0		30.0	30.0		5.1	29.5		5.1	29.5	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.06	0.37		0.06	0.37	
Clearance Time (s)	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		3.0	3.0	
Lane Grp Cap (vph)	111	668		332	671		113	1261		113	1250	
v/s Ratio Prot		0.16			c0.32		c0.05	0.17		0.05	c0.28	
v/s Ratio Perm	0.18			0.13								
v/c Ratio	0.49	0.43		0.36	0.86		0.76	0.45		0.72	0.76	
Uniform Delay, d1	18.9	18.5		17.9	22.9		36.7	18.9		36.5	22.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.3	0.4		0.7	10.7		25.6	0.3		19.4	2.8	
Delay (s)	22.3	18.9		18.5	33.6		62.2	19.2		55.9	24.8	
Level of Service	C	B		B	C		E	B		E	C	
Approach Delay (s)		19.4			31.0			24.7			27.2	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay		26.6					HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		79.6					Sum of lost time (s)			15.0		
Intersection Capacity Utilization		82.3%					ICU Level of Service			E		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
15: Ward Ave & Queen St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	104	483	139	110	443	113	61	778	194	207	798	83
Future Volume (vph)	104	483	139	110	443	113	61	778	194	207	798	83
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	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1764	1786		1760	1798		1770	3327		1770	3453	
Flt Permitted	0.20	1.00		0.13	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	370	1786		247	1798		1770	3327		1770	3453	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	108	503	145	115	461	118	64	810	202	216	831	86
RTOR Reduction (vph)	0	12	0	0	10	0	0	24	0	0	9	0
Lane Group Flow (vph)	108	636	0	115	569	0	64	988	0	216	908	0
Confl. Peds. (#/hr)	11		25	25		11		88				59
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								4
Actuated Green, G (s)	37.0	37.0		37.0	37.0		3.2	29.7		9.0	35.5	
Effective Green, g (s)	37.0	37.0		37.0	37.0		3.2	29.7		9.0	35.5	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.04	0.33		0.10	0.39	
Clearance Time (s)	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		3.0	3.0	
Lane Grp Cap (vph)	150	728		100	733		62	1089		175	1351	
v/s Ratio Prot		0.36			0.32		0.04	c0.30		c0.12	0.26	
v/s Ratio Perm	0.29			c0.47								
v/c Ratio	0.72	0.87		1.15	0.78		1.03	0.91		1.23	0.67	
Uniform Delay, d1	22.5	24.7		26.9	23.3		43.8	29.2		40.9	22.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.2	11.3		136.0	5.2		123.6	10.8		144.9	1.3	
Delay (s)	37.8	36.0		162.8	28.4		167.4	40.0		185.7	24.1	
Level of Service	D	D		F	C		F	D		F	C	
Approach Delay (s)		36.3			50.7			47.5			54.9	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM 2000 Control Delay		48.1										
HCM 2000 Volume to Capacity ratio		1.06										
Actuated Cycle Length (s)		90.7						15.0				
Intersection Capacity Utilization		97.4%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
16: Kamakee St & Queen St

3/8/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	↖
Traffic Volume (vph)	93	265	33	207	301	29	16	140	84	38	235	125
Future Volume (vph)	93	265	33	207	301	29	16	140	84	38	235	125
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	
Lane Util. Factor		0.95		1.00	0.95			0.95			0.95	
Frt		0.99		1.00	0.99			0.95			0.95	
Flt Protected		0.99		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		3453		1770	3492			3343			3356	
Flt Permitted		0.77		0.95	1.00			0.91			0.90	
Satd. Flow (perm)		2705		1770	3492			3064			3035	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	282	35	220	320	31	17	149	89	40	250	133
RTOR Reduction (vph)	0	8	0	0	9	0	0	64	0	0	60	0
Lane Group Flow (vph)	0	408	0	220	342	0	0	191	0	0	363	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8				4	
Actuated Green, G (s)		16.9		14.2	36.1			18.2			18.2	
Effective Green, g (s)		16.9		14.2	36.1			18.2			18.2	
Actuated g/C Ratio		0.26		0.22	0.56			0.28			0.28	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		710		390	1960			867			859	
v/s Ratio Prot				c0.12	0.10							
v/s Ratio Perm		c0.15						0.06			c0.12	
v/c Ratio		0.57		0.56	0.17			0.22			0.42	
Uniform Delay, d1		20.6		22.3	6.9			17.6			18.8	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.1		1.9	0.0			0.1			0.3	
Delay (s)		21.7		24.2	6.9			17.8			19.1	
Level of Service		C		C	A			B			B	
Approach Delay (s)		21.7			13.6			17.8			19.1	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM 2000 Control Delay		17.6										
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		64.3						15.0				
Intersection Capacity Utilization		57.8%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
16: Kamakee St & Queen St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔		↖	↕↕			↕↕			↕↕	
Traffic Volume (vph)	127	515	55	308	552	54	44	175	68	67	143	66
Future Volume (vph)	127	515	55	308	552	54	44	175	68	67	143	66
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	
Lane Util. Factor		0.95		1.00	0.95			0.95			0.95	
Fr't		0.99		1.00	0.99			0.96			0.96	
Flt Protected		0.99		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		3466		1770	3492			3387			3371	
Flt Permitted		0.71		0.95	1.00			0.84			0.75	
Satd. Flow (perm)		2495		1770	3492			2866			2547	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	132	536	57	321	575	56	46	182	71	70	149	69
RTOR Reduction (vph)	0	5	0	0	7	0	0	24	0	0	24	0
Lane Group Flow (vph)	0	720	0	321	624	0	0	275	0	0	264	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		34.0		21.8	60.8			16.0			16.0	
Effective Green, g (s)		34.0		21.8	60.8			16.0			16.0	
Actuated g/C Ratio		0.39		0.25	0.70			0.18			0.18	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		977		444	2446			528			469	
v/s Ratio Prot				c0.18	0.18							
v/s Ratio Perm		c0.29						0.10			c0.10	
v/c Ratio		0.74		0.72	0.26			0.52			0.56	
Uniform Delay, d1		22.6		29.7	4.7			31.9			32.2	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.9		5.7	0.1			0.9			1.5	
Delay (s)		25.5		35.5	4.8			32.8			33.8	
Level of Service		C		D	A			C			C	
Approach Delay (s)		25.5			15.1			32.8			33.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	86.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
17: Queens Ln & Queen St

3/8/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕↕		↖	↕↕	↖	
Traffic Volume (veh/h)	382	21	100	516	25	74
Future Volume (Veh/h)	382	21	100	516	25	74
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	402	22	105	543	26	78
Pedestrians					19	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					2	
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (ft)	564			680		
pX, platoon unblocked						
vC, conflicting volume			443		914	231
vC1, stage 1 conf vol					432	
vC2, stage 2 conf vol					482	
vCu, unblocked vol			443		914	231
tC, single (s)			4.1		*5.8	*5.9
tC, 2 stage (s)					4.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			90		95	90
cM capacity (veh/h)			1096		523	811

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	268	156	105	272	272	104
Volume Left	0	0	105	0	0	26
Volume Right	0	22	0	0	0	78
cSH	1700	1700	1096	1700	1700	713
Volume to Capacity	0.16	0.09	0.10	0.16	0.16	0.15
Queue Length 95th (ft)	0	0	8	0	0	13
Control Delay (s)	0.0	0.0	8.6	0.0	0.0	10.9
Lane LOS			A			B
Approach Delay (s)	0.0		1.4			10.9
Approach LOS						B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
17: Queens Ln & Queen St

3/7/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↗	
Traffic Volume (veh/h)	612	10	77	857	48	199
Future Volume (Veh/h)	612	10	77	857	48	199
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	688	11	87	963	54	224
Pedestrians					19	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					2	
Right turn flare (veh)						
Median type	TWTL			None		
Median storage veh	2					
Upstream signal (ft)	564			687		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			718		1368	368
vC1, stage 1 conf vol					712	
vC2, stage 2 conf vol					656	
vCu, unblocked vol			474		1194	87
tC, single (s)			4.1		*5.8	*5.9
tC, 2 stage (s)					4.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			91		87	74
cM capacity (veh/h)			964		431	870
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	459	240	87	482	482	278
Volume Left	0	0	87	0	0	54
Volume Right	0	11	0	0	0	224
cSH	1700	1700	964	1700	1700	726
Volume to Capacity	0.27	0.14	0.09	0.28	0.28	0.38
Queue Length 95th (ft)	0	0	7	0	0	45
Control Delay (s)	0.0	0.0	9.1	0.0	0.0	13.0
Lane LOS			A			B
Approach Delay (s)	0.0		0.8			13.0
Approach LOS						B
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			46.5%		ICU Level of Service	A
Analysis Period (min)			15			

* User Entered Value

HCM Signalized Intersection Capacity Analysis
24: Ward Ave & Halekauwila St

3/8/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔					↖	↑↑		↗	↑↑	↗
Traffic Volume (vph)	130	13	19	0	0	0	61	447	3	16	566	278
Future Volume (vph)	130	13	19	0	0	0	61	447	3	16	566	278
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
Lane Util. Factor		1.00					1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes		1.00					1.00	1.00		1.00	1.00	0.93
Flpb, ped/bikes		1.00					0.98	1.00		1.00	1.00	1.00
Frt		0.98					1.00	1.00		1.00	1.00	0.85
Flt Protected		0.96					0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1753					1729	3536		1770	3539	1470
Flt Permitted		0.96					0.42	1.00		0.49	1.00	1.00
Satd. Flow (perm)		1753					761	3536		904	3539	1470
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	134	13	20	0	0	0	63	461	3	16	584	287
RTOR Reduction (vph)	0	4	0	0	0	0	0	1	0	0	0	159
Lane Group Flow (vph)	0	163	0	0	0	0	63	463	0	16	584	128
Confl. Peds. (#/hr)	2		44				42					42
Turn Type	Perm	NA					Perm	NA		Perm	NA	Perm
Protected Phases		4						2			6	
Permitted Phases	4						2			6		6
Actuated Green, G (s)		17.7					22.4	22.4		22.4	22.4	22.4
Effective Green, g (s)		17.7					22.4	22.4		22.4	22.4	22.4
Actuated g/C Ratio		0.35					0.45	0.45		0.45	0.45	0.45
Clearance Time (s)		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
Lane Grp Cap (vph)		619					340	1580		404	1582	657
v/s Ratio Prot								0.13			c0.17	
v/s Ratio Perm		0.09					0.08			0.02		0.09
v/c Ratio		0.26					0.19	0.29		0.04	0.37	0.20
Uniform Delay, d1		11.6					8.3	8.8		7.8	9.2	8.4
Progression Factor		1.00					1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2					0.3	0.1		0.0	0.1	0.1
Delay (s)		11.8					8.6	8.9		7.8	9.3	8.5
Level of Service		B					A	A		A	A	A
Approach Delay (s)		11.8			0.0			8.9			9.0	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.3									A
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			50.1					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			51.1%					ICU Level of Service				A
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
24: Ward Ave & Halekauwila St/Driveway

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔					↖	↗		↖	↗	
Traffic Volume (vph)	282	23	102	0	0	0	14	745	6	33	679	173
Future Volume (vph)	282	23	102	0	0	0	14	745	6	33	679	173
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	
Lane Util. Factor		1.00					1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.98					1.00	1.00		1.00	0.98	
Flpb, ped/bikes		1.00					0.98	1.00		1.00	1.00	
Frt		0.97					1.00	1.00		1.00	0.97	
Flt Protected		0.97					0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1709					1731	3535		1770	3356	
Flt Permitted		0.97					0.23	1.00		0.28	1.00	
Satd. Flow (perm)		1709					412	3535		519	3356	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	294	24	106	0	0	0	15	776	6	34	707	180
RTOR Reduction (vph)	0	14	0	0	0	0	0	1	0	0	27	0
Lane Group Flow (vph)	0	410	0	0	0	0	15	781	0	34	860	0
Confl. Peds. (#/hr)			91				63					63
Turn Type	Perm	NA					Perm	NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4						2			6		
Actuated Green, G (s)		23.9					23.3	23.3		23.3	23.3	
Effective Green, g (s)		23.9					23.3	23.3		23.3	23.3	
Actuated g/C Ratio		0.42					0.41	0.41		0.41	0.41	
Clearance Time (s)		5.0					5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0					3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		714					167	1439		211	1367	
v/s Ratio Prot								0.22			c0.26	
v/s Ratio Perm		0.24					0.04			0.07		
v/c Ratio		0.57					0.09	0.54		0.16	0.63	
Uniform Delay, d1		12.8					10.4	12.9		10.8	13.5	
Progression Factor		1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1					0.2	0.4		0.4	0.9	
Delay (s)		13.9					10.7	13.3		11.1	14.4	
Level of Service		B					B	B		B	B	
Approach Delay (s)		13.9			0.0		13.3			14.3		
Approach LOS		B			A		B			B		
Intersection Summary												
HCM 2000 Control Delay		13.8										B
HCM 2000 Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		57.2						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		60.2%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
34: Ward Ave & Auahi St

3/8/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↗	↖	↖	↗		↖	↗	
Traffic Volume (vph)	26	72	36	102	112	164	60	324	80	92	468	70
Future Volume (vph)	26	72	36	102	112	164	60	324	80	92	468	70
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	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		1.00	1.00	1.00	1.00	0.98	1.00	0.99		1.00	0.99	
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt		1.00	1.00	0.85	1.00	0.91	1.00	0.97		1.00	0.98	
Flt Protected		0.95	1.00	1.00	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750	1863	1583	1770	1668	1748	3386		1719	3449	
Flt Permitted		0.54	1.00	1.00	0.71	1.00	0.42	1.00		0.50	1.00	
Satd. Flow (perm)		993	1863	1583	1316	1668	779	3386		900	3449	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	78	39	111	122	178	65	352	87	100	509	76
RTOR Reduction (vph)	0	0	25	0	69	0	0	25	0	0	14	0
Lane Group Flow (vph)	28	78	14	111	231	0	65	414	0	100	572	0
Confl. Peds. (#/hr)		37					34		63	63		34
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.1	16.1	16.1	16.1	16.1		20.3	20.3		20.3	20.3	
Effective Green, g (s)	16.1	16.1	16.1	16.1	16.1		20.3	20.3		20.3	20.3	
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35		0.44	0.44		0.44	0.44	
Clearance Time (s)	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	3.0		3.0	3.0	
Lane Grp Cap (vph)	344	646	549	456	578		340	1481		393	1508	
v/s Ratio Prot		0.04			c0.14			0.12			c0.17	
v/s Ratio Perm	0.03		0.01	0.08			0.08			0.11		
v/c Ratio	0.08	0.12	0.02	0.24	0.40		0.19	0.28		0.25	0.38	
Uniform Delay, d1	10.2	10.3	10.0	10.8	11.5		8.0	8.4		8.3	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.0	0.3	0.5		0.3	0.1		0.3	0.2	
Delay (s)	10.3	10.4	10.0	11.1	11.9		8.3	8.5		8.6	9.0	
Level of Service	B	B	A	B	B		A	A		A	A	
Approach Delay (s)		10.3			11.7			8.4			8.9	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay		9.5										A
HCM 2000 Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		46.4						Sum of lost time (s)		10.0		
Intersection Capacity Utilization		62.5%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
34: Ward Ave & Auahi St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Volume (vph)	31	170	67	130	92	241	48	462	193	291	445	71
Future Volume (vph)	31	170	67	130	92	241	48	462	193	291	445	71
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	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.96	1.00	0.96		1.00	0.96		1.00	0.99	
Flpb, ped/bikes	0.97	1.00	1.00	0.98	1.00		0.97	1.00		0.96	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1720	1863	1518	1729	1586		1721	3247		1693	3430	
Flt Permitted	0.39	1.00	1.00	0.63	1.00		0.44	1.00		0.36	1.00	
Satd. Flow (perm)	704	1863	1518	1148	1586		798	3247		647	3430	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	32	175	69	134	95	248	49	476	199	300	459	73
RTOR Reduction (vph)	0	0	47	0	107	0	0	52	0	0	14	0
Lane Group Flow (vph)	32	175	22	134	236	0	49	623	0	300	518	0
Confl. Peds. (#/hr)	67		39	39		67	43		87	87		43
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		42.0	42.0		42.0	42.0	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		42.0	42.0		42.0	42.0	
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32		0.55	0.55		0.55	0.55	
Clearance Time (s)	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	3.0		3.0	3.0	
Lane Grp Cap (vph)	223	591	482	364	503		439	1789		356	1890	
v/s Ratio Prot		0.09			c0.15			0.19			0.15	
v/s Ratio Perm	0.05		0.01	0.12			0.06			c0.46		
v/c Ratio	0.14	0.30	0.05	0.37	0.47		0.11	0.35		0.84	0.27	
Uniform Delay, d1	18.6	19.6	18.0	20.1	20.8		8.2	9.5		14.3	9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3	0.0	0.6	0.7		0.1	0.1		16.4	0.1	
Delay (s)	18.9	19.9	18.0	20.7	21.5		8.3	9.6		30.7	9.1	
Level of Service	B	B	B	C	C		A	A		C	A	
Approach Delay (s)		19.3			21.3			9.5			16.9	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
35: Kamakee St & Auahi St

3/8/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Volume (vph)	50	96	50	25	104	55	40	153	29	26	280	149
Future Volume (vph)	50	96	50	25	104	55	40	153	29	26	280	149
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	0.95		1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.97	1.00		0.99	1.00	1.00
Frt	1.00	0.95		1.00	0.95		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3314		1770	3356		1722	3438		1744	1863	1487
Flt Permitted	0.95	1.00		0.95	1.00		0.55	1.00		0.63	1.00	1.00
Satd. Flow (perm)	1770	3314		1770	3356		997	3438		1154	1863	1487
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	54	103	54	27	112	59	43	165	31	28	301	160
RTOR Reduction (vph)	0	40	0	0	44	0	0	15	0	0	0	92
Lane Group Flow (vph)	54	117	0	27	127	0	43	181	0	28	301	68
Confl. Peds. (#/hr)			34	34			43		33	33		43
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	2.1	13.8		1.2	12.9		22.3	22.3		22.3	22.3	22.3
Effective Green, g (s)	2.1	13.8		1.2	12.9		22.3	22.3		22.3	22.3	22.3
Actuated g/C Ratio	0.04	0.26		0.02	0.25		0.43	0.43		0.43	0.43	0.43
Clearance Time (s)	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		3.0	3.0	3.0
Lane Grp Cap (vph)	71	874		40	827		425	1465		492	794	634
v/s Ratio Prot	c0.03	0.04		0.02	c0.04			0.05			c0.16	
v/s Ratio Perm							0.04			0.02		0.05
v/c Ratio	0.76	0.13		0.68	0.15		0.10	0.12		0.06	0.38	0.11
Uniform Delay, d1	24.9	14.7		25.4	15.4		9.0	9.1		8.8	10.3	9.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	37.3	0.1		36.7	0.1		0.1	0.0		0.0	0.3	0.1
Delay (s)	62.2	14.8		62.1	15.5		9.1	9.1		8.9	10.6	9.1
Level of Service	E	B		E	B		A	A		A	B	A
Approach Delay (s)		26.9			21.9			9.1			10.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
35: Kamakee St & Auahi St

3/7/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗	↗	↖	↖	↖	↖	↖↗	↗	↖	↖	↖
Traffic Volume (vph)	80	320	117	9	165	78	83	213	46	100	280	137
Future Volume (vph)	80	320	117	9	165	78	83	213	46	100	280	137
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	5.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.95		1.00	1.00	0.86	1.00	0.98		1.00	1.00	0.82
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.90	1.00		0.91	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3231		1770	1863	1355	1596	3364		1618	1863	1293
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.44	1.00		0.58	1.00	1.00
Satd. Flow (perm)	1770	3231		1770	1863	1355	738	3364		995	1863	1293
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	337	123	9	174	82	87	224	48	105	295	144
RTOR Reduction (vph)	0	41	0	0	0	48	0	21	0	0	0	102
Lane Group Flow (vph)	84	419	0	9	174	34	87	251	0	105	295	42
Confl. Peds. (#/hr)			167			209	105		137	137		105
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		4
Actuated Green, G (s)	6.6	36.1		0.7	30.2	30.2	21.3	21.3		21.3	21.3	21.3
Effective Green, g (s)	6.6	36.1		0.7	30.2	30.2	21.3	21.3		21.3	21.3	21.3
Actuated g/C Ratio	0.09	0.49		0.01	0.41	0.41	0.29	0.29		0.29	0.29	0.29
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	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	159	1595		16	769	559	215	980		289	542	376
v/s Ratio Prot	c0.05	c0.13		0.01	0.09			0.07			c0.16	
v/s Ratio Perm						0.02	0.12			0.11		0.03
v/c Ratio	0.53	0.26		0.56	0.23	0.06	0.40	0.26		0.36	0.54	0.11
Uniform Delay, d1	31.8	10.8		36.0	13.9	12.9	20.8	19.8		20.5	21.8	19.0
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	3.1	0.1		38.3	0.2	0.0	1.2	0.1		0.8	1.1	0.1
Delay (s)	34.9	10.8		74.3	14.0	13.0	22.1	20.0		21.3	22.9	19.1
Level of Service	C	B		E	B	B	C	B		C	C	B
Approach Delay (s)		14.6			15.8			20.5			21.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
36: Queens Lane/Queens Ln & Auahi St

3/8/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↖				↖	↖			↖↗	↖
Traffic Volume (vph)	46	8	53	0	0	0	95	78	6	22	42	52
Future Volume (vph)	46	8	53	0	0	0	95	78	6	22	42	52
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	
Lane Util. Factor		1.00	1.00				1.00	1.00			1.00	
Frbp, ped/bikes		1.00	0.96				1.00	1.00			0.97	
Flpb, ped/bikes		0.99	1.00				1.00	1.00			1.00	
Frt		1.00	0.85				1.00	0.99			0.94	
Flt Protected		0.96	1.00				0.95	1.00			0.99	
Satd. Flow (prot)		1761	1521				1770	1837			1679	
Flt Permitted		0.96	1.00				0.95	1.00			0.94	
Satd. Flow (perm)		1761	1521				1770	1837			1600	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	53	9	61	0	0	0	109	90	7	25	48	60
RTOR Reduction (vph)	0	0	50	0	0	0	0	3	0	0	31	0
Lane Group Flow (vph)	0	62	11	0	0	0	109	94	0	0	102	0
Confl. Peds. (#/hr)	12		34	34		12			16	16		62
Turn Type	Perm	NA	Perm				Prot	NA		Perm	NA	
Protected Phases		4					5	2			6	
Permitted Phases	4		4						6			
Actuated Green, G (s)		8.5	8.5				7.0	30.4			18.4	
Effective Green, g (s)		8.5	8.5				7.0	30.4			18.4	
Actuated g/C Ratio		0.17	0.17				0.14	0.62			0.38	
Clearance Time (s)		5.0	5.0				5.0	5.0			5.0	
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		306	264				253	1142			602	
v/s Ratio Prot							c0.06	0.05				
v/s Ratio Perm		0.04	0.01								c0.06	
v/c Ratio		0.20	0.04				0.43	0.08			0.17	
Uniform Delay, d1		17.3	16.8				19.1	3.7			10.2	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.3	0.1				1.2	0.0			0.1	
Delay (s)		17.6	16.9				20.3	3.7			10.3	
Level of Service		B	B				C	A			B	
Approach Delay (s)		17.3			0.0		12.5				10.3	
Approach LOS		B			A		B				B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	48.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 36: Queens Lane/Queens Ln & Auahi St

3/7/2017



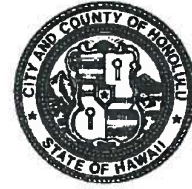
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔				↔	↔			↔	
Traffic Volume (vph)	94	10	181	0	0	0	188	103	11	18	79	52
Future Volume (vph)	94	10	181	0	0	0	188	103	11	18	79	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0				5.0	5.0			5.0	
Lane Util. Factor		1.00	1.00				1.00	1.00			1.00	
Frb, ped/bikes		1.00	0.92				1.00	0.99			0.96	
Flpb, ped/bikes		0.92	1.00				1.00	1.00			0.99	
Frt		1.00	0.85				1.00	0.99			0.95	
Flt Protected		0.96	1.00				0.95	1.00			0.99	
Satd. Flow (prot)		1632	1453				1770	1819			1686	
Flt Permitted		0.96	1.00				0.95	1.00			0.96	
Satd. Flow (perm)		1632	1453				1770	1819			1623	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	103	11	199	0	0	0	207	113	12	20	87	57
RTOR Reduction (vph)	0	0	152	0	0	0	0	5	0	0	22	0
Lane Group Flow (vph)	0	114	47	0	0	0	207	120	0	0	142	0
Confl. Peds. (#/hr)	60		77	77		60			48	48		104
Turn Type	Perm	NA	Perm				Prot	NA		Perm	NA	
Protected Phases		4					5	2				6
Permitted Phases	4		4							6		
Actuated Green, G (s)		13.1	13.1				12.3	32.9				15.6
Effective Green, g (s)		13.1	13.1				12.3	32.9				15.6
Actuated g/C Ratio		0.23	0.23				0.22	0.59				0.28
Clearance Time (s)		5.0	5.0				5.0	5.0				5.0
Vehicle Extension (s)		3.0	3.0				3.0	3.0				3.0
Lane Grp Cap (vph)		381	339				388	1068				452
v/s Ratio Prot							c0.12	0.07				
v/s Ratio Perm		0.07	0.03								c0.09	
v/c Ratio		0.30	0.14				0.53	0.11				0.31
Uniform Delay, d1		17.7	17.0				19.3	5.1				16.0
Progression Factor		1.00	1.00				1.00	1.00				1.00
Incremental Delay, d2		0.4	0.2				1.4	0.0				0.4
Delay (s)		18.1	17.2				20.7	5.1				16.4
Level of Service		B	B				C	A				B
Approach Delay (s)		17.5			0.0			14.9				16.4
Approach LOS		B			A			B				B

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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KIRK CALDWELL
MAYOR



KATHY K. SOKUGAWA
ACTING DIRECTOR

TIMOTHY F. T. HIU
DEPUTY DIRECTOR

EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

April 12, 2018

Garett Kamemoto
HCDA Interim Executive Director
HCDA Kakaako Office
547 Queen Street
Honolulu, Hawaii 96813

Dear Mr. Kamemoto:

Subject: Block I – Traffic Impact Report

This is to acknowledge approval of the subject traffic study prepared by the Wilson Okamoto Corporation dated March 2017 by the Traffic Review Branch of the Department of Planning and Permitting. This approval is subject to the following comments which we understand will be addressed:

1. A temporary vehicular access to the Ross' parking lot area should be provided to increase circulation in the area.
2. Internal private roadways should accommodate pedestrians and bikes to be able to circulate and penetrate thru the development. Sidewalks should be provided on both sides of the Private Drive.
3. Provide an updated overall transportation master plan based on the current planned uses and changes in densities and schedule for the entire development
4. A post study should be done 6 months after the certificate of occupancy for Block I to evaluate the need for turn lanes on Queen Street at the Private Drive (should the HART project be delayed). A traffic signal warrant analysis at the Kamakee Street/Halekauwila Street Extension and Auahi Street/Private Drive should also be included in this post study. The expectation is that if signals are warranted, Howard Hughes will install it.

Should you have any questions, please contact me at 768-8079.

Very truly yours,

A handwritten signature in black ink, appearing to read "Lance K. Watanabe".

Lance K. Watanabe, P.E.
Chief, Traffic Review Branch
Department of Planning and Permitting

APPENDIX D

INFRASTRUCTURE AVAILABILITY REPORT

**Block I
Infrastructure Availability Report**

**Honolulu, Oahu, Hawaii
Tax Map Key: 2-3-002:Por.001**

Prepared for
The Howard Hughes Corporation
1240 Ala Moana Boulevard, Suite 202
Honolulu, HI 96814

Prepared by
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, HI 96826

February 2018

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APPENDIX A

- City and County of Honolulu - Department of Planning and Permitting, Wastewater Branch: Approved Sewer Connection Application
- Honolulu Board of Water Supply: Request Letter and Adequacy Letter
- Honolulu Fire Department: Meeting Minutes
- City and County of Honolulu - Department of Planning and Permitting, Civil Engineering Branch: LID Email Correspondence with Dawn Kimura
- City and County of Honolulu - Department of Planning and Permitting, Civil Engineering Branch: Site Drainage Email Correspondence with Todd Kuniyoshi
- Hawaiian Electric Company: Request Letter and Will Serve Letter
- Hawaiian Telcom: Request Letter and Assessment Letter
- Spectrum(Formerly Oceanic and Charter Communications): Utility Assessment Request Letter and Email Correspondence
- Hawaii Gas –Will Serve Letter

1 INTRODUCTION

1.1 Purpose

The purpose of this report is to confirm the availability of infrastructure utilities to accommodate the demands proposed by the project. The utilities researched include water, sanitary sewer, drainage, electrical, communication, cable, and gas.

1.2 Proposed Project Location and Description

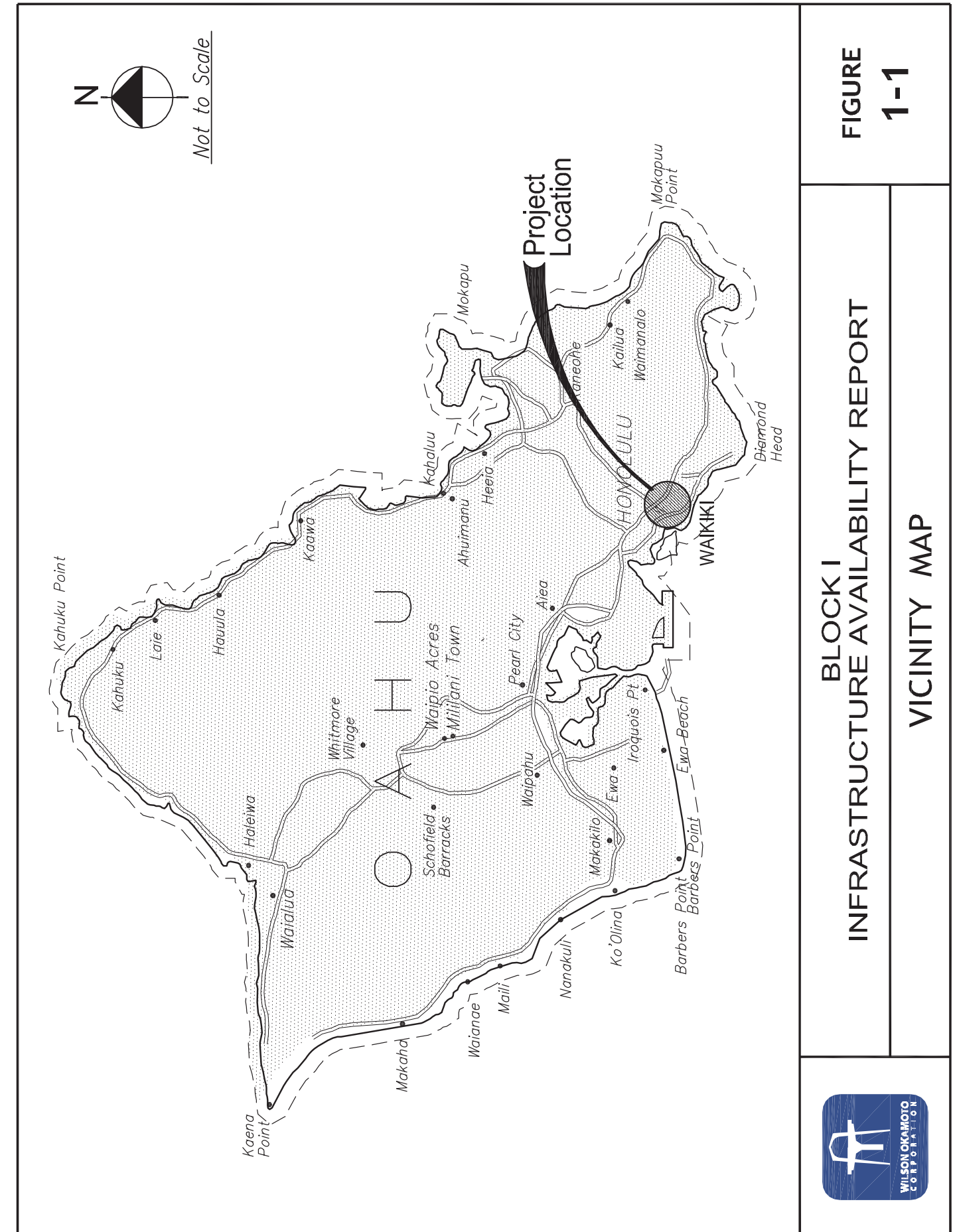
The Howard Hughes Corporation (HHC) proposes the development of a 780 unit high-rise condominium tower with mixed use commercial in Kakaako on the island of Oahu (see Figures 1-1 and 1-2). The project site is approximately 1.9 acres, generally located at TMK: 2-3-002:Por.1. The project site will be bounded by a Private Drive to the north, existing structures and pavement to the west, existing Ward Entertainment Center to the east and Auahi Street to the south. The Block M (Ae'o) project is currently under construction and located northeast of the proposed Block I site.

1.3 Existing Topography

The project site is currently occupied by three warehouses, along with several surrounding A.C. pavement parking lots. Drain inlets are located in sumped areas surrounding the warehouses to collect and convey storm water runoff. See Figures 1-3 for topographic survey prepared October 2012 by Control Point Surveying Inc. See Figure 1-4 for ALTA survey prepared August 2011 by Engineers Surveyors Hawaii, Inc. It is anticipated that the existing warehouse buildings will be demolished prior to the start of Block I as part of the Ward Central Plaza project. The Ward Central Plaza project will also include construction of park improvements, west of Block I.

1.4 Flood Hazard

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel No: 15003C0362G dated January 19, 2011 shows that the project is located in Zone AE. Zone AE is characterized as a special flood hazard area, where the annual chance of flooding (100 year flood) is determined as 1%. The property's Flood Base Elevations are 7 and 8 feet (see Figure 1-5). The proposed finish floor elevation at Level 1 for the project is 8.25 feet.



**BLOCK I
INFRASTRUCTURE AVAILABILITY REPORT
VICINITY MAP**

**FIGURE
1-1**



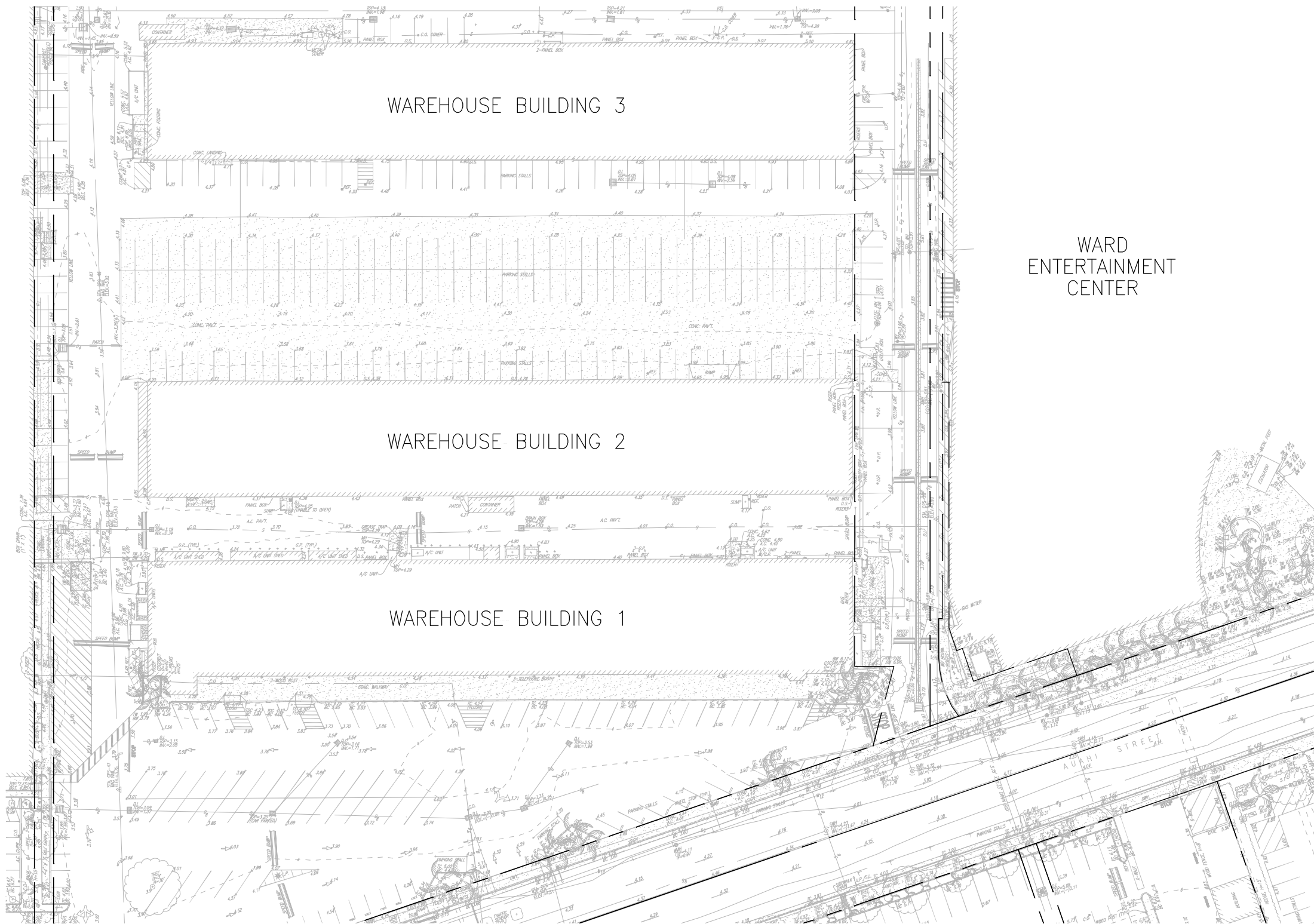


BLOCK I INFRASTRUCTURE AVAILABILITY REPORT

LOCATION MAP

**FIGURE
1-2**





NOTE: EXISTING IMPROVEMENTS SHOWN REFLECT SITE CONDITION AFTER COMPLETION OF THE AE'0 PROJECT.

BENCHMARK
 AZIMUTHS ARE REFERRED TO GOVERNMENT TRIANGULATION STATION "PUNCHBOWL" Δ.
 ELEVATIONS ARE REFERRED TO C&S BENCHMARK DISK "B 5" AT THE KEWALO BASIN BOAT HARBOR
 TOP OF BRASS DISK
 ELEV.=6.03 FT., MSL.

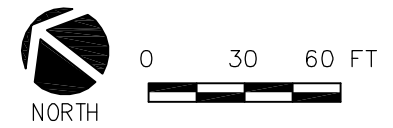
LEGEND

A.C.	ASPHALT CONCRETE	INV.	INVERT
A/C	AIR CONDITIONING	JTS	JOINT TRUNKING SYSTEM
APPROX.	APPROXIMATE	L.L.	LANDSCAPE LIGHT
ARV	AIR RELEASE VALVE	L.P.	LAMP POLE
BC	BOTTOM CURB	M.B.	MAIL BOX
BFP	BACK FLOW PREVENTER	MF	MANHOLE
BOT.	BOTTOM	O/H	OVERHEAD
BW	BOTTOM WALL	PAV'T.	PAVEMENT
CATV	CABLE TELEVISION	P.M.	PARKING METER
C.B.	CATCH BASIN	P.P.	POWER POLE
C.L.	CHAIN LINK	PSL	PEDESTRIAN SIGNAL LIGHT
CMU	CONCRETE MASONRY UNIT	REF.	REFLECTOR
C.O.	CLEAN OUT	S	SEWER OR SPREAD
COL.	COLUMN	SC	SIGNAL CORPS
COMM.	COMMUNICATION	SCMH	SIGNAL CORPS MANHOLE
CONG.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CRM	CONCRETE RUBBLE MASONRY	S.L.	STREET LIGHT
D	DIAMETER OR DRAIN	SLB	STREET LIGHT BOX
D.I.	DRAIN INLET	SMH	SEWER MANHOLE
D.S.	DOWN SPOUT	SPR.	SPRINKLER
DSP	DRY STAND PIPE	ST. NAME	STREET NAME
DWY.	DRAINWAY	STA.	STATION
E/ELEC.	ELECTRIC	TC	TOP CURB
E.O.	ELECTRIC OUTLET	TDG	TOP DROP CURB
ELEV./EL.	ELEVATION	T/TEL	TELEPHONE
F.A.	FIRE ALARM	TL	TRUNK LINE
F.H.	FIRE HYDRANT	TP	TOP PAVE
FL	FLOW LINE	TRC	TOP ROLLED CURB
FLR.	FLOOR	TS	TOP STEM
FM	FORCE MAIN	TSL	TRAFFIC SIGNAL LIGHT
G	GAS	TSLB	TRAFFIC SIGNAL LIGHT BOX
G.I.	GAS INLET	TV	TOP VALVE
GM	GAS METER	TW	TOP WALL
GMH	GAS MANHOLE	TYP.	TYPICAL
GND.	GROUND	U.P.	UTILITY POLE
G.P.	GUARD POST/GUY POLE/GATE POST	U.P./S.L.	UTILITY POLE W/STREET LIGHT
GV	GAS VALVE	W	WATER
G.W.	GUY WIRE	WM	WATER METER
H	HEIGHT	WMH	WATER MANHOLE
H.B.	HOSE BIB	WV	WATER VALVE BOX
ICV	IRRIGATION CONTROL VALVE	X-WALK	CROSS WALK

⊕	AT&T MH	±	GUARD RAIL	⊗	TEL. MH
⊞	AT&T BOX	-	GUY WIRE	□	TRAFFIC SENSOR
⊞	BACK FLOW PREVENTER	⊞	HOSE BIB	⊞	TRAFFIC SIGNAL LIGHT
⊞	CATV BOX	⊞	ICV BOX	⊞	TRAFFIC/PEDESTRIAN SIGNAL LIGHT
⊞	C.B./MH OR SDMH	⊞	ICV	⊞	TRAFFIC SIGNAL LIGHT BOX
⊞	CLEAN OUT	⊞	LAMP POLE	⊞	UTILITY POLE W/STREET LIGHT
⊞	COLUMN	⊞	MTCG. MH	⊞	U.S. POSTAL MAILBOX
⊞	COMM. BOX	⊞	PEDESTRIAN SIGNAL LIGHT	⊞	WATER MH
⊞	DRAIN INLET	⊞	RESIDENTIAL MAILBOX	⊞	WATER METER
⊞	DRY STAND PIPE	⊞	SEWER MH	⊞	WATER VALVE
⊞	ELEC. BOX	⊞	SIGNAL CORPS MH	⊞	
⊞	ELEC. MH	⊞	SIGN	⊞	
⊞	ELEC. ALARM BOX	⊞	STREET LIGHT	⊞	
⊞	FIRE HYDRANT	⊞	STREET LIGHT BOX	⊞	
⊞	GAS MH	⊞	SPRINKLER	⊞	
⊞	GAS VALVE	⊞	TEL. BOX	⊞	

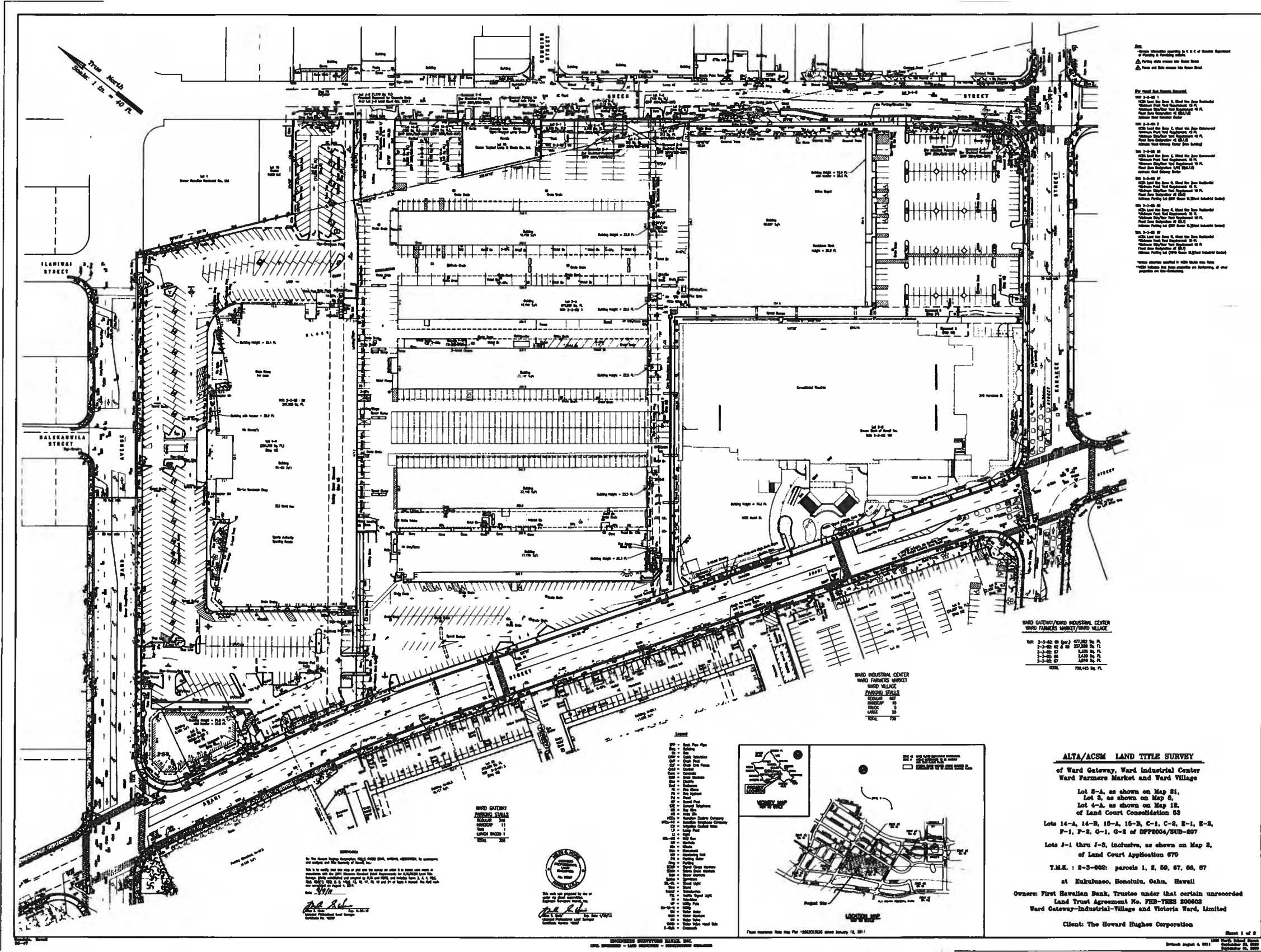
NOTE
 UNDERGROUND UTILITY LINES AND/OR STRUCTURES, IF SHOWN, ARE PROVIDED FOR INFORMATION ONLY AND ARE BASED ON INFORMATION SHOWN ON PLANS/MAPS PREPARED BY OTHERS. THE INFORMATION SHOWN, THEREFORE, MAY OR MAY NOT BE REPRESENTATIVE OF ACTUAL FIELD CONDITIONS. THE UNDERGROUND UTILITY LINES AND/OR STRUCTURES MAY OR MAY NOT BE PRESENT AT THE LOCATIONS SHOWN OR OTHER UNDERGROUND UTILITY LINES AND/OR STRUCTURES NOT SHOWN MAY BE PRESENT.

UNLESS OTHERWISE NOTED, ALL LOCATIONS OF UNDERGROUND UTILITY LINES AND/OR STRUCTURES ARE APPROXIMATE. NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE USER(S) OF THIS TOPOGRAPHIC SURVEY MAP SHALL VERIFY THE INFORMATION, AS NEEDED, DURING DESIGN AND CONSTRUCTION.



BLOCK I INFRASTRUCTURE AVAILABILITY REPORT
 TOPOGRAPHIC SURVEY

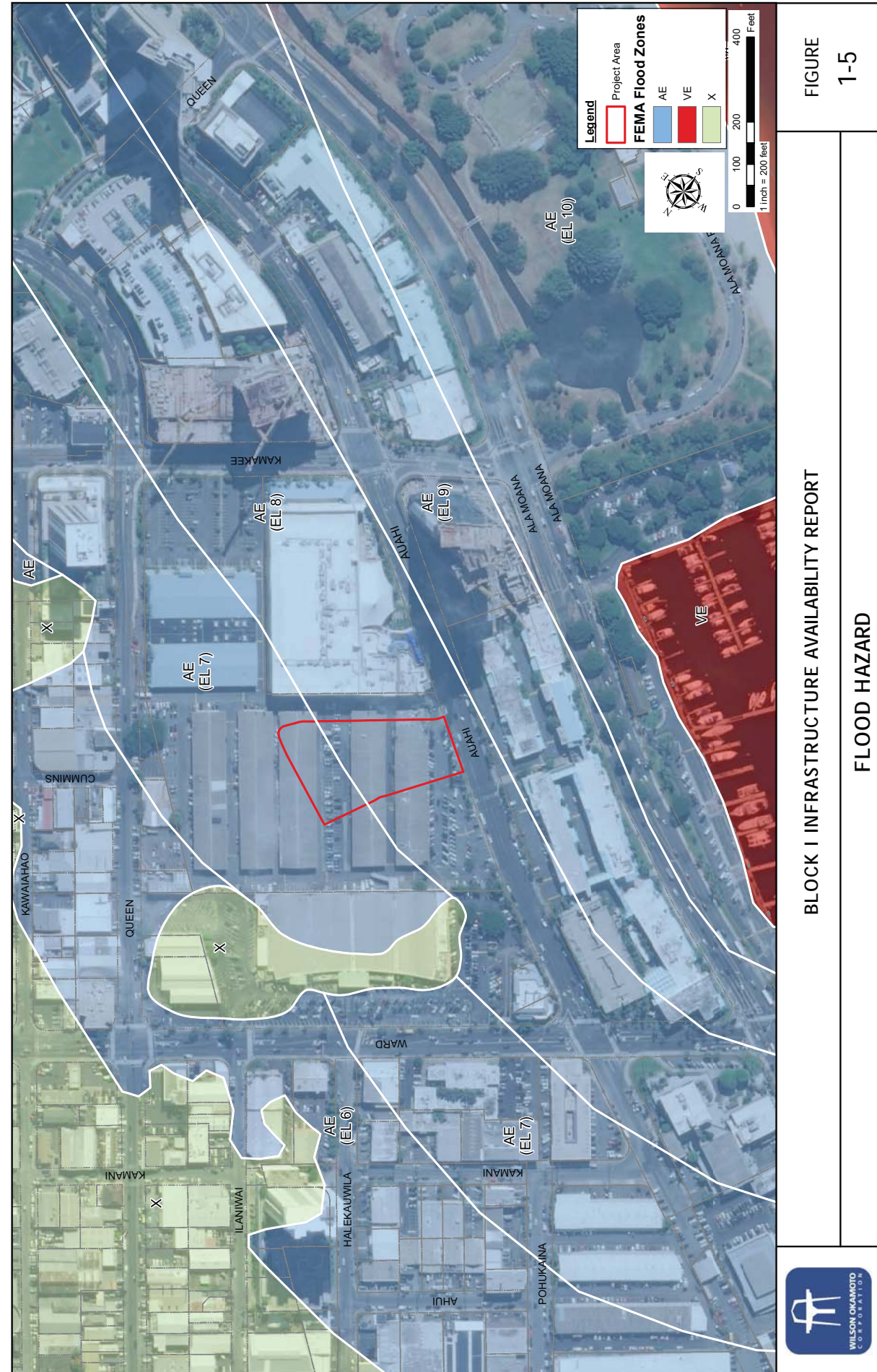
Figure 1-3



BLOCK I INFRASTRUCTURE AVAILABILITY REPORT

ALTA SURVEY

Figure 1-4



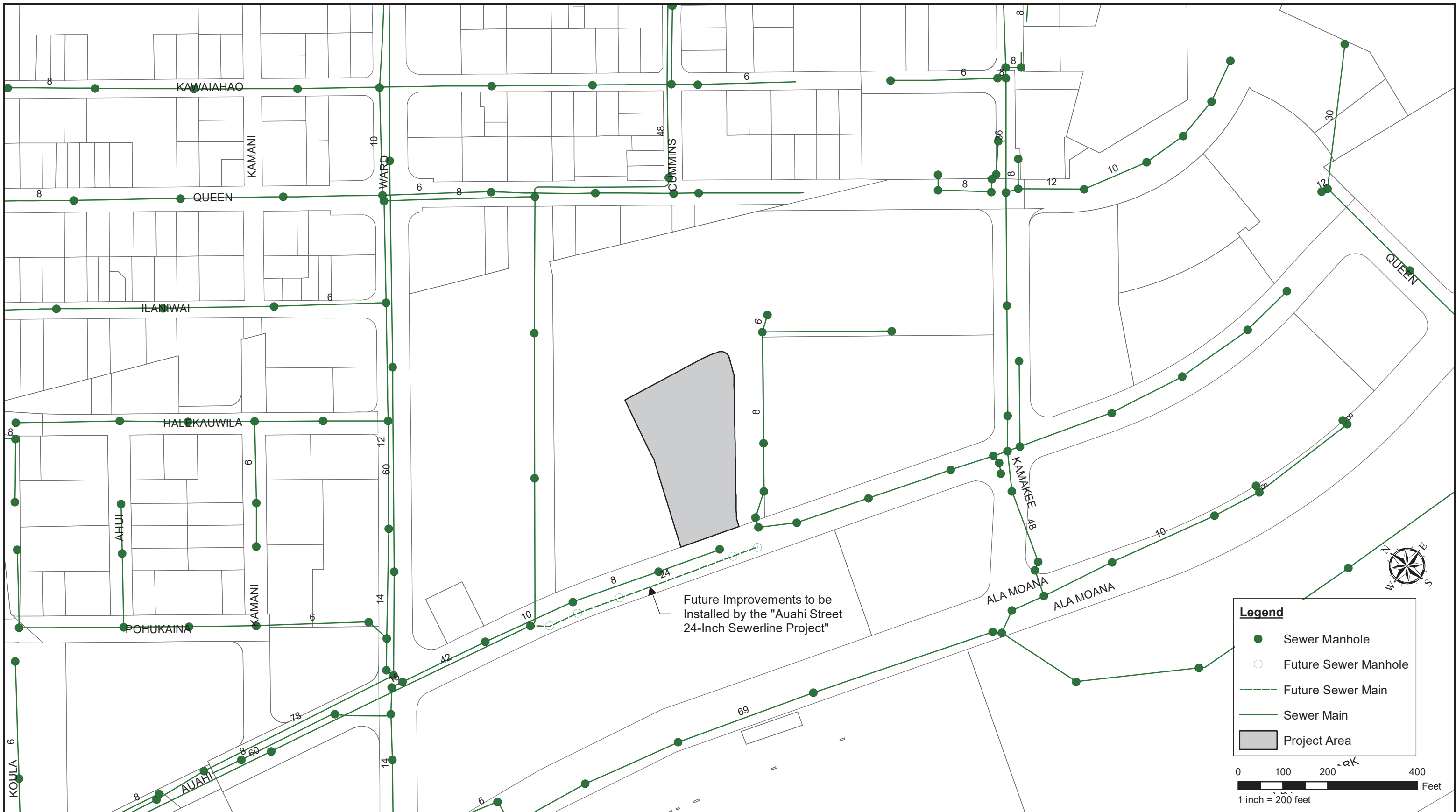
2 UTILITIES

2.1 Sanitary Sewer System

Sanitary sewer system servicing the Kakaako Makai area and the project area is owned by the City and County of Honolulu (City) and maintained by its Department of Environmental Services (ENV). The project area is located within the Sand Island collection system where wastewater flow is discharged into the Ala Moana Wastewater Pump Station and conveyed to the City’s Sand Island Wastewater Treatment Plant, which serves the Honolulu area from Kuliouou to Moanalua.

The project proposes connection to a proposed 24-inch sewer which is to be constructed within Auahi Street under the “Auahi Street 24-inch sewer line” project. A 12-inch lateral is anticipated for the project and will be confirmed during the final design phase. See Figure 2-1 which identifies the existing sewer system within the project vicinity and future 24-inch sewer improvements.

A sewer connection application was submitted on September 29, 2016 to the City Department of Planning and Permitting (DPP), Wastewater Branch (WWB) to confirm the existing sanitary sewer system can accommodate the project. An approved sewer connection application was received on April 25, 2017 confirming available capacity (see Appendix A).



BLOCK I INFRASTRUCTURE AVAILABILITY REPORT
EXISTING SANITARY SEWER SYSTEM

FIGURE
2-1



2.2 Water System

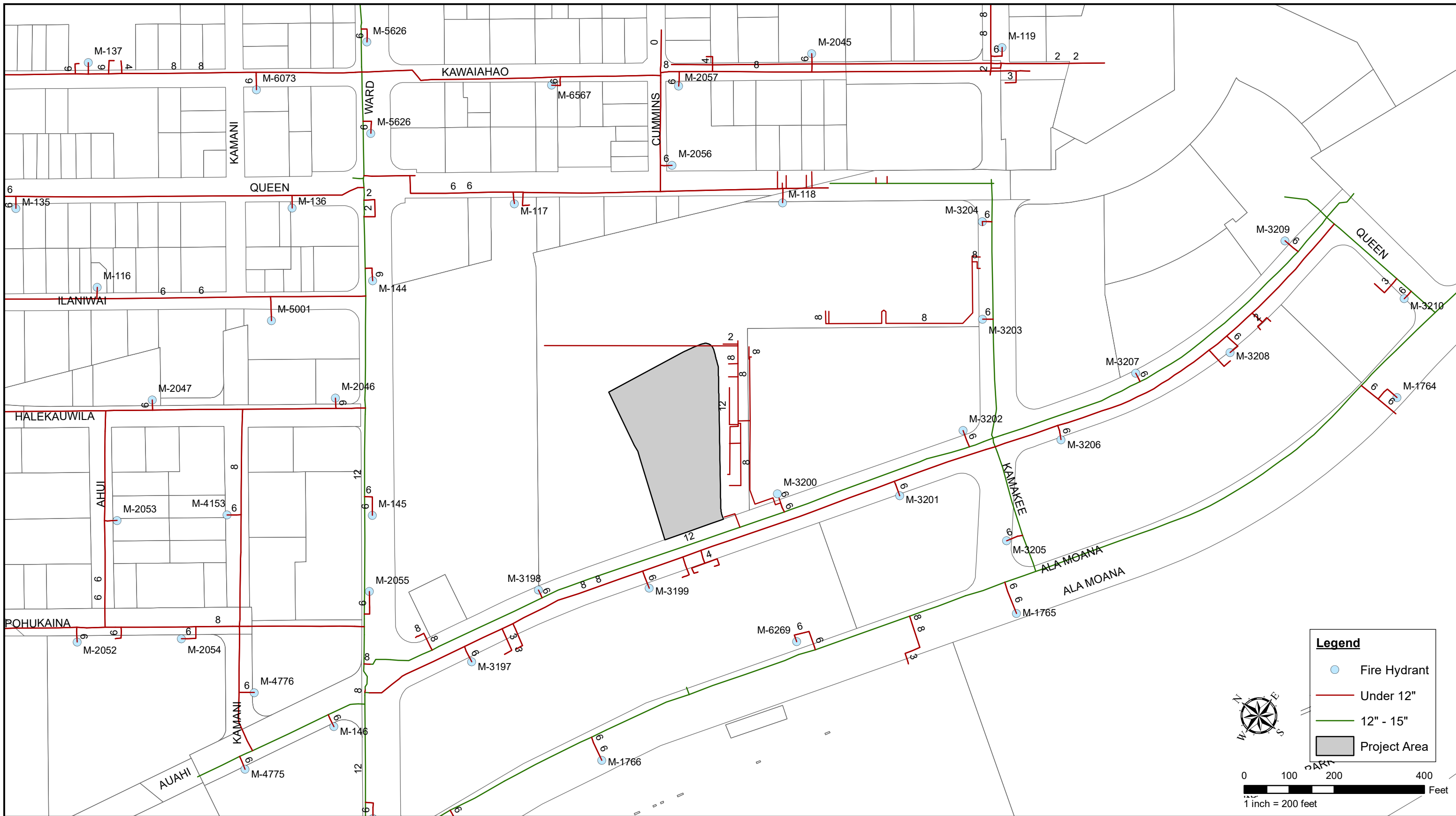
2.2.1 Potable Water

Potable water service for the project will be provided by the City and County of Honolulu's Board of Water Supply (BWS). The BWS's water system in the project area consists of a system of looped transmission mains, fire hydrants and water meters.

The project proposes connection to an existing 12-inch water main located south of the project site within Auahi Street. An 8-inch lateral is anticipated and will extend up leeward of the service drive between Block I and the Ward Entertainment Center (WEC) in order to service the project site. The size and location of the lateral will be confirmed during the final design phase. See Figure 2-2 which identifies the existing water system within the project vicinity. A letter request to BWS initiating water system analysis for the project was submitted on March 8, 2017 to confirm that the existing BWS water system can accommodate the project. An adequacy letter was received March 28, 2017 confirming available capacity (see Appendix A). It was stated in the letter the developer should proceed with providing upgrades of the 6-inch water main on Queen Street to a 12-inch water main as stated in the Victoria Ward Master Plan but is not required as part of the Block I project (see Appendix A). It had been clarified by BWS that the upgrades shall be installed and placed in service prior to Phase 3 of the masterplan. Block I is a part of Phase 2.

2.2.2 Fire Protection

Fire protection will be provided by both public and private fire hydrants. Water supply from a public fire hydrant must be provided within 450 feet from the furthest point of the building to the fire access road, while water supply from a private hydrant must be provided within 450 feet from the furthest point of the building to the private fire hydrant. Additionally, a fire sprinkler system will be provided within the building. The sprinkler system will be supplied by an 8-inch fire line which comes off of the 12-inch main located within Auahi Street. The 8-inch fire line will run parallel to the 8-inch domestic water described in section 2.2.1. The Honolulu Fire Department (HFD) was consulted on April 11, 2017 to discuss the project and proposed fire protection methods. Minutes from that meeting are provided in Appendix A. Recommendations provided by HFD will be maintained during the final design phase



BLOCK I INFRASTRUCTURE AVAILABILITY REPORT

EXISTING WATER SYSTEM

FIGURE

2-2



2.3 Site Drainage and Low Impact Development

The drainage system within the City right-of-way and City drainage easements servicing the Kakaako Mauka area is owned by the City and maintained by its Department of Facilities Maintenance (DFM). Drainage systems within private property are owned and maintained by the respective property owner.

It has been determined that runoff from the project site generally collects within a private drainage system owned and maintained by HHC and discharges into a City owned and maintained box drain located west of the project site. It is anticipated the project will maintain this drainage pattern and will not increase runoff peak flow rate and volume. For this reason, the project will not adversely impact the existing performance of the City system. See Figure 2-3 which identifies the existing drainage system within the project vicinity.

Todd Kuniyoshi of DPP Civil Engineering Branch (CEB) was consulted on October 3, 2017 to discuss the project's site drainage design concept (See Appendix A).

Using the recently approved adjacent Central Plaza project's mass grading as the existing site condition, the Block I project proposes to distribute the roof runoff to match the existing drainage conditions. This methodology was generally acceptable to CEB and it has been understood official review will be performed during the permitting process.

Dawn Kimura of DPP Civil Engineering Branch(CEB) was consulted on October 3, 2017 to discuss the project's Low Impact Development (LID) design concept(see Appendix A). The project proposes to install grass pavers along the surface of the site, with a portion containing a reservoir layer. Landscaping will also be utilized on the recreation deck as self-mitigating areas. Manufactured Treatment Devices(MTD) will also be used to mitigate any additional building and street level runoff. This methodology was generally acceptable to CEB and it has been understood that official review will be performed during the permitting process.



BLOCK I INFRASTRUCTURE AVAILABILITY REPORT
EXISTING DRAINAGE SYSTEM

FIGURE
2-3



2.4 Electrical Power Facilities

Hawaiian Electric Company (HECO) was consulted on March 14, 2017 by Ronald Ho and Associates to confirm the existing electrical system can accommodate the project (See Appendix A). A Will Serve letter was received on September 28, 2017 confirming proposed circuits will be installed along Auahi which will serve the Block I project and the other Howard Hughes developments in the area.

2.5 Telephone System

Hawaiian Telcom Incorporated was consulted to confirm the existing communication system can accommodate the project. A utility assessment letter was received April 18, 2017 confirming available capacity. Hawaiian Telcom has stated; however, an easement will be required off of Kamake'e Street in order to serve the Block I project site (see Appendix A).

2.6 Cable Television System

Spectrum (formerly Oceanic and Charter Communications) was consulted on March 14, 2017 to confirm the existing cable system can accommodate the project (see Appendix A). Email correspondence was received confirming design parameters to use in development of the cable infrastructure for Block I.

2.7 Gas System

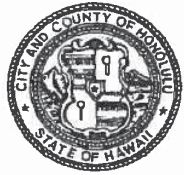
Hawaii Gas was consulted to confirm the existing gas system can accommodate the project. A letter confirming available capacity was received April 10, 2017 (see Appendix A).

APPENDIX A

- City and County of Honolulu - Department of Planning and Permitting, Wastewater Branch: Approved Sewer Connection Application
- Honolulu Board of Water Supply: Request Letter and Adequacy Letter
- Honolulu Fire Department: Meeting Minutes
- City and County of Honolulu - Department of Planning and Permitting, Civil Engineering Branch: LID Email Correspondence with Dawn Kimura
- City and County of Honolulu - Department of Planning and Permitting, Civil Engineering Branch: Site Drainage Email Correspondence with Todd Kuniyoshi
- Hawaiian Electric Company: Request Letter and Will Serve Letter
- Hawaiian Telcom: Request Letter and Utility Assessment Letter
- Spectrum(Formerly Oceanic and Charter Communications): Utility Assessment Request Letter and Email Correspondence
- Hawaii Gas: Will Serve Letter

**City and County of Honolulu - Department of Planning and Permitting
Wastewater Branch**

Approved Sewer Connection Application



SEWER CONNECTION APPLICATION

APPLICATION NO.: **2016/SCA-1490** STATUS: **Approved with conditions** **\$3,698,344.00**
 DATE RECEIVED: **09/30/2016** IWDP APP. NO.: **Estimated Wastewater System Facility Charge***
 PROJECT NAME: **2016/SCA-1490 Victoria Ward Block I**

LOCATION:

Zone	Section	Plat	Parcel		
2	3	002	001	1020 AUAHI ST	639,201 Sq. Ft.
2	3	002	001	1020 AUAHI ST	477,582 Sq. Ft.
2	3	002	001		477,582 Sq. Ft.

SPECIFIC LOCATION: **Auahi St.**

APPLICANT: **Wilson Okamoto Corporation**
ATTN. Keving Goto
 1907 South Beretania Street, Suite 400
 Honolulu, Hawaii 96826

DEVELOPMENT TYPE: **Dwelling, Multi-family** SEWER CONNECTION WORK DESIRED:
 OTHER USES: **Restaurant, 37,500 SF**
Retail, 37,500 SF

NON-RESIDENTIAL AREA: **s.f.** APPROXIMATE DATE OF CONNECTION:

<u>PROPOSED UNITS</u>	<u>EXISTING UNITS</u>	<u>UNITS TO BE DEMOLISHED</u>
No. of New Units: 780	No. of Existing Units: 0	No. of Units to be Demolished: 0
Studios: 312	Studios:	Studios:
1-Bedroom: 273	1-Bedroom:	1-Bedroom:
2-Bedroom: 117	2-Bedroom:	2-Bedroom:
3-Bedroom: 78	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **Approval is contingent on the construction of a new sewer line on Auahi Street. Submit construction plans for review and approval.**

APPROVAL DATE: **04/25/2017** *Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.*
 EXPIRATION DATE: **04/25/2019** ** Applicable WSFC shall be collected at the prevailing rate in accordance with ROH 1990, Chapter 14, Sections 14-10.3, 14-10.4, 14-10.5 and Appendix 14-D.*

REVIEWED BY: **Keith Miyashiro**


 Site Development Division, Wastewater Branch

Honolulu Board of Water Supply

Request Letter
 Adequacy Letter



8206-36
March 8, 2017

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

City and County of Honolulu
Board of Water Supply
Customer Care Operating Unit
630 South Beretania Street
Honolulu, HI 96813

Attention: Mr. Robert Chun, Principal Executive – Customer Care Division

Subject: Ward Village – Block I
1001 Queen Street

Dear Mr. Chun:

Wilson Okamoto Corporation is providing schematic design for the subject project on the mauka side of Auahi Street in Kakaako. The project site is identified by Tax Map Key: 2-3-002: Por.001 (See attached Tax Map). The proposed project consists of studios, and one, two, and three bedroom residential units (780 total units); 37,500 square feet of retail space; and 37,500 square feet of restaurant space on an approximately 1.9-acre property. At this time we would like to get your assistance in determining the adequacy of the existing BWS water distribution system in the vicinity of the project site to support the proposed project. Using the Domestic Consumption Guidelines for Oahu from the Board of Water Supply Water System Standards dated 2002, the average daily demand is calculated below:

<u>Category</u>	<u>Avg. Daily Rate</u>	<u>Units</u>	<u>Avg. Daily Demand (gal)</u>
Multi-Family High Rise	300 gal/unit	780 units	234,000 gal
Commercial/ Residential Mix	120 gal/1,000 sf	37,500 sf	4,500 gal
Restaurant	500 gal/day/1,000 sf	37,500 sf	<u>18,750 gal</u>
Total			257,250 gal

Based on the proposed project breakdown, the average daily water demand is 257,250 gallons per day. In addition to your review of the existing water system, we would like to obtain pressure and flow information for any existing fire hydrants (M03206, M03203, M03202, M03201, M03200, M03199, M03198, M03197, M02055, M00145, M00146,



8206-36
Letter to Mr. Robert Chun
Page 2
March 8, 2017

M05627, and M04775) located adjacent to the project site (Please see attached BWS System Map).

Please call 946-2277 should you have any questions or require additional information.

Sincerely:

Brett Kuamoo, P.E.
Associate Project Manager

cc: Lee Cranmer, The Howard Hughes Corporation

Enclosures: BWS System Map – Tile: R37C44
Tax Map

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com



March 28, 2017

KIRK CALDWELL, MAYOR

BRYAN P. ANDAYA, Chair
ADAM C. WONG, Vice Chair
DAVID C. HULIHEE
KAPUA SPROAT
KAY C. MATSUI

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

RECEIVED
MAR 30 2017
WILSON OKAMOTO CORPORATION

Mr. Brett Kuamoo, Associate Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Attention: Mr. Rayshi Hong

Dear Mr. Kuamoo:

Subject: Your Letter Dated March 8, 2017 Requesting Water Availability and Fire Flow and Pressure Data for the Proposed Ward Village Block I, Located Along 1001 Queen Street – Tax Map Key: 2-3-002: 001

Thank you for your letter regarding the Ward Village Block I 780-unit multi-family high-rise and commercial development in Kakaako.

The existing water system is adequate to accommodate the proposed development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply (BWS) reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

The developer should proceed with the upgrade of the 6-inch water main on Queen Street from Cooke Street up to the existing 12-inch water main located between Cummins and Kamakee Streets, to a 12-inch main, as indicated in our comments regarding the Victoria Ward Master Plan.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

Water conservation measures are recommended for the proposed developments. These measures include utilization of non-potable water for irrigation using rain catchment and chiller/air handler condensates, cooling tower conductivity meters and water softening recycling systems, drought tolerant plants, xeriscape landscaping, efficient irrigation systems, such as a drip system and moisture sensors and the use of water sense labeled ultra-low-flow water fixtures and toilets.

High-rise buildings with booster pumps will be required to install water hammer arrestors or expansion tanks to reduce pressure spikes and potential main breaks in our water system.

Mr. Brett Kuamoo
March 28, 2017
Page 2

The BWS has suspended fire flow tests on fire hydrants as a water conservation measure. However, you may use the following calculated flow and pressure data for Fire Hydrant No. M00145, M00146, M02055, M03197, M03198, M03199, M03200, M03201, M03202, M03203, M03206, M04775, and M05627, located within the vicinity of the proposed development:

Fire Hydrant Number	Location	Static Pressure (psi)	Residual Pressure (psi)	Flow (gpm)
M00145	Ward Avenue	76	62	4000
M00146	Auahi Street	76	63	4000
M02055	Ward Avenue	76	62	4000
M03197	Auahi Street	76	45	4000
M03198	Auahi Street	76	61	4000
M03199	Auahi Street	76	37	4000
M03200	Auahi Street	76	61	4000
M03201	Auahi Street	76	50	4000
M03202	Auahi Street	76	63	4000
M03203	Kamakee Street	76	63	4000
M03206	Auahi Street	76	60	4000
M04775	Auahi Street	76	60	4000
M05627	Ward Avenue	76	63	4000

The data are based on the existing water system, and the static pressure represents the theoretical pressure at the point of calculation with the reservoir full and no demands on the water system. The static pressure is not indicative of the actual pressure in the field. Therefore, in order to determine the flows that are available to the site, you will have to determine the actual field pressure by taking on-site pressure readings at various times of the day and correlating that field data with the above hydraulic design data.

The map showing the location of the fire hydrant is attached.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

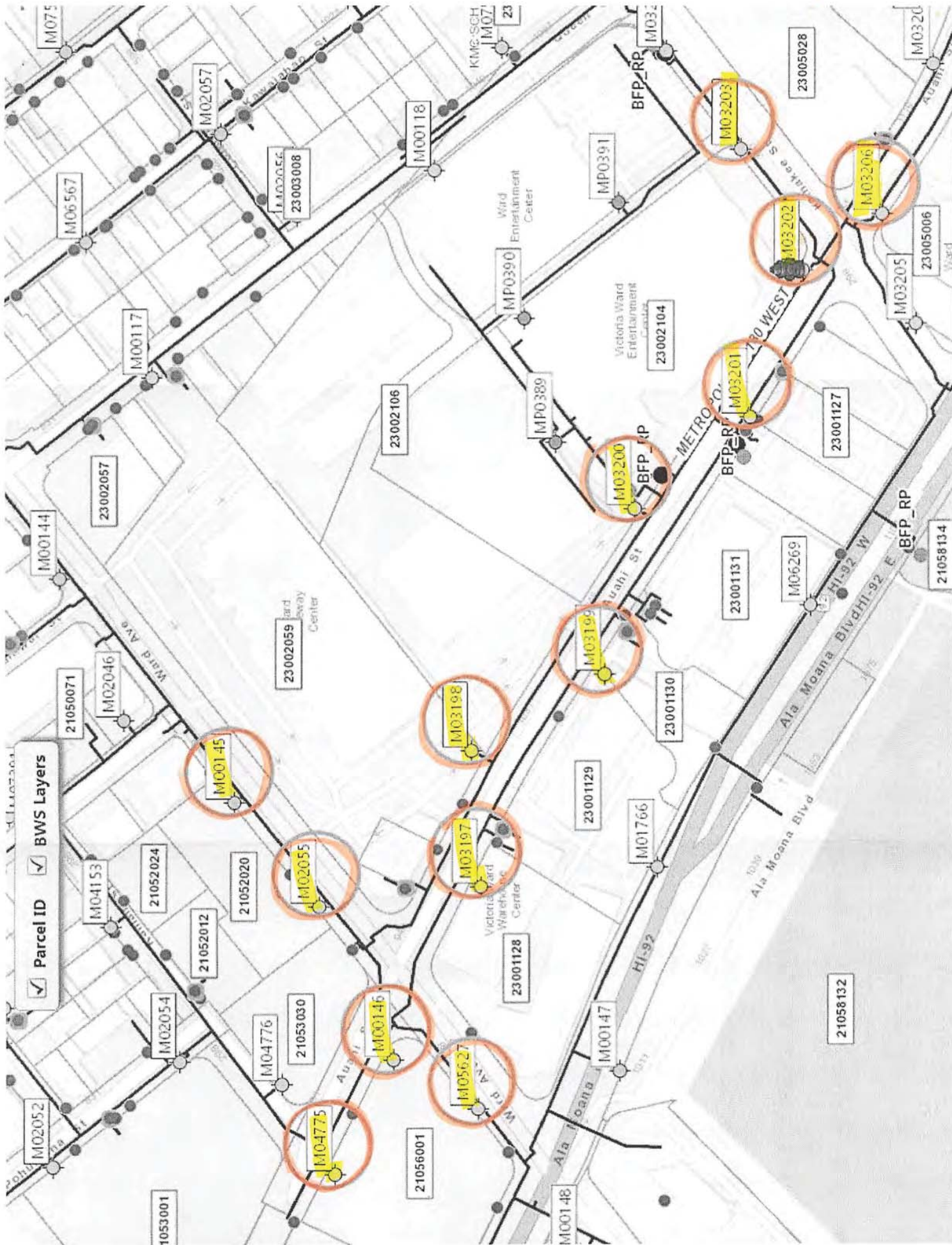
Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

Attachment

Honolulu Fire Department

Meeting Minutes





1907 S. BERETANIA STREET
 HONOLULU, HAWAII 96826
 PH: (808) 946-2277
 FAX: (808) 946-2253

8206-36
 April 12, 2017

MEETING MINUTES

SUBJECT: HFD Meeting – Block I Conceptual Design

MEETING DATE: April 11, 2017

MEETING LOCATION: Fasi Municipal Building
 1st Floor HFD Plan Review Room

MEETING TIME: 9:00 am

ATTENDEES: Douglas Bennett Honolulu Fire Department (HFD)
 Brett Kuamoo Wilson Okamoto Corp. (WOC)
 Rayshi Hong Wilson Okamoto Corp. (WOC)

INFORMATION ITEMS:

1. Meeting was requested by WOC to discuss the concept site fire protection plan for a new condo project at Ward Village (Block I) as it pertains to Chapter 18 of NFPA 1 2012 with state and local amendments.
2. WOC presented the proposed site layout, including locations of existing and proposed fire hydrants, existing and proposed fire access roads, and water supply. It was also clarified the building will have a sprinkler system.
3. HFD clarified the following requirements:
 - a. Fire access roads must have a minimum of 20 feet in width, with 13 feet 6 inches of vertical clearance.
 - b. The Fire Command Center (FCC) must be placed in an area accessible from the exterior of a building (e.g., not within the basement or interior of the building).
 - c. Fire Department Connection (FDC) is to be provided within 20 feet of the fire access road. FDC should also specify distance to fire hydrant.
 - d. Fire Access roads must be provided within 50 feet of entry point into building.
 - e. Water supply from a private fire hydrant must be provided within 450 feet from the furthest point of the building to the private fire hydrant.
 - f. Water supply from a public fire hydrant must be provided within 450 feet from the furthest point of a building to the fire access road.
 - g. Fire access roads of more than 150 feet require a turn-around area.
4. HFD noted a turnaround may not be required within PD2 as long as the distance required for fire access does not exceed 150' from the PD1/PD2 intersection. WOC clarified should the distance exceed 150', provisions will be



8206-36
 Page 2
 April 12, 2017

provided to allow for either a truck turnaround or grade transition to allow trucks to exit towards Auahi Street.

5. It was concluded the concept layout generally complies with the fire code but official review and approval to be provided during the building permit review.



8206-36
Page 3
April 12, 2017

Wilson Okamoto Corporation

Brett Kuamoo, P.E.

cc: All Attendees (via email)
Glenn Kuwaye
WOC File

**City and County of Honolulu - Department of Planning and Permitting
Civil Engineering Branch**

LID Email Correspondence with Dawn Kimura

Rayshi Hong

From: Kimura, Dawn <dkimura@honolulu.gov>
Sent: Tuesday, October 10, 2017 2:17 PM
To: Brett Kuamoo
Subject: RE: Ward Village Block I - LID Schematic Design - ActionItem:00043:nFER7

Categories: Filed by Newforma

Brett:

Thanks for the clarification. I have no further comment.

Dawn N. Kimura, PE
Civil Engineering Branch
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 8th Floor
Honolulu, HI 96813

Tel No: 768-8106
Fax: 768-4950

From: Brett Kuamoo [mailto:BKuamoo@wilsonokamoto.com]
Sent: Tuesday, October 10, 2017 1:35 PM
To: Kimura, Dawn
Subject: FW: Ward Village Block I - LID Schematic Design - ActionItem:00043:nFER7

Hello Dawn,

Thanks for the call. Below is the last email I had sent you.

Mahalo,
Brett

From: Brett Kuamoo
Sent: Wednesday, October 4, 2017 1:12 PM
To: 'Kimura, Dawn' <dkimura@honolulu.gov>
Cc: John Kim <jkim@wilsonokamoto.com>; Glenn Kuwaye <gkuwaye@wilsonokamoto.com>
Subject: RE: Ward Village Block I - LID Schematic Design - ActionItem:00043:nFER7

Hello Dawn,

Thank you for your response. Please see following in response to your questions/comments:

1. As with the other Ward Village project, the tree box filter would not be feasible due to impact by tidal influence. In previous discussions with manufacturer, the backflow of brackish water would be detrimental to the tree.

2. Thank you for clarification. We may also elect to direct some roof drainage to this landscape area and bio-filter if feasible.
3. The grass pave with reservoir is intended to be an infiltration method. Given the seasonally high ground water table, we could only use the mauka portion of Central Plaza as that half of the site has a higher finished grade. Which allows the 3' min. separation between the invert of the grass pave structure and ground water.

Feel free to contact me should you have any further questions. With these clarifications, would the project generally meet the LID design standards?

Mahalo,
Brett

From: Kimura, Dawn [mailto:dkimura@honolulu.gov]
Sent: Wednesday, October 4, 2017 12:34 PM
To: Brett Kuamoo <BKuamoo@wilsonokamoto.com>
Cc: John Kim <jkim@wilsonokamoto.com>; Glenn Kuwaye <gkuwaye@wilsonokamoto.com>
Subject: RE: Ward Village Block I - LID Schematic Design - ActionItem:00043:nFER7

Hi Brett:

I have a few comments: 1) Instead of the slot drain and MTD, can you provide tree box filters? 2) The landscaped area on the rec deck are site design strategies that can qualify as self mitigating surfaces to reduce the size of the treatment; 3) The grass pave with reservoir is a bioretention design or a biofiltration design?

If you have any question, please contact me.
Thanks,

Dawn N. Kimura, PE
Civil Engineering Branch
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 8th Floor
Honolulu, HI 96813

Tel No: 768-8106
Fax: 768-4950

From: Brett Kuamoo [mailto:BKuamoo@wilsonokamoto.com]
Sent: Tuesday, October 03, 2017 9:42 AM
To: Kimura, Dawn
Cc: John Kim; Glenn Kuwaye
Subject: Ward Village Block I - LID Schematic Design - ActionItem:00043:nFER7

Hello Dawn,

Howard Hughes is in schematic design of new tower project at Ward Village and is preparing to submit their PDP application to HCDA. Ahead of this submittal, we'd like to present the project's schematic LID design for your review and comment. Please see attach for reference.

LID Concept

- We recently received approval of mass grading for the adjacent Central Plaza Project 2017/CP-152 (MG Approved).

- Project will install grass pave on entire surface.
- We anticipate submitting a revision to this approved plans to provide a reservoir layer within a portion of the grass pave (MG1.03 and MG3.01)
 - To increase available volume for infiltration.
 - Intended to be used for treatment of Block I project.
 - Due to ground water elevation, only a portion can be utilized for LID.
- In addition to this reservoir layer, we propose to (A-001):
 - Use landscape on recreation deck to the maximum extent practical.
 - Use manufactured treatment to mitigate any remaining building runoff and street runoff.

Understanding that official review will be performed during permitting, would it be possible to comment and confirm if the schematic design generally conforms to the LID standards?

Feel free to contact me should you have any questions. Please let me know if additional phone conversation or meeting would be preferred.

Mahalo,

Brett K. Kuamoo, P.E.
Project Manager



1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
T (808) 946-2277 F (808) 946-2253
W <http://www.wilsonokamoto.com>

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GENERAL CONSTRUCTION NOTES

- ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1996, AND STANDARD DETAILS FOR PAVEMENT, STRUCTURES, UTILITIES, AND LANDSCAPE, AS AMENDED, OF THE CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF MAUI, MOLOKAI, AND MAUI.
- THE UNDERGROUND PIPES, CABLES OR DUCTILES KNOWN TO EXIST BY THE ENGINEER FROM FIELD SURVEY OR RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF THE EXISTING UTILITIES AND DETERMINE PROPER CARE IN THE AREA WHEREVER CONSTRUCTION OF NEW UTILITIES IS TO TAKE PLACE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF THE EXISTING UTILITIES AND DETERMINE PROPER CARE IN THE AREA WHEREVER CONSTRUCTION OF NEW UTILITIES IS TO TAKE PLACE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF THE EXISTING UTILITIES AND DETERMINE PROPER CARE IN THE AREA WHEREVER CONSTRUCTION OF NEW UTILITIES IS TO TAKE PLACE.
- NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING UTILITIES, STREETS OR NEARBY WATER COURSES, SHOULD SUCH UNDESIRABLE OCCUR. THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL NECESSARY REPAIRS TO ANY SUCH UTILITIES, STREETS OR NEARBY WATER COURSES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN CHAPTER 11, CHAPTER 44, AND CHAPTER 45, "COMMUNITY WASTE CONTROL". THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE APPROPRIATE CITY DEPARTMENT OF CONVEINMENTAL AGENCY FOR THEIR REQUIREMENTS.
- PURSUANT TO CHAPTER 18, IN THE EVENT ANY ARTIFACTS OF HAWAIIAN REMAINS ARE DISCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY STOP ALL CONSTRUCTION OPERATIONS, NOTIFY THE APPROPRIATE CITY DEPARTMENT OF CONVEINMENTAL AGENCY FOR THEIR REQUIREMENTS, AND REPORT SUCH FINDINGS TO THE APPROPRIATE CITY DEPARTMENT OF CONVEINMENTAL AGENCY FOR THEIR REQUIREMENTS.
- FOR BENCH MARKS, THE CONTRACTOR SHALL CONTACT THE CIVIL ENGINEERING BRANCH AND BE RESPONSIBLE FOR ALL EXPENSES INCURRED IN CONDUCTING THESE TESTS.
- ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD. UNLESS OTHERWISE NOTED, ALL EXISTING UTILITIES SHALL REMAIN IN PLACE AND BE PROTECTED BY THE CONTRACTOR AT HIS OWN EXPENSE TO MATCH EXISTING CONDITIONS.
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GRADING NOTES CONT'D

- ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 11, 14, AND 15, REVISED ORDINANCES OF HONOLULU, 1991, AS AMENDED, AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1996, AND STANDARD DETAILS FOR PAVEMENT, STRUCTURES, UTILITIES, AND LANDSCAPE, AS AMENDED, OF THE CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF MAUI, MOLOKAI, AND MAUI.
- NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING UTILITIES, STREETS OR NEARBY WATER COURSES, SHOULD SUCH UNDESIRABLE OCCUR. THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL NECESSARY REPAIRS TO ANY SUCH UTILITIES, STREETS OR NEARBY WATER COURSES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN CHAPTER 11, CHAPTER 44, AND CHAPTER 45, "COMMUNITY WASTE CONTROL". THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE APPROPRIATE CITY DEPARTMENT OF CONVEINMENTAL AGENCY FOR THEIR REQUIREMENTS.
- THE UNDERGROUND PIPES, CABLES OR DUCTILES KNOWN TO EXIST BY THE ENGINEER FROM FIELD SURVEY OR RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF THE EXISTING UTILITIES AND DETERMINE PROPER CARE IN THE AREA WHEREVER CONSTRUCTION OF NEW UTILITIES IS TO TAKE PLACE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF THE EXISTING UTILITIES AND DETERMINE PROPER CARE IN THE AREA WHEREVER CONSTRUCTION OF NEW UTILITIES IS TO TAKE PLACE.
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VICINITY MAP

LOCATION MAP

DWG. No.	DESCRIPTION
MGO.01	NOTES, VICINITY MAP, LOCATION MAP AND DRAWING INDEX
MGO.02	NOTES
MGO.03	NOTES
MGO.04	NOTES
MGO.05	EXISTING CONDITION PLAN
MGO.06	EROSION CONTROL PLAN
MGO.07	EROSION CONTROL NOTES AND DETAILS
MGO.08	DEMOLITION PLAN
MGO.09	DEMOLITION NOTES AND DETAILS
MS1.01	SITE LAYOUT AND UTILITY PLAN 1
MS2.01	MS1.01 SITE LAYOUT AND UTILITY PLAN 2
MS2.02	MS1.01 SITE MASS GRADING PLAN 2
MS2.03	MS1.01 SITE MASS GRADING PLAN 1
MS3.01	MISCELLANEOUS DETAILS
MS4.01	SYMBOLS, VICINITY MAP, LOCATION MAP, NOTES
ER0.01	NOTES
ER0.02	NOTES
ER0.03	NOTES
ER0.04	NOTES
ER1.01	EXISTING DEMOLITION PARTIAL PLAN "I"
ER1.02	ELECTRICAL DEMOLITION PARTIAL PLAN "I"

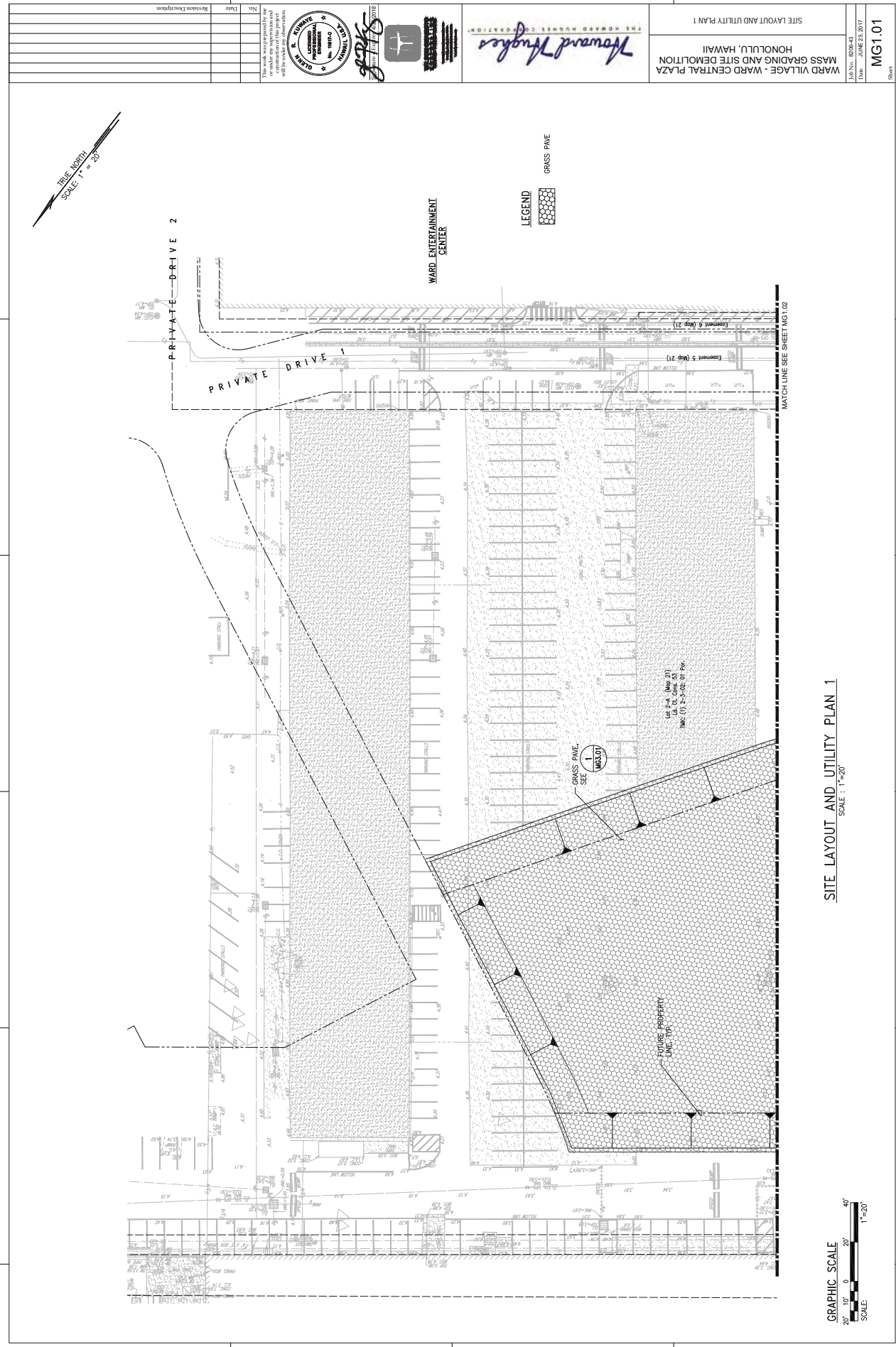
APPROVALS

DATE: 7/25/17 PROJECT NO.: 2017-000-106 DESIGNER: HENRIK M. THORNER, B.S.P. CITY & COUNTY OF HONOLULU	DATE: 7/25/17 PROJECT NO.: 2017-000-106 DESIGNER: HENRIK M. THORNER, B.S.P. CITY & COUNTY OF HONOLULU
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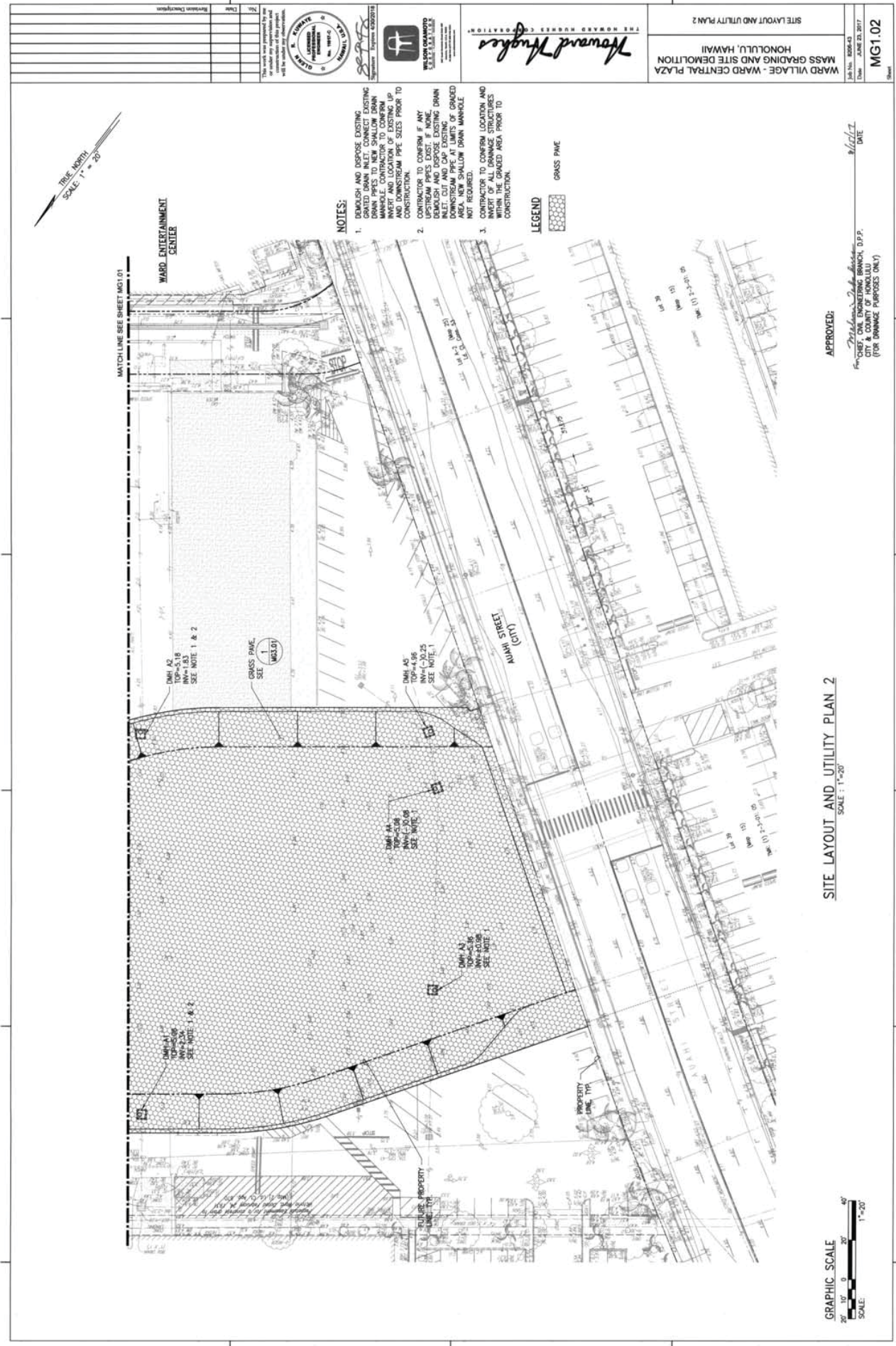
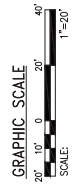
DIRECTOR, PLANNING AND PERMITTING
 CITY & COUNTY OF HONOLULU
 (FOR GRADING ONLY)

HONOLULU, HAWAII
 MASS GRADING AND SITE DEMOLITION
 WARD VILLAGE - WARD CENTRAL PLAZA
 NOTES, VICINITY MAP, LOCATION MAP

MGO.01
 PERMIT SET



SITE LAYOUT AND UTILITY PLAN 1
SCALE: 1"=20'



SITE LAYOUT AND UTILITY PLAN 2
SCALE: 1"=20'



- NOTES:
- DEMOLISH AND DEPOSE EXISTING GRADED DRAIN INLET, CONNECT EXISTING DRAIN TO EXISTING DRAIN MANHOLE. CONTRACTOR TO CONFIRM INLET AND LOCATION OF EXISTING UPSTREAM DRAIN FROM PIPE SEALS PRIOR TO CONSTRUCTION.
 - CONTRACTOR TO CONFIRM IF ANY UPSTREAM PIPES EXIST. IF NONE, CONTRACTOR TO INSTALL AND CAP EXISTING DRAIN MANHOLE AND CAP EXISTING DRAIN DOWNSTREAM PIPE AT LIMITS OF GRADED AREA. NEW SHALLOW DRAIN MANHOLE TO BE INSTALLED AT EXISTING DRAIN MANHOLE LOCATION AND CAP EXISTING DRAIN DOWNSTREAM PIPE AT LIMITS OF GRADED AREA PRIOR TO CONSTRUCTION.

LEGEND

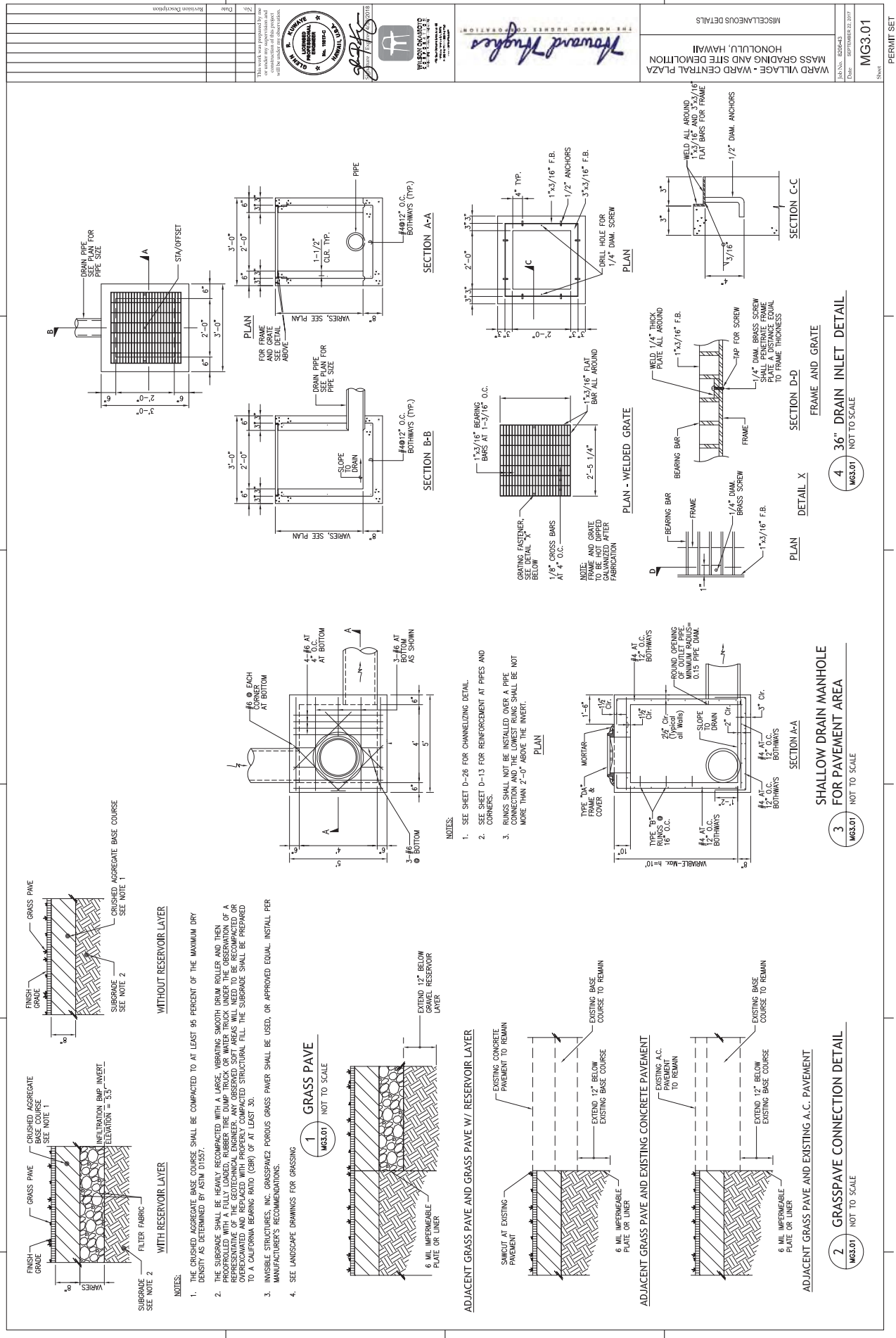
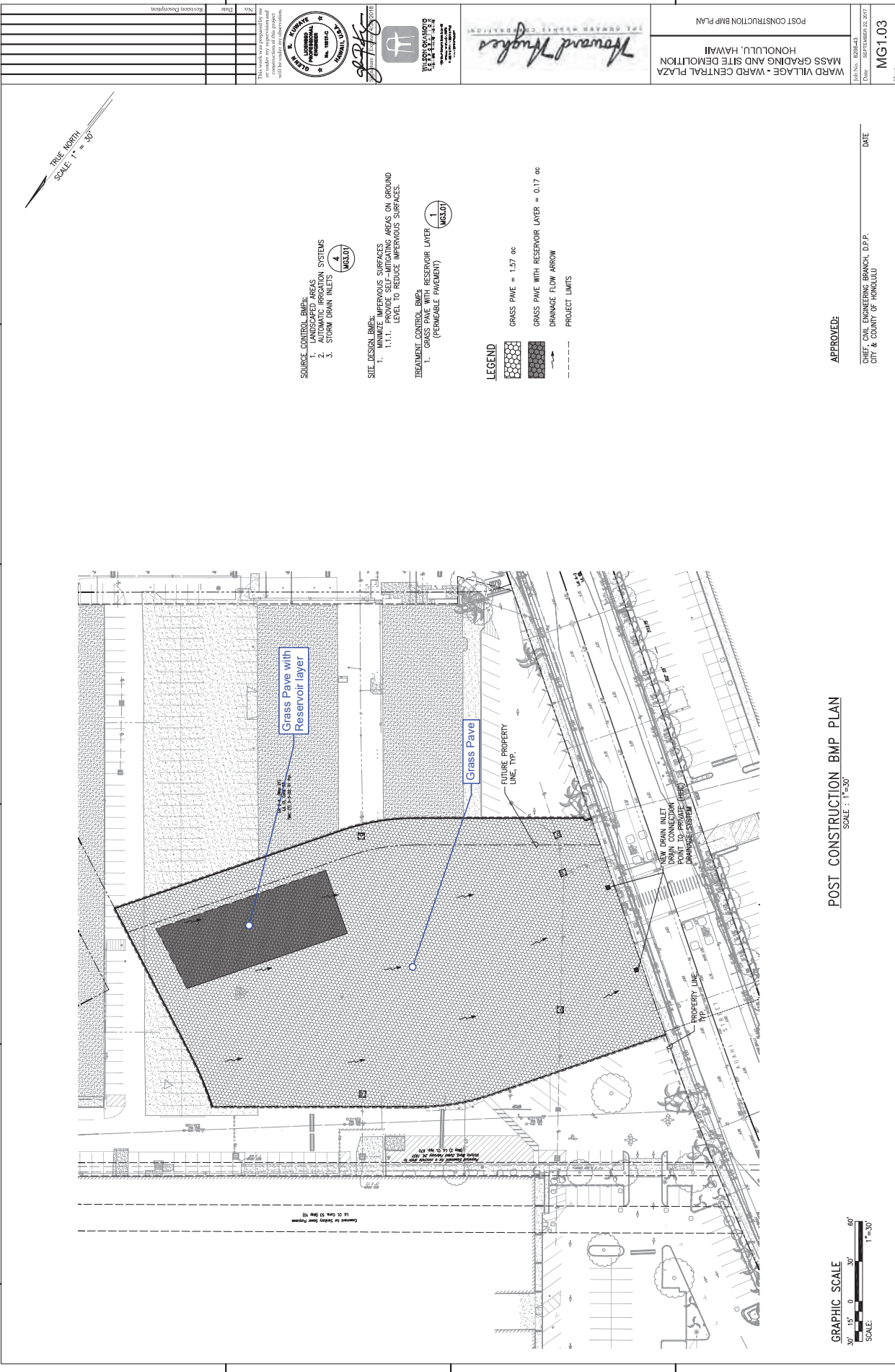
GRASS PAVE

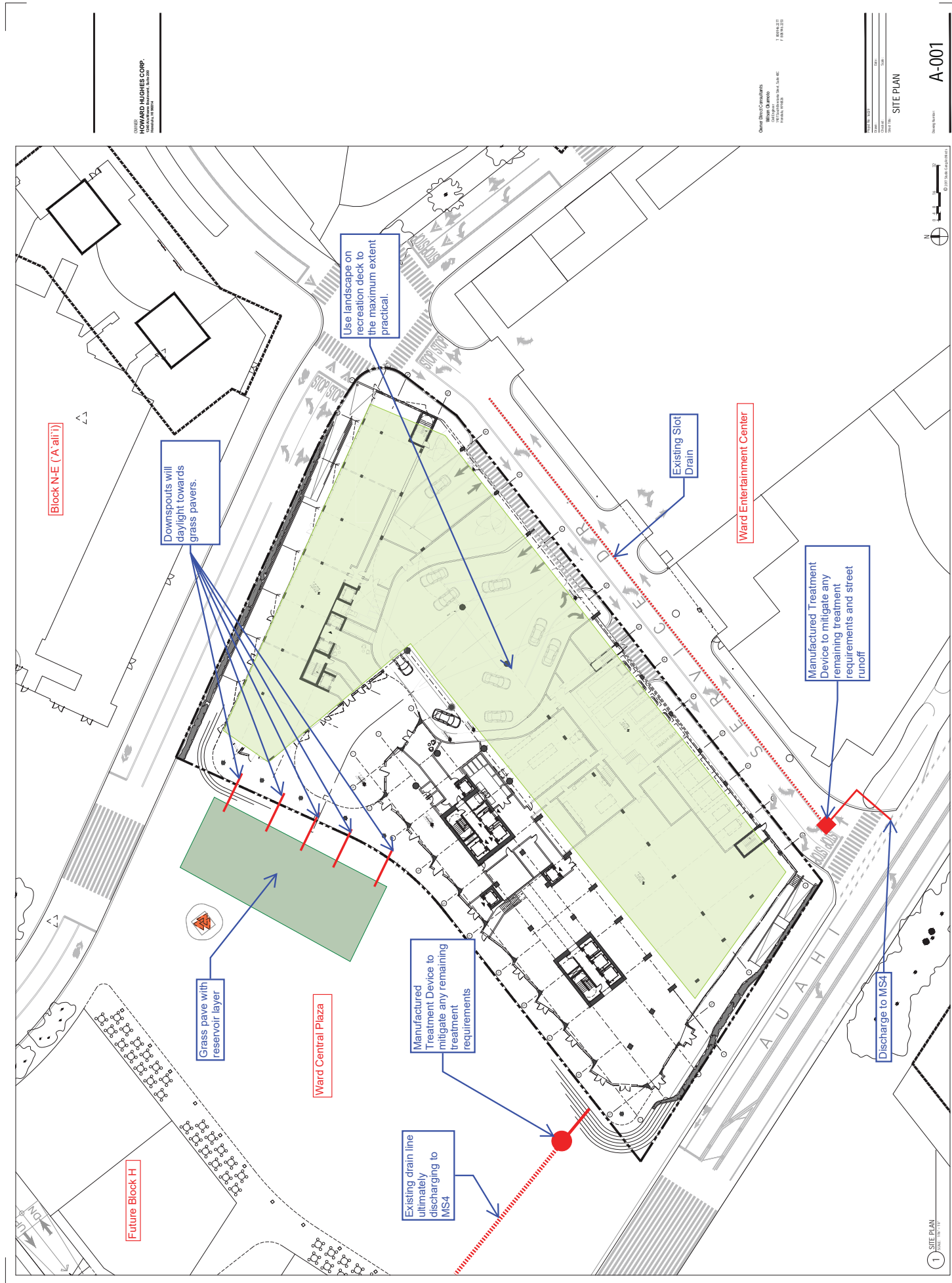
APPROVED:

Howard Hughes

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
CITY & COUNTY OF HONOLULU
(FOR DRAINAGE PURPOSES ONLY)

DATE: 6/23/17





City and County of Honolulu - Department of Planning and Permitting
Civil Engineering Branch

Site Drainage Email Correspondence with Todd Kuniyoshi

Rayshi Hong

From: Kuniyoshi, Todd <tkuniyoshi1@honolulu.gov>
Sent: Wednesday, October 04, 2017 8:01 AM
To: Brett Kuamoo
Subject: RE: Ward Village Block I - Schematic Drainage Design - ActionItem:00042:nFER7

Categories: Filed by Newforma

Hi Brett,

For this mass grading project the total runoff rate under the proposed condition should be much less than the existing condition. This reduction in runoff rate is acceptable and should not result in any adverse drainage impacts during the mass grading phase.

For the final proposed drainage system, I don't see a significant increase in runoff because of the existing condition ground cover that appears to be mostly impermeable. The drainage concept of maintaining existing discharge rates to existing drainage system is acceptable as well.

Please call should you have any questions.
Thank you,
Todd

From: Brett Kuamoo [<mailto:BKuamoo@wilsonokamoto.com>]
Sent: Tuesday, October 03, 2017 10:06 AM
To: Kuniyoshi, Todd
Cc: Glenn Kuwaye; Rayshi Hong
Subject: Ward Village Block I - Schematic Drainage Design - ActionItem:00042:nFER7

Hello Todd,

Howard Hughes is in schematic design of new tower project at Ward Village and is preparing to submit their PDP application to HCDA. Ahead of this submittal, we'd like to present the project's schematic drainage design for your review and comment. Please see attach for reference.

Drainage Concept

- We recently received approval of mass grading for the adjacent Central Plaza Project 2017/CP-152.
 - Attached Figure P1 is propose drainage condition from this project.
 - This will be near to the existing condition for Block I.
- We proposed to distribute the tower runoff to match the existing condition. (A-001)

Understanding that official review will be performed during permitting, would it be possible to comment and confirm if the schematic design generally conforms to the City standards?

Feel free to contact me should you have any questions. Please let me know if additional phone conversation or meeting would be preferred.

Mahalo,

Brett K. Kuamoo, P.E.
Project Manager



1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
T (808) 946-2277 F (808) 946-2253
W <http://www.wilsonokamoto.com>

This message contains information that might be confidential and privileged. Unless you are the addressee or are authorized by the sender, you may not use, copy or disclose the information contained in this message. If you have received this message in error, please delete it and advise the sender.



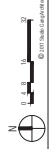
BY
HOWARD HUGHES CORP.
 10000
 10000

Owner: Howard Hughes Corporation
 Project: Ward Entertainment Center
 Date: 10/10/2014

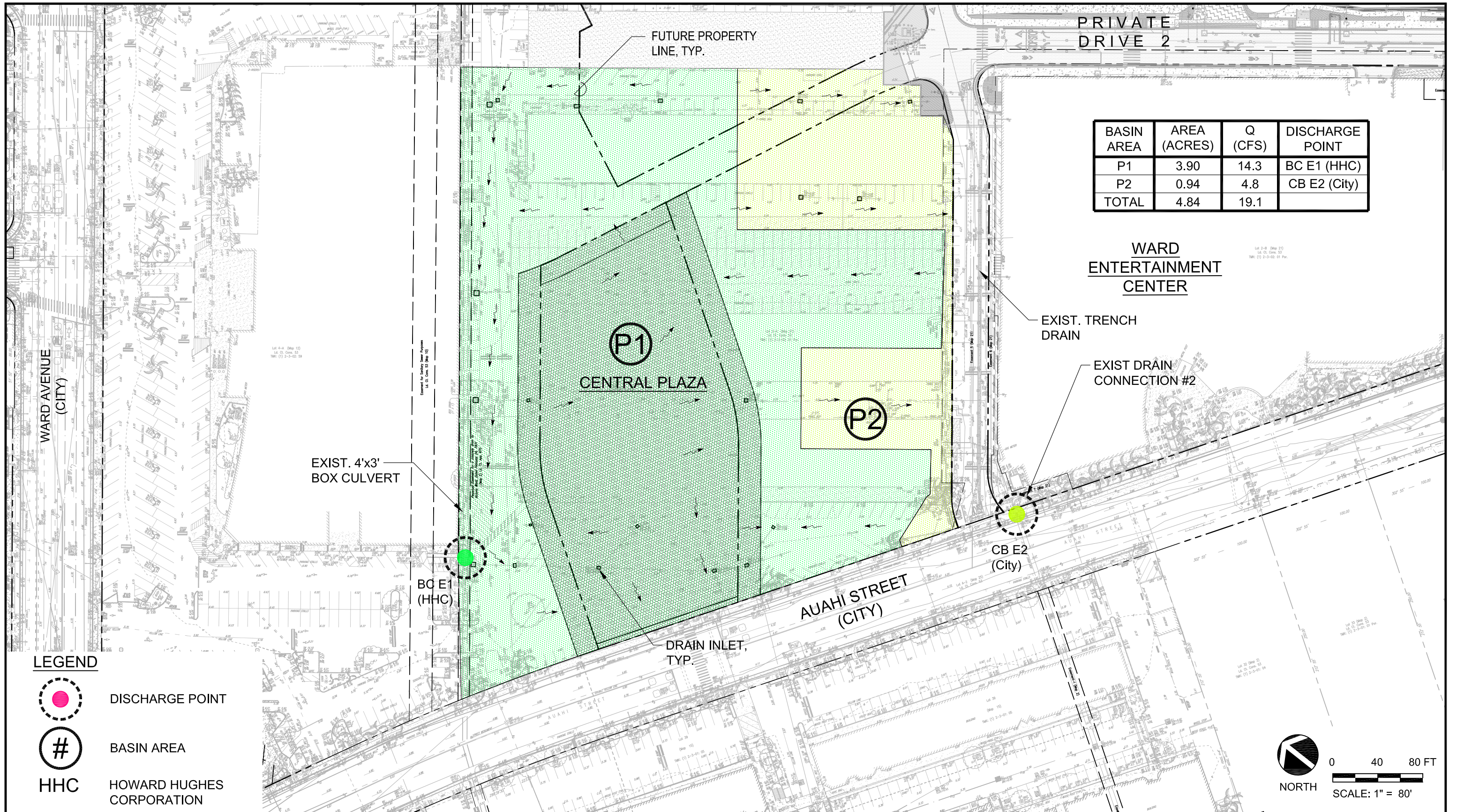
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10/10/2014	ISSUED FOR PERMIT




SITE PLAN

A-001



1 SITE PLAN
 10/10/2014



- LEGEND**
-  DISCHARGE POINT
 -  BASIN AREA
 -  HOWARD HUGHES CORPORATION

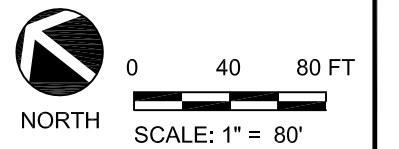


FIGURE P1
PROPOSED DRAINAGE CONDITION



Hawaiian Electric Company
Request Letter and Will Serve Letter



Ronald N. S. Ho & Associates, Inc. electrical engineers

Sean K. Sugai, P.E. • Steven H. Sakai, P.E. • Dennis I. Toba, P.E. • Ronald N. S. Ho, P.E. • Gary I. Funasaki, P.E. • Andrew I. Miyasato, P.E.

14 March 2017

Hawaiian Electric Co.
820 Ward Avenue
Honolulu, HI 96840

Attention: Eric Shimono, P.E.

Project: Ward Village Block I Utility Assessment

Enclosures: (a) Block I East Concept Site Plans
(b) PD-1 Preliminary Utility Plan

Please be advised that we are working with Wilson Okamoto Corporation under contract to Howard Hughes Corporation to develop a utility assessment report for the Block I development. Please find attached for your review and comment enclosure (a) and enclosure (b) which indicate the location of the site and preliminary utility alignments within Private Driveway - 1. It is currently anticipated that the building will consist of 780 dwelling units, 37,500 square feet of retail space and 37,500 of restaurant space. Based on a diversified per unit demand load of 2.5 kVA, a demand load of 3 VA per square foot for the retail space and a demand load of 15 VA per square foot for the restaurant space, the preliminary demand load would be 2,625 kVA. Please advise on the following:

1. We understand that HECO's likely preferred service connection point for this development will be to the underground duct system recently constructed within Auahi Street. Also please verify that HECO's distribution system in the area has sufficient capacity to provide service to this development. If off-site improvements are required to provide service to this site, please advise as to the nature and scope of the improvements and whether the Developer might be expected to participate in the cost of these off-site improvements. If the Developer's cost participation is anticipated, please provide an order-of-magnitude budget of the cost.
2. If we may obtain the existing HECO distribution plans for any existing overhead and underground facilities within or adjacent to the site and, if possible, a color G-net map of the project area. These will assist with the development of the utility assessment.

Hawaiian Electric Co.
Attention: Eric Shimono, P.E.
Project: Ward Village Block I Utility Assessment
Page – 2

We are trying to complete the draft utility assessment report as quickly as feasible and would appreciate any information you can furnish within the next month.. Your assistance in expediting this matter is greatly appreciated. Should you have any questions, please call.

Very truly yours,



Steven Sakai

cc: Brandi Crabbe, HECO
Jon Sakata, HECO
Brett Kuamoo, WOC



September 28, 2017

Mr. Steve Sakai
Ronald N.S. Ho & Associates
2153 N. King Street #201
Honolulu, HI. 96819

Dear Mr. Sakai:

Re: Ward Village – Block I

This is in response to your request for a “Will Serve” letter for the above project location.

There are proposed circuits that will be installed along Auahi Street that will be used to serve the subject project and other Howard Hughes developments in the area. We look forward to working with you on your design as they are being developed.

We request that you keep us informed on the status of your project. As soon as you have detailed plans, please create a Service Request with us, and be sure to allow sufficient time for us to work on the project.

Please let us know if we can be of assistance in any other way. Should you have any questions, please call me at 543-7590.

Sincerely,



Eric Shimono
Sr. Engineer
Planning & Design Division
Customer Installation Dept.

ES/GF:ks

Hawaiian Telcom**Request Letter and Utility Assessment Letter****Ronald N. S. Ho & Associates, Inc. electrical engineers**

Sean K. Sugai, P.E. • Steven H. Sakai, P.E. • Dennis I. Toba, P.E. • Ronald N. S. Ho, P.E. • Gary I. Funasaki, P.E. • Andrew I. Miyasato, P.E.

14 March 2017

Hawaiian Telecom Inc.
1177 Bishop Street, 10 th Floor
Honolulu, HI 96713

Attention: Mr. Les Loo

Project: Ward Village Block I Utility Assessment

Enclosures: (a) Block I Concept Site Plans
(b) PD-1 Preliminary Utility Plan

Please be advised that we are working with Wilson Okamoto Corporation under contract to Howard Hughes Corporation to develop a utility assessment report for the Block I development. Please find attached for your review and comment enclosure (a) and enclosure (b) which indicate the location of the site and preliminary utility alignments within Private Driveway - 1. It is currently anticipated that the building will consist of 780 dwelling units, 37,500 square feet of retail space and 37,500 of restaurant space. Please advise on the following:

1. HTCO's preferred service connection point for this development. Also please verify that HTCO's distribution system in the area has sufficient capacity to provide service to this development. If off-site improvements are required to provide service to this site, please advise as to the nature and scope of the improvements and whether the Developer might be expected to participate in the cost of these off-site improvements. If the Developer's cost participation is anticipated, please provide an order-of-magnitude budget of the cost.
2. If we may obtain the existing HTCO distribution maps for any existing overhead and underground facilities within or adjacent to the site. These will assist with the development of the utility assessment.

Hawaiian Telecom Inc.
Attention: Mr. Les Loo
Project: Ward Village Block I Utility Assessment
Page - 2

We are trying to complete the draft utility assessment report as quickly as feasible and would appreciate any information you can furnish within the next month. Your assistance in expediting this matter is greatly appreciated. Should you have any questions, please call.

Very truly yours,


Steven Sakai

cc: Cassandra Yamamoto, HTCO
Brett Kuamoo, WOC

April 18, 2017

Ronald N. S. Ho & Associates, Inc.
2153 North King Street #201
Honolulu, Hawaii 96819

Attention: Steven Sakai

Subject: Ward Village Block I Utility Assessment

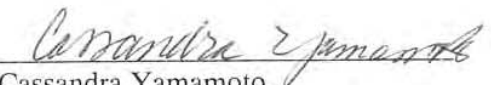
Dear Steven:

Attached is a color-coded map which shows the approximate location of Hawaiian Telecom facilities within or adjacent to the Ward Village Block I project. Green shows aerial facilities and pink is underground. The Hawaiian Telecom point of connection for this project will be MH 4694 as shown on the drawing.

Hawaiian Telecom does have sufficient capacity to serve this development. We do not anticipate needing any off-site improvements to service this site. HT will require an easement for the existing underground line coming off of Kamakee Street in order to serve Block I.

Should you have any questions, please call Garret Hayashi at 546-5438.

Sincerely,


Cassandra Yamamoto
Senior Manager - Network Development

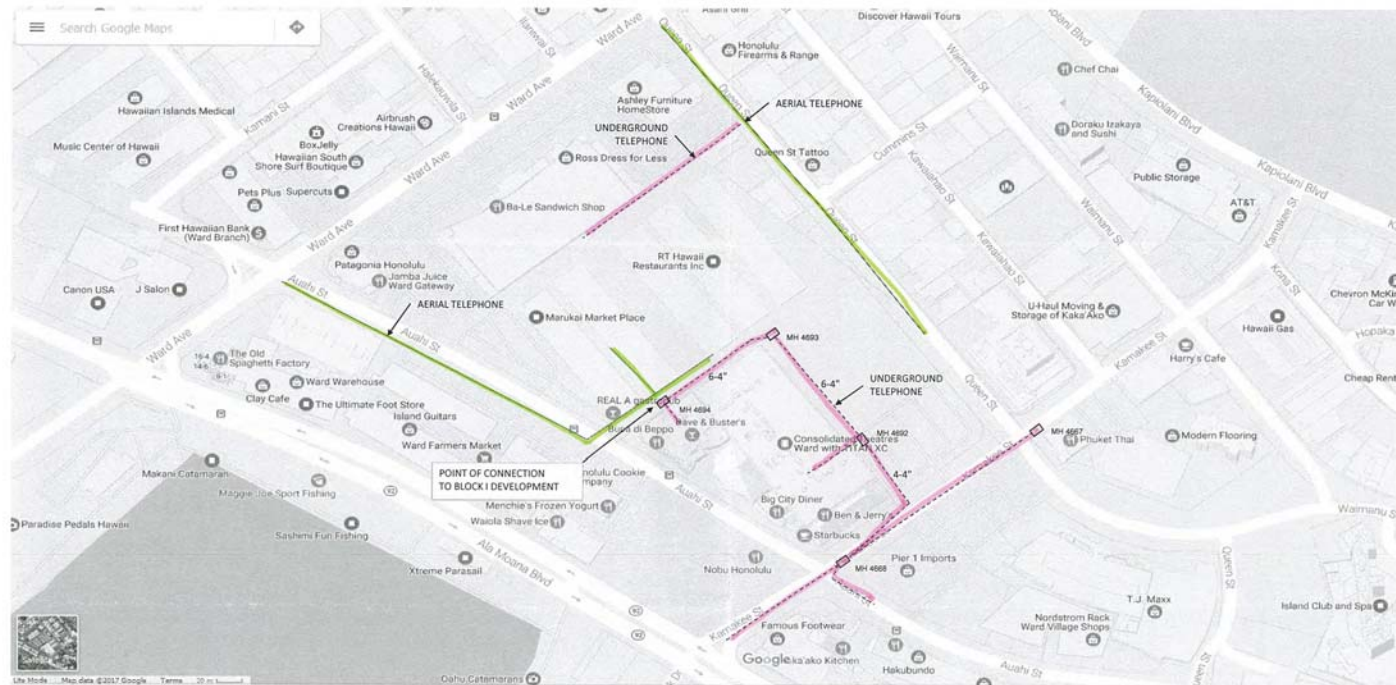
cc: File (Kakaako C.O.)

RECEIVED
APR 20 2017

Ronald N.S. Ho & Assoc., Inc.

SXS	DT	SS
GF	SJI	SL
AM	JS	BHS
BJO	RK	GTN
KKO	RS	AN
IK	CC	EDT
BHK	CA	SNS
RY	MT	JO
CMC		EPW
AD		RIS

PROJECT # _____
DATE: _____
FILE ACTION
INFO TRASH



Charter Communications aka Spectrum**Utility Assessment Request Letter
and Email Correspondence****Ronald N. S. Ho & Associates, Inc. electrical engineers**

Sean K. Sugai, P.E. • Steven H. Sakai, P.E. • Dennis I. Toba, P.E. • Ronald N. S. Ho, P.E. • Gary I. Funasaki, P.E. • Andrew I. Miyasato, P.E.

14 March 2017

Charter Communications
200 Akamainui Street
Mililani, HI 96789

Attention: Mr. Mitchell Miyoshi

Project: Ward Village Block I Utility Assessment

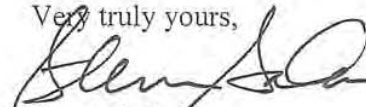
Enclosures: (a) Block N East Concept Site Plans
(b) PD-1 Preliminary Utility Plan

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1. We understand that Charter's likely, preferred service connection point for this development will be to the underground duct system recently constructed within Auahi Street. Also please verify that Charter's distribution system in the area has sufficient capacity to provide service to this development. If off-site improvements are required to provide service to this site, please advise as to the nature and scope of the improvements and whether the Developer might be expected to participate in the cost of these off-site improvements. If the Developer's cost participation is anticipated, please provide an order-of-magnitude budget of the cost.
2. If we may obtain the existing Charter distribution maps for any existing overhead and underground facilities within or adjacent to the site. These will assist with the development of the utility assessment.

We are trying to complete the draft utility assessment report as quickly as feasible and would appreciate any information you can furnish within the month. Your assistance in expediting this matter is greatly appreciated. Should you have any questions, please call

Very truly yours,


Steven Sakaicc: Allyson Ka'ai, CC
Brett Kuamoo, WOC

Steve Sakai

From: Ronald NS Ho & Associates (Front) <postmaster@rnsha.com>
Sent: Thursday, March 09, 2017 9:04 AM
To: Scott Shiraishi @ RNSHA
Cc: 'Steve Sakai'
Subject: FW: (PN 215164) Ward Block I Utility Assessment

No attachment

From: Makizuru, Randy T [mailto:Randy.Makizuru@charter.com]
Sent: Thursday, March 09, 2017 9:00 AM
To: Ronald NS Ho & Associates (Front)
Subject: RE: (PN 215164) Ward Block I Utility Assessment

Good morning Steve,

Our number one choice would be from the new CATV manhole on Auahi Street fronting the HHC Waiea Condo. This would mean another CATV manhole may need to be placed along Auahi ST. in the Ewa direction. My understanding is that Auahi ST will be taken UG anyway so this will continue the conduit run in that direction. Should you have any questions or need anything clarified, please let me know.

Thank you,
 Randy Makizuru
 Oceanic Time Warner Cable
 Engineering Dept.
 #625-8346

From: Ronald NS Ho & Associates (Front) [mailto:postmaster@rnsha.com]
Sent: Thursday, March 09, 2017 8:46 AM
To: Leslie Loo @ HTC <Leslie.Loo@hawaiiantel.com>; kenwynn.goo@hawaiiantel.com; stacy.shishido@hawaiiantel.com; 'Randy Makizuru @ OTW' <randy.makizuru@twcable.com>
Subject: (PN 215164) Ward Block I Utility Assessment

To: Les Loo, HTCO; Kenwynn Goo, HTCO; Stacy Shishido, HTCO; Randy Makizuru, CC
 From: Steve Sakai, RHA

We seem to have let this project slip by. We would like to request your assistance in determining the preferred service connection point for Howard Hughes Corp.'s Block I development, a schematic floor plan of which, is attached. A previous design may have been submitted to you for review, but we understand that this design which was closer to the Ward Entertainment Center has been modified. Block I will be located on the Makai-Ewa corner of the Private Driveway 1/Private Driveway 2 intersection diagonally across from Block M (A'e'o). Please advise if your preference would be to extend service from the ductline in the Private Driveway 1/Private Driveway 2 intersection or if you would prefer to extend the lines from the underground ductline in Auahi Street installed by the Block C-East project. Your expeditious review and response would be greatly appreciated. Also please don't be concerned if you receive a follow-up letter asking for the same information.

The contents of this e-mail message and any attachments are intended solely for the addressee(s) and may contain confidential and/or legally privileged information. If you

Hawaii Gas

Will Serve Letter



RNH

April 4, 2017

Mr. Rayshi Hong
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

RECEIVED
APR 10 2017
WILSON OKAMOTO CORPORATION

Re: Ward Village Block I, "Project"

Dear Mr. Hong:

Thank you for sharing information on the proposed "Project". We are excited to be a part of the development and are happy to provide gas service subject to the assumptions stated herein. We understand that the Project will be comprised of retail tenants, spa water heating and gas grills, and that the projected load is 4,000,000 BTU/hr. This will confirm that our current infrastructure in the area is presently adequate to serve the Project.

Please contact Sharon Shigemoto in our Sales Department at 594-5534 to coordinate infrastructure details to the building. If you have any questions, please contact me at 594-5574.

Very truly yours,

Hawaii Gas

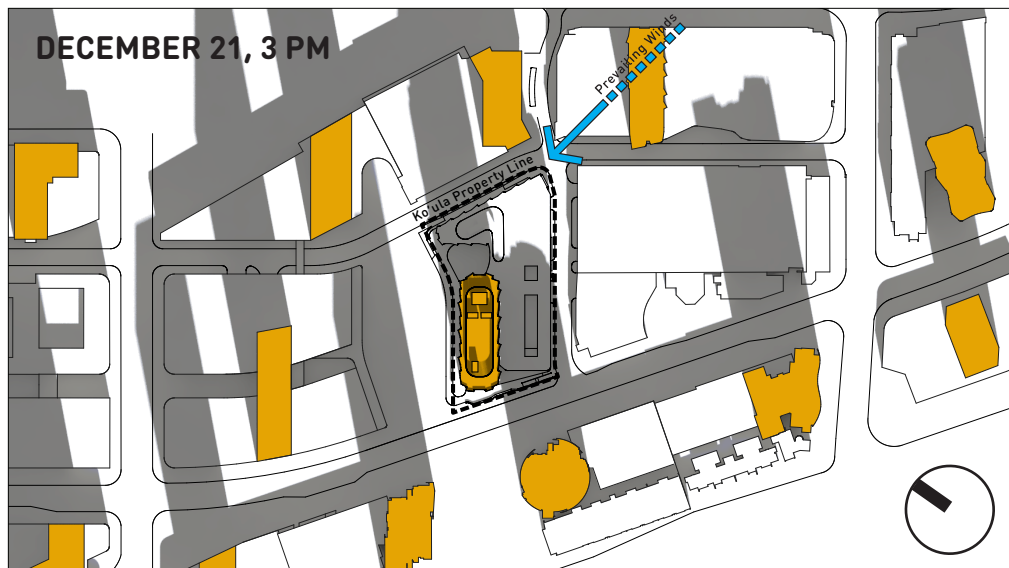
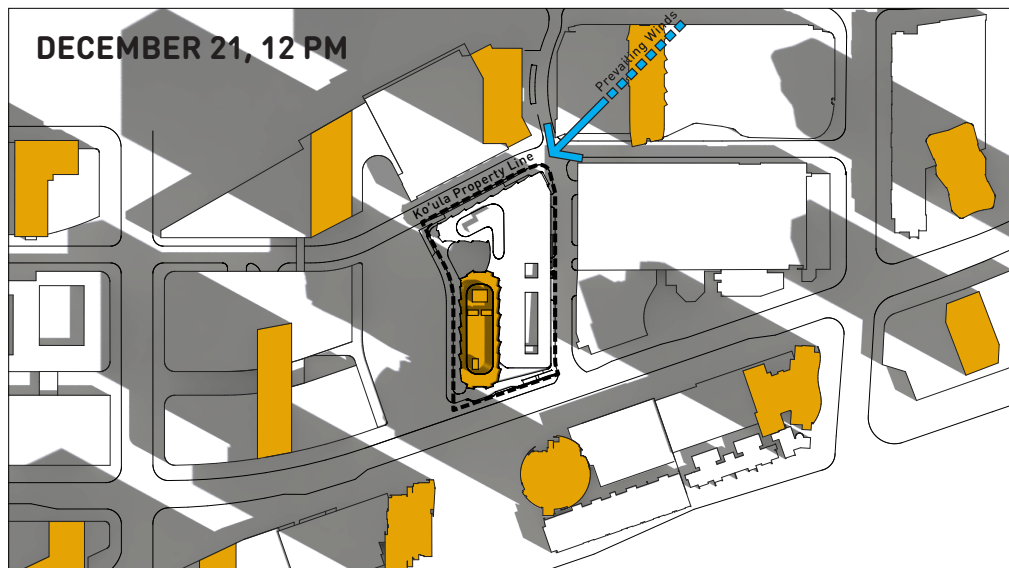
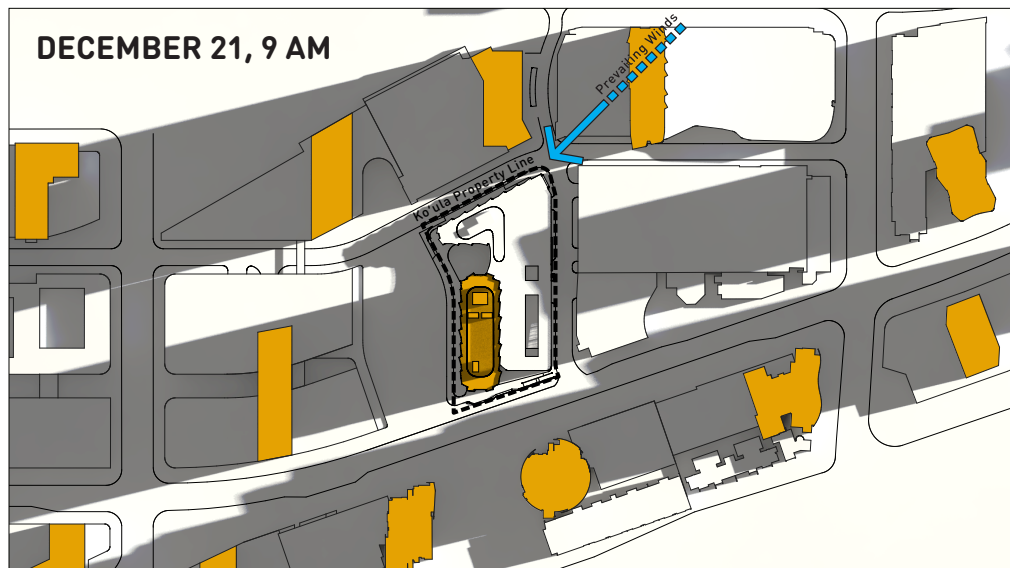
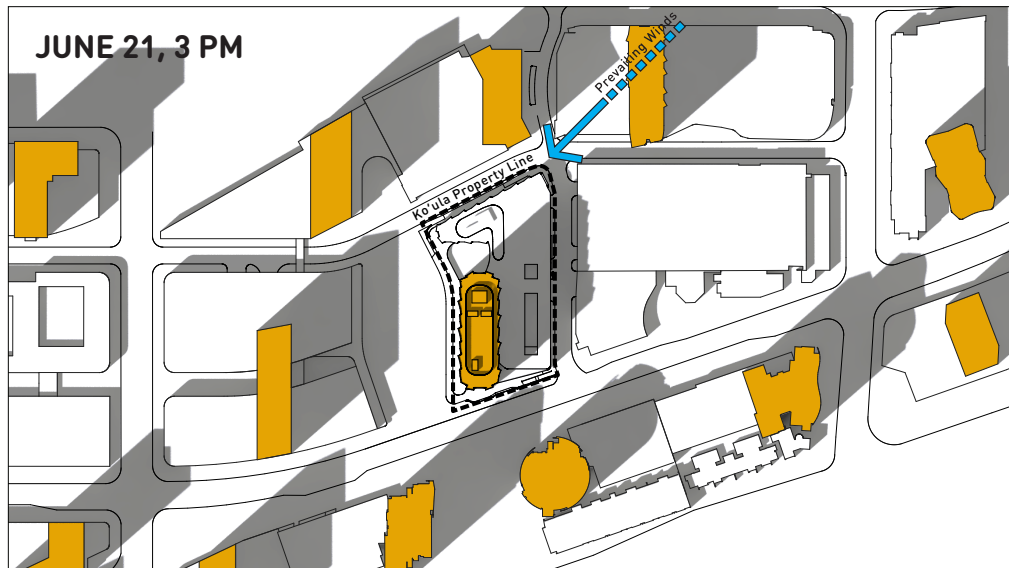
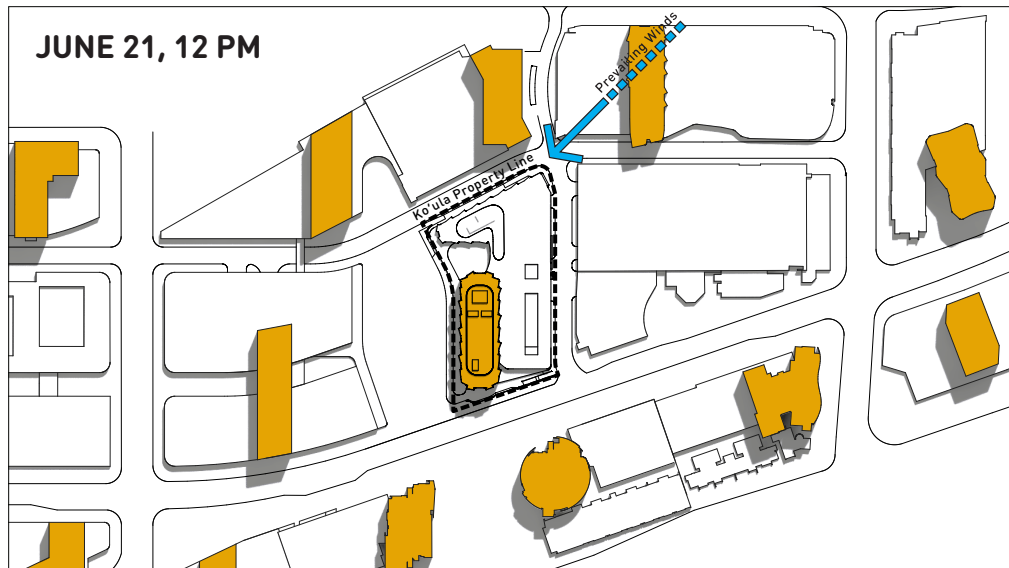
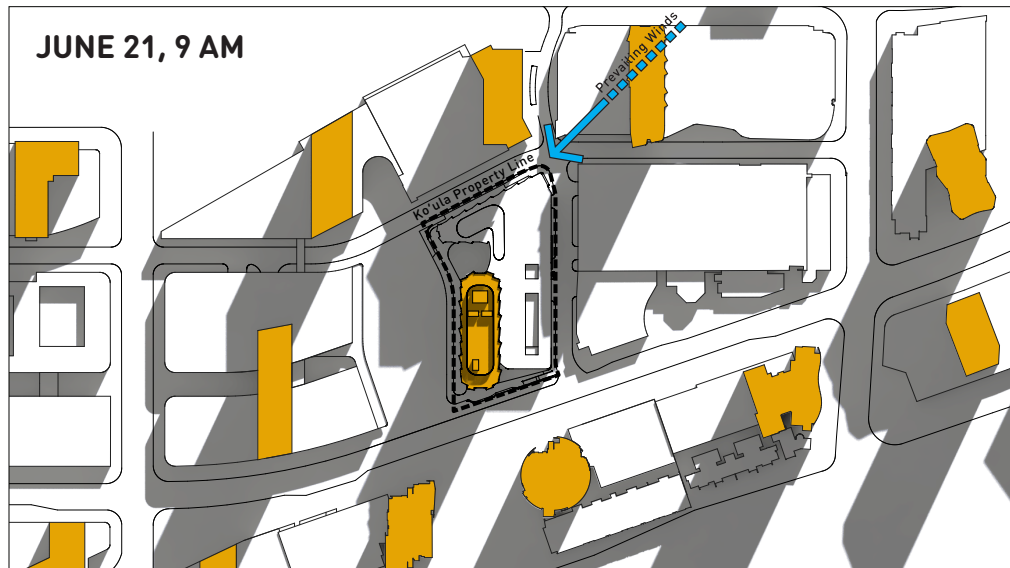
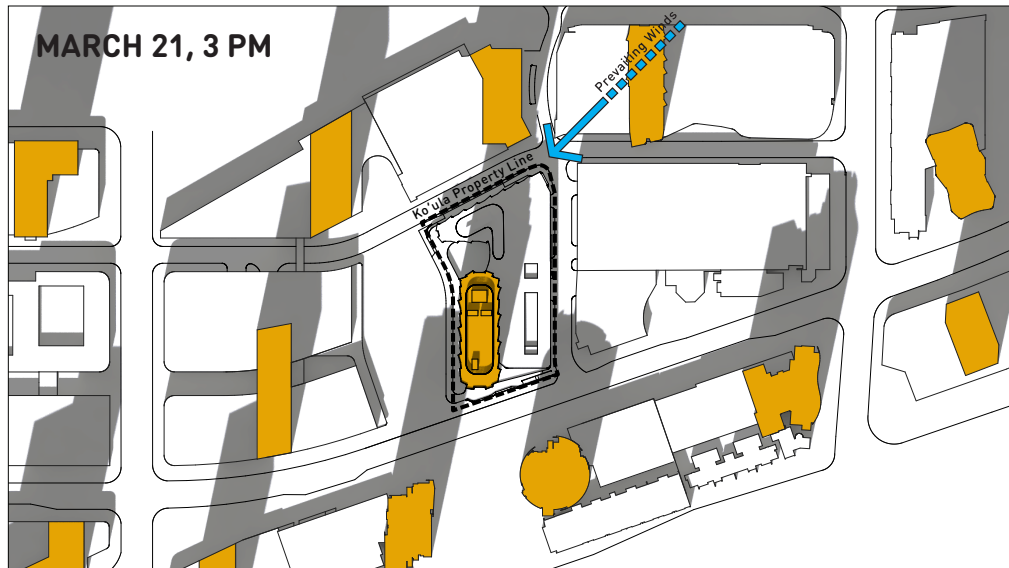
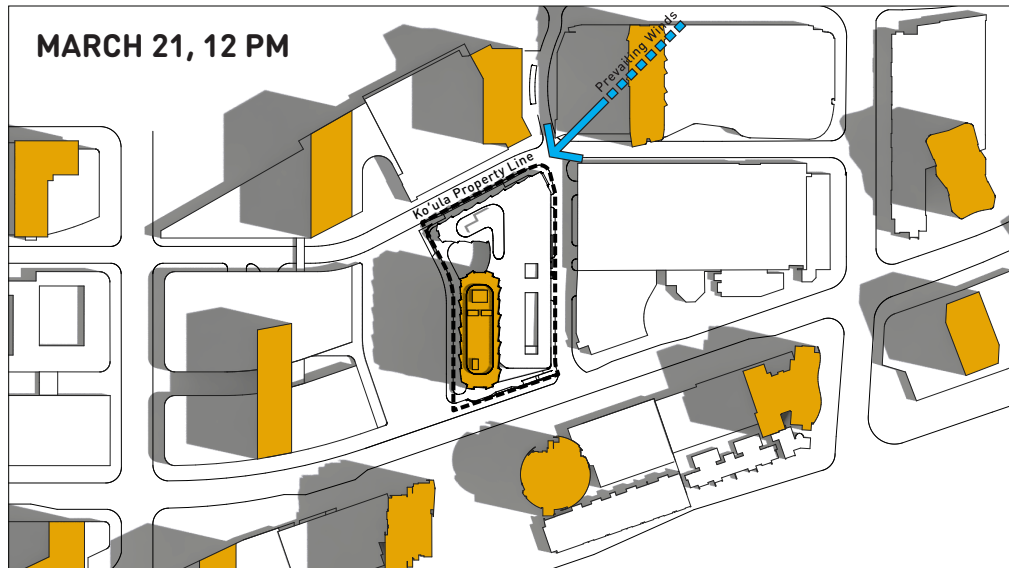
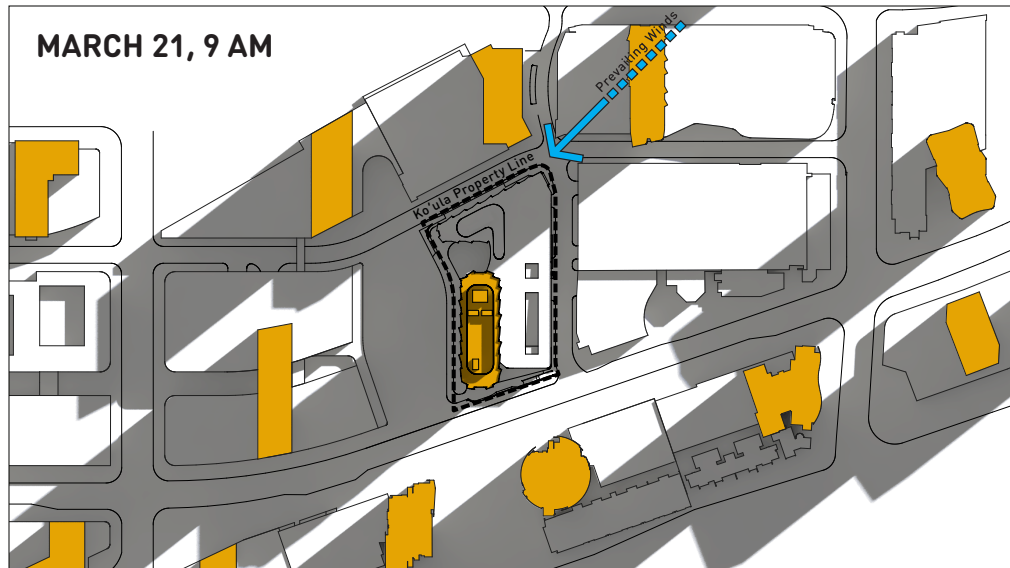
Keith K. Yamamoto
Manager, Engineering

KKY:krs

APPENDIX E

SHADOW & WIND STUDIES





APPENDIX F

WIND CONSULTANT LETTER



600 Southgate Drive
Guelph, ON N1G 4P6
Canada

Tel: +1.519.823.1311
Fax: +1.519.823.1316



July 18, 2017

Jim Miller, CFA
Development Manager
THE HOWARD HUGHES CORPORATION
1240 Ala Moana Boulevard, Suite 200
Honolulu, HI 96814
Jim.Miller@howardhughes.com

Re: Pedestrian Wind Conditions
Ward Village Block I
Honolulu, Hawaii
RWDI Reference No. 1702350

Dear Mr. Miller,

Rowan Williams Davies & Irwin Inc. (RWDI) has been requested by The Howard Hughes Corporation to conduct wind tunnel studies for the pedestrian wind conditions on and around the proposed Ward Village Block I development in Honolulu, Hawaii.

The proposed development includes a 40-story tower and 8-story podium located on the block bounded by Auahi Street, Ward Avenue, Halekauwila Street, and an unnamed private street. Winds around the proposed development will be simulated in one of RWDI's boundary-layer wind tunnels for the existing and proposed building configurations by using a 1:400 scale model of the study building and its surroundings within a 1600' radius. The wind study will focus on frequently used pedestrian areas such as main entrances, sidewalks and outdoor seating areas at both the grade and podium levels. Wind tunnel measurements for 36 wind directions will be taken at key pedestrian areas within a 800' radius of the site, and will be combined with the long-term weather data collected from the nearby Honolulu International Airport to predict the wind speeds and frequencies in full scale. These data will then be compared with the RWDI wind comfort and safety criteria to determine if they are appropriate for the intended usage of the pedestrian areas on and around the development.

Immediately following the wind tunnel tests, a report will be issued to summarize our main findings through tables and figures. Wind mitigation measures will be provided for areas where higher-than-desired wind speeds are detected.

If you have any questions, please do not hesitate to contact us.

Respectfully submitted by:

A handwritten signature in black ink that reads "Analene Belanger". The signature is written in a cursive, flowing style.

Analene Belanger, P.Eng., PMP
Principal / Senior Project Manager
RWDI

APPENDIX G

ACOUSTICAL CONSULTANT LETTER





The Howard Hughes Corporation
September 13, 2017

CENSEO HCDA Noise Summary

September 13, 2017

Mr. Jim Miller
The Howard Hughes Corporation
1240 Ala Moana Boulevard Suite 200
Honolulu, HI 96814

Re: Ward Village – Block I – Report #1A: HCDA Noise Impact Summary (#17049A)

Dear Mr. Miller,

Block I of Ward Village is a proposed mixed-use high rise condominium project located on Auahi Street Ewa of the Ward Theater Complex. The project includes commercial spaces on the lower floors, a parking structure, and residential units. Some building noise sources may concern neighboring properties like construction noise, parking structure noise, and certain retail spaces. Some building and environmental noise sources may affect residents. These sources include traffic, future rail construction and operations, mechanical noise, parking structure noise, noise from the amenity level, and noise from adjacent commercial and residential units. The noise concerns will be evaluated during the design process.

Project Description

This 40-story high rise housing development includes 36 levels of residential units, a tenant amenity level, 2 levels of commercial space, and a 7-level parking structure.

Potential Noise Sources

Transit Noise

This building will be subject to vehicular traffic noise on neighboring streets, including the busy Ala Moana Boulevard. Although the lower levels of the building are closer to the street (and vehicular noise sources), the upper floors have a direct line-of-sight to more streets. The net effect is often a somewhat consistent noise level due to vehicular traffic noise for the full height of the building façade, depending on the sound barrier

effects provided by the neighboring buildings. Existing ambient noise level measurements are currently planned (at the project site) to document the approximate noise impact of the existing vehicular traffic noise on the project site.

Once the Honolulu Authority of Rapid Transit (HART) system is operational, rail-transit noise will also be present. The rail will be on an elevated structure about five stories high. Rail noises will be most prevalent on floors just above the rail structure with direct line-of-sight to the tracks. The rail alignment is expected to be at least 200 feet away with existing and future buildings providing a partial sound barrier effect. Rail noise is expected to be minimal at the Block I project, however, this noise will be evaluated and considered with the building shell design.

Anticipated Transit Noise Mitigation Recommendations: The sound isolation performance of the building shell will be evaluated during the design phase to determine the most effective exterior shell assemblies for noise mitigation of vehicular traffic noise and rail-transit noise. Since the exterior glazing is often the weakest link for noise transmission, we will evaluate an effective STC rating for the exterior glazing.

Construction Noise

Construction noise may be a concern due to nearby residential areas during the construction period. The surrounding area currently experiences somewhat high levels of vehicular traffic noise throughout the day so ambient noise levels may be higher than for other typical residential areas. The Contractor should take care to limit construction noise, where possible. The Contractor is required to submit for a Noise Permit with the Hawaii Department of Health (DOH), which limits noisy construction activities to the hours of 7:00am to 6:00pm (Mon-Fri) and 9:00am to 6:00 pm (Sat). Noisy construction activities are prohibited during Sundays and Holidays. [See Hawaii Administrative Rules, Title 11 Department of Health, Chapter 46 Community Noise Control]

Building Operational and Mechanical Noise

Mechanical noise is a concern throughout the building, including mechanical noise impact by the Project to the Project and by the Project to the adjacent properties. On the ground floor, there are mechanical rooms housing various generators and pumps. Elevators are adjacent all types of spaces included residential units. Partitions between mechanical noise sources and sensitive areas (such as the residential units) will be evaluated during the design of the project. Air handling units (AHUs) are located on the roof. Radiated and ceiling-transmitted noise from the AHUs is a concern for units on the top floor. HVAC noise will be carefully evaluated in the residential units, as well as other noise sensitive spaces in the project. All stationary mechanical equipment must comply with the State Noise Limits at the property lines.

Anticipated Building and Mechanical Noise Mitigation Recommendations: Vibration mounts, resilient connections for rotating equipment, airborne noise mitigation techniques for sound absorption will all be considered and incorporated into the Project design, where applicable. For the emergency generator, duct silencers and acoustical



louvers at the room air inlet and discharge openings will likely be included. An engine exhaust muffler/silencer will also be included.

Parking Structure and Loading Area

The project includes a parking structure for residents and commercial patrons. Parking level demising walls and parking structure ceiling assembly design will need to reduce noise build-up within the parking structure and limit noise “bleeding” into nearby residential units or to the adjacent buildings. Of particular concern is parking levels under residential and amenity-level spaces. We will also review the potential noise impact of the Loading Area to the building and adjacent buildings.

Anticipated Parking Structure and Loading Area Noise Mitigation

Recommendations: The demising wall partitions and floor/ceiling assemblies may be upgraded for noise mitigation. We also recommend that the finish of the parking structure driving surface and ramps be designed to minimize tire “squeal”. If needed, weather-resistant acoustical panels or spray-on treatments can be added to the parking structure ceilings and in the Loading Area for sound absorption.

Street-Level Retail

Approximately 16,000 sf of commercial tenant space is located on the ground floor along Auahi Street. Around 8,000 sf of additional commercial space will be located on the ground floor along the building perimeter bordering future roads. The parking structure and additional retail spaces are above the first-floor retail spaces. Floor/ceiling assemblies separating residential and retail spaces will receive special design consideration. Retail spaces will generate some noise, however, the level of noise is expected to be reasonable for the project vicinity, and is not expected generate significant noise complaints by the Block I residents or neighboring buildings. Mechanical equipment like generators and pumps are in rooms adjacent to certain retail spaces. Mechanical noise will be studied during the design process. Noise mitigation may likely be recommended.

Anticipated Street Level Retail Noise Mitigation Recommendations: The demising wall partitions and floor/ceiling assemblies may be upgraded for noise mitigation. If businesses other than normal food service and retail use the commercial spaces, additional mitigation may be required.

Amenity Level Noise

Noise on the amenity level is a concern especially for the residential units located above or below the amenity level, or for residential units overlooking the outdoor amenity areas. The floor/ceiling assemblies directly above and below the amenities level will be carefully evaluated during the design to limit noise transmission from the amenities level. Limiting heavy amenity use during nighttime hours may be recommended.



Project Design Intent for Noise Mitigation

Noise mitigation recommendations will be made throughout the design phases, as well as during the construction phase, where applicable. The purpose of these recommendations is to minimize the number of noise related complaints from the future residents of Block I as well as from the neighboring buildings.

Best regards,

A handwritten signature in black ink, appearing to read "Christopher Ono".

Christopher Ono
Staff Engineer
CENSEO AV+Acoustics

